Southington Board of Education Meeting

Thursday, April 16, 2026 6:30 PM
John Weichsel Municipal Center Public Assembly Room
200 North Main Street
Southington, CT 06489

COMMITTEE OF THE WHOLE

1. CALL TO ORDER
2. Executive Session
   a. Unaffiliated Compensation
   b. Student Matters
3. Reconvene Meeting - Regular Session 7:00 p.m.
4. Pledge of Allegiance - Moment of Silence
5. Celebration of Excellence
   a. 2025-2026 American Legion High School Oratorical Contest Winner - Devon Jasulavic
   b. 2026 Kid Governor Candidates - Mia Beshiri, Keegan Hill, Luca Luciani, Bryant Masi, Jayden Rozas and Arabella Testa
   c. 2025-2026 Connecticut Fire Prevention Poster Recognition Program Winners for Southington - Chatham Formeister (4th Grade) and Mackenzie Spahic (5th Grade)
6. Approval of Minutes
   a. March 12, 2026
   b. April 13, 2026
7. Public Communications
   a. Communications from Student Board Representatives
   b. Communications from Board of Education
   c. Communications from Administration
   d. Communications from Public - Agenda Items Only
8. Committee Reports
   a. Policy and Personnel Committee Meeting - March 24, 2026
   b. Curriculum and Instruction Committee Meeting - March 31, 2026
   c. Finance Committee Meeting - April 9, 2026
      1. YMCA Before and After Care Program Rates 2026 - 2027
      2. Approval of Draft Uses of DRIP Grant
      3. Approval of Athletic Training Services Renewal Proposal
9. Superintendent's Report
   a. Personnel Report
10. Old Business
    a. Town Government Communications
11. New Business
    a. Board Communication Email Correspondence Practices

b. Policy 1250 - Visitors and Observations in Schools - REVISED - First Reading
c. Policy 3250 - Materials/Service Fees, Charges - REVISED - First Reading
d. Policy 4120- Family Medical Leave of Absence (FMLA) - REVISED - First Reading
e. Policy 4121- CT Paid Leave Act (CTPLA) - NEW - First Reading
f. Policy 4145 - Reports of Suspected Abuse or Neglect of Adults - NEW - First Reading
g. Policy 4190- Bloodborne Pathogens - NEW - First Reading
h. Policy 4220 - Exertional Heat Illness Awareness for Athletics - NEW - First Reading
i. Policy 4315- Employment and Student Teacher Checks - NEW - First Reading
j. Policy 5111 - Admission/Placement/Ages of Attendance - REVISED - First Reading
k. Policy 5121- Examination/Grading/Rating - REVISED - First Reading
l. Policy 5133 - Participation in Athletics and Other Co-Curricular Activities - REVISED - First Reading
m. SHS Science - Biochemistry - REVISED - First Reading
n. SHS Science - Astronomy - Unit 1 - Meteors, Orbits and Gravity - NEW - First Reading
o. SHS Science - Astronomy - Unit 2 - Stars and the Big Bang - NEW - First Reading
p. SHS Agricultural Science - Advanced Non-ruminant Livestock Management - NEW - First Reading
q. SHS Agricultural Science - Advanced Ruminant Livestock Management - NEW - First Reading
r. SHS Agricultural Science - UCONN SPS 1150 Agriculture Technology - NEW - First Reading
s. SHS Agricultural Science - ECE Turfgrass - REVISED - First Reading
t. SHS Math for Technology and Innovation - NEW - First Reading
u. KSA Elective - American Sign Language - NEW - First Reading
v. KSA Science - Topics in Science - NEW - First Reading
w. Leonard and Gladys Joll Scholarship Recipient
x. SHS Rooftop Photovoltaic Plans for Submission to Department of Administrative Services
y. SES Roof Plans for Submission to the Department of Administration Services

12. Public Communications
    a. Public
13. Adjournment

The minutes presented within the document provide a summary of the discussion that took place at the Board of Education meeting. For the complete discussion of the agenda items, please view the video of the Board meeting on our website at https://www.southingtonschools.org. These minutes are considered a draft until approved at the following regular Board of Education Meeting.

SOUTHINGTON BOARD OF EDUCATION, SOUTHINGTON, CT
Regular Meeting
Committee of the Whole
March 12, 2026, at 6:45 PM
John Weichsel Municipal Center Public Assembly Room
200 North Main Street Southington, CT 06489

1. **CALL TO ORDER**
   Mr. Oshana, Board Chairperson, called the meeting to order at 6:46 p.m.
   Board Members Present: Mr. Joseph Baczewski, Mr. Robert Brown, Ms. Lisa Cammuso, Mrs. Terri Carmody, Mrs. Colleen Clark, Mrs. Dawn Derynoski-Anastasio, Mr. Zaya Oshana, Mr. Cecil Whitehead
   Board Members Absent: Mr. Sean Carson

2. **Executive Session**
   MOTION made by Mrs. Clark and seconded by Mr. Whitehead, "Move to go into Executive Session, excluding the public and the press, for the purpose of discussing student matters; upon conclusion reconvene to public session." Motion Carried 8-0.
   a. Student Matters
      Mr. Madancy and Mr. Pepe were invited to attend the meeting.
      Executive session ended at 6:57 p.m.

3. **Reconvene Meeting - Regular Session 7:00 p.m.**
   Mr. Oshana, Board Chairperson, called the meeting to order at 7:00 p.m.
   Board Members Present: Mr. Joseph Baczewski, Mr. Robert Brown, Ms. Lisa Cammuso, Mrs. Terri Carmody, Mr. Sean Carson, Mrs. Colleen Clark, Mrs. Dawn Derynoski-Anastasio, Mr. Zaya Oshana, Mr. Cecil Whitehead
   Cabinet Members Present: Mr. Steven Madancy, Superintendent; Mr. Frank Pepe, Assistant Superintendent; Mrs. Jennifer Mellitt, Director of Business & Finance; Mrs. Amy Aresco, Pupil Services Director
   Student Board Representatives Present: Mr. Ethan Hoffman, Ms. Arshi Roy, Mr. Samrath Singh

4. **Pledge of Allegiance - Moment of Silence**
   Irene Spring passed away on February 28, 2026.
   Mrs. Spring was hired on October 1, 1985, and resigned June 30, 2002.

   Eileen Tompkins passed away on March 3, 2026.
   Mrs. Tompkins was hired in 1974 and retired in 1995.

5. **Celebration of Excellence**
   a. 2025-2026 Connecticut Fire Prevention Poster Recognition Program Winners for Southington - Chatham Formeister (4th Grade) and Mackenzie Spahic (5th Grade)
   This celebration was postponed until the April Board Meeting.

6. **Approval of Minutes - February 19, 2026**
   MOTION made by Mr. Baczewski and seconded by Ms. Carmody, "Move to approve the minutes for February 19, 2026." Motion carried 9-0.
   Attachments: (1)

7. **Public Communications**
   a. Communications from Student Board Representatives
   Mr. Singh gave the High School Report:
   - The SHS Drama Club presented *Mamma Mia*.
   - Junior Prom will be held on March 28, 2026, at La Bella Vista.
   - Parent Conferences will take place on March 19, 2026.
   - The entire junior class participated in NGSS testing.
   - Students recently competed in the DECA competition at Aqua Turf, and several have qualified for the International Career Development Conference (ICDC).
   - Course registration is wrapping up for the upcoming school year.
   - The application process for new Board of Education student representatives is beginning for the following school year.
   - The Robotics Team will compete in their opening competition this weekend.
   - The annual Blood Drive will take place on April 21, 2026.

   Ms. Roy gave the District Report:
   - DePaolo Middle School
     - 6th grade students attended a class presentation on Indian culture, highlighting different styles of dance.
     - 7th grade students participated in a workshop exploring a fusion of traditional West African dance and contemporary Afrobeats.
   - JFK & JAD Drama Club
     - The JFK & JAD Drama Club will present *Frozen* on March 26, 27, 28, and April 1 and 2, 2026.
     - Tickets are $5 for students and $9 for adults.
     - The production includes over 120 middle school students involved in the cast and crew.
   - JFK
     - Mr. Rioual, Mr. Ghidini, Mr. Roarty, Ms. Peruta, Mrs. Kinghorn, Mrs. Bove, Ms. Leblanc, and Ms. Parman raised over $1,200 during the Sloper Plunge.
     - Faculty members donated non-perishable food items to Bread for Life.
   - Thalberg Elementary School

- Thalberg celebrated Read Across America with a Career Day, welcoming more than 30 parents and community members who shared insights about their professions.

- Kelley Elementary School
  - On March 6, 2026, the PTO hosted the first "Celebrations Around the World" event, where families shared food, traditions, and cultural activities.
  - On March 23, 2026, the school will welcome Austin Florian back from the Olympics. Students created cards and a video to celebrate his visit.
  - On February 20 and 21, 2026, the Kelley Drama Club performed *Matilda Jr.* at DePaolo Middle School. 42 student actors performed for a sold-out audience.

Mr. Hoffman gave the Sports Report:

- The Gymnastics Team finished 3rd at the State Opens and 7th at the New England Championships. Head Coach, Cassidy Chamberland was named CT High School Coaches Association Gymnastics Coach of the Year.
- The Boys Swim Team placed 4th at the Class LL Championships and will compete in the State Opens this weekend. A school record in the 100-meter breaststroke, which had stood since 1992, was broken.
- The Cheer Team finished 5th at the Class LL Cheer Championships and will compete in the State Opens this weekend.
- The Boys Hockey team has advanced to the quarterfinals of the State Tournament.
- The Boys 4x200m Relay Team earned All–New England honors with a 6th place finish at the New England Championships in Boston.
- Several indoor track and field athletes have qualified for the National Championships this weekend.
- Winter sports are concluding; spring sports practices begin next week.

b. <u>Communications from Board of Education</u>

Mr. Brown spoke about a dyslexia simulation he was able to attend. He learned about the educational component but also the frustration and behaviors that go along with dyslexia.

Mr. Brown spoke about reading *The Trama-Informed Educator*. The book explains how if you add trauma to an already exposed trauma student, it just makes matters worse. He is happy that our school system looks at the restorative piece to help students.

Mr. Baczewski reflected on parents being present with their children. Parents are doing kids a disservice by allowing their children to always be on an iPad or phone. Children should be taking in the world around them; parents should use car rides and grocery shopping for examples of when they can engage with their kids.

Mr. Baczewski also spoke about a conversation he had with a parent regarding what would happen if a referendum turned out as "No". He reminded the public there is a consequence when you need to eventually do a project in pieces instead of all at once. It will end up costing the district more than if the referendum passes and, from a construction standpoint, all the equipment is accessible in one fell swoop to complete the task. If the referendum is passed, it is a great opportunity to build a new elementary school and get money back from the state because the district will be able to check all the boxes to make sure it is done correct.

Mr. Oshana spoke about the celebration for Southington's Olympian, Austin Florian, at the Town Council Meeting.

Mr. Oshana also wanted to clarify what he meant at the District Facilities meeting when he called parents "Crazy." His intention was to relay that students adjust fine when there is a redistricting, parents tend to get mad. His intention was not to offend anyone and apologies if he did.

c. Communications from Administration

Mr. Pepe attended a workshop with three colleagues hosted by a clinical physiologist, Dr. Ross Greene. The workshop touched on dealing with trauma informed problem solving. All who attended agreed they wanted to continue education and get more training on the matter. Right now, the "Greene Team" is made up of 24-members; 15-members are slated for the next step of training on May 7 and 8, 2026.

Mr. Madancy informed the public there will be a Military Luncheon held on May 20, 2026.

Mr. Madancy also spoke about a Southington resident who was shot down in Poland during World War II. After using his DNA and connecting with a cousin who lives in Massachusetts, the soldier's remains are going to be buried at Oak Hill Cemetery, in Southington. Mr. Brown indicated the soldier will be inducted into the Wall of Honor.

Mr. Madancy spoke of recent legislation passed in Hartford regarding the Kindergarten starting age of 5. Southington has a policy that provides waivers for the upcoming school year but the following school year there will be no waiver process and Kindergarten students will need to be 5 years old by September 1st.

Mr. Madancy spoke about the Sloper Plunge which took place on February 28, 2026, at Camp Sloper. There was a great turnout. He plunged into the water with Joanna Karcz and Lisa Rizzo.

Mr. Madancy read a few cards he received from some students when he attended Career Day. These cards correlated with the presentation about kindness presented later at the Board Meeting and how great kids are.

Attachment: (1)

d. Communications from Public - Agenda Items Only
No comment made.

8. **Committee Reports**
   a. Finance Committee Meeting - March 5, 2026
   Ms. Cammuso reviewed the Minutes for the Meeting. She discussed the following:

   1. Preschool Regular Education Tuition Rates 2026-2027
   MOTION made by Ms. Cammuso and seconded by Mrs. Clark, "Move to award the Preschool Regular Education tuition rates for the 2026-2027 school year as presented by the Finance Committee." Motion carried 9-0.
   Attachments: (1)

   2. BID 2026-07 Lawn Mowing and Trimming Services, Fall and Spring Ground Debris Cleanup and Removal Services
   MOTION made by Ms. Cammuso and seconded by Mrs. Clark, "Move to award BID 2026-27 Lawn Mowing and Trimming Serving, Fall and Spring Ground Debris Cleanup and Removal Services as presented by the Finance Committee." Motion carried 9-0.
   Attachments: (1)

   3. Food Service Financial Update FY 2025-26

   4. Use of FY 25 Non-Lapsing for Snow Removal Costs
      a. Special Education Excess Cost filing at the state.
      b. Costs related to substitute coverage
      c. District Spending Freeze
      d. Budget Transfers
      e. Snow Removal Loader Works
      MOTION made by Ms. Cammuso and seconded by Mrs. Clark, "Move to approve up to $60,000 of Fiscal-25 non-lapsing funds for payment of unexpected snow removal as presented by the Finance Committee." Motion carried 9-0.
      Attachments: (1)

   5. Award of Tennis Court Parking Lot and Bleachers Project at SHS to Field Turf.
   MOTION made by Ms. Cammuso and seconded by Mrs. Clark, "Move to award the SHS Tennis Court, Parking Lot and Bleacher Project to Field Turf as presented by the Finance Committee. The project costs include $1,708,305 to remove and replace the high school home bleachers and press box and $3,675,840 to remove and replace the seven tennis courts at the high school and install a parking lot with an additional 143 parking spaces." Motion carried 9-0.
   Attachments: (1)

The bleachers will be closed steps and will have rails.

Mr. Bacziewski wanted to make sure there is open communication with the police department regarding parking.

Mrs. Clark reminded the public, students are currently driving legally but due to the changes in laws, they are no longer able to carpool like years ago.

The meeting minutes are attached.
Attachments: (1)

9. **Superintendent's Report**
   a. Personnel Report
   MOTION made by Ms. Cammuso and seconded by Mr. Baczewski, "Recommend that the Board of Education approve the Personnel Report as submitted by the HR Department." Motion carried 9-0.
   Attachments: (1)

10. **Old Business**
   a. Town Government Communications
   Mr. Oshana spoke about how the Board of Education Workshops for the Finance Committee Board had great dialog and discussion at the last meeting. All questions will be presented to the Town Counsel.

   Mr. Clark wanted to stress the amazing job the Board of Education, Technology Department does. The Board of Education has a larger volume than the Town.

   b. Policy 1312 - Public Complaints - REVISED - 2nd Reading
   MOTION made by Mrs. Derynoski-Anastasio and seconded by Mr. Baczewski, "Move to approve the Board of Education approve Policy 1312 as presented by the Policy & Personnel Committee." Motion carried 9-0.
   Attachments: (1)

   c. Policy 3432- Budget and Expense Report/Annual Financial Statement - REVISED - 2nd Reading
   MOTION made by Mrs. Derynoski-Anastasio and seconded by Mr. Baczewski, "Move to approve that the Board of Education approve Policy 3432 as presented by the Policy & Personnel Committee." Motion carried 9-0.
   Attachments: (1)

   d. Policy 4100 - Hiring of Staff - NEW/REPLACEMENT - 2nd Reading
   MOTION made by Mrs. Derynoski-Anastasio and seconded by Mr. Baczewski, "Move that the Board of Education approve Policy 4100 as presented by the Policy & Personnel Committee as amended." Motion carried 9-0.
   Attachments: (1)

e. Policy 4105 - Effective Staff Recruitment and Retention - NEW/REPLACEMENT - 2nd Reading

MOTION made by Mrs. Derynoski-Anastasio and seconded by Mr. Baczewski, "Move that the Board of Education approve Policy 4105 as presented by the Policy & Personnel Committee." Motion carried 9-0.
Attachments: (1)

f. Policy 5113 - Attendance, Excused Absences and Truancy - REVISED - 2nd Reading

MOTION made by Mrs. Derynoski-Anastasio and seconded by Mr. Baczewski, Move that the Board of Education approve Policy 5113 as presented by the Policy & Personnel Committee." Motion carried 9-0.
Attachments: (1)

g. SHS Agricultural Science - Intro to Mechanics - REVISED Curriculum - Second Reading

MOTION made by Mr. Brown and seconded by Mrs. Clark, "Move the Board of Education approve the SHS Agricultural Science - Intro to Mechanics- Revised Curriculum - as presented by the Curriculum & Instruction Committee." Motion carried 9-0.
Attachments: (1)

h. SHS Agricultural Science - Intro to Small Animals - REVISED Curriculum - Second Reading

MOTION made by Mr. Brown and seconded by Mrs. Carmody, "Move that the Board of Education approve the SHS Agricultural Science - Intro to Small Animals - Revised Curriculum - as presented by the Curriculum & Instruction Committee." Motion carried 9-0.
Attachments: (1)

i. SHS Agricultural Science - Intro to Large Animals - REVISED Curriculum - Second Reading

MOTION made by Mr. Brown and seconded by Mrs. Clark, "Move that the Board of Education approve the SHS Agricultural Science - Intro to Large Animals - Revised Curriculum - as presented by the Curriculum & Instruction Committee." Motion carried 9-0.
Attachments: (1)

j. M.S. Digital - REVISED Curriculum - Second Reading

MOTION made by Mr. Brown and seconded by Mrs. Carmody, "Move that the Board of Education approve the MS Digital - Revised Curriculum - as presented by the Curriculum & Instruction Committee." Motion carried 9-0.
Attachments: (1)

k. M.S. Health - REVISED Curriculum - Second Reading

MOTION made by Mr. Brown and seconded by Mrs. Clark, "Move that the Board of Education approve the MS Health - Revised Curriculum - as presented by the Curriculum & Instruction Committee." Motion carried 9-0.
Attachments: (1)

l. SHS - Unified Physical Education - NEW COURSE PROPOSAL - Second Reading

MOTION made by Mr. Brown and seconded by Mrs. Carmody, "Move that the Board of Education approve the SHS Unified Physical Education - New Course Proposal - as presented by the Curriculum & Instruction Committee." Motion carried 9-0.
Attachments: (1)

m. SHS Electricity & Electronics Applications for STEM - REVISED Curriculum - Second Reading

MOTION made by Mr. Brown and seconded by Mrs. Clark, "Move that the Board of Education approve the SHS Electricity & Electronics Applications for STEM - Revised Curriculum - as presented by the Curriculum & Instruction Committee." Motion carried 9-0.
Attachments: (1)

n. 2025-2026 School Calendar Revision

Mr. Madancy proposed making the calendar 180 days with a last day of school being June 18, 2026. This will help with the heat in the elementary school along with delayed arrivals for the High School for exams and still abides by the state law. There is no extra cost with this proposal.

MOTION made by Ms. Cammuso and seconded by Mrs. Clark, "Move that the Board of Education approve the revised School Calendar for the 25-2026 School Year as presented." Motion carried 9-0.
Attachments: (1)

11. **New Business**

a. 2026-2027 Healthy Food Certification

MOTION made by Ms. Cammuso and seconded by Mrs. Clark "Pursuant to C.G.S. Section 10-215f, the Southington Board of Education certifies that all food items offered for sale to students in the schools under its jurisdiction, and not exempted from the Connecticut Nutrition Standards published by the Connecticut State Department of Education, will comply with the Connecticut Nutrition Standards during the period of July 1, 2026, through June 30, 2027. This certification shall include all food offered for sale to students separately from reimbursable meals at all times and from all sources, including but not limited to school stores, vending machines, school cafeterias, culinary programs, and any fundraising activities on school premises sponsored by the school or non-

school organizations and groups." Motion carried 8-1.
Mr. Baczewski believes Southington can be doing so much better with the nutritious options provided for the student lunches.
Attachments: (1)

b. 2026-2027 Food and Beverage Exemption
MOTION made by Ms. Cammuso and seconded by Mrs. Clark, "The Southington Board of Education will allow the sale to students of food items that do not meet the Connecticut Nutrition Standards and beverages not listed in Section10-221q of the Connecticut General Statutes provided that the following conditions are met: 1) the sale is in connection with an event occurring after the end of the regular school day or on the weekend; 2) the sale is at the location of the event; and 3) the food and beverage items are not sold from a vending machine or school store. An "event" is an occurrence that involves more than just a regularly scheduled practice, meeting, or extracurricular activity. For example, soccer games, school plays, and interscholastic debates are events but soccer practices, play rehearsals, and debate team meetings are not. The "regular school day" is the period from midnight before to 30 minutes after the end of the official school day. "Location" means where the event is being held and must be the same place as the food and beverage sales." Motion carried 8-1.
Attachments: (1)

c. Appointment of UPSEU (Physical Therapists & Occupational Therapists) Negotiating Committee
Mr. Brown, Ms. Cammuso, Mrs. Clark and Mrs. Derynoski-Anastasio were appointed as part of UPSEU Negotiating Committee.
Attachments: (1)

d. Kindness Campaign Presentation
Mr. Madancy invited Linda Bass Reilly and Paula Lopatosky to give a presentation about teaching intentional kindness within the district.

Mrs. Reilly and Mrs. Lopatosky explained the difference in being kind and intentional kindness. Implementing kindness involves teaching skills like empathy, fairness, and collaboration while creating systems that support and sustain these behaviors, resulting in healthier, more inclusive school communities. Schools should have a gratitude wall for students to be recognized for being kind. Each elementary school will be given a K.A.T.E Bench (Kind Acts Touch Everyone). Attached is the Power Point presentation.
Attachments: (1)

The Board Members thanked them for their presentation and all the good they are doing for the community with this Kindness Campaign. Adults need to teach kids how to be kind, and teach intentional kindness.

e. SHS Parking Lot Solar Port Project Proposal Presentation

Mr. Madancy introduced Adam Teff with Titan Energy to give a presentation regarding installing Solar Panels in the Southington High School parking lot. Mr. Teff is the Town's Energy Management Consultant.

Mr. Teff spoke about the following:

- The process overview – The biggest parking lot in town is the High School; it would be great for a Parking Canopy System.
- What a power purchase agreement is.
- The estimated production projection over a 20-year period.
- Annual saving would be about $200,000 per year.
- Overview of the savings analysis that was done.
- Bid results – Greenskies is the suggested and most advantageous company.
- Walked the district's current plowing company through the plan to get an estimated additional cost once solar panels are installed.
- Example of where the solar panels would be placed in the parking lot and what the solar panels would look like.
- Suggested next steps.
    - Power Purchase agreements need to be finalized by March 14, 2026
    - Developers need to submit projects to NRES by March 15, 2026
    - NRES Awards will be issued by June 1, 2026.

Attached is the PowerPoint presentation.

Attachments: (1)

The board members voiced their questions concerning this project:
Mrs. Clark asked about the additional expenses to lawn mow, weedwack and snowplow around the poles. Mr. Teff did not think it would be a significant cost increase. Mrs. Clark also expressed concerns about having new student drivers and how the columns can be a potential hazard to hit.

Mr. Brown asked about the federal funding and if federal funding will return in the future. He also inquired if other sights in town were looked at to place the solar panels. Mr. Teff does not foresee federal funding returning in the near future. As of right now federal funding will go away July 2026 and the High School was considered the best financial option.

Mr. Baczewski asked the question as to why Greenskies should own the system and the town lease it from them instead of the town owning the system. The approximate cost of the system would be 6.5 million. The town would have to take steps to safe harbor the equipment to lock in the investment tax credit by July 2026 if they wanted to own the system and peep the tax benefits. Mr. Baczewski's concern is having to be under contract, subject to a company.

Multiple Board members inquired about how much money has been saved with the

panels in town that are already functioning; they never seem to get an answer. This year it is about $63,000. The solar panels are more geared towards cost avoidance as opposed to cost savings.

Mrs. Mellitt asked how the rates presented are compared to the Eversource rates that have been locked in. Mr. Teff informed that it would go up about half a penny per kilowatt hour in the next contract. By the time the system is built, the Board of Education will be under a new contract, so he did not present those numbers.

Mr. Carson asked about the cost to remove the panels or extend the lease at the end of the 20-year period. The panels would either be removed at no cost to pre array conditions, you could extend the lease for another 5 years or buy the system out at fair market value.

Mr. Whitehead asked about comparing this system to others in town to estimate savings. Mr. Teff clarified that the town does not have any car port systems, it only has solar rooftops. Mr. Teff does run a savings perspective but the systems the town does currently have is significantly smaller. Mr. Teff recommends this project as the best cost reduction tool to offer anyone.

Ms. Cammuso asked about the safety concerns of snow falling off the panels onto people; will there be snow guards. Mr. Teff said snow guards would be an added cost. Anything liability wise would be on the owner, Greenskies, but there would be protections put in place for safety measures.

Mr. Carson and Mr. Oshana spoke about the savings and how much Greenskies would make. They also spoke about the savings in money present today may not hold the same value in 20 years.

Board Members indicated they wished they had more time to review the information, do more research, asked questions and make a decision. At this point in time the process seems to be rushed.

MOTION made by Mr. Carson and seconded by Mr. Baczewski, "Motion to recommend that the Board enter into the Power Purchase Agreement for the Solar Array."

Roll Call:

- **Mr. Baczewski: Yes**
- **Mr. Brown: Yes**
- **Ms. Cammuso: No**
- **Mrs. Carmody: No**
- **Mr. Carson: Yes**
- **Mrs. Clark: No**
- **Mrs. Derynoski-Anastasio: No**
- **Mr. Oshana: No**

- **Mr. Whitehead: No**

Motion Failed 6-3.
Attachments: (1)

f. Review and Approval of Educational Specifications for the Kelley and South End Building Projects

Mr. Madancy invited Jim Hoagland from SLAM to give a presentation about the new Kelley Elementary School conceptual layout on the property.
Education Specs are not the design of the building or what it will look like, but it is the recommended square footage of the space.

Mr. Hoagland spoke about the following:

- The plot of land available to build on.
- How they would separate the existing site with the new building while construction was happening.
- Potential layout: floor plans, classroom placement and size, parking lots, play areas and other open spaces.

Attached is the PowerPoint presentation.
Attachments: (1)

1. Kelley Elementary School
   MOTION made by Mr. Baczewski and seconded by Mrs. Clark, "Recommend that the Board of Education approve the Educational Specs for the Urban T. Kelley Elementary School, as presented."
   Roll Call:
   - **Mr. Baczewski: Yes**
   - **Mr. Brown: Yes**
   - **Ms. Cammuso: Yes**
   - **Mrs. Carmody: Yes**
   - **Mr. Carson: Yes**
   - **Mrs. Clark: Yes**
   - **Mrs. Derynoski-Anastasio: Yes**
   - **Mr. Oshana: Yes**
   - **Mr. Whitehead: Yes**

   Motion carried 9-0.
   Attachments: (1)

2. South End Elementary School
   MOTION made by Mr. Baczewski and seconded by Mrs. Clark, "Recommend that the Board of Education approve the Educational Specs for enhancements to the South End Elementary School, dated February 21, 2026, as presented by the administration."
   Roll Call:

- **Mr. Baczewski: Yes**
- **Mr. Brown: Yes**
- **Ms. Cammuso: Yes**
- **Mrs. Carmody: Yes**
- **Mr. Carson: Yes**
- **Mrs. Clark: Yes**
- **Mrs. Derynoski-Anastasio: Yes**
- **Mr. Oshana: Yes**
- **Mr. Whitehead: Yes**

Motion carried 9-0.
Attachments: (1)

12. **Public Communications**
    a. Public

    Shama Green, 67 Memorial Drive, Southington, CT 06489.
    Mrs. Green voiced her concerns about reaching out to Board of Education Members and not receiving responses from them; the only way to contact them is by coming to meetings in person. She should be able to be at home with her family and not need to attend meetings in person. She urges the Board to create a better and more direct way for parents and community members to communicate with the Board of Education.

    Ryan Dumond, 89 Hitching Post Drive, Southington, CT 06489.
    Mr. Dumond suggests if State or Federal funding is reinstated the Board reconsider the solar project. Owning solar is better than leasing it; it is great for the environment. He informed snow will slide off solar panels and can be a liability.

    Seth Korn, 8 Yorktown Road, Southington, CT 06489.
    Mr. Korn expressed his excitement regarding the elementary school project. He appreciates the time and diligence along with the work to come.

13. **Adjournment**
    MOTION made by Mrs. Clark and seconded by Mr. Baczewski, "Move to adjourn." Motion carried 9-0.
    Meeting adjourned at 9:44 p.m.

Respectfully submitted,

Recording Secretary

Summary of Special Board Meeting – April 13, 2026

Date: April 13, 2026

Board Members present:

Terri C. Carmody
Dawn Derynoski-Anastasio
Cecil Whitehead

Approximately 11:15 a.m.	Meeting called to order.

Approximately 11:17 p.m.

Motion to go into executive session made by T. Carmody, seconded by D. Derynoski-Anastasio.

Moved that the Board enter executive session to discuss a confidential student matter.

The following individuals were invited into executive session:

Steven Madancy, Superintendent of Schools
Frank Pepe, Assistant Superintendent of Schools
Richard Aroian, Principal, Southington High School
Leah Clark, Assistant Principal, Southington High School
Mark Sommaruga, Attorney for the Administration
Erin R. Shaffer, Counsel for the Board
Student (not present)

Approved 3 - 0.

Approximately 11:45 a.m.	The Board, and Board Counsel, excused themselves for deliberations.
Approximately 11:51 a.m.	Meeting resumes. All meeting participants present return.

C. Whitehead makes the following motion in open session at approximately 11:52 a.m.:

> **Moved: That the Southington Board of Education finds, based on the evidence in the record, that the student who is the subject of this hearing did, on March 20, 2026, possess a knife with a 4.5 inch blade on school grounds which: violated publicized policy of the Board and was seriously disruptive of the educational process, and endangered persons. As a result of the above findings, the Southington Board of**

Education concludes that the Student who is the subject of this hearing did commit an expellable offense.

T. Carmody seconded.

Motion Approved 3 - 0.

Approximately 11:53 a.m.

Motion to go into executive session made by T. Carmody, seconded by D. Derynoski-Anastasio.

Moved that the Board enter executive session to discuss a confidential student matter.

The following individuals were invited into executive session:

Steven Madancy, Superintendent of Schools
Frank Pepe, Assistant Superintendent of Schools
Richard Aroian, Principal, Southington High School
Leah Clark, Assistant Principal, Southington High School
Mark Sommaruga, Attorney for the Administration
Erin R. Shaffer, Counsel for the Board
Student (not present)

Approved 3 - 0.

Approximately 12:00 p.m. The Board, and Board Counsel, excused themselves for deliberations.

Approximately 12:05 p.m. Meeting resumes. All meeting participants present return.

Approximately 12:06 p.m. C. Whitehead made the following motion in open session.

Moved Further: That the student who is the subject of this hearing shall be expelled from the Southington Public Schools for one calendar year, from March 20, 2026 through March 19, 2027, and that the student be provided an alternative educational opportunity in accordance with law. During the period of the expulsion the student who is the subject of this hearing shall not be allowed to enter any school property and/or participate in any school sponsored events and activities, including graduation and all other end of year activities, except for his participation in the alternative educational opportunity provided by the Southington Public Schools or as otherwise expressly authorized in writing by the Superintendent or the Superintendent's designee.

T. Carmody seconded.

Motion Approved 3-0

At approximately 12:12 p.m. T. Carmody moved to adjourn the meeting, seconded by D. Derynoski-Anastasio.

Motion approved 3-0 and meeting adjourned.

Board of Education

Administrative Report

April 16, 2026

1. Donation of Kindness Benches
2. SHS Color Guard! World Champs!
3. April 20th Press Conference in Hartford.
4. Excess Cost Reimbursement Rate, 69.19%

SOUTHINGTON Public Schools

Steven G. Madancy
Superintendent of Schools

Frank M. Pepe
Assistant Superintendent of Schools

200 North Main Street, Southington, CT 06489 www.southingtonschools.org Phone: 860-628-3202 Fax: 860-628-3205

Board of Education Southington, Connecticut

Policy & Personnel Committee Meeting Minutes Draft

Superintendent's Conference Room

Municipal Center, 200 North Main Street

Tuesday, March 24, 2026 – 5:30 p.m.

Members Present: Dawn Derynoski-Anastasio (Chair), Joe Basczewski, Cecil Whitehead

Members Absent – Bob Brown

Administration Present: Assistant Superintendent Frank Pepe

The meeting was called to order at 5:32 p.m.

Revisions to **Policy 1250** and associated **R1250** Visitors and Observations in Schools were reviewed. The phrase "the school principal or his/her designee" was replaced throughout the policy and regulation with the word "administration". This change reflects the potential need of central office personnel to meet a vendor or another person at a school. Best practice to make the building administrator aware was discussed. The policy and regulations now reflect the process to follow if a federal immigration authority appears in person at a school. The procedures reviewed have been in practice since August 2025 and are now codified.

Revisions to **Policy 3250 and R3250** Materials/Service Fees, Charges were reviewed. Rates for copies of records were updated. Transcript and Employee Verification charges were added.

As part of the ongoing efforts of the Human Resource Department, updated language for **Policy 4121**, **R4121**, **Policy 4145**, **Policy 4190**, **R4190**, **Policy 4125**, **Policy 4220** and **Policy 4315** were reviewed.

Policy and R5111 Admission/Placement/Ages of Attendance were updated to reflect changes in legislation for both Kindergarten entry as of June 2026 as well as for students in Southington's Post Secondary Transition Program.

Updated language was offered for **Policy 5121** and **R5121** Examination/Grading/Rating to reflect current practices at all three levels.

Specific language was added to **Policy 5133** and **R5133** Participation in Athletics and Other Co-Curricular Activities regarding substantiated violations of Title IX, Title VI and Bullying.

The Committee agreed to forward all the agenda items above for full BOE review.

Meeting adjourned – 6:29p.m.

Respectfully Submitted,

Frank Pepe

SOUTHINGTON Public Schools

Steven G. Madancy
Superintendent of Schools

Frank M. Pepe
Assistant Superintendent of Schools

200 North Main Street, Southington, CT 06489 ❖ www.southingtonschools.org ❖ Phone: 860-628-3202 ❖ Fax: 860-628-3205

Southington Board of Education
Curriculum & Instruction Committee Meeting Minutes
Tuesday, March 31, 2026 – 10:00 a.m.
Technology Training Lab (Public Assembly Room)
Municipal Center, 200 North Main Street
Southington, CT 06489

Members Present: Bob Brown, Colleen Clark, Dawn Anastasio

Members Absent: Terri Carmody

Administration Present: Assistant Superintendent - Frank Pepe

Meeting Called to Order by Committee Chair Bob Brown at 10:00am.

SHS teacher and Department Leader Nicole Raccio presented revisions to **Biochemistry.** The phenomenon presented is Baby Matthew. Baby Matthew, born perfectly healthy, starts to exhibit strange symptoms after a few days. His condition is categorized as "failure to thrive". Students are challenged to determine what is causing the problem and if he can be saved. Students explore biomolecules, enzymes and metabolism to determine if his challenge is related to Tay-Sachs Disease, Maple Syrup Urine Disease, Keystone Synthesis Defect, or Glycogen Storage disease Type I (GSD Type I). The Committee recommends this item to the full Board for approval.

SHS science teacher Kesley Duffy presented new curriculum, titled **Astronomy Unit 1 – Meteors, Orbits, and Gravity**. This class can fulfil a student's earth science requirement. After watching a video of The Chelyabinsk Meteor, students are presented with the phenomenon of how collisions with objects from space changed Earth in the past, and how could they affect our future? To experience this journey, students explore Newton's Universal Law of Gravitation, Orbital Motion, Energy Transfer with Gravitational Fields and the History of Earth. The Committee recommends this item to the full Board for approval.

Kelsey Duffy also presented new curriculum titled **Astronomy Unit 2 – Stars and the Big Bang**. Students are challenged to explain why some stars seem unchanged, while others appear briefly, change dramatically, and fade away. To explore these concepts students will embrace concepts related to Nuclear Fusion, Big Bang Theory, Light Spectra, Star Life Cycle and Feedback Loops. The Committee recommends this item to the full Board for approval.

SHS Ag Science teacher Nicole Wilcox presented two new courses titled **Advanced Non-ruminant Livestock Management and Ruminant Livestock Management .** Both units cover safety, anatomy, musculo-skeletal system, digestive system, nutrition, reproduction, health and disease and handling and restraint. The Committee recommends these items to the full Board for approval.

Nicole Wilcox presented a specialty Ag-Sci elective course titled **UCONN SPS 1150 Agricultural Technology.** The units of study are as follows. Unit I: Evolution of Early Humans and Agricultural Beginnings, Unit II: The World's First Agricultural Societies, Unit III: Agriculture in Ancient Rome, Unit IV: Medieval European Agriculture, Unit V: European Colonization and the Columbian Exchange, Unit VI: Colonial New England and Agricultural Identity, Unit VII: The Second Agricultural Revolution, Unit VIII: Agriculture Under Communism, Unit IX: Third Agricultural Revolution and the Future. This course is designed to provide students with a comprehensive understanding of the historical, technological, and cultural developments that have shaped global agriculture from early human civilizations to the present day. The Committee recommends this item to the full Board for approval.

Nicole Wilcox presented revisions to an existing course called Ag Science ECE Turfgrass. Offered to juniors and seniors, this course Students will build foundational knowledge of plant biology, including photosynthesis, respiration, dormancy, and water/nutrient movement through xylem and phloem. Students will understand the fundamental concepts of turfgrass science, including classification, plant growth, anatomy, and methods for evaluating turf quality. Students will learn to distinguish monocots from dicots, identify major grass plant structures, and understand how grasses spread through stolons, rhizomes, and tillers. The unit also covers how turf quality is measured; color, texture, density, and uniformity and explore the relationship between turfgrass maintenance levels and cultural intensity. The Committee recommends this item to the full Board for approval.

SHS Math Department Leader Marisa Kudla presented a new class titled **Math for Technology and Innovation.** This course seeks to provide a foundation for applied manufacturing mathematics to students so that they have the fundamental skills in this domain to begin their careers in production. This includes an application of the four basic functions (addition, subtraction, multiplication, and division), as well as 3-dimensional geometry, algebra, and trigonometry. Various industry specific hand measuring tools (i.e. ruler, caliper, micrometer, etc.) are utilized throughout the course. In addition, industry-specific calculations (i.e. speeds and feeds, spur gears, center-to-center distances, dovetails, tapers, etc.) are performed throughout the course. By the end of this course, students should have a clear understanding of the need for a keen sense of mathematics in the manufacturing sector. In providing this critical foundation to all learners, this course exists to fundamentally change the status quo, removing predictability about who succeeds/shows affection for manufacturing. The Committee recommends this item to the full Board for approval.

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Jess Levin Director of KSA presented **Elective American Sign Language.** Students have the opportunity within the flex block to develop a basic proficiency through a participatory, communicative approach. Emphasis will be placed on the development of signing skills and the acquisition of the fundamentals of grammar as it applies to sign language. Students will learn to translate basic English to sign language and signing back to English. Students will learn about the importance of sign language and the expanse of its use in society. The Committee recommends this item to the full Board for approval.

Mr. Levin introduced **KSA Science** which students can access during the flex block. This course will focus on Ornithology and Entomology via the following five units, Foundations of Ornithology, Taxonomy evolution and Diversity, Bird Behavior and Ecology, Birds and the Environment and Conservation and Human Connection. The Committee recommends this item to the full Board for approval.

SHS Physical Education Department Leader Anthony Loomis proposed reinstating **Outdoor Archery.** Safety is a major emphasis through the command style teaching. Only trained instructors will engage students in the activity and only students interested in archery will potentially participate. The committee directed Mr. Loomis to develop the unit of study in Southington's adopted format and present it at a future Curriculum and Instruction meeting.

SHS Department Leader Rebecca Migliaro proposed the novel Daisy Jones and the Six by Taylor Jenkins Reid as a choice for seniors who participate in the elective titled **English Literature and Pop Culture**. The text is loosely based on the tumultuous relationships in the popular rock band Fleetwood Mac. This novel follows a 1970's band through their rise and fall. This item is informational only and does not require further action.

Meeting adjourned – 12:07pm

Respectfully Submitted,

Frank Pepe

Steven G. Madancy
Superintendent of Schools

Frank M. Pepe
Assistant Superintendent of Schools

Jennifer S. Mellitt
Director of Business & Finance

Peter J. Romano, Jr.
Director of Operations

Amy L. Aresco
Director of Pupil Services

Michelle Passamano
Human Resource Manager

Kyle R. Fickel
Accounting Manager

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SOUTHINGTON Public Schools

FINANCE COMMITTEE MEETING

Thursday, April 9, 2026, 5:00 p.m.
Conference Room 2, Municipal Center

Board Members Present: Ms. Lisa Cammuso, Chair, Mrs. Colleen Clark (joined electronically), Mrs. Terri Carmody and Mr. Sean Carson (arrived approx. 5:40pm).

Present from Administration: Mrs. Jennifer Mellitt, Director of Business & Finance and Mr. Kyle Fickel, Accounting Manager**.**

The Finance Committee meeting was called to order at 5:02 pm.

The committee made a motion to enter executive session to discuss a contract inviting Mrs. Mellitt, Mr. Fickel and Mr. Robert McKee, Athletic Director.

1. **Executive Session Contract Discussion Athletic Training Services:**

   The committee entered Executive Session to discuss a contractual matter. The committee exited Executive Session and reconvened the regular meeting.

2. **YMCA Before and After Care Program Rates 2026-2027:**

   Mrs. Mellitt presented the proposed rates for the YMCA before and aftercare program for the 2026-27 school year. The rates reimburse the board for custodial overtime, taxes, MERS along with an estimated cost for electricity and supplies.
   For 2026-27, the YMCA is considering adding aftercare at South End Elementary depending on parent interest. A rate for the new location is included.

   The committee agreed to bring the rates to the full board for approval.

3. **ASTE Grant Funded -Greenhouse Repair**:

Mr. Fickel reviewed a proposal for repairs to this Agricultural building's greenhouse and bench trays. Due to the proprietary nature of the existing bench trays and the greenhouse roof components, only one qualified source could be identified to make the repairs. The administration requested a waiver to the bidding process and recommends awarding the work to J.C. van der Spek Greenhouse Services in the amount of $24,950 under the Superintendent approval for awards under $25,000. The repair is being funded with ASTE grant funds.

4. **New Grant District Repair and Improvement (DRIP) Approval of Projects:**

Mrs. Mellitt shared information about the new DRIP grant awarded to schools by the state of Connecticut effective July 1, 2025. As noted in our 2026-27 budget book in the grants tab, Southington will receive $269,132 for YR 26 and YR27. The YR26 funds are expected to be received before June 30th.

Mrs. Mellitt shared a draft list of projects the district has identified to be funded with the grant. The list includes flooring projects, classroom & school building improvements and repairs to sidewalks and parking lots and playground/athletic outdoor facilities. Mrs. Mellitt updated the list to reflect projects the district has already completed or in progress which can be reimbursed with the grant. The revised list is attached to the Board of Education agenda.

The administration will continue to update the list as needs are identified and prioritized.

The committee agreed to bring the list to the full board for approval so summer projects can be planned.

5. **Food Service Financial Update FY 2025-26:**

Mr. Fickel reviewed the results for the Food Services operations through the end of February 2026. Meal counts are lower than the prior year to date. This is due to fewer serving days in February 2026 (15) vs. February 2025 (17). Any snow days are added to the June calendar, but as discussed can be impacted by end of year activities.

The income statement shows a net loss of $101,482 compared to the net income of $5,223 from the prior year.

The committee discussed the severe- need revenues which were not available in the prior year. The state identifies school sites serving breakfast with at least 20% of students eligible for free or reduced meals. For the 2025-26 SY, Derynoski, Flanders, Hatton and South End qualify for the higher severe needs breakfast reimbursement rates. This spring, the district will also be receiving annual grants for state school breakfast program ($28,509) and the healthy food certification ($40,000- estimated).

Ms. Maxellon, our Food Service Director, provided a memo sharing information about the National School Lunch Program and noted that 26% of our students currently receive free or reduced meals through the program. She also discussed the Healthy Food Certification and noted the district receives 10 cents per reimbursable meals served as revenue (noted above).

Mrs. Carmody asked about the food service loan. Mrs. Mellitt reviewed the balance sheet which shows the $300,000 as a liability. The funds were originally lent from the nonlapsing FY 20 account to assist cash flow during COVID through the actions of the Finance Committee in the Fall of 2020.

Negative Meal debt has also increased and totaled $15,769 as of February 28, 2026. It was noted that over $9,500 of the negative meal debt is owed from approximately 42 students each owing over $100. All students owing over $100 and referred to the district homeless liaison who directly reaches out to the families with limited success.

6. **BOE Financial Update FY 2025-26**:

Mrs. Mellitt shared a worksheet projecting an operating budget shortfall for FY 2025-26 of approximately ($950,000) as of April 8, 2026. The district has identified several budgeted expenditures which will not be made related to Chromebook replacements ($170,000) and math consumables and iReady software ($164,000). In the past the district was able to purchase the math consumables in June however, these purchases will be made with YR 2026-27 budgeted funds in July.

The district will also use the unallocated open choice grant funds to offset the budget overage in certain accounts to reduce the operating deficit. The plan also includes $150,000 for further school spending for curriculum, toilet tissue, rolled towels and other cleaning, safety and hygiene items. These changes will bring the projected deficit to approximately ($340,000). The worksheet is attached to these minutes.

Further evaluation will continue on all open purchase orders, McKinney Vento (homeless) transportation along with special education services to identify reductions and other sources to offset the deficit. The district will update the committee again before the May 7th BOE meeting.

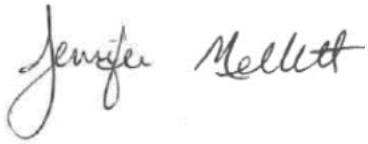
7. **Miscellaneous**:

a. Secure 2.0 Roth Retirement Option

An IRS change now requires catch-up contributions to qualified retirement plans for employees over 50 years old with over $145,000 in FICA earnings to be made on a post-tax basis. The district is currently updating our 403B plans to allow Roth contributions.

The meeting adjourned at 6:50pm.

Respectfully submitted,



Jennifer Mellitt
Director of Business & Finance

SOUTHINGTON Public Schools

Jennifer S. Mellitt
Director of Business & Finance

MEMO

TO: Board of Education Finance Committee
DATE: April 9, 2026
RE: YMCA RATES 2026-27

Annually, the Finance Committee recommends reimbursement rates for the use of our elementary buildings by the YMCA for their School-Age Childcare Program. The attached rates for 2026-27 reflect contractual wage increases for our custodial staff along with the updated MERF pension contributions of 16.82%.

The YMCA is currently providing afternoon childcare programs at Flanders, Strong, Thalberg, Hatton, and Oshana. Derynoski and Kelley have both morning and afternoon childcare.

For the 2026-27 school year, the YMCA has proposed adding an afternoon location at South End based on parent interest.

The administration requests approval of the 2026-27 YMCA rental rates.

YMCA Proposed Rate Calculations
2026-2027

		FLANDERS 1 hour	DERYNOSKI 1.5 hours	STRONG 1.25 hours	THALBERG 1.25 hours	HATTON 1.25 hours	KELLEY 1 hour	OSHANA 1 hour	New FY 26-27 SOUTH END 1 hour	DERYNOSKI AM .5 hours	KELLEY AM .5 hours
TOTAL BILLABLE WAGES AT TIME AND A HALF		46.31	72.90	58.82	58.82	55.06	47.30	45.82	46.80	24.30	23.03
	SCHOOL DAYS	181.00	181.00	181.00	181.00	181.00	181.00	181.00	181.00	181.00	181.00
	PAYROLL	8,382.56	13,194.90	10,645.52	10,645.52	9,965.41	8,561.75	8,292.97	8,470.80	4,398.30	4,167.53
	SOCIAL SEC/MEDICARE	641.27	1,009.41	814.38	814.38	762.35	654.97	634.41	648.02	336.47	318.82
	MERF 16.82%	1,409.95	2,219.38	1,790.58	1,790.58	1,676.18	1,440.09	1,394.88	1,424.79	739.79	700.98
	TOTAL MONTHLY (10)	10,433.78	16,423.69	13,250.47	13,250.47	12,403.94	10,656.81	10,322.26	10,543.60	5,474.56	5,187.32
Monthly Custodial reimbursement		1,043	1,642	1,325	1,325	1,240	1,066	1,032	1,054	547	519
Wear & Tear		80	80	80	80	80	80	80	80	70	70
Electricity	(incr by 5%)	158	163	425	425	425	437	425	420	163	163
Supplies	(incr by 7%)	47	48	47	47	47	45	48	48	48	48
PER YMCA AGREEMENT		**120**	**120**	**120**	**120**	**120**	**120**	**120**	**120**		
monthly rate as calculated		**1,448**	**2,053**	**1,997**	**1,997**	**1,913**	**1,747**	**1,706**	**1,723**	**828**	**800**
Proposed Rates 26-27	Payable Monthly (10 months)	**1,450**	**2,055**	**2,000**	**2,000**	**1,915**	**1,745**	**1,705**	**1,725**	**830**	**800**
	2025-26	1,425	1,960	1,930	1,900	1,880	1,665	1,645	**0**	790	760
	2024-25	1,390	1,915	1,875	1,850	1,830	1,620	1,600	0	770	740
	2023-2024 revised rates	1,350	1,860	1,820	1,820	1,820	1,590	1,585	0	745	725
	2022-2023	1,330	1,835	1,800	1,790	1,790	1,560	1,550	0	730	710
	2021-2022	1,295	1,780	1,745	1,730	1,730	1,515	1,385	0	705	690

SOUTHINGTON Public Schools

Jennifer S. Mellitt
Director of Business & Finance

MEMO

TO: Board of Education Finance Committee
DATE: April 7, 2026
RE: New Grant – District Repair and Improvement (DRIP)

Effective July 1, 2025, the State of Connecticut passed Public Act 25-174, Section 131 establishing a District Repair and Improvement Project (DRIP) program to provide grants to public school operators (PSOs) for the fiscal year ending June 30, 2026, and going forward.

In March 2026, the Office of Policy and Management (OPM) published the grant amounts, the methodology of calculating the grant and held an informational webinar. Southington Public Schools will be receiving $269,132.43 prior to June 30th. The funds will carry over like the Town's LoCIP grant.

The purpose of the grant is defined as: "(2) "District repair and improvement project" means a capital expenditure project, approved by a public school operator, for any of the following: (A) The construction, renovation, repair or enlargement of school buildings or school grounds, including parking lots, athletic fields and playgrounds; (B) improvements to school facilities for compliance with health, safety or code requirements; or (C) the purchase, installation or maintenance of or improvements to fixed school infrastructure, including, but not limited to, heating, ventilation and air conditioning systems, plumbing, electrical systems and roofing;"

The public act defines the public school operator as "(A) local or regional board of education".

Based on projects requested by school and district administrators and known needs across the district, we are presenting a draft list of projects proposed to be funded using the DRIP grant. The list is preliminary and updates to projects will be presented to the Finance Committee as changes are made or new projects are identified. Approval of the projects is requested to allow some of the flooring and classroom projects to be performed this summer.

The grant is expected to be awarded annually. An annual expenditure report will need to be submitted to the OPM beginning September 1, 2027.

Revised 04/13/2026 - Draft List of Projects to be Funded with District Repair and Improvement Project (DRIP) Grant

			YR 26 DRIP Grant	YR 27 DRIP Grant
	DRIP Allocation for Southington Public Schools		**269,132**	**269,132**
	Flooring Replacement Projects			
JAD	*Sanding and painting gym floor - Move to Year 27 Funding*			*24,500*
JFK	*Sanding and painting gym floor - Move to Year 27 Funding*			*24,500*
SHS	Replace VCT Tile (Auditorium Lobby)	32,330		
DES	Replace VCT Tile (various hallways & stairs around building)	12,035		
DES	Replace carpet - Office (safety concerns)	12,000		
SHS	Replace carpet with VCT Tile - C207 (CLC)	6,997		
SHS	Replace carpet with VCT Tile - E253 (Sp Ed office)	5,975		
	Subtotal Flooring		69,337	
	Classroom & School Building Improvement Projects			
SHS	Room C207 room configuration for CLC	18,655		
SEES	**Energy management system controller replacements**	**17,600**		
SES	Replacement two (2) Hot Water Heaters	16,999		
DW	HVAC Maintenance - air filter replacements	16,000		
DES	Sprinkler System Backflow Preventer	10,142		
SHS	Replacement of Spline Ceiling in hallway near West Gym	8,295		
SHS/Ag	**Replace Variable Fequency drive in boiler room**	**5,350**		
DW	Acoustical Ceiling Tile Replacement	5,000		
JAD/TES	**Replaced transformer and bad HVAC drive**	**4,930**		
STELLAR	**Water heater/call button/emergency lights**	**4,491**		
SHS	**Replaced faulty fire alarm panel and display unit**	**4,356**		
SHS	Hoyer Lift Relocation or (2) new Portable lifts - Sp Ed	3,200		
SHS	Gutter Repair in Tech Ed facing Ag-Sci	TBD		
SES	Oil pump to reduce pressure	TBD		
	Subtotal Classroom & School Projects		115,018	
	Parking lots, Athletic Repairs			
DW	Sidewalk repair and parking lot maintenance	25,000		
DW	Catch Basin Replacement	20,000		
DW	Contracted Painting	17,000		
SHS	**Tennis court crack repair**	**8,300**		
FES	**Sidewalk repair front and east side of school**	**4,950**		
	Subtotal parking lot and sidewalk repairs		75,250	
	Remaining Unallocated DRIP Grant Balance FY 26		9,527	

Bold denotes projects completed or in process in FY 2025-26 to be reimbursed with DRIP grant

BOARD OF EDUCATION
SOUTHINGTON, CONNECTICUT

Informational Only_____ Board Meeting Date April 2026

Decision Requested X Agenda Code 9 a

AGENDA REPORTING FORM

Agenda Topic: Personnel Report

Summary of Issue: This Personnel Report includes appointments, resignations, retirements, and transfers for certified and classified personnel for the 2025-2026 school year. This report includes activity for the month of March 2026.

Background: The human resource department provides the Board of Education with a monthly update of personnel additions/reductions/changes.

Alternative Strategies:

Cost (if applicable): N/A **Funding Source:** Board of Education

Beginning Date of Program or Project: N/A

Ending Date of Program or Project: N/A

Recommendation or Comment: Recommend that the Board of Education approve the Personnel Report as submitted by the human resource department.

Michelle Passamano
Signature of Staff Member Submitting Report

Steven Madaras
Signature of Superintendent

Included:
Personnel Report

Personnel Report
March 2026

APPOINTMENTS

	NAME	POSITION	SCHOOL	FTE	EFFECTIVE	DEGREE	SALARY
CLASS	Mavani, Madhvi	Paraeducator, Pre-K	SES	0.88	3-30-2026	N/A	$19.43
CLASS	Wilcox, Amanda	Paraeducator, Pre-K	HES/SES	0.88	3-16-2026	N/A	$19.43
CLASS	Youmell, Jason	Custodian	DES	0.49	3-25-2026	N/A	$17.33

RESIGNATIONS/RETIREMENTS

	NAME	POSITION	SCHOOL	EFFECTIVE	YRS	RET/RES
CLASS	Appleby, Marjorie	Paraeducator, FT	KES	6-30-2026	22	RETIRE
CLASS	Brown, Marc	Custodian, PT	DES	3-21-2026	5 mo.	RESIGN
CLASS	Chasse, Lexi	ABA Therapist, FT	HES/SES	3-27-2026	3 mo.	RESIGN
CLASS	Karantonis, Bethany	Paraeducator, FT	FES	3-21-2026	2	RESIGN
CERT	Ludden, Glen	English Teacher	SHS	9-1-2026	25	RETIRE
CLASS	Martin, Brian	Paraeducator, FT	JFK	4-3-2026	15	RETIRE
CLASS	Morelli, Robert	Electrician	District	4-30-2026	41	RETIRE
CERT	Perry, Amy	Social Studies Teacher	JFK	6-30-2026	21	RESIGN
CLASS	Perry, Nathan	Head Custodian	SEES	6-23-2026	22	RETIRE
CLASS	Positano, Mary	Paraeducator, FT	DES	4-3-2026	15	RESIGN
CLASS	Santiago, Dyana	Paraeducator, PT	DES	3-5-2026	1 mo.	RESIGN
CLASS	Smith, Destinee	Paraeducator, FT	SEES	3-24-2026	5 mo.	RESIGN

ASSIGNMENT CHANGE

	FROM (PREVIOUS ASSIGN)		TO (NEW ASSIGN)		
NAME	POSITION/SCHOOL	FTE	POSITION/SCHOOL	FTE	EFFECTIVE
Mele, Kelly	Paraeducator/SES	0.80	Paraeducator/SES	0.88	3-9-2026

TRANSFERS

	FROM (PREVIOUS ASSIGN)		TO (NEW ASSIGN)		
CERT NAME	POSITION/SCHOOL	FTE	POSITION/SCHOOL	FTE	EFFECTIVE
None to report					

STIPENDS

COACHING

Resignations/Non-Renewals
None to report

Appointments
None to report

OTHER

Resignations/Non-Renewals
None to report

Appointments

Romano, Christopher	Marching Band Drill Writer	SHS	STIPEND

SOUTHINGTON Public Schools

Steven G. Madancy
Superintendent of Schools

Frank M. Pepe
Assistant Superintendent of Schools

200 North Main Street, Southington, CT 06489 ❖ www.southingtonschools.org ❖ Phone: 860-628-3202 ❖ Fax: 860-628-3205

DRAFT

Southington Board of Education
Protocol for Community Communications & Email Correspondence

The Southington Board of Education values the insights and feedback of the community. To maintain legal integrity, protect student privacy, and comply with open meeting laws, the following protocols govern how Board members receive and respond to emails.

I. Legal & Policy Foundations

Before responding to any correspondence, Board members must navigate three primary legal "guardrails":

- Collective Authority (Policy 9327): Under Connecticut law, the Board of Education is a collective governing body. Individual members have no legal authority to act or speak on behalf of the district. Authority only exists when the Board is in a legally convened meeting.
- Freedom of Information Act (FOIA): A "meeting" occurs when a quorum of the Board (6 or more members) discusses Board business. Back-and-forth "Reply All" emails can constitute an illegal meeting if deliberation occurs outside the public eye.
- Privacy Laws (FERPA & Personnel Privacy): Federal and state laws strictly prohibit Board members from discussing individual student records or confidential personnel matters.

II. Communication Decision Matrix (If/Then Protocol)

To ensure consistency and legal compliance, the Board utilizes the following response protocol:

IF the matter is...	THEN the proper action is...
Strictly Informational (e.g., "Just sharing a news article")	**Acknowledge Receipt: A polite confirmation that the information was received. No deliberation or opinion should be shared.**
Student or Personnel Matters	**Refer to Superintendent: These matters fall under the administration's responsibility. Board members are legally restricted from intervening to protect confidentiality.**
District Operations (e.g., busing, facilities, schedules)	**Refer to Superintendent: The Superintendent serves as the Chief Executive Officer and has the direct oversight and data to address operational inquiries.**

SOUTHINGTON Public Schools

Steven G. Madancy
Superintendent of Schools

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Seeking Specific Information	**Refer to Superintendent: To ensure the community receives accurate and coordinated data, the Superintendent handles all formal information requests.**
An Upcoming Board Agenda Item	**Direct to Public Meeting: Members must avoid "deliberating" via email. The proper venue for discussion is the public comment portion of the Board meeting.**

III. The "Reply All" Rule & Deliberation

To avoid an illegal electronic meeting, Board members are instructed to:

1. Avoid "Reply All" when a community member emails the entire Board.
2. Redirect deliberation to a scheduled public meeting.
3. Ensure that any response does not create "conflicting information" or "unofficial commitments" that the full Board has not voted upon.

IV. Mandatory Individual Disclaimer

If an individual Board member chooses to respond to an email (outside of a referral to the Superintendent), they must include a disclaimer to clarify their role.

Examples may include a rationale for past decisions or a position on a pending Board matter.

Standard Response Disclaimer:

"I am responding to you as an individual Board of Education member. Please be advised that my comments represent my personal perspective and do not represent the official position, opinion, or action of the Southington Board of Education as a whole."

V. Why the Superintendent Often Responds

It is common practice for the Superintendent to respond on behalf of the Board. This ensures:

- Accuracy: The Superintendent has immediate access to district data and staff.
- Consistency: It prevents mixed messages from different Board members.
- Coordination: It allows the administration to address the issue through the proper chain of command while keeping Board members informed.

Note to the Community:

While these legal restrictions may make our responses feel formal or limited, please know that your voice is heard. Every email sent to the Board is distributed to all members, ensuring that your perspectives are considered during our public deliberations and decision-making processes.

BOARD OF EDUCATION
SOUTHINGTON, CONNECTICUT

Informational Only X **Board Meeting Date** April 16, 2026

Decision Requested **Agenda Code** 11 b.

AGENDA REPORTING FORM

Agenda Topic: Policy 1250 – Visitors and Observations in Schools- Revised - First Reading.

Summary of Issue: The Policy & Personnel Committee has reviewed Policy 1250 – Visitors and Observations in Schools

Background: The Policy and Personnel Committee reviews policies with the administration to ensure they are current and appropriate.

Alternative Strategies: N/A

Cost (if applicable): N/A **Funding Source:** N/A

Beginning Date of Program or Project: N/A

Ending Date of Program or Project: N/A

Recommendation or Comment: The Board of Education Policy & Personnel Committee is bringing the draft Policy 1250 to the full Board for a First Reading.

Titles of Attachments:

1. DRAFT Policy 1250

Signature of Staff Member Submitting Report

Signature of Superintendent of Schools

Policy 1250

Visitors and Observations in Schools - Revised Policy

Draft

Series 1000: Community Relations

VISITORS AND OBSERVATIONS IN SCHOOLS

The Southington Board of Education (the "Board") encourages visits by citizens, taxpayers, and parents to all school buildings. ~~In order~~ To promote a safe and productive educational environment for all students and staff while school is in session, the Board requires all visitors to receive prior approval from administration ~~the school principal or his/her designee~~ before being permitted to visit any school building. The Board, through the administration, reserves the right to limit visits in accordance with administrative regulations.

The Board further desires to work collaboratively with parents with an educational nexus with the district, its educational programs or the student being observed, to observe their students in their current classrooms or observe proposed educational placements in the Board's schools. The Board, through the administration, reserves the right to limit observations of current and proposed educational placements in accordance with administrative regulations and the Board's Guidelines for Independent Educational Evaluations.

Upon arrival, all visitors and observers must comply with ~~any and~~ all applicable building security procedures, including but not limited to utilizing security buzzers for access, complying with requests for photo identification, reporting directly to and signing in and out at the visitors' reception area of the school office, prominently displaying visitors' badges or other identification required for visitors to the school buildings, limiting access to those areas of the buildings and grounds for which the visitors/observers have authorized access, and complying with directives of school officials at all times.

In the event that a federal immigration authority appears in person at a school in the District or otherwise contacts a school to request information, in accordance with applicable law and pursuant to the Guidance to K-12 Public Schools Pertaining to Immigration Activities developed by the Connecticut State Department of Education ("CSDE") or any subsequent applicable CSDE guidance, such authority shall be directed to communicate with the administrator designated for such interactions, who will follow the protocols outlined in the school's Security and Safety Plan. For purposes of this policy, a "federal immigration authority" means "any officer, employee or other person otherwise paid by or acting as an agent of the United States Immigration and Customs Enforcement or any successor agency thereto or any division thereof or any officer, employee or other person otherwise paid by or acting as an agent of the United States Department of Homeland Security or any successor agency thereto who is charged with enforcement of the civil provisions of the Immigration and Nationality Act."

Series 1000: Community Relations

Legal References:

"Guidelines Regarding Independent Educational Evaluations at Public Expense and In School Observations," Connecticut State Department of Education (Mar. 28, 2018).

Conn. Gen. Stat. § 10-222m

Conn. Gen. Stat. § 54-192h

Public Act No. 25-1, "An Act Concerning Interactions Between School Personnel and Immigration Authorities, the Purchase and Operation of Certain Drones, Grants to Certain Nonprofit Organizations, and Student Athlete Compensation Through Endorsement Contracts and Revenue Sharing Agreements"

Connecticut State Department of Education, Guidance to K-12 Public Schools Pertaining to Immigration Activities (January 28, 2025).

Adopted: October 1998

Reviewed: January 2003

Revised: 1/10/19

Revised March 2026

BOARD OF EDUCATION
SOUTHINGTON, CONNECTICUT

Informational Only X **Board Meeting Date** April 16, 2026

Decision Requested **Agenda Code** 11 c.

AGENDA REPORTING FORM

Agenda Topic: Policy 3250 – Materials/Service Fees, Charges - REVISED - First Reading.

Summary of Issue: The Policy & Personnel Committee has reviewed Policy 3250 – Materials/Service Fees, Charges.

Background: The Policy and Personnel Committee reviews policies with the administration to ensure they are current and appropriate.

Alternative Strategies: N/A

Cost (if applicable): N/A **Funding Source:** N/A

Beginning Date of Program or Project: N/A

Ending Date of Program or Project: N/A

Recommendation or Comment: The Board of Education Policy & Personnel Committee is bringing the draft Policy 3250 to the full Board for a First Reading.

Titles of Attachments:

1. DRAFT Policy 3250

Signature of Staff Member Submitting Report

Signature of Superintendent of Schools

Policy 3250

Materials/Service Fees, Charges - Revised Policy

Draft

Series 3000: Business and Non-Instructional Operations

Business

Materials/Service Fees, Charges

In line with the responsibility of the state to provide a free public school education, the Board of Education will provide all instructional equipment, books and materials needed to maintain the desired instructional program free of charge subject to reasonable rules concerning their care and use.

Copies of Records

Any person who applies in writing will receive a ~~plain or certified~~ copy of any public record for a fee not to exceed ~~$.25~~ $.50 per page ~~will be established~~. If the copy(ies) include formatting or programming functions necessary to provide the cop(ies) the following hourly salary charges will be applied.

- Administrative/clerical - $21 /hour
- Professional - $41/hour
- Executive - $76/hour

Graduates requesting transcripts will be charged a fee of $8.

Employee Verifications paid for by employers is a $40 charge.

Legal Reference:
Connecticut General Statutes
1-212(b)
1-15, Application for copies of public records
10-228, Free textbooks, supplies, material and equipment
10-221, Boards of education to prescribe rules
(cf. 9330 Board/School District Records)

Policy adopted: October 1988
Policy reviewed: April 2003
Policy Revised: March 2026

BOARD OF EDUCATION
SOUTHINGTON, CONNECTICUT

Informational Only X **Board Meeting Date** April 16, 2026

Decision Requested **Agenda Code** 11 d.

AGENDA REPORTING FORM

Agenda Topic: Policy 4120 – Family Medical Leave of Absence (FMLA) - REVISED - First Reading.

Summary of Issue: The Policy & Personnel Committee has reviewed Policy 4120 – Family Medical Leave of Absence (FMLA).

Background: The Policy and Personnel Committee reviews policies with the administration to ensure they are current and appropriate.

Alternative Strategies: N/A

Cost (if applicable): N/A **Funding Source:** N/A

Beginning Date of Program or Project: N/A

Ending Date of Program or Project: N/A

Recommendation or Comment: The Board of Education Policy & Personnel Committee is bringing the draft Policy 4120 to the full Board for a First Reading.

Titles of Attachments:

1. DRAFT Policy 4120

Signature of Staff Member Submitting Report

Signature of Superintendent of Schools

Policy 4120

Family Medical Leave of Absence (FMLA) - Revised Policy

Draft

Series 4000: Personnel

DRAFT POLICY

Family and Medical Leave

Purpose

The purpose of this policy is to apprise employees of their rights and establish guidelines for leaves taken by employees of the Southington Board of Education (the "Board"), under the federal Family and Medical Leave Act of 1993 ("Federal FMLA") and/or the Connecticut Family and Medical Leave Act ("CT FMLA") and applicable Connecticut state law. This policy is not intended to, and does not, recite every provision of applicable law and regulations.

Eligibility

An employee who has been employed by the Board for at least twelve (12) months, and who has worked at least 1,250 actual work hours during the twelve (12) months immediately preceding the start of a leave, is eligible for unpaid leave under the Federal FMLA. A full-time instructional employee meets the 1,250 hours of service requirement unless the Board can demonstrate that such employee did not meet the 1,250 hours of service requirement in the 12-month period prior to the start of leave.

An employee working for the Board in a position that does not require a professional certification under Chapter 166 of the Connecticut General Statutes (*i.e.,* a "noncertified employee") is eligible for unpaid leave under the CT FMLA if such employee has been employed by the Board for at least three (3) months in the twelve (12) months immediately preceding the start of such leave.

Definitions

Genetic information: For purposes of this policy, "genetic information" includes an individual's family medical history, an individual's or family member's genetic tests, and/or the fact that an individual or an individual's family member sought or received genetic services or participated in clinical research which includes genetic services. "Genetic information" includes genetic information of a fetus carried by an individual or an individual's family member or an embryo lawfully held by an individual or family member utilizing assistive reproductive technology.

Instructional employee: For purposes of this policy, an "instructional employee" is defined as a teacher or other employee of the Board who is employed principally in an instructional capacity and whose principal function is to teach and instruct students in a class, a small group, or an individual setting, and includes athletic coaches, driving instructors, and special education assistants such as signers for the hearing impaired. The term does not include paraeducators, ABAs, teacher assistants or aides who do not have as their principal function actual teaching or instructing, nor auxiliary personnel such as counselors, psychologists, curriculum specialists, cafeteria workers, maintenance workers, bus drivers, or other primarily non-instructional employees.

Series 4000: Personnel

DRAFT POLICY

Family and Medical Leave

Definitions (continued)

Non-certified / Classified employee: For purposes of this policy, "noncertified / classified employee" means an employee employed by the Board in a position that does not require a professional certification under Chapter 166 of the Connecticut General Statutes.

Reasons for Leave

A. Federal FMLA

Leaves under the Federal FMLA may be taken for the following reasons:

- incapacity due to pregnancy, prenatal medical care, or child birth;
- to care for the employee's newborn child;
- the placement of a child with the employee by adoption or for foster care;
- to care for the employee's spouse, child, or parent who has a serious health condition;
- to care for the employee's own serious health condition that renders the employee unable to perform the functions of the employee's position;
- to care for a covered injured or ill servicemember (see below, Length of Leave);
- to address a qualifying exigency arising out of an employee's spouse, child, or parent's military service, including one or more of the following reasons (note – more detailed information on the following categories is available from the human resource office:
    - short-notice deployment;
    - military events and related activities;
    - childcare and school activities;
    - financial and legal arrangements;
    - counseling;
    - rest and recuperation;
    - post-deployment activities;
    - parental care leave for military member's parent who is incapable of self-care and care is necessitated by the military member's covered active duty; and/or
    - additional activities that arise out of the active duty or call to active duty status of a covered military member, provided that the Board and the employee agree that such leave qualifies as an exigency, and agree to both the timing and the duration of such leave.

Series 4000: Personnel

DRAFT POLICY

Family and Medical Leave

Reasons for Leave (continued)

B. Connecticut FMLA

Leaves under the CT FMLA may be taken for the following reasons:

- upon the birth of the employee's newborn child, and to care for the newborn child;
- upon the placement of a child with the employee for adoption or foster care, and to care for the newly placed child;
- to care for the employee's family member, if such family member has a serious health condition;
- because of the employee's own serious health condition, including any period of incapacity due to pregnancy or for prenatal care, that renders the employee unable to perform the functions of the employee's position;
- in order to serve as an organ or bone marrow donor;
- to care for an injured or ill servicemember who is the employee's spouse, parent, child or next of kin (see below, Length of Leave); or
- to address a qualifying exigency arising out of the fact that the spouse, child, or parent of the employee is on active duty, or has been notified of an impending call or order to active duty, in the armed forces.

For purposes of determining whether an employee has a qualifying reason for leave under the CT FMLA, "family member" is defined as a spouse, sibling, child, grandparent, grandchild or parent, or an individual related to the employee by blood or affinity whose close association the employee shows to be the equivalent of those family relationships.

Length of Leave

A. Basic FMLA Leave Entitlement

1. Leaves under the Federal FMLA: If a leave is requested for a Federal FMLA-qualifying reason, an employee may take up to a total of twelve (12) weeks unpaid family or medical leave in the 12-month entitlement period.

Family and Medical Leave

Length of Leave (continued)

2. Leaves under CT FMLA: If a leave is requested for a CT FMLA-qualifying reason, an eligible employee may take up to a total of twelve (12) weeks unpaid family or medical leave in the 12-month entitlement period, except that the employee may take up to two (2) additional workweeks of leave during such twelve (12)-month period for a serious health condition resulting in incapacitation that occurs during pregnancy. These additional two (2) weeks are only available during pregnancy.

   The 12-month entitlement period for family or medical leave is measured on the basis of the fiscal year, July 1 through June 30.

   An employe may be entitled to leave under the Federal FMLA and/or CT FMLA. To the extent an employee is eligible for and qualifies for leave under both laws, the employee's Federal FMLA and CT FMLA leave will run concurrently.

B. Leave to Care for an Injured or Ill Servicemember

In addition to the reasons for leave listed above, an eligible employee may take up to twenty-six (26) workweeks of Federal FMLA and/or CT FMLA leave during a 12-month period to care for a covered servicemember and/or covered veteran who is the employee's spouse, parent, child or next of kin, and who incurred a serious injury or illness in the line of duty and while on active duty in the Armed Forces or had a preexisting injury or illness prior to beginning active duty that was aggravated by service in the line of duty in the Armed Forces.

When combined with any other type of Federal FMLA or CT FMLA-qualifying leave, total leave time may not exceed twenty-six (26) weeks in a single twelve (12) month period. Standard leave procedures described below apply to all requests for and designation of leave for this purpose. *However*, in the case of leave to care for a service member with a serious injury or illness, the 12-month period begins on the day such leave actually commences.

Series 4000: Personnel

DRAFT POLICY

Family and Medical Leave

Types of Leave and Conditions

A. Full-Time, Intermittent and Reduced Schedule Leave

Full-time leave *excuses the employee from work for a continuous period. Full-time unpaid leave may be taken for any of the reasons permitted by the Federal FMLA and/or CT FMLA.*

Intermittent leave *means leave taken due to a single qualifying reason in separate periods of time rather than for one continuous period of time. Examples of intermittent leave include: leave taken one day per week over a period of a few months or leave taken on an occasional/as-needed basis for medical appointments.*

Reduced schedule leave *is leave that reduces the employee's usual number of work hours per day for some period. For example, an employee may request half-time work for a number of weeks so the employee can assist in the care of a seriously ill parent.*

Intermittent or reduced schedule Federal FMLA and/or CT FMLA leave may be taken (a) when medically necessary for an employee's or covered family member's serious health condition, or for a covered servicemember's serious illness or injury, and (b) the need for leave can be best accommodated through an intermittent or reduced schedule leave. In addition, Federal FMLA and/or CT FMLA leave may be taken intermittently or on a reduced schedule basis (1) due to a qualifying exigency, or (2) to effectuate the placement of a child for adoption or foster care before the placement of the child in the home.

If foreseeable intermittent or reduced schedule leave is medically required based upon planned medical treatment of the employee or a covered family member or a covered servicemember, including during a period of recovery from an employee's or covered family member's serious health condition or a serious injury or illness of a covered servicemember, the Board may, in its sole discretion, temporarily transfer the employee to another job with equivalent pay and benefits that better accommodates the type of leave requested.

Family and Medical Leave

Types of Leave and Conditions (continued)

Under the Federal FMLA, special arrangements may be required of an instructional employee who needs to take intermittent or reduced-schedule leave which will involve absence for more than twenty (20) percent of the work days in the period over which the leave will extend (for example, more than five days over a five-week period), if the leave is to care for a covered family member with a serious health condition, to care for a covered servicemember with a serious injury or illness, or for the employee's own serious health condition, which is foreseeable based on planned medical treatment. In such situations, the Board may require the instructional employee to transfer temporarily to another job or take leave for a particular duration, not to exceed the duration of the planned medical treatment.

B. Both Spouses Working for the Same Employer

If both spouses are eligible employees of the Board and request Federal FMLA and/or CT FMLA leave for the birth, placement of a child by adoption or for foster care, or to care for a parent (or family member, for purposes of CT FMLA leave) with a serious health condition, they only will be entitled to a maximum combined total leave equal to twelve (12) weeks in the 12-month entitlement period. If either spouse (or both) uses a portion of the total 12-week entitlement for one of the purposes in the preceding sentence, each is entitled to the difference between the amount the employee has taken individually and the 12 weeks for Federal and/or CT FMLA leave for other qualifying reasons in the 12-month entitlement period.

C. Leave Taken by Instructional Employees Near the End of an Academic Term

If Federal FMLA leave taken by an instructional employee for any reason begins more than five (5) weeks before the end of an academic term, the Board may require that instructional employee to continue the leave until the end of the term if the leave will last at least three (3) weeks and the instructional employee would return to work during the three-week period before the end of the term.

If the instructional employee begins Federal FMLA leave during the five-week period preceding the end of an academic term for a reason other than the instructional employee's own serious health condition, the Board may require the instructional employee to continue taking leave until the end of the term if the leave will last more than two (2) weeks and the instructional employee would return to work during the two-week period before the end of the term.

Family and Medical Leave

Types of Leave and Conditions (continued)

If the instructional employee begins Federal FMLA leave during the three-week period preceding the end of an academic term for a reason other than the instructional employee's own serious health condition, the Board may require the instructional employee to continue taking leave until the end of the term if the leave will last more than five (5) working days.

D. Light Duty

Should an employee be offered a light duty opportunity during a period of Federal and/or CT FMLA leave, time spent performing the light duty assignment will not count against the employee's applicable FMLA leave entitlement. The employee's right to restoration to the employee's job will be held in abeyance during the light duty assignment, or until the end of the applicable 12-month FMLA leave period.

E. Outside/Supplemental Employment

The Board's policy governing outside or supplemental employment shall continue to apply to an employee while on Federal FMLA and/or CT FMLA leave.

Requests for Leave

A. Foreseeable Leave

An employee must notify the human resource department of the need for a family or medical leave at least thirty (30) days before the leave is to begin if the need for the leave is foreseeable based on the expected birth of the employee's child, placement of a child with the employee for adoption or foster care, planned medical treatment for the employee's or a covered family member's serious health condition, or the planned medical treatment for a serious injury or illness of a covered servicemember. If 30 days-notice is not practicable, then the employee must provide notice as soon as practicable under the circumstances, usually the same day or the next business day after the employee becomes aware of the need for Federal FMLA and/or CT FMLA leave.

B. Unforeseeable Leave

When the employee's need for leave is not foreseeable, an employee must provide notice as practicable under the circumstances.

DRAFT POLICY

Family and Medical Leave

Scheduling Planned Medical Treatment

When planning medical treatment for foreseeable Federal FMLA and/or CT FMLA leave, an employee must consult with the human resource department and make a reasonable effort to schedule the treatment so as not to disrupt unduly the Board's operations, subject to the approval of the health care provider. Similarly, if employee needs leave intermittently or on a reduced leave schedule for planned medical treatment, the employee must make a reasonable effort to schedule the treatment so as not to disrupt unduly the Board's operations. Ordinarily, the employee should consult with the human resource department prior to scheduling the treatment to work out a treatment schedule that best suits the needs of the Board and the employee. The Board and the employee shall attempt to work out a schedule for leave that meets the employee's needs without unduly disrupting the Board's operations, subject to the approval of the health care provider as to any modification of the treatment schedule.

Required Certifications/Documentation

For leaves taken for any Federal FMLA or CT FMLA-qualifying reason, an employee must submit completed certification form(s) supporting the need for leave. The appropriate form(s) will be provided to the employee from the human resource department. The employee must submit a complete and sufficient certification form(s) as required within fifteen (15) calendar days of receiving the request for the completed certification. If it is not practicable for the employee to provide the completed form by the due date despite the employee's diligent, good faith efforts, the employee must inform the human resource department of the reason(s) for delay and what efforts the employee undertook to obtain the required certification.

Federal FMLA and/or CT FMLA protected leave may be delayed or denied, in accordance with applicable law, if the employee does not provide a complete and sufficient certification as required. Depending on the reason for leave, an employee may be required to submit medical certification from the employee's health care provider, medical certification from the employee's family member's health care provider, and/or other documentation (e.g., to establish a family relationship, military active-duty orders, etc.). In certain circumstances and under certain conditions, employees may also be required to obtain second or third medical opinions and/or recertifications, in accordance with applicable law.

Family and Medical Leave

Required Certifications/Documentation (continued)

If an employee takes leave for the employee's own serious health condition (except on an intermittent or reduced-schedule basis), prior to returning to work the employee must provide a medical fitness-for-duty certification that the employee is able to resume work and the health condition that created the need for the leave no longer renders the employee unable to perform the essential functions of the job. This certification must be submitted to the human resource department. If the employee is unable to perform one or more of the essential functions of the employee's position, the Board will determine whether the employee is eligible for additional Federal FMLA and/or CT FMLA leave (if the eligible for such leave and such leave has not been exhausted) or whether an accommodation is appropriate, in accordance with the Americans with Disabilities Act.

In connection with the Board's request for medical information, employees must be aware that the Genetic Information Nondiscrimination Act of 2008 ("GINA") prohibits employers and other entities covered by Title II of GINA from requesting or requiring genetic information of an individual or family member of the individual, except as specifically allowed by this law. To comply with this law, the Board requests that employees not provide any genetic information when responding to a request for medical information.

Use of Paid Leave

Paid leave, which has been accrued in accordance with applicable law, the relevant collective bargaining agreement, terms of employment, and/or Board policy will be substituted for any unpaid portions of family or medical leave taken for any reason that is also a qualifying reason for using such accrued paid leave. In such instance, the employee's accrued paid leave and Federal FMLA and/or CT FMLA-qualifying leave will run concurrently. The employee must satisfy any procedural requirements applicable to the use of paid leave, but only in connection with the receipt of such payment.

An employee who is approved for CT FMLA leave may retain up to two weeks of their accrued paid time off that would otherwise be required to run concurrently with CT FMLA leave.

Series 4000: Personnel

DRAFT POLICY

Family and Medical Leave

Use of Paid Leave (continued)

Where a noncertified employee's accrued paid leave is not substituted for the entire period of unpaid leave for a qualifying reason under the CT FMLA and/or Connecticut law regarding leave for victims of family violence and sexual assault, the employee may apply for and be provided with compensation through the Paid Family and Medical Leave Insurance Program ("CT Paid Leave") for all or part of any unpaid leave, provided the employee qualifies for payments under the program.

Noncertified employees may apply to the Connecticut Paid Medical and Family Leave Insurance Authority ("Authority') for partial income replacement benefits when they need leave for (1) any of the reasons that qualify for CT FMLA; and/or (2) if an employee is a victim of family violence or sexual assault, to seek medical care or psychological or other counseling for physical or psychological injury or disability for the victim; to obtain services from a victim services organization on behalf of the victim; to relocate due to such family violence or sexual assault; or to participate in any civil or criminal proceeding related to or resulting from such family violence or sexual assault.

Eligible employees shall apply directly to the Authority, which is responsible for determining an employee's eligibility for CT Paid Leave benefits and the amount of such benefit. The Board will provide the Authority with all requested information regarding an employee's application for CT Paid Leave, in accordance with applicable law.

In addition, in cases involving absences due to a Workers' Compensation injury that also qualifies as an FMLA serious health condition, and if the employee (and the employee's collective bargaining agent, if applicable) and the Board agree to do so, the Board will apply the employee's available accrued paid leave in increments as a supplement to the Workers' Compensation weekly benefit in an appropriate amount so that the employee can maintain the employee's regular weekly income level.

DRAFT POLICY

Family and Medical Leave

Medical Insurance and Other Benefits

During family or medical leaves approved in accordance with the Federal FMLA, the Board will continue to pay its portion of medical insurance premiums for the period of unpaid Federal FMLA. The employee must continue to pay the employee's share of the premium, and failure to do so may result in loss of coverage. If the employee does not return to work after expiration of the leave, the employee will be required to reimburse the Board for payment of medical insurance premiums during the family or medical leave, unless the employee does not return because of a serious health condition or circumstances beyond the employee's control.

Reinstatement

Except for circumstances unrelated to the taking of a family or medical leave pursuant to this policy, and unless an exception applies, an employee who returns to work following the expiration of a family or medical leave is entitled to return to the job such employee held prior to the leave or to an equivalent position with equivalent pay and benefits.

Complaints

The Federal FMLA and CT FMLA prohibit employers from interfering with, restraining, or denying any rights provided by the respective laws. The Federal FMLA and CT FMLA also prohibit employers from terminating or discriminating against any individual for opposing any unlawful practice or being involved in any proceeding related to the Federal FMLA or CT FMLA, respectively. The CT FMLA also prohibits employers from interfering with, restraining, or denying any rights provided by CT Paid Leave and/or terminating or discriminating against an employee for applying for CT Paid Leave benefits.

An employee alleging a violation of the Federal FMLA may file a complaint with the U.S. Department of Labor, Wage and Hour Division. Such complaint should be filed within a reasonable time of when the employee discovers that the employee's Federal FMLA rights have been violated. In no event may a complaint be filed more than two (2) years after the action which is alleged to be a violation of the Federal FMLA occurred, or three years in the case of a willful violation. An employee may also be able to bring a private civil action for violations.

Series 4000: Personnel

DRAFT POLICY

Family and Medical Leave

Complaints (continued)

An employee alleging a violation of the CT FMLA may file a complaint with the Connecticut Department of Labor within one hundred eighty (180) calendar days of the employer action that prompted the complaint, unless good cause exists for the late filing. Upon receipt of any such complaint, the Connecticut Department of Labor Commissioner, or the Commissioner's designee, shall conduct an investigation and make a finding regarding jurisdiction and whether a violation of the CT FMLA has occurred. An employee alleging a violation of the CT FMLA may also bring a civil action in a court of competent jurisdiction against the employer within one hundred eighty (180) calendar days of the employer action alleged to be in violation of the CT FMLA. Such action may be brought by an employee without first filing an administrative complaint.

Questions regarding family or medical leave may be directed to the human resource department. Federal FMLA and CT FMLA do not affect any federal or state law prohibiting discrimination or supersede any state or local law or collective bargaining agreement that provides greater family or medical leave rights.

Legal References:

Connecticut:

- Conn. Gen. Stat. § 31-51kk et seq.
- Conn. Gen. Stat. § 31-49e et seq.
- Regs. Conn. State Agencies 31-51qq, et seq.
- Public Act 25-174, "An Act Authorizing and Adjusting Bonds of the State and Concerning Grant Programs, State Grant Commitments for School Building Projects, Revisions to the School Building Projects Statutes and Various Provisions Revising and Implementing the Budget for the Biennium Ending June 30, 2027"

Federal:

- Family and Medical Leave Act of 1993, 29 U.S.C. Section 2601 et seq., as amended 29 CFR Part 825.100 et seq.
- Title II of the Genetic Information Nondiscrimination Act of 2008, 42 USC 2000ff et seq. 29 CFR 1635.1 et seq.

Policy approved: March 1994
Policy reviewed: April 2003, **March 2026**

BOARD OF EDUCATION
SOUTHINGTON, CONNECTICUT

Informational Only X **Board Meeting Date** April 16, 2026

Decision Requested **Agenda Code** 11 e.

AGENDA REPORTING FORM

Agenda Topic: Policy 4121 – CT Paid Leave Act (CTPLA) - NEW - First Reading.

Summary of Issue: The Policy & Personnel Committee has reviewed Policy 4121 – CT Paid Leave Act (CTPLA).

Background: The Policy and Personnel Committee reviews policies with the administration to ensure they are current and appropriate.

Alternative Strategies: N/A

Cost (if applicable): N/A **Funding Source:** N/A

Beginning Date of Program or Project: N/A

Ending Date of Program or Project: N/A

Recommendation or Comment: The Board of Education Policy & Personnel Committee is bringing the draft Policy 4121 to the full Board for a First Reading.

Titles of Attachments:

1. DRAFT Policy 4121

Signature of Staff Member Submitting Report

Signature of Superintendent of Schools

Policy 4121

CT Paid Leave Act (CTPLA)

- New Policy

Draft

Series 4000: Personnel

NEW DRAFT POLICY

Connecticut Paid Leave Act (CTPLA)

Coordination of Accrued Leave with Connecticut Paid Leave (CTPL)

Employees who are approved for wage replacement benefits under the Connecticut Paid Leave (CTPL) program will receive those benefits directly from the Connecticut Paid Leave Authority in accordance with Connecticut law.

Employees must report when they are receiving CTPL benefits. Failure to accurately report receipt of CTPL benefits while using district paid leave may result in payroll correction.

Employees receiving CTPL benefits may not use accrued paid leave to supplement partial wage replacement, including circumstances in which CTPL benefits replace less than one hundred percent (100%) of the employee's regular wages. This exclusion applies to all forms of CTPL leave, including continuous, intermittent, and reduced schedule leave.

Nothing in this policy alters or limits an employee's rights under the Connecticut Family and Medical Leave Act (CT FMLA) or federal Family and Medical Leave Act (FMLA), applicable collective bargaining agreements, or other governing laws and regulations.

The district reserves the right to interpret, administer, and revise this policy as necessary to ensure compliance with state and federal law.

Policy adopted: March 2026

Series 4000: Personnel

NEW DRAFT REGULATION

Connecticut Paid Leave Act (CTPLA)

Coordination of Accrued Leave with Connecticut Paid Leave (CTPL)

Southington Public Schools will not permit employees to use accrued paid leave, including but not limited to sick leave, personal leave, vacation leave, or any other form of employer-provided paid time off, to supplement or "top off" CTPL benefits for the purpose of increasing their total compensation while receiving CTPL benefits. Employees may not combine CTPL benefits with District-provided paid leave in a manner that results in wages exceeding the CTPL benefit payment.

Employees receiving CTPL benefits may not use accrued paid leave to supplement partial wage replacement, including circumstances in which CTPL benefits replace less than one hundred percent (100%) of the employee's regular wages.

This prohibition applies to all forms of CTPL leave, including continuous, intermittent, and reduced schedule leave. Employees may not use accrued paid leave for hours or days covered by CTPL benefits in order to supplement or offset reduced benefit payments.

Employees may elect to retain up to two weeks of their accrued paid leave balances for use at a later time when they are not receiving CTPL wage replacement benefits. The District will not require employees to exhaust accrued paid leave while receiving CTPL benefits.

In circumstances where an employee's absence qualifies for both CTPL benefits and employer-provided paid leave under District policy or a collective bargaining agreement, the employee must elect either to receive CTPL wage replacement benefits or to use accrued paid leave for that absence. Employees may not receive both forms of compensation for the same absence.

Nothing in this policy alters or limits an employee's rights under the Connecticut Family and Medical Leave Act (CT FMLA), the federal Family and Medical Leave Act (FMLA), applicable collective bargaining agreements, or other governing laws and regulations.

Regulation adopted: March 2026

BOARD OF EDUCATION
SOUTHINGTON, CONNECTICUT

Informational Only X **Board Meeting Date** April 16, 2026

Decision Requested **Agenda Code** 11 f.

AGENDA REPORTING FORM

Agenda Topic: Policy 4145 – Reports of Suspected Abuse or Neglect of Adults - NEW - First Reading.

Summary of Issue: The Policy & Personnel Committee has reviewed Policy 4145 – Reports of Suspected Abuse or Neglect of Adults

Background: The Policy and Personnel Committee reviews policies with the administration to ensure they are current and appropriate.

Alternative Strategies: N/A

Cost (if applicable): N/A **Funding Source:** N/A

Beginning Date of Program or Project: N/A

Ending Date of Program or Project: N/A

Recommendation or Comment: The Board of Education Policy & Personnel Committee is bringing the draft Policy 4145 to the full Board for a First Reading.

Titles of Attachments:

1. DRAFT Policy 4145

Signature of Staff Member Submitting Report

Signature of Superintendent of Schools

Policy 4145

Reports of Suspected Abuse or Neglect of Adults - New Policy

Draft

Series 4000: Personnel

NEW DRAFT POLICY

Reports of Suspected Abuse or Neglect of Adults with an Intellectual Disability or Autism Spectrum Disorder

Section 46a-11b of the Connecticut General Statutes requires that certain school personnel report any suspected abuse or neglect of persons between eighteen (18) and sixty (60) years of age who: 1) have an intellectual disability or 2) receive funding or services from the Department of Social Services' ("DSS") Division of Autism Spectrum Disorder Services. In furtherance of this statute and its purpose, it is the policy of the Southington Board of Education (the "Board") to require ALL EMPLOYEES of the Board to comply with the following procedures in the event that, in the ordinary course of their employment or profession, they have reasonable cause to suspect that a person with an intellectual disability or an individual receiving funding or services from DSS' Division of Autism Spectrum Disorder Services between eighteen (18) and sixty (60) years of age has been abused or neglected.

This policy applies not only to employees who are required by law to report suspected abuse and/or neglect of adults with intellectual disabilities, but also to ALL EMPLOYEES of the Board.

Definitions

"Abuse" means the willful infliction of physical pain or injury or the willful deprivation by a caretaker of services which are necessary to the person's health or safety.

"Neglect" means a situation where a person with an intellectual disability either is living alone and is not able to provide for himself or herself the services which are necessary to maintain his or her physical and mental health, or is not receiving such necessary services from the caretaker.

"Statutorily Mandated Reporter" means an individual required by Conn. Gen. Stat. Section 46a-11b to report suspected abuse and/or neglect of adults with intellectual disabilities. In the public school context, the term "statutorily mandated reporter" includes teachers, school administrators, school guidance counselors, paraprofessionals, licensed behavior analysts, registered or licensed practical nurses, psychologists, social workers, licensed or certified substance abuse counselors, mental health professionals, physical therapists, occupational therapists, dental hygienists, speech pathologists, and licensed professional counselors.

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NEW DRAFT POLICY

Reports of Suspected Abuse or Neglect of Adults with an Intellectual Disability or Autism Spectrum Disorder

Reporting Procedures for Statutorily Mandated Reporters

If a statutorily mandated reporter has reasonable cause to suspect or believe that any person with an intellectual disability, or any individual who receives funding or services from DSS' Division of Autism Spectrum Disorder Services, between eighteen (18) and sixty (60) years of age has been abused or neglected, the mandated reporter shall, as soon as practicable, but not later than forty-eight (48) hours after having reasonable cause to suspect abuse or neglect, make an oral report to:

Abuse Investigation Division
Department of Developmental Services ("DDS")
460 Capitol Avenue
Hartford, Connecticut 06106
Telephone: 1-844-878-8923

An unsuccessful attempt to make an initial report to DDS on the weekend, holiday, or after business hours shall not be construed as a violation of this policy or applicable law if the mandatory reporter makes reasonable attempts to make such report as soon as practicable after the initial attempt. For purposes of this policy, "reasonable attempts" means documented efforts to contact DDS by phone, electronic mail or in person.

The statutorily mandated reporter shall also immediately notify the Superintendent.

Such initial oral report shall be followed by a written report to the Abuse Investigation Division of DDS not later than five calendar days after the initial oral report was made, and a copy of any written report shall be given to the Superintendent.

Reporting Procedures for Non-Statutorily Mandated Reporters

The following procedures apply only to employees who are not statutorily mandated reporters, as set forth above.

a. If an employee who is not a statutorily mandated reporter has reasonable cause to suspect that any person with an intellectual disability, or any individual who receives funding or services from the DSS' Division of Autism Spectrum Disorder Services, between eighteen (18) and sixty (60) years of age has been abused or neglected, the following steps shall be taken.

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NEW DRAFT POLICY

Reports of Suspected Abuse or Neglect of Adults with an Intellectual Disability or Autism Spectrum Disorder

1. The employee shall as soon as practicable, but not later than forty-eight (48) hours after having reasonable cause to suspect abuse or neglect, make an oral report by telephone or in person to the Superintendent of Schools or his/her designee, to be followed by an immediate written report to the Superintendent or his/her designee.

2. If the Superintendent or his/her designee determines that there is reasonable cause to suspect or believe that any person with an intellectual disability, or any individual who receives funding or services from the DSS' Division of Autism Spectrum Disorder Services, between eighteen (18) and sixty (60) years has been abused or neglected, the Superintendent or designee shall cause reports to be made in accordance with the procedures set forth for statutorily mandated reporters, set forth above.

b. Nothing in this policy shall be construed to preclude an employee from reporting suspected abuse and/or neglect of adults with intellectual disabilities, or any individual who receives funding or services from the DSS' Division of Autism Spectrum Disorder Services, directly to the Abuse Investigation Division of DDS.

Contents of Report

Any oral or written report made pursuant to this policy shall contain the following information, if known:

a. The name and address of the allegedly abused or neglected person;
b. A statement from the reporter indicating a belief that the person is intellectually disabled or receives funding or services from the DSS' Division of Autism Spectrum Disorder Services, together with information indicating that the person is unable to protect himself or herself from abuse or neglect;
c. Information concerning the nature and extent of the abuse or neglect; and
d. Any additional information that the reporter believes would be helpful in investigating the report or in protecting the person with an intellectual disability or who receives funding or services from the DSS' Division of Autism Spectrum Disorder Services.

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NEW DRAFT POLICY

Reports of Suspected Abuse or Neglect of Adults with an Intellectual Disability or Autism Spectrum Disorder

Investigation of the Report

If the suspected abuser is a school employee, the Superintendent shall thoroughly investigate the report, and shall, to the extent feasible, endeavor to coordinate any such investigation with the investigation conducted by the Abuse Investigation Division of DDS.

The Superintendent's investigation shall include an opportunity for the suspected abuser to be heard with respect to the allegations contained within the report. During the course of an investigation of suspected abuse by a school employee, the Superintendent may suspend the employee with pay or may place the employee on administrative leave with pay, pending the outcome of the investigation.

If the investigation by the Superintendent and/or the Abuse Investigation Division of DDS produces evidence that a person with an intellectual disability, or any individual who receives funding or services from the DSS' Division of Autism Spectrum Disorder Services, has been abused by a school employee, the Superintendent and/or the Board, as appropriate, may take disciplinary action, up to and including termination of employment.

Delegation of Authority by Superintendent

The Superintendent may appoint a designee for the purposes of receiving and making reports, notifying and receiving notification, or investigating reports pursuant to this policy.

Disciplinary Action for Failure to Follow Policy

Any employee who fails to comply with the requirements of this policy shall be subject to discipline, up to and including termination of employment.

Non-discrimination Policy

The Board shall not discharge or in any manner discriminate or retaliate against any employee who, in good faith, makes a report pursuant to this policy, or testifies or is about to testify in any proceeding involving abuse or neglect.

Legal References:

Connecticut General Statutes:

- Section 46a-11a
- Section 46a-11b et seq.

Policy adopted: **March 2026**

BOARD OF EDUCATION
SOUTHINGTON, CONNECTICUT

Informational Only X **Board Meeting Date** April 16, 2026

Decision Requested **Agenda Code** 11 g.

AGENDA REPORTING FORM

Agenda Topic: Policy 4190 – Bloodborne Pathogens - NEW - First Reading.

Summary of Issue: The Policy & Personnel Committee has reviewed Policy 4190 – Bloodborne Pathogens

Background: The Policy and Personnel Committee reviews policies with the administration to ensure they are current and appropriate.

Alternative Strategies: N/A

Cost (if applicable): N/A **Funding Source:** N/A

Beginning Date of Program or Project: N/A

Ending Date of Program or Project: N/A

Recommendation or Comment: The Board of Education Policy & Personnel Committee is bringing the draft Policy 4190 to the full Board for a First Reading.

Titles of Attachments:

1. DRAFT Policy 4190

Signature of Staff Member Submitting Report

Signature of Superintendent of Schools

Policy 4190
Bloodborne Pathogens
- New Policy
Draft

Series 4000: Personnel

DRAFT

Bloodborne Pathogens

The Southington Board of Education (the "Board") is committed to promoting a safe and healthful work environment for its staff. In pursuit of this goal and in accordance with the United States Department of Labor, Occupational Safety and Health Administration ("OSHA") regulations dealing with "Safe Workplace" standards relating to exposure to bloodborne pathogens, the following will be the procedures of the Board for at risk personnel.

The Board shall establish a written exposure control plan in accordance with the federal standards for dealing with potentially infectious materials in the workplace to protect employees from possible infection due to contact with Bloodborne pathogens. Pursuant to these procedures, the school will take reasonably necessary actions to protect its employees from infectious disease and in particular H.I.V. and H.B.V. infection.

The school will provide the training and protective equipment to those persons who are at risk by virtue of their job performance and may come in contact with infectious disease. Furthermore, all Board personnel defined by OSHA and the school who may come in contact with blood and body fluids will be offered the vaccine for the hepatitis B Virus which is a life threatening bloodborne pathogen. The vaccination will be done at no cost to the personnel and is provided as a precaution for personnel safety.

Legal References:

- 29 C.F.R. § 1910.1030 OSHA Bloodborne pathogens standards

Policy adopted: **March 2026**

BOARD OF EDUCATION
SOUTHINGTON, CONNECTICUT

Informational Only X **Board Meeting Date** April 16, 2026

Decision Requested **Agenda Code** 11 h.

AGENDA REPORTING FORM

Agenda Topic: Policy 4220 – Exertional Heat Illness Awareness for Athletics - NEW - First Reading.

Summary of Issue: The Policy & Personnel Committee has reviewed Policy 4220 – Exertional Heat Illness Awareness for Athletics.

Background: The Policy and Personnel Committee reviews policies with the administration to ensure they are current and appropriate.

Alternative Strategies: N/A

Cost (if applicable): N/A **Funding Source:** N/A

Beginning Date of Program or Project: N/A

Ending Date of Program or Project: N/A

Recommendation or Comment: The Board of Education Policy & Personnel Committee is bringing the draft Policy 4220 to the full Board for a First Reading.

Titles of Attachments:

1. DRAFT Policy 4220

Signature of Staff Member Submitting Report

Signature of Superintendent of Schools

Policy 4220

Exertional Heat Illness Awareness for Athletics - New Policy

Draft

Series 4000: Personnel

NEW DRAFT POLICY

Exertional Heat Illness Awareness for Athletics

Prior to commencing a coaching assignment for the season, each coach who holds or is issued a coaching permit by the State Board of Education and is a coach of any Southington Board of Education ("Board") intramural or interscholastic athletics shall complete an exertional heat illness awareness education program developed or approved by the governing authority for intramural and interscholastic athletics (the "Program"). Such program shall include, but need not be limited to, (1) the recognition of the symptoms of an exertional heat illness, (2) the means of obtaining proper medical treatment for a person suspected of having an exertional heat illness, and (3) the nature and risk of exertional heat illness, including the danger of continuing to engage in athletic activity after sustaining exertional heat illness and the proper method of allowing a student athlete who has sustained exertional heat illness to return to athletic activity.

Any person who holds or is issued a coaching permit by the State Board of Education and is a coach of Board intramural or interscholastic athletics shall annually review the Program.

Upon development by the governing authority for intramural and interscholastic athletics of a model exertional heat illness awareness plan, the Board shall implement such plan by utilizing written materials, online training or videos or in-person training that shall address, at a minimum: (1) the recognition of signs or symptoms of exertional heat illness, (2) the means of obtaining proper medical treatment for a person suspected of an exertional heat illness, (3) the nature and risks of exertional heat illness, including the danger of continuing to engage in athletic activity after experiencing exertional heat illness, (4) the proper procedures for allowing a student athlete who has experienced exertional heat illness to return to athletic activity, and (5) best practices in the prevention and treatment of exertional heat illness.

The Board shall provide each participating student and each participating student's parent or legal guardian with information regarding exertional heat illness awareness. The Board shall prohibit a student athlete from participating in any intramural or interscholastic activity unless the student athlete, and a parent or guardian of such student athlete, (1) reads written materials, (2) views online training or videos, or (3) attends in-person training regarding exertional heat illness awareness. Acknowledgment of adherence to this standard by the student athlete and the parent or guardian shall be made by the parent's or guardian's signature on an athletic participation informed consent form issued by the Board.

Legal References

- Conn. Gen. Stat. § 10-149h. Exertional heat illness awareness education program

Policy adopted: **March 2026**

BOARD OF EDUCATION
SOUTHINGTON, CONNECTICUT

Informational Only X **Board Meeting Date** April 16, 2026

Decision Requested **Agenda Code** 11 i.

AGENDA REPORTING FORM

Agenda Topic: Policy 4315 – Employment and Student Teacher Checks - NEW - First Reading.

Summary of Issue: The Policy & Personnel Committee has reviewed Policy 4315 – Employment and Student Teacher Checks.

Background: The Policy and Personnel Committee reviews policies with the administration to ensure they are current and appropriate.

Alternative Strategies: N/A

Cost (if applicable): N/A **Funding Source:** N/A

Beginning Date of Program or Project: N/A

Ending Date of Program or Project: N/A

Recommendation or Comment: The Board of Education Policy & Personnel Committee is bringing the draft Policy 4315 to the full Board for a First Reading.

Titles of Attachments:

1. DRAFT Policy 4315

Signature of Staff Member Submitting Report

Signature of Superintendent of Schools

Policy 4315
Employment and Student Teacher Checks
- New Policy
Draft

Series 4000: Personnel

NEW DRAFT POLICY

Employment and Student Teacher Checks

As set forth below, each applicant for a position with the Southington Public Schools (the "District"), and each student who is enrolled in a teacher preparation program with the District, as defined in section 10-10a of the Connecticut General Statutes, and completing a student teaching experience in the District (collectively referred to as "applicants"), shall be asked to provide in writing: (1) whether the applicant has ever been convicted of a crime; (2) whether there are any criminal charges pending against the applicant at the time of the application and, if charges are pending, to state the charges and the court in which such charges are pending; and (3) whether the applicant is included on the Abuse and Neglect Registry of the Connecticut Department of Children and Families ("DCF") (the "Registry").

Applicants shall not be required to disclose any arrest, criminal charge or conviction that has been erased. An employment application form that contains any question concerning the criminal history of the applicant shall contain the following notice, in clear and conspicuous language:

Pursuant to section 31-51i(d) of the Connecticut General Statutes, the applicant is hereby notified that (1) the applicant is not required to disclose the existence of any erased criminal history record information, (2) erased criminal history record information are records pertaining to a finding of delinquency or that a child was a member of a family with service needs, an adjudication as a youthful offender, a criminal charge that has been dismissed or nolled, a criminal charge for which the person has been found not guilty or a conviction for which the person received an absolute pardon or criminal records that are erased pursuant to statute or by other operation of law, and (3) any person with erased criminal history record information shall be deemed to have never been arrested within the meaning of the general statutes with respect to the proceedings so erased and may so swear under oath.

In addition, the District shall conduct an employment history check for each applicant for a position, as set forth below.

For the purposes of this policy:

"**Sexual misconduct"** means any verbal, nonverbal, written, or electronic communication, or any other act directed toward or with a student that is designed to establish a sexual relationship with the student, including a sexual invitation, dating or soliciting a date, engaging in sexual dialog, making sexually suggestive comments, self-disclosure or physical exposure of a sexual or erotic nature, and any other sexual, indecent, or erotic contact with a student.

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Employment and Student Teacher Checks

"**Abuse or neglect**" means abuse or neglect as described in Conn. Gen. Stat. § 46b-120, and includes any violation of Conn. Gen. Stat. §§ 53a-70 (sexual assault in the first degree), 53a-70a (aggravated sexual assault in the first degree), 53a-71 (sexual assault in the second degree), 53a-72a (sexual assault in the third degree), 53a-72b (sexual assault in the third degree with a firearm), or 53a-73a (sexual assault in the fourth degree).

"**Former employer**" means any person, firm, business, educational institution, nonprofit agency, corporation, limited liability company, the state, any political subdivision of the state, any governmental agency, or any other entity that such applicant was employed by during any of the previous twenty years prior to applying for a position with a local or regional board of education.

I. Employment History Check Procedures

A. The District shall not offer employment to an applicant for a position, including any position that is contracted for, if such applicant would have direct student contact, prior to the District:

1. Requiring the applicant:

a. to list the name, address, and telephone number of each current employer or former employer (please note the definition of "former employer" above, including the applicable twenty-year reporting period) during any of the previous twenty years, if:

(i) such current or former employer is/was a local or regional board of education, council of a state or local charter school, interdistrict magnet school operator, or a supervisory agent of a nonpublic school, and/or

(ii) the applicant's employment with such current or former employer caused the applicant to have contact with children.

b. to submit a written authorization that

(i) consents to and authorizes disclosure by the employers listed under paragraph I.A.1.a of this policy of the information requested under paragraph I.A.2 of this policy and the release of related records by such employers,

(ii) consents to and authorizes disclosure by the Connecticut State Department of Education (the "Department') of the information requested under paragraph I.A.3 of this policy and the release of related records by the Department, and

(iii) releases those employers and the Department from liability that may arise from such disclosure or release of records pursuant to paragraphs I.A.2 or I.A.3 of this policy; and

c. to submit a written statement of whether the applicant

(i) has been the subject of an abuse or neglect or sexual misconduct investigation by any employer, state agency or municipal police department, unless the investigation resulted in a finding that all allegations were unsubstantiated,

(ii) has ever been disciplined or asked to resign from employment or resigned from or otherwise separated from any employment while an allegation of abuse or neglect was pending or under investigation by DCF, or an allegation of sexual misconduct was pending or under investigation or due to an allegation substantiated pursuant to Conn. Gen. Stat. § 17a-101g of abuse or neglect, or of sexual misconduct or a conviction for abuse or neglect or sexual misconduct, or

(iii) has ever had a professional or occupational license or certificate suspended or revoked or has ever surrendered such a license or certificate while an allegation of abuse or neglect was pending or under investigation by DCF or an investigation of sexual misconduct was pending or under investigation, or due to an allegation substantiated by DCF of abuse or neglect or of sexual misconduct or a conviction for abuse or neglect or sexual misconduct;

2. Conducting a review of the employment history of the applicant by contacting those employers listed by the applicant under paragraph I.A.1.a of this policy. Such review shall be conducted using a form developed by the Department, which shall request the following:

a. the dates employment of the applicant, and

b. a statement as to whether the employer has knowledge that the applicant:

(i) was the subject of an allegation of abuse or neglect or sexual misconduct for which there is an investigation pending with any employer, state agency, or municipal police department or which has been substantiated, unless such substantiation was reversed as a result of an appeal to DCF;

(ii) was disciplined or asked to resign from employment or resigned from or otherwise separated from any employment while an allegation of abuse or neglect or sexual misconduct was pending or under investigation, or due to a substantiation of abuse or neglect or sexual misconduct, unless such substantiation was reversed as a result of an appeal to DCF; or

(iii) has ever had a professional or occupational license, certificate, authorization or permit suspended or revoked or has ever surrendered such a license, certificate, authorization or permit while an allegation of abuse or neglect or sexual misconduct was pending or under investigation, or due to a substantiation of abuse or neglect or sexual misconduct, unless such substantiation was reversed as a result of an appeal to DCF. Such review may be conducted telephonically or through written communication. Notwithstanding the provisions of subsection (g) of Conn. Gen. Stat. § 31-51i, not later than five (5) business days after the District receives a request for such information about an employee or former employee, the District shall respond with such information. The District may request more information concerning any response made by a current or former employer for information about an applicant, and, notwithstanding subsection (g), such employer shall respond not later than five (5) business days after receiving such request.

3. Requesting information from the Department concerning:

   a. the eligibility status for employment of any applicant for a position requiring a certificate, authorization or permit,

   b. whether the Department has knowledge that a finding has been substantiated by DCF pursuant to Conn. Gen. Stat. § 17a-101g of abuse or neglect or of sexual misconduct against the applicant and any information concerning such a finding, and

   c. whether the Department has received notification that the applicant has been convicted of a crime or of criminal charges pending against the applicant and any information concerning such charges.

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B. Notwithstanding the provisions of subsection (g) of Conn. Gen. Stat. § 31-51i, if the District receives information that an applicant for a position with or an employee of the District has been disciplined for a finding of abuse or neglect or sexual misconduct, it shall notify the Department of such information.

C. The District shall not employ an applicant for a position involving direct student contact who does not comply with the provisions of paragraph I.A.1 of this policy.

D. The District may employ or contract with an applicant on a temporary basis for a period not to exceed ninety (90) calendar days, pending the District's review of information received under this section, provided:

1. The applicant complied with paragraph I.A.1 of this policy;

2. The District has no knowledge of information pertaining to the applicant that would disqualify the applicant from employment with the District; and

3. The applicant affirms that the applicant is not disqualified from employment with the District.

E. The District shall not enter into a collective bargaining agreement, an employment contract, an agreement for resignation or termination, a severance agreement, or any other contract or agreement or take any action that:

1. Has the effect of suppressing information relating to an investigation of a report of suspected abuse or neglect or sexual misconduct by a current or former employee;

2. Affects the ability of the District to report suspected abuse or neglect or sexual misconduct to appropriate authorities; or

3. Requires the District to expunge information about an allegation or a finding of suspected abuse or neglect or sexual misconduct from any documents maintained by the District, unless, after investigation, such allegation is dismissed or found to be false.

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NEW DRAFT POLICY

Employment and Student Teacher Checks

F. The District shall not offer employment to a person as a substitute teacher, unless such person and the District comply with the provisions of paragraph I.A.1 of this policy. The District shall determine which such persons are employable as substitute teachers and maintain a list of such persons. The District shall not hire any person as a substitute teacher who is not on such list. Such person shall remain on such list as long as such person is continuously employed by the District as a substitute teacher, as described in paragraph III.B.2 of this policy, provided the District does not have any knowledge of a reason that such person should be removed from such list.

G. In the case of an applicant who is a contractor, the contractor shall require any employee with such contractor who would be in a position involving direct student contact to supply to such contractor all the information required of an applicant under paragraphs I.A.1.a and I.A.1.c of this policy and a written authorization under paragraph I.A.1.b of this policy. Such contractor shall contact any current or former employer (please note the definition of "former employer" above, including the applicable twenty year reporting period) of such employee that was a local or regional board of education, council of a state or local charter school, interdistrict magnet school operator, or a supervisory agent of a nonpublic school, or if the employee's employment with such current or former employer caused the employee to have contact with children, and request, either telephonically or through written communication, any information concerning whether there was a finding of abuse or neglect or sexual misconduct against such employee. Notwithstanding the provisions of subsection (g) of Conn. Gen. Stat. § 31-51i, such employer shall report to the contractor any such finding, either telephonically or through written communication. If the contractor receives any information indicating such a finding or otherwise receives any information indicating such a finding or otherwise has knowledge of such a finding, the contractor shall, notwithstanding the provisions of subsection (g) of Conn. Gen. Stat. § 31-51i, immediately forward such information to the District, either telephonically or through written communication. If the District receives such information, it shall determine whether such employee of the contractor may work in a position involving direct student contact at any school in the District. No determination by the District that any such employee of the contractor shall not work under any such contract in any such position shall constitute a breach of such contract.

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Employment and Student Teacher Checks

H. Any applicant/employee who knowingly provides false information or knowingly fails to disclose information required in subdivision (1) of subsection (A) of this section shall be subject to discipline by the District that may include:

1. denial of employment, or

2. termination of the contract of a certified employee, in accordance with the provisions of Conn. Gen. Stat. § 10-151, or

3. termination of a non-certified employee in accordance with applicable law and/or any applicable collective bargaining agreement, contract or District policy.

I. If the District provides information in accordance with paragraph I.A.2 or I.G of this policy, the District shall be immune from criminal and civil liability, provided the District did not knowingly supply false information.

J. Notwithstanding provisions of Conn. Gen. Stat. § 10-151c and subsection (g) of Conn. Gen. Stat. § 31-51i, the District shall provide, upon request by another local or regional board of education, governing council of a state or local charter school, interdistrict magnet school operator, or supervisory agent of a nonpublic school for the purposes of an inquiry pursuant to paragraphs I.A.2 or I.G of this policy or to the Commissioner of Education pursuant to paragraph I.B of this policy any information that the District has concerning a finding of abuse or neglect or sexual misconduct by a subject of any such inquiry.

K. Prior to offering employment to an applicant, the District shall make a documented good faith effort to contact each current and any former employer (please note the definition of "former employer" employer above, including the applicable twenty year reporting period) of the applicant that was a local or regional board of education, governing council of a state or local charter school, interdistrict magnet school operator, or supervisory agent of a nonpublic school, or if the applicant's employment with such current or former employer caused the applicant to have contact with children in order to obtain information and recommendations that may be relevant to the applicant's fitness for employment. Such effort, however, shall not be construed to require more than three telephonic requests made on three separate days.

L. The District shall not offer employment to any applicant who had any previous employment contract terminated by a local or regional board of education, council of a state or local charter school, interdistrict magnet school operator, or a supervisory agent of a nonpublic school, or who resigned from such employment, if the person has been convicted of a violation of Conn. Gen. Stat. § 17a-101a, when an allegation of abuse or neglect or sexual assault has been substantiated.

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Employment and Student Teacher Checks

II. DCF Registry Checks

Prior to hiring any person for a position with the District, and before a student who is enrolled in a teacher preparation program in the District, as defined in section 10-10a of the Connecticut General Statutes, and completing a student teaching experience with the District, begins such student teaching experience, the District shall require such applicant or student to submit to a records check of information maintained on the Registry concerning the applicant.

The District shall request information from the Registry, or its out-of-state equivalent, promptly, and in any case no later than thirty (30) calendar days from the date of employment. Registry checks will be processed according to the following procedure:

A. No later than ten (10) calendar days after the Superintendent or the Superintendent's designee has notified a job applicant of a decision to offer employment to the applicant, or as soon thereafter as practicable, the Superintendent or the Superintendent's designee will supply the applicant with the release form utilized by DCF, or its out-of-state equivalent, when available, for obtaining information from the Registry.

B. The applicant is required to sign the form and submit during the onboarding process. Verification of completion is done by the human resource department, as the applicant is required to sign. Failure of the applicant to submit the signed form within such ten-day period, without good cause, will be grounds for the withdrawal of the offer of employment.

C. Upon receipt of Registry, or its out-of-state equivalent registry, information indicating previously undisclosed information concerning abuse or neglect investigations concerning the successful job applicant/employee, the Superintendent or their designee will notify the affected applicant/employee in writing of the results of the Registry check and will provide an opportunity for the affected applicant/employee to respond to the results.

D. If notification is received by the Superintendent or the Superintendent's designee that that the applicant is listed as a perpetrator of abuse or neglect on the Registry, the Superintendent or their designee shall provide the applicant with an opportunity to be heard regarding the results. If warranted by the results of the Registry check and any additional information provided by the applicant, the Superintendent or their designee shall revoke the offer of employment and/or terminate the applicant's employment if the applicant has already commenced working for the District.

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Employment and Student Teacher Checks

III. Criminal Records Check Procedure

A. Each person hired by the District shall be required to submit to state and national criminal records checks within thirty (30) calendar days from the date of employment. Each student who is enrolled in a teacher preparation program, as defined in section 10-10a of the Connecticut General Statutes, and completing a student teaching experience with the District, shall be required to submit to state and national criminal records checks within sixty (60) calendar days from the date such student begins to perform such student teaching experience. Record checks will be processed according to the following procedure:

1. No later than five (5) calendar days after the Superintendent or their designee has notified a job applicant of a decision to hire the applicant, or as soon thereafter as practicable, the human resource department will provide the applicant with their onboarding documents including the details necessary for the applicant to be fingerprinted. Fingerprinting will take place in the human resource department at the Southington Board of Education. Included in the onboarding packet are the following notifications, which are signed prior to fingerprinting: (1) Agency Privacy Requirements for Noncriminal Justice Applicants; (2) Noncriminal Justice Applicant's Privacy Rights; (3) and the Federal Bureau of Investigation, United States Department of Justice Privacy Act Statement.

2. Fingerprinting is done within ten (10) days of acceptance of the position. Failure of the applicant to have the applicant's fingerprints taken within such ten-day period, without good cause, will be grounds for the withdrawal of the offer of employment.

3. Any person for whom criminal records checks are required to be performed pursuant to this policy must pay all fees and costs associated with the fingerprinting process and/or the submission or processing of the requests for criminal records checks. Fees and costs associated with the fingerprinting process and the submission and process of requests are waived for student teachers, in accordance with state law.

4. Upon receipt of a criminal records check indicating a previously undisclosed conviction, the human resource department will notify the affected applicant/employee in writing of the results of the record check and will provide an opportunity for the affected applicant/employee to respond to the results of the criminal records check. The affected applicant/employee may notify the human resource department in writing within five (5) calendar days that the affected applicant/employee will challenge such individual's criminal history records check. Upon written notification of such a challenge, the affected applicant/employee shall

III. Criminal Records Check Procedure

have ten (10) calendar days to provide the human resource department with necessary documentation regarding the affected applicant/employee's record challenge. The Superintendent or their designee may grant an extension to the preceding ten-day period during which the affected applicant/employee may provide such documentation for good cause shown.

5. Decisions regarding the effect of a conviction upon an applicant/employee, whether disclosed or undisclosed by the applicant/employee, will be made on a case-by-case basis. Notwithstanding the foregoing, the falsification or omission of any information on a job application or in a job interview, including but not limited to information concerning criminal convictions or pending criminal charges, shall be grounds for disqualification from consideration for employment or discharge from employment.

6. Notwithstanding anything in paragraph III.A.5 of this policy, above, no decision to deny employment or withdraw an offer of employment on the basis of an applicant/employee's criminal history record shall be made without affording the applicant/employee the opportunities set forth in paragraph III.A.4 of this policy, above.

B**. Criminal Records Check for Substitute Teachers:**

A substitute teacher who is hired by the District must submit to state and national criminal history records checks according to the procedures outlined above, subject to the following:

1. If the state and national criminal history records checks for a substitute teacher have been completed within one year prior to the date the District hired the substitute teacher, and if the substitute teacher arranged for such prior criminal history records checks to be forwarded to the Superintendent or the Superintendent's designee, then the substitute teacher will not be required to submit to another criminal history records check at the time of such hire.

2. If a substitute teacher submitted to state and national criminal history records checks upon being hired by the District, then the substitute teacher will not be required to submit to another criminal history records check so long as the substitute teacher is continuously employed by the District, that is, employed for at least one day of each school year, by the District, provided a substitute teacher is subjected to such checks at least once every five years.

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Employment and Student Teacher Checks

IV. Sex Offender Registry Checks

District personnel shall cross-reference the Connecticut Department of Public Safety's sexual offender registry prior to hiring any new employee and before a student who is enrolled in a teacher preparation program, as defined in section 10-10a of the Connecticut General Statutes, and completing a student teaching experience with the District, begins such student teaching experience. Registration as a sexual offender constitutes grounds for denial of employment opportunities and opportunities to perform student teaching experiences in the District.

V. Credit Checks

The District may also ask a prospective employee for a credit report for employment for certain District positions, where the District's receipt of a credit report is substantially related to the employee's potential job. "Substantially related to the current or potential job" is defined to mean "the information contained in the credit report is related to the position for which the employee or prospective employee who is the subject of the report is being evaluated because of the position." Prior to asking for a credit report, the District will determine whether the position falls within one of the categories as described in this paragraph. The position must: (1) be a managerial position which involves setting the direction or control of the District; (2) involve access to employees' personal or financial information; (3) involve a fiduciary responsibility to the District, including, but not limited to, the authority to issue payments, collect debts, transfer money or enter into contracts; (4) provide an expense account or District debit or credit card; or (5) involve access to the District's nonfinancial assets valued at two thousand five dollars or more.

When a credit report will be requested as part of the employment process, the District will provide written notification to the prospective employee regarding the use of credit checks. That notification must be provided in a document separate from the employment application. The notification must state that the District may use the information in the consumer credit report to make decisions related to the individual's employment. The District will obtain written, signed consent before performing the credit or other background checks.

If the District intends to take an action adverse to a potential employee based on the results of a credit report, the District must provide the prospective employee with a copy of the report on which the District relied in making the adverse decision, as well as a copy of "A Summary of Your Rights Under the Fair Credit Reporting Act," which should be provided by the company that provides the results of the credit check. The District will give the potential employee a reasonable amount of time, i.e., at least five days, to dispute any of the information in the report prior to making any final employment decision.

Employment and Student Teacher Checks

If an adverse action is taken based on information from the report, the District will notify the prospective employee either orally, in writing or via electronic means that the adverse action was taken based on the information in the consumer report. That notice must include the name, address and phone number of the consumer reporting company that supplied the credit report; a statement that the company that supplied the report did not make the decision to take the unfavorable action and cannot provide specific reasons for the District's actions; and a notice of the person's right to dispute the accuracy or completeness of any information the consumer reporting company furnished, and to get an additional free report from the company if the person asks for it within sixty (60) calendar days.

VI. Notice of Conviction

If, at any time, the District receives notice of a conviction of a crime by a person holding a certificate, authorization or permit issued by the State Board of Education, the District shall send such notice to the State Board of Education. In complying with this requirement, the District shall not disseminate the results of any national criminal history records check.

VII. School Nurses

School nurses or nurse practitioners appointed by, or under contract with, the District shall also be required to submit to a criminal history records check in accordance with the procedures outlined above.

VIII. Personal Online Accounts

For purposes of this policy, "personal online account" means any online account that is used by an employee or applicant exclusively for personal purposes and unrelated to any business purpose of the District, including, but not limited to, electronic mail, social media and retail-based Internet web sites. "Personal online account" does not include any account created, maintained, used or accessed by an employee or applicant for a business purpose of the District.

A. During the course of an employment check, the District may not:

1. request or require that an applicant provide the District with a user name and password, password or any other authentication means for accessing a personal online account;

2. request or require that an applicant authenticate or access a personal online account in the presence of District personnel; or

3. require that an applicant invite a supervisor employed by the District or accept an invitation from a supervisor employed by the District to join a group affiliated with any personal online account of the applicant.

B. The District may request or require that an applicant provide the District with a user name and password, password or any other authentication means for accessing:

1. any account or service provided by District or by virtue of the applicant's employment relationship with the District or that the applicant uses for the District's business purposes, or

2. any electronic communications device supplied or paid for, in whole or in part, by the District.

C. In accordance with applicable law, the District maintains the right to require an applicant to allow the District to access the applicant's personal online account, without disclosing the user name and password, password or other authentication means for accessing such personal online account, for the purpose of:

1. conducting an investigation for the purpose of ensuring compliance with applicable state or federal laws, regulatory requirements or prohibitions against work-related employee misconduct based on the receipt of specific information about activity on an applicant's personal online account; or

2. conducting an investigation based on the receipt of specific information about an applicant's unauthorized transfer of the District's proprietary information, confidential information or financial data to or from a personal online account operated by an applicant or other source.

IX. Policy Inapplicable to Certain Individuals

This policy shall not apply to:

A. A student employed by the District who attends a District school.

B. A person employed by the District as a teacher for a noncredit adult class or adult education activity, as defined in Conn. Gen. Stat. § 10-67, who is not required to hold a teaching certificate pursuant to Conn. Gen. Stat. § 10-145b for such position.

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Employment and Student Teacher Checks

X. Falsification of Records

Notwithstanding any other provisions of this policy, the falsification or omission of any information on a job application or in a job interview, including but not limited to information concerning abuse or neglect investigations or pending criminal applications, shall be grounds for disqualification from consideration for employment or discharge from employment.

Legal References:

- Conn. Gen. Stat. § 10-212
- Conn. Gen. Stat. § 10-221d
- Conn. Gen. Stat. § 10-222c
- Conn. Gen. Stat. § 31-40x
- Conn. Gen. Stat. § 31-51i
- Conn. Gen. Stat. § 31-51tt
- Public Act 24-41, "An Act Concerning Educator Certification, Teachers, Paraeducators and Mandated Reporter Requirements."
- Elementary and Secondary Education Act, reauthorized as the Every Student Succeeds Act, Pub. L. 114-95, codified at 20 U.S.C.§ 1001 *et seq.*
- Fair Credit Reporting Act, 15 U.S.C. § 1681 *et seq.*

Policy adopted: **March 2026**

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NEW DRAFT POLICY

Agency Privacy Requirements for Noncriminal Justice Applicants

Authorized governmental and non-governmental agencies/officials that conduct a national fingerprint-based criminal history record check on an applicant for a noncriminal justice purpose (such as employment or a license, immigration or naturalization matter, security clearance, or adoption) are obligated to ensure the applicant is provided certain notices and that the results of the check are handled in a manner that protects the applicant's privacy. All notices must be provided in writing.[1] These obligations are pursuant to the Privacy Act of 1974, Title 5, United States Code (U.S.C.), Section 552a, and Title 28, Code of Federal Regulations (CFR), Section 50.12, among other authorities.

- Officials must ensure that each applicant receives an adequate written FBI Privacy Act Statement (dated 2013 or later) when the applicant submits the applicant's fingerprints and associated personal information.[2]
- Officials must advise all applicants in writing that procedures for obtaining a change, correction, or update of an FBI criminal history record are set forth at 28 CFR 16.34. Information regarding this process may be found at https://www.fbi.gov/services/cjis/identity-history-summary-checks; and, https://www.edo.cjis.gov.
- Officials must provide the applicant the opportunity to complete or challenge the accuracy of the information in the FBI criminal history record.
- Officials should not deny the employment, license, or other benefit based on information in the FBI criminal history record until the applicant has been afforded a reasonable time to correct or complete the record or has declined to do so.
- Officials must use the criminal history record for authorized purposes only and cannot retain or disseminate it in violation of federal statute, regulation or executive order, or rule, procedure or standard established by the National Crime Prevention and Privacy Council.[3]

The FBI has no objection to officials providing a copy of the applicant's FBI criminal history record to the applicant for review and possible challenge when the record was obtained based on positive fingerprint identification. If agency policy permits, this courtesy will save the applicant the time and additional FBI fee to obtain the applicant's record directly from the FBI by following the procedures found at 28 CFR 16.30 through 16.34. It will also allow the officials to make a more timely determination of the applicant's suitability.

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[1] Written notification includes electronic notification, but excludes oral notification.

[2] See https://www.fbi.gov/services/cjis/compact-council/privacy-act-statement

[3] See 5 U.S.C. 552a(b); 28 U.S.C. 534(b); 34 U.S.C. § 40316 (formerly cited as 42 U.S.C. § 14616), Article IV(c); 28 CFR 20.21(c), 20.33(d), 50.12(b) and 906.2(d).

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Agency Privacy Requirements for Noncriminal Justice Applicants

Each agency should establish and document the process/procedures it utilizes for how/when it gives the applicant the FBI Privacy Act Statement, the 28 CFR 50.12 notice, and the opportunity to correct the applicant's record. Such documentation will assist State and/or FBI auditors during periodic compliance reviews on use of FBI criminal history records for non-criminal justice purposes.

If you need additional information or assistance, contact:

Connecticut Records:	**Out-of-State Records:**
Dept of Emer Services & Public Protection State Police Bureau of Identification (SPBI) 1111 Country Club Road Middletown, CT 06457 860-685-8480	Agency of Record OR FBI CJIS Division-Summary Request 1000 Custer Hollow Road Clarksburg, West Virginia 26306

Noncriminal Justice Applicant's Privacy Rights

As an applicant who is the subject of a national fingerprint-based criminal history record check for a non-criminal justice purpose (such as an application for a job or license, an immigration or naturalization matter, security clearance, or adoption), you have certain rights which are discussed below. All notices must be provided to you in writing.[4] These obligations are pursuant to the Privacy Act of 1974, Title 5, United States Code (U.S.C.) Section 552a, and Title 28 Code of Federal Regulations (CFR), 50.12, among other authorities.

- You must be provided an adequate written FBI Privacy Act Statement (dated 2013 or later) when you submit your fingerprints and associated person information. This Privacy Act Statement must explain the authority for collecting your fingerprints and associated information and whether your fingerprints and associated information will be searched, shared, or retained.[5]
- You must be advised in writing of the procedures for obtaining a change, correction, or updating of your criminal history record as set forth at 28 CFR 16.34.
- You must be provided the opportunity to complete or challenge the accuracy of the information in your FBI criminal history record (if you have such a record).

[4] Written notification includes electronic notification, but excludes oral notification.

[5] https://www.fbi.gov/services/cjis/compact-council/privacy-act-statement

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Agency Privacy Requirements for Noncriminal Justice Applicants

- If you have a criminal history record, you should be afforded a reasonable amount of time to correct or complete the record (or decline to do so) before the officials deny you the employment, license, or other benefit based on information in the FBI criminal history record.
- If agency policy permits, the officials may provide you with a copy of your FBI criminal history record for review and possible challenge. If agency policy does not permit it to provide you a copy of the record, you may obtain a copy of the record by submitting fingerprints and a fee to the FBI. Information regarding this process may be obtained at http://www.fbi.gov/services/cjis/identity-history-summary-checks and https://www.edo.cjis.gov.
- If you decide to challenge the accuracy or completeness of your FBI criminal history record, you should send your challenge to the agency that contributed the questioned information to the FBI. Alternatively, you may send your challenge directly to the FBI by submitting a request via https://www.edo.cjis.gov. The FBI will then forward your challenge to the agency that contributed the questioned information and request the agency to verify or correct the challenged entry. Upon receipt of an official communication from that agency, the FBI will make any necessary changes/corrections to your record in accordance with the information supplied by that agency. (See 28 CFR 16.30 through 16.34.)
- You have the right to expect that officials receiving the results of the criminal history record check will use it only for authorized purposes and will not retain or disseminate it in violation of federal statute, regulation or executive order, or rule, procedure or standard established by the National Crime Prevention and Privacy Compact Council.[6]
- If you need additional information or assistance, please contact:

Connecticut Records:	**Out-of-State Records:**
Dept of Emer Services & Public Protection State Police Bureau of Identification (SPBI) 1111 Country Club Road Middletown, CT 06457 860-685-8480	Agency of Record OR FBI CJIS Division-Summary Request 1000 Custer Hollow Road Clarksburg, West Virginia 26306

[6] See 5 U.S.C. 552a(b); 28 U.S.C. 534(b); 34 U.S.C. § 40316 (formerly cited as 42 U.S.C. § 14616), Article IV(c); 28 CFR 20.21(c), 20.33(d) and 906.2(d).

BOARD OF EDUCATION
SOUTHINGTON, CONNECTICUT

Informational Only X **Board Meeting Date** April 16, 2026

Decision Requested **Agenda Code** 11 j.

AGENDA REPORTING FORM

Agenda Topic: Policy 5111 – Admission/Placement/Ages of Attendance - REVISED - First Reading.

Summary of Issue: The Policy & Personnel Committee has reviewed Policy 5111 – Admission/Placement/Ages of Attendance.

Background: The Policy and Personnel Committee reviews policies with the administration to ensure they are current and appropriate.

Alternative Strategies: N/A

Cost (if applicable): N/A **Funding Source:** N/A

Beginning Date of Program or Project: N/A

Ending Date of Program or Project: N/A

Recommendation or Comment: The Board of Education Policy & Personnel Committee is bringing the draft Policy 5111 to the full Board for a First Reading.

Titles of Attachments:

1. DRAFT Policy 5111

Signature of Staff Member Submitting Report

Signature of Superintendent of Schools

Policy 5111

Admission/Placement/Ages of Attendance - Revised Policy

Draft

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Students

Admission/Placement/Ages of Attendance

Admission

The Southington Board of Education (the "Board") complies with its legal obligation to cause each child five years of age and over and under eighteen years of age who is not a high school graduate and is residing within the Board's jurisdiction to attend school in accordance with Connecticut General Statutes § 10-184.

Effective July 1, ~~2024~~2026, the Southington Public Schools (the "District") shall be open to resident children five years of age and over who reach age five on or before the first day of September of any school year. ~~For children who will not reach the age of five on or before the first day of September of the school year, the child's parent or guardian may submit a written request to the principal of the school seeking early admission to the District. Upon receipt of such written request, the principal and an appropriate certified staff member shall assess such child to determine whether admitting the child is developmentally appropriate. For decisions relating to early admission to the District, the decision of the principal and appropriate certified staff shall be final.~~

~~The Superintendent or designee shall be responsible for developing administrative regulations in furtherance of this policy. Such regulations shall identify procedures for the receipt and processing of requests for early admission to the District and for assessing whether early admission of a child is developmentally appropriate.~~

All programs offered within the Southington Public School district are offered for all students without consideration of race, color, national origin, sex, disability, sexual orientation, gender identity and expression, religion or age.

Students who are classified as homeless under federal law, and therefore do not have a fixed residence, will be admitted pursuant to federal law. Exceptions from routine admission may be made by the superintendent or designee.

Each child entering the district schools for the first time must present a birth certificate or offer legal evidence of birth data, as well as proof of a recent physical examination and required immunizations. If the parents or guardians of any children are unable to pay for such immunizations, the expense of such

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immunizations shall, on the recommendation of the Board, be paid by the town. Proof of domicile may also be requested by the district registrar.

Any child entering or returning to the district from placement in a juvenile detention school, the Connecticut Juvenile Training School, or any other residential placement, shall have the educational records of such child provided to the Superintendent of Schools by the Department of Children and Families (DCF) and the Judicial Department. Such information will be shared with the Principal of the school to which the student is assigned. The Principal can disclose them to the staff who teach or care for the child.

The District will immediately enroll any student who transfers from Unified District No. 1 or Unified District No 2. A student transferring from the Unified School Districts who had previously attended school in the local District shall be enrolled in the school such student previously attended, provided such school has the appropriate grade level for the student.

Placement

According to Connecticut General Statute 10-186 the Board of Education shall provide education for all persons five years of age and older and all students remain eligible for special education services under the IDEA through the end of the school year during which the student turns age 22, or until the student graduates from high school with a regular high school diploma, whichever occurs first ~~under twenty one years of age who have not graduated from a high school or vocational school, except as provided in Connecticut General Statutes 10 233c and 10 233d. According to Connecticut~~

General Statute 10-76d (b2), special education will be provided for children who have attained the age of three and who have been identified as being in need of special education, and whose educational potential will be irreparably diminished without special education. If a special education student is being considered for an exception, the Planning and Placement Team (PPT) will make a recommendation to the administrator in charge of special education.

Note: *When a student is enrolling in a new school district or new state charter school, written notification of such enrollment shall be provided to the previous school district or charter school not later than two business days after the student enrolls.*

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Children who apply for initial admission to the district's schools by transfer from nonpublic schools or from schools outside the district will be placed at the grade they would have reached elsewhere pending observation and evaluation by classroom teachers, guidance personnel, and the school Principal. After such observations and evaluations have been completed, the Principal will determine the final grade placement of the children.

Children who have attained the age of nineteen or older may be placed in an alternative school program or other suitable educational program if they cannot acquire a sufficient number of credits for graduation by age twenty-one.

Ages of Attendance

Parents/guardians of children five years of age and over and under eighteen years of age, are obligated by Connecticut law to require their children to attend public day school or its equivalent in the district in which such child resides, unless such child is a high school graduate or the parent/guardian of such child is able to show that the child is elsewhere receiving equivalent instruction in the studies taught in the public schools.

The parent/guardian of a child five years of age shall have the option of not sending the child to school until the child is six years of age. The parent/guardian of a child six years of age shall have the option of not sending the child to school until the child is seven years of age.

Each year, the parent/guardian choosing to exercise this option must personally appear at the school district office and sign an option form. The district shall provide the parent/guardian with information on the educational opportunities available in the school system.

The parent/guardian of a child seventeen years of age must consent to such child's withdrawal from school. The parent/guardian of a child seventeen years of age shall exercise this option by personally appearing at the school district office to sign a withdrawal form. Such withdrawal form shall include an attestation from a guidance counselor or school administrator of the school that the district has provided the parent or person with information on the educational options available in the school system and in the community.

Children who have attained the age of seventeen and who have voluntarily terminated enrollment in the district's schools with parental permission as described previously and subsequently seeks readmission may be denied readmission for up to ninety school days from the date of such termination, unless such child seeks readmission to a district school not later than ten days

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after such termination. In such case the child will be provided school accommodations not later than three days after the requested readmission.

Public Act 23-137, which amends subsection (b) of Section 10-76d of the Connecticut General Statutes (CGS)

Public Act 23-208, "An Act Making Certain Revisions to the Education Statutes."

10-15 Towns to maintain schools
10-15c Discrimination by public schools prohibited. School attendance for five-year-olds
10-220 Duties of boards of education
10-221 Board of education to prescribe rules, policies, and procedures
10-76a - 10-76g re special education
10-184 Duties of parents (re mandatory schooling for children ages five to sixteen, inclusive) - as amended by PA 98-243, PA 00-157 and PA 09-6 (September Special Session)
10-220h Transfer of student records, as amended.
P.A. 11-115 An Act Concerning Juvenile Reentry and Education
10-233a - 10-233f Inclusive; re: suspend, expel, removal of pupils
10-233c Suspension of pupils
10-233d Expulsion of pupils
10-233k Notification of school officials of potentially dangerous students. (as amended by PA 01-176)
10-261 Definitions

(cf. 0521 - Nondiscrimination)
(cf. 5112 - Ages of Attendance)
(cf. 5118.1 - Homeless Students)
(cf. 5141 - Student Health Services)
(cf. 6171 - Special Education)

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(cf. 6146 - Graduation Requirements)

State Board of Education Regulations

10-76a-1 General definitions (c) (d) (q) (t)
10-76d-7 Admission of student requiring special education (referral) 10-204a Required immunizations (as amended by PA 98-243) McKinney-Vento Homeless Assistance Act, 42 U.S.C. §11431 et seq. *Plyler vs. Doe*, 457 U.S. 202 (1982)

Policy adopted: February 1989
Policy Revised: 6/00, rev 7/01, rev 10/02, rev 11/07, rev 11/09, rev 7/11 Policy Revised: March 9, 2017
Policy Revised: February 2024
Policy Revised: March 2026

BOARD OF EDUCATION
SOUTHINGTON, CONNECTICUT

Informational Only X **Board Meeting Date** April 16, 2026

Decision Requested **Agenda Code** 11 k.

AGENDA REPORTING FORM

Agenda Topic: Policy 5121 – Examination/Grading/Rating - REVISED - First Reading.

Summary of Issue: The Policy & Personnel Committee has reviewed Policy 5121 – Examination/Grading/Rating.

Background: The Policy and Personnel Committee reviews policies with the administration to ensure they are current and appropriate.

Alternative Strategies: N/A

Cost (if applicable): N/A **Funding Source:** N/A

Beginning Date of Program or Project: N/A

Ending Date of Program or Project: N/A

Recommendation or Comment: The Board of Education Policy & Personnel Committee is bringing the draft Policy 5121 to the full Board for a First Reading.

Titles of Attachments:

1. DRAFT Policy 5121

Signature of Staff Member Submitting Report

Signature of Superintendent of Schools

Policy 5121

Examination/Grading/Rating - Revised Policy

Draft

Series 5000: Students

Progress/Records

Examination/Grading/Rating

The Board of Education seeks, through performance objectives in its instructional program, to make achievement both recognizable and possible for students.

The issuance of grades on a regular basis serves to promote a process of continuous evaluation of student performance, to inform the student, the student's parents and counselor of his/her progress, and to provide a basis for bringing about change in student performance, if such change seems necessary.

(cf. 6146 – Graduation Requirements)
(cf. 6180 – Evaluation of the Instructional Program)

Legal Reference:
Connecticut General Statutes
10-14m, Development and submission of educational evaluation and remedial assistance plans. Content of plan.
10-14p, Reports by local and regional boards re: instructional improvement and student progress
10-221a, High school graduation requirements

Policy Adopted: February 1989
Policy Reviewed: August 2002
Policy Reviewed: March 2026

BOARD OF EDUCATION
SOUTHINGTON, CONNECTICUT

Informational Only X **Board Meeting Date** April 16, 2026

Decision Requested **Agenda Code** 11 l.

AGENDA REPORTING FORM

Agenda Topic: Policy 5133 – Participation in Athletics and Other Co-Curricular Activities - REVISED - First Reading.

Summary of Issue: The Policy & Personnel Committee has reviewed Policy 5133 – Participation in Athletics and Other Co-Curricular Activities.

Background: The Policy and Personnel Committee reviews policies with the administration to ensure they are current and appropriate.

Alternative Strategies: N/A

Cost (if applicable): N/A **Funding Source:** N/A

Beginning Date of Program or Project: N/A

Ending Date of Program or Project: N/A

Recommendation or Comment: The Board of Education Policy & Personnel Committee is bringing the draft Policy 5133 to the full Board for a First Reading.

Titles of Attachments:

1. DRAFT Policy 5133

Signature of Staff Member Submitting Report

Signature of Superintendent of Schools

Policy 5133

Participation in Athletics and Other Co-Curricular Activities

- Revised Policy

Draft

Series 5000: Students

Student Activity

Participation in Athletics and Other Co-Curricular Activities

Participation in athletics or co-curricular activities (previously referred to as extra-curricular activities) at Southington Public Schools is a privilege and demands certain commitments and responsibilities. Such programs are reserved for students enrolled and attending the Southington Public Schools.
The school system and the community have a high level of expectations for the students who represent the schools. Therefore, it is expected that student athletes and participants in other co-curricular activities shall conform to the behavioral norms of the school, the rules and regulations established in the student handbook, and any other published or established rules or regulations applicable to a particular activity.

When the administration becomes aware of any student athlete or participant in co-curricular activities who violate appropriate behavioral standards, it has the right to suspend or dismiss the student from the athletic team or co curricular activity. Students may not appear at or participate in events related to their team or student organization during the time in which they are suspended from their sport or activity. The expectation of appropriate behavior for students does not end when an athletic season or student program is over, or when that student is off school grounds. Therefore, out of season violations will affect in season participation as determined by the administration.

Behaviors that could result in suspension or dismissal from an athletic team or co-curricular activity include, but are not limited to, the following behaviors exhibited on or off school property, at any time of the day, week or year.

1. Acts of insubordination toward any school district employee or representative, or any official responsible for conducting or coordinating an athletic or co-curricular activity.
2. Cutting classes or school or team/student organization activities.
3. Lack of academic effort or not meeting basic academic eligibility requirements.
4. Stealing of any kind.
5. Vandalism or property destruction.
6. Use, sale, distribution or possession of illegal substances, illegal, illicit or
7. non-illicit drugs or alcohol.
8. Any substantiated violation of
   - Title IX
   - Title VI or
   - Bullying.
9. Any behavior which is in violation of school rules or the laws of the Local, State or Federal Governments.

Policy Adopted: September 2009
Policy Revised: September 2015
Policy Revised March 2026

BOARD OF EDUCATION
SOUTHINGTON, CONNECTICUT

Informational Only X **Board Meeting Date** April 16, 2026

Decision Requested _____ **Agenda Code** 11 m.

AGENDA REPORTING FORM

Agenda Topic: SHS Science - Biochemistry – REVISED - First Reading.

Summary of Issue: SHS Science - Biochemistry – REVISED - First Reading.

Background: _____

Alternative Strategies: N/A

Cost (if applicable): N/A **Funding Source:** N/A

Beginning Date of Program or Project: N/A

Ending Date of Program or Project: N/A

Recommendation or Comment: The Board of Education Curriculum & Instruction Committee is bringing the SHS Science - Biochemistry – REVISED – to the full Board for a First Reading.

Titles of Attachments:

1. Course Proposal

Signature of Staff Member Submitting Report

Signature of Superintendent of Schools

Unit Overview	
Unit Title:	Unit 1: Baby Matthew/Biochemistry
Teacher:	Rachel Hahn
Grade Level/Course:	10/Academic Biology
Length/Dates:	12 blocks (including assessment)
Unit Summary: 2-4 sentences describing the main ideas, content and skills of the unit.	Students will explore the phenomenon of a seemingly healthy baby who suddenly is diagnosed with failure to thrive. By analyzing the patterns of the data on baby Matthew, students will begin to investigate the materials that living things need to be healthy by exploring biomolecules and their functions. Students will explore how living things build and break down these molecules through metabolic pathways and using enzymes and will begin to recognize that errors in this process could be leading to baby Matthew's problems. The unit will conclude with students creating arguments about why specific genetic conditions could or could not be the diagnosis for baby Matthew. To conclude the unit, students will be able to explain which genetic condition best fits the patterns of the data and why.

Performance Expectations

- HS-LS1-6 Construct and revise an explanation based on evidence for how carbon, hydrogen, and oxygen from sugar molecules may combine with other elements to form amino acids and/or other large carbon-based molecules.
- HS-LS1-7 Use a model to illustrate that cellular respiration is a chemical process whereby the bonds of food molecules and oxygen molecules are broken and the bonds in new compounds are formed resulting in a net transfer of energy.
- HS-PS1-5. Apply scientific principles and evidence to provide an explanation about the effects of changing the temperature or concentration of the reacting particles on the rate at which a reaction occurs.

Science and Engineering Practices	Disciplinary Core Ideas	Crosscutting Concepts
Developing and Using Models • Use a model based on evidence to illustrate the relationships between systems or between components of a system.	**LS1.C: Organization for Matter and Energy Flow in Organisms** • The sugar molecules thus formed contain carbon, hydrogen, and oxygen: their hydrocarbon backbones are used to make amino acids and other carbon-based	**Energy and Matter** • Changes of energy and matter in a system can be described in terms of energy and matter flows into, out of, and within that system. • Energy cannot be created or destroyed; it

Constructing Explanations and Designing Solutions ● Construct and revise an explanation based on valid and reliable evidence obtained from a variety of sources (including students' own investigations, models, theories, simulations, peer review) and the assumption that theories and laws that describe the natural world operate today as they did in the past and will continue to do so in the future. ● Apply scientific principles and evidence to provide an explanation of phenomena and solve design problems, taking into account possible unanticipated effects.	molecules that can be assembled into larger molecules (such as proteins or DNA), used for example to form new cells. ● As matter and energy flow through different organizational levels of living systems, chemical elements are recombined in different ways to form different products. ● As a result of these chemical reactions, energy is transferred from one system of interacting molecules to another. Cellular respiration is a chemical process in which the bonds of food molecules and oxygen molecules are broken and new compounds are formed that can transport energy to muscles. Cellular respiration also releases the energy needed to maintain body temperature despite ongoing energy transfer to the surrounding environment. **PS1.B: Chemical Reactions** ● Chemical processes, their rates, and whether or not energy is stored or released can be understood in terms of the collisions of molecules and the rearrangements of atoms into new molecules, with consequent changes in the sum of all bond energies in the set of molecules that are matched by changes in kinetic energy.	only moves between one place and another place, between objects and/or fields, or between systems. **Patterns** ● Different patterns may be observed at each of the scales at which a system is studied and can provide evidence for causality in explanations of phenomena.

Transfer Goals (Vision of the Graduate)

List the long-term and/or school-wide independent student behaviors that this unit will address.

Delete the transfer goals that do not apply to your unit:

Critical Thinking Transdisciplinary Goal:

Students inquire, identify, and ethically solve real-world problems through reasoning and a reflection on the challenges and benefits of the process and/or solution(s).

The first few days of school should be used to establish what it means to be alive and to solidify the characteristics of life. Teachers can do this at their own discretion.

Unit 1- Biochemistry			
Vocabulary List ***Unit Tracker***	***Anchoring Phenomenon: Baby Matthew*** ***MATERIALS NEEDED***		
Opening day: What is Life?			
What does it mean to be living? (1/2 block)	**Anchoring Phenomenon: What is life?** Introduction to the Characteristics of Life: Observation Activity (with viruses)	**LEARNING TARGET:** I can ask questions about what criteria an organism must meet in order to be considered living. **SUCCESS CRITERIA:** • I can develop at least two questions about the new phenomenon.	**Know:** • Life is classified based on several characteristics that separate it from non-living. **Wonder:** • What makes up the matter that is essential to life? **Next Steps:** • Identify the characteristics of living things in various objects and use identified characteristics to determine if the object is living or nonliving.
How can objects be classified as living or non-living? (1/2 block)	Living, Nonliving, or Dead? Lab Activity	**Learning Target:** I will use patterns in a variety of specimens to construct an explanation of the criteria to determine if something is living. **Success Criteria:** • I can identify common characteristics of living things. • I can differentiate between living and nonliving things using specific criteria.	**Know:** • Living things all share similar or the same characteristics whereas non-living things lack one or more of the characteristics that would classify it as living. **Wonder:** • What makes up the matter that is essential to life? **Next Steps:**

			• Investigate whether the characteristics of life are common to all living things.
Unit 1 Anchoring Phenomenon: Baby Matthew			
Target Question	**Activities**	**Learning Target**	**Student will know and wonder**
What do we know about what is happening to baby Matthew? (½ block) **DQB Examples:** - **Is there something wrong with his food?** - **Is there something wrong with his digestive system?** - **What is the funny smell in his diaper?**	**Anchoring Phenomenon: Baby Matthew** • Introduce case study with this unit opener presentation, students generate ideas about what it means for a newborn to "fail to thrive" and what could possibly explain the funny smelling diaper of baby Matthew. ○ Student Note Sheet • For the Driving Question Board, you can use sticky notes, or for a virtual option. • Fill out Unit Tracker.	**Learning Target:** I can generate questions about what is causing Matthew's failure to thrive using data and patterns. **Success Criteria:** • Create a hypothesis about what may be causing the issue. • Generate three questions related to the phenomenon. • Fill out the unit tracker.	**Know:** • Something is causing Matthew to not thrive. **Wonder:** • What could be causing the issues? **Next Steps:** • Students will explore what materials living things need to thrive and be healthy.
What are biomolecules and how do they help the body? (3-4 blocks)	**Explore**: Macromolecule Card Sort **Explain**: Macromolecule Properties Graphic Organizer (Potential JigSaw Activity) **Explain:** Macromolecule Campaign Poster and Graphic Organizer BTC- Random Grouping	**Learning Target:** I can use patterns to construct an explanation of the properties and functions of biomolecules. **Success Criteria:** • I can identify the structure of the four biomolecules. • I can explain the functions of the four classes of biomolecules. • I can use patterns to make a prediction about which	**Know:** • Students will know the monomers and polymers of carbohydrates, lipids, protein, and nucleic acids. • Students will know the basic functions of each biomolecule and an example of each. • Students will make predictions about which biomolecules may have been affected in Matthew. **Wonder:**

	Biomolecules Research Project w/ graphic organizer (Revised 2025) **Evaluate:** ● **Baby Matthew Performance Task** Formula Cards for part 3 ● **BTC random grouping** - **Sentence starters for CER** **Elaborate:** ● Organic Compounds Card Sort ● Amoeba Sisters Biomolecules Video and GoFormative Assessment ○ Video Recap w.s.	biomolecule may be impacted in Matthew.	● How do these molecules get broken down and built up? **Next Steps:** Students will explore the chemical reactions that break down and build up these macromolecules.
How are biomolecules put together and broken apart? (1-2 blocks)	**Explore**: ● Chemistry of Life Basics Notes ● Chemistry of Life Basics Reading Comprehension (New canvas quiz version sent too) **Explain**: ● Option 1: Molecule building with kits ● Option 2: Metabolism of Biomolecules Activity (a bit more simple) BTC-Random grouping ○ Teacher Slides ○ or Presentation Slides **Elaborate**: Optional Extensions:	**Learning Target:** I can use models to construct an explanation about how polymers are constructed from monomers. **Success Criteria:** ● **I can demonstrate hydrolysis and dehydration synthesis using models.** ● **I can identify monomers and polymers.**	**Know:** ● Dehydration synthesis and hydrolysis are the chemical reactions involved in breaking and making biomolecules. ● Baby Matthew may have had an issue with a step of this process. **Wonder:** ● How are living things able to perform these chemical reactions? What may have been different in Matthew? **Next Steps:** Students will explore the role of enzymes in chemical reactions in living things and in what environments they are able to work best.

	Biomolecules and Nutrition Infographic **Evaluate**: • Biomolecules Review • Dehydration Synthesis and Hydrolysis Review		
Quiz #1: Biomolecules (HS-LS1-6) **What's Behind Me Review Game**			
Target Question	**Activities**	**Learning Target**	**Student will know and wonder**

How do organisms make and break biomolecules?
(3-4 blocks)
	Explore:
	• Intro to Metabolism Slides with student worksheet
	Explain:
	• Enzyme cornell Notes or POGIL; DeStef version
	• Enzymes - How do they work?
	• Amoeba Sisters
	Elaborate:
	• Enzyme Inquiry Lab
	  ○ Virtual Option
	  ○ Enzyme
	• Toothpickase Lab
		Learning Target: I can use models to construct an explanation about how enzymes speed up chemical reactions.
		
		Success Criteria:
		• **I can use a model to identify the active site, substrate, and enzyme.**
		• **I can explain how temperature and pH affect enzyme function.**
			Know:
			• Enzymes speed up chemical reactions by lowering activation energy.
			• Enzymes only work when they are the correct shape and can become denatured in a variety of ways.
			Wonder:
			• Could Matthew have an issue with one of his enzymes?
			Next Steps:
			Students will explore a variety of enzymes with various metabolic pathways to determine which enzyme may be affected in baby Matthew.

How does metabolism explain what is happening to baby Matthew? **(1 block)**	Elaborate: • Baby Matthew Disease Research 2025 (old) Metabolic Disease Research • Slides for student research (make copies for each class)	**Learning Target:** I can use models and research to construct an explanation about how enzymes affect various metabolic functions. **Success Criteria:** • **I can research a genetic**	**Know:** • There are a variety of conditions that cause enzymes to not work effectively. • Baby Matthew's condition is caused by MSUD. **Wonder:** •

		condition that affects a metabolic pathway. • I can construct an argument about a metabolic condition being the cause of Matthew's condition.	**Next Steps:**
Summative Assessment (end of Sept/beginning of Oct): (worth x2 in PS) **(simplified text version)** **Review Sheet** **What's Behind Me? Sequel** **Interim Assessment LS1-6**			

January 30, 2026

Baby Matthew: Biochemistry

Slideshow created by Lisa Daigle

Baby Matthew

Lesson Phenomenon

Baby Matthew is born and seems perfectly healthy, but after a few days starts to exhibit strange symptoms, called **“failure to thrive”**. These symptoms seem like they may lead to physical impairment, and could possibly be linked to death. What is causing the problem? Can Baby Matthew be saved?

Essential Question: How do cells make the molecules they need and get rid of the molecules they don’t need? What happens if steps in this process aren’t working?

Performance Expectations

- **HS-LS1-6** Construct and revise an explanation based on evidence for how carbon, hydrogen, and oxygen from sugar molecules may combine with other elements to form amino acids and/or other large carbon-based molecules.
- **HS-LS1-7** Use a model to illustrate that cellular respiration is a chemical process whereby the bonds of food molecules and oxygen molecules are broken and the bonds in new compounds are formed resulting in a net transfer of energy.
- **HS-PS1-5.** Apply scientific principles and evidence to provide an explanation about the effects of changing the temperature or concentration of the reacting particles on the rate at which a reaction occurs.

SEPs, DCIs, and CCCs

Science & Engineering Practices

- Developing and Using Models
- Constructing Explanations and Designing Solutions

Disciplinary Core Ideas

- LS1.C: Organization for Matter and Energy Flow in Organisms
- PS1.B: Chemical Reactions

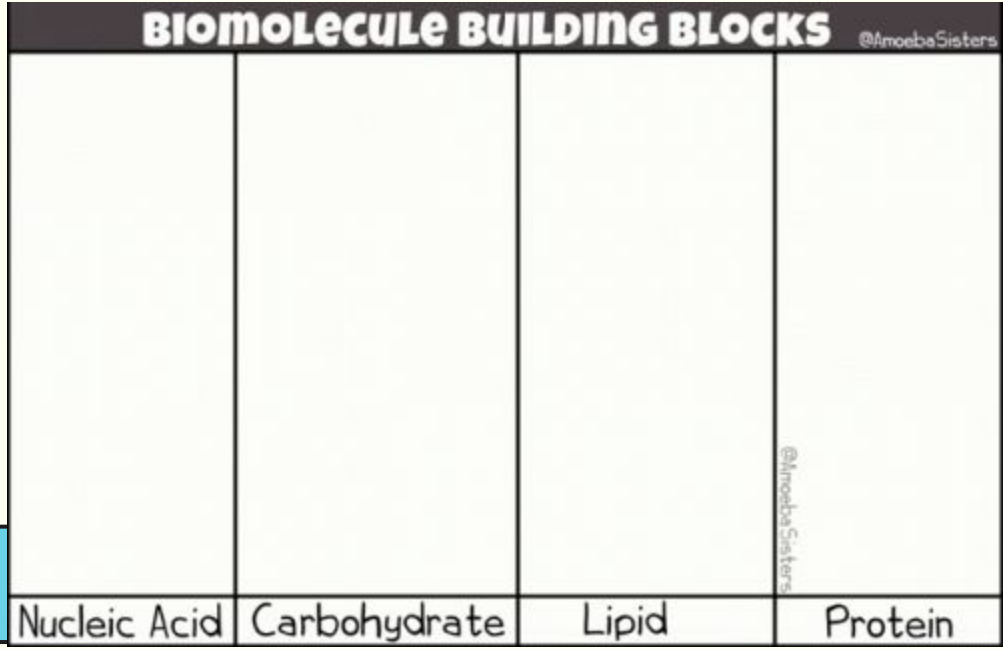
Cross Cutting Concepts

- Energy and Matter
- Patterns

Biomolecules

Learning about Biomolecules

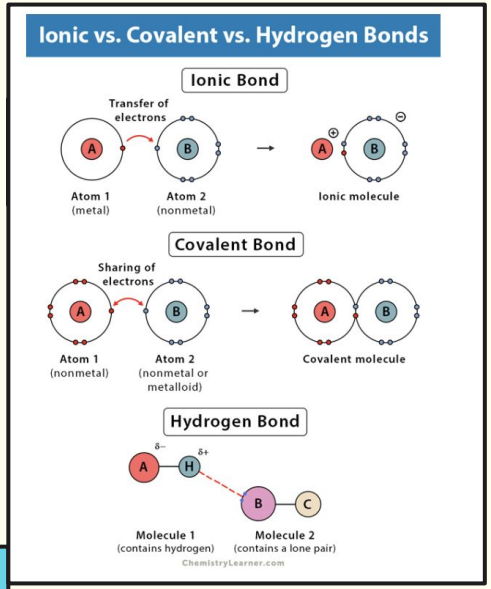
Students learn about biomolecules through various activities such as card sorts and a research project. Students learn about basic chemistry to learn the building blocks of biomolecules and how they form.



Biomolecules

Assessments

- **Baby Matthew Performance Task:** Is Baby Matthew Receiving Sufficient Nutrition? Critical Thinking Task
- **Quiz:** Biomolecules



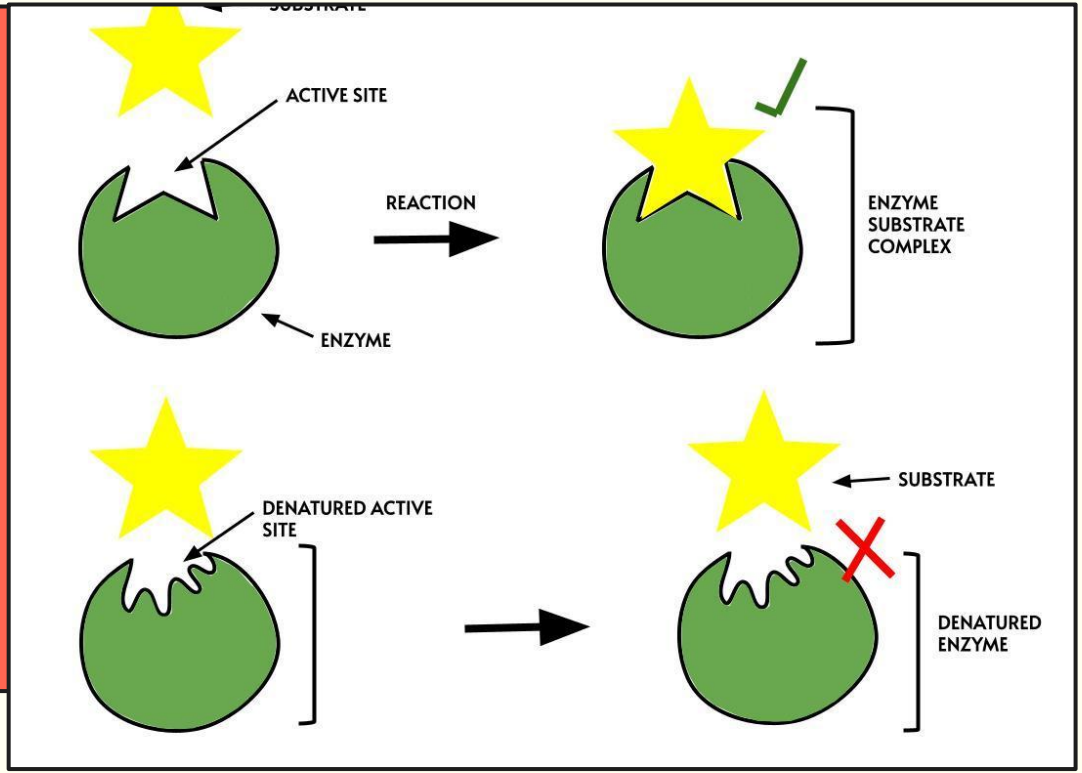
Metabolism & Enzymes

Learning about Metabolism & Enzymes

Students use virtual labs and hands on activities.

Assessment

Biomolecules & Enzymes Assessment



What caused Matthew's Failure to Thrive?

Baby Matthew's Diagnosis Research

- What was his causing his failure to thrive?
- Research different genetic diseases
  - Tay-Sachs Disease
  - Maple Syrup Urine Disease
  - Keystone Synthesis Defect
  - GSD Type I: Von Gierke Disease
- Students conclude the genetic disease that baby Matthew inherited and write up a CER

BOARD OF EDUCATION
SOUTHINGTON, CONNECTICUT

Informational Only X **Board Meeting Date** April 16, 2026

Decision Requested _____ **Agenda Code** 11 n.

AGENDA REPORTING FORM

Agenda Topic: SHS Science – Astronomy – Unit 1 – Meteors, Orbits and Gravity – NEW - First Reading.

Summary of Issue: SHS Science – Astronomy – Unit 1 – Meteors, Orbits and Gravity – NEW - First Reading.

Background:

Alternative Strategies: N/A

Cost (if applicable): N/A **Funding Source:** N/A

Beginning Date of Program or Project: N/A

Ending Date of Program or Project: N/A

Recommendation or Comment: The Board of Education Curriculum & Instruction Committee is bringing the SHS Science – Astronomy – Unit 1 – Meteors, Orbits and Gravity – NEW – to the full Board for a First Reading.

Titles of Attachments:

1. Course Proposal

Signature of Staff Member Submitting Report

Signature of Superintendent of Schools

Unit Overview	
Unit Title:	Astronomy: Meteors, Orbits, & Gravity
Teacher:	Duffy
Grade Level/Course:	10-12
Length/Dates:	12 weeks
Unit Summary:	How have collisions with objects from space changed Earth in the past, and how could they affect our future? This unit is designed to introduce students to the motion of objects in our solar system through the perspectives of matter, force, and energy. The learning is anchored by the appearance of a large fireball in the sky over Siberia in 2013 (the Chelyabinsk meteor). This phenomenon provides the context in which to investigate how and why objects from space sometimes collide with Earth. To figure this out, students apply the concepts of Newton's universal law of gravitation, orbital motion, energy transfer with gravitational fields, and the history of Earth. P.4: Meteors, Orbits, & Gravity P.4 Meteors, Orbits, & Gravity Unit Overview Materials

Performance Expectations

- HS-ESS1-4: Use mathematical or computational representations to predict the motion of orbiting objects in the solar system.
- HS-ESS1-6: Apply scientific reasoning and evidence from ancient Earth materials, meteorites, and other planetary surfaces to construct an account of Earth's formation and early history.
- HS-PS2-4: Use mathematical representations of Newton's Law of Gravitation and Coulomb's Law to describe and predict the gravitational and electrostatic forces between objects.
- HS-PS3-1: Create a computational model to calculate the change in the energy of one component in a system when the change in energy of the other component(s) and energy flows in and out of the system are known.
- HS-PS3-2: Develop and use models to illustrate that energy at the macroscopic scale can be accounted for as a combination of energy associated with the motion of particles (objects) and energy associated with the relative positions of particles (objects).

Science and Engineering Practices	Disciplinary Core Ideas	Crosscutting Concepts
Using Mathematical and Computational Thinking Mathematical and computational thinking in 9–12 builds on K–8 experiences and progresses to using algebraic thinking and analysis, a range of linear and nonlinear functions including trigonometric functions, exponentials and logarithms, and computational tools for statistical analysis to analyze, represent, and model data. Simple computational simulations are created and used based on mathematical models of basic assumptions. • Use mathematical or computational representations of phenomena to describe explanations. • Use mathematical representations of phenomena to describe explanations. • Create a computational model or simulation of a phenomenon, designed device, process, or system. **Constructing Explanations and Designing Solutions** Constructing explanations and designing solutions in 9–12 builds on K–8 experiences and progresses to explanations and designs that are supported by multiple and independent student-generated sources of evidence consistent with scientific ideas, principles, and theories. • Apply scientific reasoning to link evidence to the claims to assess the extent to which the reasoning and data support the explanation or conclusion. **Developing and Using Models** Modeling in 9–12 builds on K–8 and progresses to using, synthesizing, and developing models to predict and show relationships among variables	**ESS1.B: Earth and the Solar System** • Kepler's laws describe common features of the motions of orbiting objects, including their elliptical paths around the sun. Orbits may change due to the gravitational effects from, or collisions with, other objects in the solar system. **ESS1.C: The History of Planet Earth** • Although active geologic processes, such as plate tectonics and erosion, have destroyed or altered most of the very early rock record on Earth, other objects in the solar system, such as lunar rocks, asteroids, and meteorites, have changed little over billions of years. Studying these objects can provide information about Earth's formation and early history. **PS1.C: Nuclear Processes** • Spontaneous radioactive decays follow a characteristic exponential decay law. Nuclear lifetimes allow radiometric dating to be used to determine the ages of rocks and other materials. *(secondary* **PS2.B: Types of Interactions** • Newton's law of universal gravitation and Coulomb's law provide the mathematical models	**Scale, Proportion, and Quantity** • Algebraic thinking is used to examine scientific data and predict the effect of a change in one variable on another (e.g., linear growth vs. exponential growth). **Stability and Change** • Much of science deals with constructing explanations of how things change and how they remain stable. **Patterns** • Different patterns may be observed at each of the scales at which a system is studied and can provide evidence for causality in explanations of phenomena. **Systems and System Models** • Models can be used to predict the behavior of a system, but these predictions have limited precision and reliability due to the assumptions and approximations inherent in models. **Energy and Matter** • Energy cannot be created or destroyed—only moves between one place and another place, between objects and/or fields, or

between systems and their components in the natural and designed worlds. ● Develop and use a model based on evidence to illustrate the relationships between systems or between components of a system.	to describe and predict the effects of gravitational and electrostatic forces between distant objects. ● Forces at a distance are explained by fields (gravitational, electric, and magnetic) permeating space that can transfer energy through space. Magnets or electric currents cause magnetic fields; electric charges or changing magnetic fields cause electric fields. **PS3.A: Definitions of Energy** ● Energy is a quantitative property of a system that depends on the motion and interactions of matter and radiation within that system. That there is a single quantity called energy is due to the fact that a system's total energy is conserved, even as, within the system, energy is continually transferred from one object to another and between its various possible forms. ● At the macroscopic scale, energy manifests itself in multiple ways, such as in motion, sound, light, and thermal energy. ● These relationships are better understood at the microscopic scale, at which all of the different manifestations of energy can be modeled as a combination of energy associated with the motion of particles and energy associated	between systems.

	with the configuration (relative position of the particles). In some cases the relative position energy can be thought of as stored in fields (which mediate interactions between particles). This last concept includes radiation, a phenomenon in which energy stored in fields moves across space. **PS3.B: Conservation of Energy and Energy Transfer** ● Conservation of energy means that the total change of energy in any system is always equal to the total energy transferred into or out of the system. ● Energy cannot be created or destroyed, but it can be transported from one place to another and transferred between systems. ● Mathematical expressions, which quantify how the stored energy in a system depends on its configuration (e.g. relative positions of charged particles, compression of a spring) and how kinetic energy depends on mass and speed, allow the concept of conservation of energy to be used to predict and describe system behavior. ● The availability of energy limits what can occur in any system.	

Transfer Goals (Vision of the Graduate)
List the long-term and/or school-wide independent student behaviors that this unit will address.

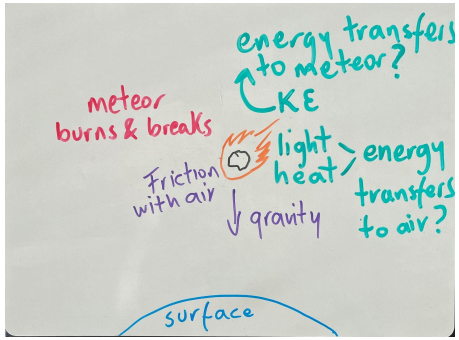
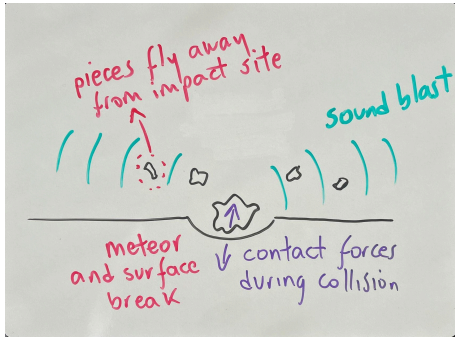
Critical Thinking Transdisciplinary Goal:
Students inquire, identify, and ethically solve real-world problems through reasoning and a reflection on the challenges and benefits of the process and/or solution(s).

Creativity/Innovation Transdisciplinary Goal:
Students work creatively to design and refine implementation of ideas by taking risks, persevering, and exploring possibilities.

Collaboration Transdisciplinary Goal:
Students flexibly and cooperatively work with others in physical and virtual environments and assume shared responsibility for completing a project or achieving a goal.

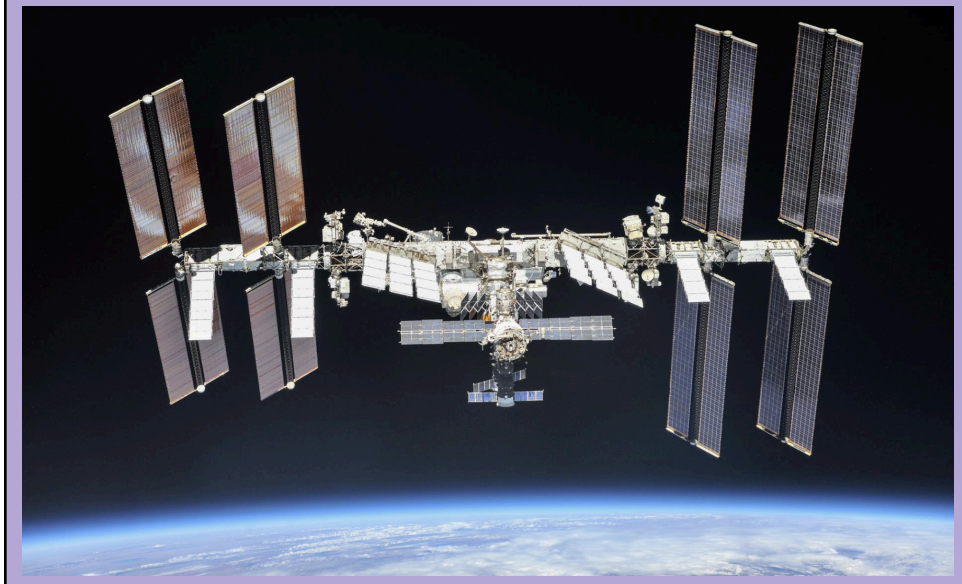
Communication Transdisciplinary Goal:
Students effectively communicate and use interpersonal skills in a range of formal and informal contexts.

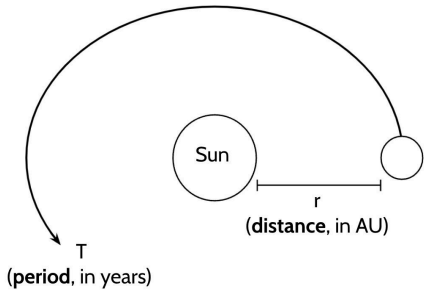
C District Rubrics

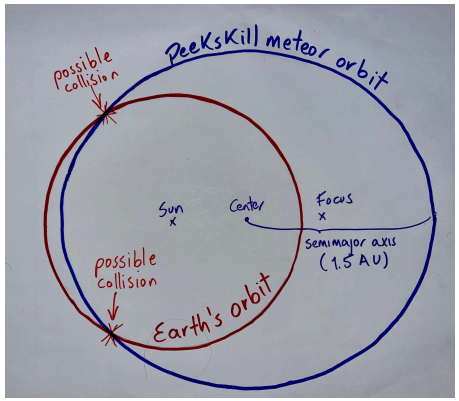
Target Question	Activity	Standard Objectives/Learning Target	Student will know and wonder
Learning Sequence 1: Class Notes: LS1 Meteors, Orbits, and Gravity - Duffy			
Lesson 1: Why is stuff falling from the sky? Lesson 1 - P.4 Meteors, Orb…   **KEY for all of lesson 1's models:** **P.4 Lesson 1 Answer Key Ini…**	P.4 Lesson 1 Teacher Edition **-DEVELOP INITIAL MODEL OF CHELYABINSK EVENT** **-DEVELOP A CONSENSUS MODEL OF OBSERVED PHENOMENA DURING THE CHELYABINSK EVENT POSTER** **-USE SCALE TO ORGANIZE PHENOMENA CARDS** **P.4 Lesson 1 Reference Phe…** **P.4 Lesson 1 Slides Phenom…** **-DEVELOP INITIAL MODELS OF THE MOTION OF SPACE OBJECTS** **KEY for all of lesson 1's models:** **P.4 Lesson 1 Answer Key Ini…**	**Learning Target:** I can make an evidence based model using the Chelyabinsk meteor to show how parts of a system work together at different scales. **Success Criteria:** I will… • explain changes in matter, energy, and motion of orbiting objects. • ask questions about a meteor event and related data to find out what causes orbiting objects to move and how gravity affects them. • ask questions to learn about what happens when orbiting objects, like meteors, hit Earth. **1.A** Develop a model using evidence from the Chelyabinsk meteor event and related phenomena to illustrate how the interactions between different parts of the system at different scales help explain the changes in matter, energy, and/or motion of	**What students will wonder:** Why is stuff falling from the sky? We explore eyewitness video clips of the Chelyabinsk meteor. We categorize data on other related phenomena that people have observed. We develop two sets of models, one to explain the observed changes during the Chelyabinsk event and one to explain the motion of other space objects. We develop questions for our Driving Question Board, and then record ideas for investigations and data we need to answer them. **What students will figure out:** • A rock from space broke up over Siberia in 2013, lit up the sky, and damaged buildings. • Similar phenomena have been observed in other places around the world throughout history. Sometimes part(s) of these rocks or other debris from space hit the ground, and

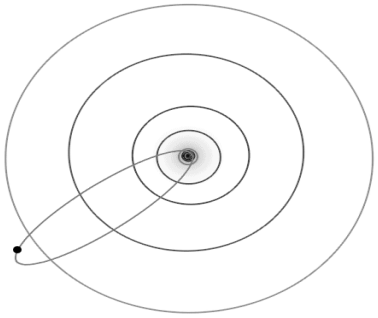
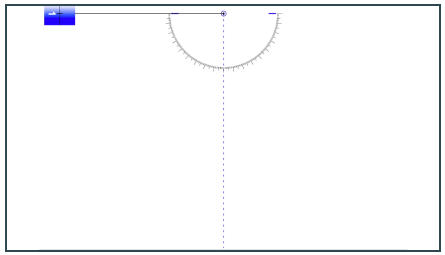
		orbiting objects. (SEP: 2.3; CCC: 2.2; DCI: PS2.B.1, PS3.A.2, ESS1.B.1) **1.B** Ask questions that arise from careful observation of a meteor event at multiple scales and data from related events to clarify and seek additional information about the causes of the motions of orbiting objects, the effects of gravitational forces on these objects, and the consequences of their impact on our planet. (SEP: 1.1; CCC: 2.2; DCI: PS2.B.1, PS3.A.2, ESS1.B.1)	sometimes they do not. • Some space objects in the solar system remain in orbit, while others collide with different objects. ***What's next?*** *We will predict the gravitational force experienced by objects at different distances from Earth's surface and conduct an investigation on magnetic forces versus distance. We will analyze data on gravitational forces for various objects and distances. We will use mathematical models to determine the force of gravity acting on space objects and consider whether this explains why some will collide with Earth while others will remain in orbit.*
Lesson 2: How far does Earth's gravity extend into space? Lesson 2 - P.4 Meteors, Orb… $F_g = G\left(\frac{m_1 * m_2}{r^2}\right)$	P.4 Lesson 2 Teacher Edition **Duffy combined handout version of Lesson 2 :** Lesson 2: Forces vs. Distan… **-CONSIDER HOW DISTANCE AFFECTS FORCE OF GRAVITY** **-COMPARE NONCONTACT FORCES: GRAVITY AND MAGNETISM**	**Learning Target:** I can make predictions about the gravitational force experienced by objects at different distances from Earth's surface. **Success Criteria:** I will… • analyze data on gravitational forces for various objects and distances.	**What students will wonder:** How far does Earth's gravity extend into space? We make predictions about the gravitational force experienced by objects at different distances from Earth's surface and carry out an investigation of magnetic forces versus distance. We analyze data on gravitational forces for various objects and distances. We use mathematical models to determine the strength of this force acting on

	-INVESTIGATE THE MAGNITUDE OF MAGNETIC FORCE ACTING ON TWO MAGNETS **P.4 Lesson 2 Handout Predi…** **-CARRY OUT AN INVESTIGATION** **-ANALYZE AND INTERPRET DATA** **Lesson 2 Magnet Investigati…** **-ANALYZE GRAPHS AND MAKE PREDICTIONS** **-USE MATHEMATICAL THINKING** **P.4 Lesson 2 Answer Key Ke…** **-DEVELOP A MODEL**	• carry out an investigation of magnetic forces versus distance. **2.A** Use simple limit cases and mathematical representations to describe patterns in the change of magnitudes of magnetic and gravitational forces on two objects caused by changes in their distances from each other. (SEP: 5.2, 5.4; CCC: 1.4; DCI: PS2.B.1, PS2.B.2) --- **Learning Target:** I can use simple examples and math to show how magnetic and gravitational forces change when the distance between two objects changes. **Success Criteria:** I will… • identify the variables in Newton's law of universal gravitation (mass of each object, distance between them, and the gravitational constant). • use algebra to solve for the gravitational force between Earth and another object. • check if my answer makes sense based on the size of the objects and their distance apart.	different space objects and consider whether this helps explain why some objects collide with Earth while others remain in orbit. **What students will figure out:** • All matter produces gravitational fields. • Forces at a distance are explained by fields (gravitational, electric, and magnetic) permeating space. • When two objects interact through a field force like gravity or magnetism, the forces between them are equal in magnitude and opposite in direction. • Newton's law of universal gravitation mathematically models how gravitational forces depend on the masses of and distance between two objects. • The force of gravity experienced by space objects alone does not fully explain why some collide with Earth while others remain in orbit. ***What's next?*** *We will use a simulation to figure out what conditions are necessary*

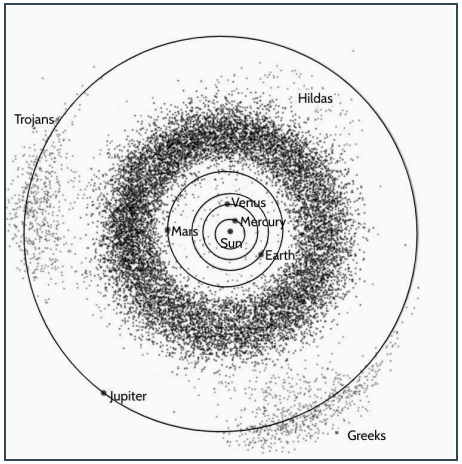
		2.B Apply techniques of algebra to solve for the gravitational force between Earth and another space object using Newton's law of universal gravitation. (SEP: 5.3; CCC: 3.5; DCI: PS2.B.1, PS2.B.2)	*for orbit. We will investigate how to quantify how force relates to other variables in circular motion. We will analyze how planets move. We will connect the circular motion and universal gravitation equations and identify the relationship between period and orbital radius.*
Built in Canvas based on this google form P.4 Lesson 2 Answer Key Exit Ticket Key NOTE:* Duffy Version is modified from OpenSci: ISS, Earth, and the Force of Gravity Assessment 		**Learning Target:** I can use simple examples and math to show how magnetic and gravitational forces change when the distance between two objects changes. **Success Criteria:** I will… • identify the variables in Newton's law of universal gravitation (mass of each object, distance between them, and the gravitational constant). • use algebra to solve for the gravitational force between Earth and another object. • check if my answer makes sense based on the size of the objects and their distance apart. **Lesson-level performance expectation being assessed** **2.A** Use simple limit cases and mathematical representations to describe patterns in the change of magnitudes of magnetic and gravitational forces on two objects caused by changes in their distances from each other. (SEP: 5.2, 5.4; CCC: 1.4; DCI: PS2.B.1, PS2.B.2)	
Lesson 3: How does gravity cause only some objects to orbit? Lesson 3 - P.4 Meteors, Orb…	P.4 Lesson 3 Teacher Edition **Duffy combined handout**	**Learning Target:** I can use models, like hands-on activities and computer simulations, to	**What students will wonder:** How does gravity cause only some objects to orbit? We use a

 Simulations used: **Gravity and Orbits** Kepler's Laws P.4 Lesson 3 Answer Key K… P.4 Lesson 13 Answer Key …	**version of Lesson 3 :** Investigation Circular Motion… **-USE SIMULATION TO INVESTIGATE HOW VELOCITY AND GRAVITY AFFECT THE MOTION OF SPACE OBJECTS** **Gravity and Orbits** **-MAKE PREDICTIONS ABOUT CHANGES IN VELOCITY** **-USE A PHYSICAL MODEL TO INVESTIGATE THE ROLE OF DISTANCE IN ORBITAL MOTION** **P.4 Lesson 3 Handout Invest…** **-DEVELOP AN EXPLANATION ABOUT THE STABILITY AND CHANGE OR ORBITS** **-MODEL PLANETARY ORBITS** **-EXAMINE THE MATHEMATICAL RELATIONSHIP BETWEEN THE PERIOD OF REVOLUTION AND THE SIZE OF THE ORBIT** **-UPDATE PERSONAL GLOSSARIES AND INTRODUCE PROGRESS TRACKER** **-EXIT TICKET**	gather data that explain how space objects stay in orbit and how their orbits can change." **Success Criteria:** I will… • read and understand data from a computer model of an object orbiting the Sun. • use algebra to find patterns between the radius of the orbit and the period of revolution. • predict what will happen to the period if the radius changes. • explain my reasoning using the data and algebraic relationships. **3.A** Use different models, including a physical manipulative and a computer simulation, to generate data supporting an explanation for how space objects can remain in stable orbits and how their orbits can change. (SEP: 2.6; CCC: 7.1; DCI: ESS1.B.1) **3.B** Use algebraic thinking to examine scientific data generated with a computer model to predict the effect of changes in the radius (a) on the period of revolution of an object in orbit around the Sun. (SEP:2.6; CCC: 3.5; DCI: ESSB.1)	simulation to figure out the relationship between velocity and force necessary for orbit. We conduct an investigation to explore how the distance between two objects affects this relationship and identify the period of revolution of an object as a lens to predict its orbital motion. We connect the circular motion and universal gravitation equations and identify the relationship between period and orbital radius. **What students will figure out:** • Some planets orbit the Sun in nearly circular orbits. • An object must have the right velocity in order to orbit a star or planet. If it is moving too fast, it will continue into space. If it is moving too slow, it will fall toward the star or planet. • The relationship between the gravitational force on an object and its velocity depends on the distance from the object it orbits. • The relationship (T^2/a^3) of orbital period (T) to radius (a) is constant for all objects orbiting the same body.

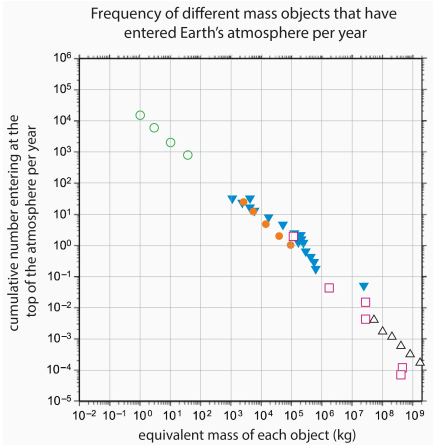
			What's next? *We will look at the orbits of objects that are not planets because planets do not seem to be at risk of colliding with each other. We will explore the elliptical nature of orbits and model orbits of objects that may be at risk of colliding with Earth.*
Lesson 4: Why do objects sometimes collide in space? Lesson 4 - P.4 Meteors, Orb…  P.4 Lesson 4 Answer Key O… P.4 Lesson 4 Answer Key E… P.4 Lesson 13 Answer Key …	P.4 Lesson 4 Teacher Edition **Duffy combined handout version of Lesson 4:** **Objects in Space and Orbital…** **-MODEL PLANET AND COMET ORBITS** **P.4 Lesson 4 Handout Orbita…** **P.4 Lesson 4 Reading Objec…** **-USE MODEL TO PREDICT THE POTENTIAL OF A COLLISION BETWEEN EARTH AND A COMET** **-USE ORBIT PATHS TO CONSIDER RISK TO EARTH** **-CONSTRUCT A MODEL BASED ON EVIDENCE**	**Learning Target:** I can construct a model that shows how the orbits of space objects can lead to collisions with Earth. **Success Criteria:** I will… • make a model that shows the orbits of space objects. • use evidence to explain why some objects might collide with Earth. • revise my model to make it more accurate as I learn more. • explain the limits of my model (what it can show well and what it cannot predict, like exact future collisions). **4.A** Develop and revise a model based on evidence of the orbital features of space objects to explain why space objects can collide with Earth, highlighting the	**What students will wonder:** Why do objects sometimes collide in space? We decide to look at the orbits of objects that are not planets because planets do not seem to be at risk of colliding with each other. We explore elliptical orbits in the solar system and determine that the Sun is always located at one of the foci of the ellipse. We read about and model objects in space that could collide with Earth. We develop a model based on data to explain how the Peekskill meteor and Earth collided. We wonder how we would know if two objects whose orbits cross will actually collide. **What students will figure out:** • Orbits are elliptical in shape with the Sun located at one of the foci. • Objects in space are at risk of colliding if their orbit paths

	-UPDATE PERSONAL GLOSSARY AND PROGRESS TRACKER **1B Summary Table - Meteor…**	limitations of the model in predicting future collisions. (SEP: 2.3; CCC: 4.4; DCI: ESS1.B.1)	cross. • Asteroids, comets, and meteor showers are different types of objects in space that have the potential to collide with Earth. ***What's next?*** *We will look at a simulation of orbits to notice that the speed of objects in elliptical orbits changes along the path. We will construct energy transfer diagrams to model this change.*
Lesson 5: How do objects travel within their orbit paths? Lesson 5 - P.4 Meteors, Orb…  	P.4 Lesson 5 Teacher Edition **Duffy combined handout version of Lesson 5:** **Orbital Energy Transfer Inv…** **-EXPLORE ORBITS AND SPEED** **P.4 Lesson 5 Handout Orbita…** **-USE M-E-F FRAMING TO MODEL ORBITAL SPEED** **-BUILD A CONSENSUS MODEL** **-CONCEPTUALIZE FLOW OF ENERGY** **P.4 Lesson 5 Handout Energ…**	**Learning Target:** I can make and use a model to show how energy moves and is conserved in an elliptical orbit between an object and gravity. **Success Criteria:** I will… • explain that the total energy is conserved, even though it changes form. • use my model to explain energy flow in orbital systems. **5.A** Develop and use an energy transfer model that illustrates how energy flows and is conserved within an elliptical orbital system between the orbiting object and the gravitational field. (SEP: 2.3,	**What students will wonder:** How do objects travel within their orbit paths? We are wondering if gravitational forces can change orbital paths and consider the limitations of our two-object models. We look at an image of our solar system with the asteroid belt and make predictions as to what could have led to the redirection of the Chelyabinsk meteor from the asteroid belt towards Earth. We develop models for the two possibilities: gravitational forces from other objects or a collision with another asteroid. **What students will figure out:** • Orbiting objects move

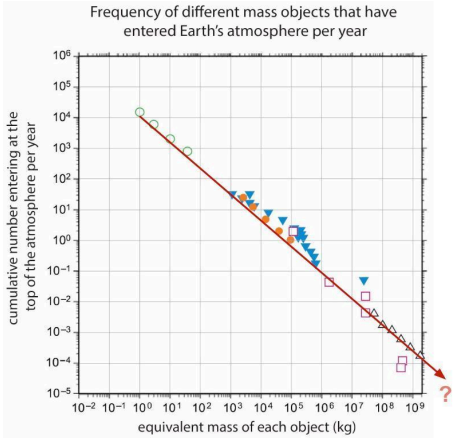
P.4 Lesson 5 Answer Key E… P.4 Lesson 5 Answer Key O…		5.2; CCC: 5.1, 5.3; DCI: ESS1.B.1, PS2.B.1, PS3.A.2, PS3.B.2)	faster when closer to the Sun and slower when farther away. ● Speed changes of orbiting objects are related to the distance between the orbiting object and the Sun and are due to energy transfer between the object and the Sun and the gravitational field between them. ***What's next?*** *We will wonder if gravitational forces can change orbital paths and will consider the limitations of our two-object models. We will look at an image of our solar system with the asteroid belt and will make predictions as to what could lead to the redirection of the Chelyabinsk meteor from the asteroid belt towards Earth. We will develop models for the two possibilities: gravitational forces from other objects or a collision with another asteroid.*
Lesson 6: How can force interactions in space change the orbital path of a space object? Lesson 6 - P.4 Meteors, Orb…	P.4 Lesson 6 Teacher Edition **Duffy combined handout version of Lesson 6:** **Reading Chelyabinsk Meteo…**	**Learning Target:** I can make models that show how gravity from Jupiter and collisions with other objects can change the orbit of a meteor, and I can use those	**What students will wonder:** How can force interactions in space change the orbital path of a space object? We are wondering if gravitational forces can change

	**-DEVELOP MODELS OF CHELYABINSK REDIRECTION FROM ITS ORBIT** **P.4 Lesson 6 Handout Redir…** **-COMING TO CONSENSUS** **-READ SCIENTISTS' PREDICTIONS AND NAVIGATE** **P.4 Lesson 6 Reading Chely…** **-HOME LEARNING: SELF REFLECTION**	models to evaluate how collisions in space are predicted. **Success Criteria:** I will… • make a model showing the gravitational pull of Jupiter on a meteor. • make a model showing how collisions with other space objects affect orbits. • use my models to predict how the orbit of the Chelyabinsk meteor could change. • evaluate my models to see how well they explain and predict space collisions. **11.A** Develop models of the forces due to gravitational interactions from Jupiter and forces from collisions with other space objects and use these models to predict how the orbit of the Chelyabinsk meteor can be changed by different types of force interactions in space to evaluate our working model of space collisions. (SEP: 2.3, 4.5; CCC: 4.4; DCI: ESS1.B.1, PS2.B.1)	orbital paths and consider the limitations of our two-object models. We look at an image of our solar system with the asteroid belt and make predictions as to what could have led to the redirection of the Chelyabinsk meteor from the asteroid belt towards Earth. We develop models for the two possibilities: gravitational forces from other objects or a collision with another asteroid. **What students will figure out:** • Scientists believe that the Chelyabinsk meteor was likely redirected by a combination of collisions and gravitational forces from nearby objects. • Many meteors that collide with Earth come from the asteroid belt where they could have been redirected by collisions with other asteroids or by the gravitational forces from nearby objects. ***What's next?*** *We will read about two strategies designed to deflect hazardous impactors on a collision course with Earth. We will use data*

			collected by scientists and some of the mathematical models we have developed in this unit to explain how these strategies work.
Common Assessment: **LS1 Summative Assessment: Transfer Task** Lesson 7: What can we do if an orbiting object poses a significant risk for Earth? Lesson 7 - P.4 Meteors, Orbits, & Gravity Built in Canvas:  P.4 Lesson 7 Answer Key Key Changing Asteroid		**Learning Target:** I can use math with Newton's Law of Gravitation and Coulomb's Law to describe and predict the forces between objects caused by gravity and electric charge. **Success Criteria:** I will… • identify the variables in Newton's Law of Gravitation and Coulomb's Law. • use the correct formulas to calculate gravitational and electrostatic forces. • describe how the size of the force changes when distance or mass/charge changes. • use math to predict what will happen to the forces in different situations. **Transfer Task PE: HS-PS2-4** Use mathematical representations of Newton's Law of Gravitation ~~and Coulomb's Law~~ to describe and predict the gravitational ~~and electrostatic~~ forces between objects. (SEP: 2.3, 5.2;	**What students will wonder:** What can we do if an orbiting object poses a significant risk for Earth? We read about two strategies designed to deflect hazardous impactors on a collision course with Earth. We use data collected by scientists and some of the mathematical models we have developed in this unit to explain how these strategies work. **What students will figure out:** • Scientists are developing and testing strategies intended to deflect hazardous impactors on a collision course with Earth. • A small spacecraft traveling at high speed can have enough kinetic energy to change the orbit of an impactor. • A gravity tractor can slowly move an impactor into a different orbit by using the force of gravity acting between the spacecraft and the impactor.

	DCI:PS2.B.1, PS2.B.2, PS3.B.2, ESS1.B.1; CCC:1.1, 3.5)	***What's next?*** *We will discuss how often we might need to deflect incoming objects. We will analyze a graph of the frequency of different-sized objects that have entered Earth's atmosphere over a 28-year period. We will construct a line of best fit and use it to predict the frequency of larger-mass objects reaching Earth's atmosphere. We will calculate the related kinetic energy and estimate the potential damage these could inflict.*	
Learning Sequence 2: Class Notes: LS2 Meteors, Orbits, and Gravity PART 2 - Duffy			
Lesson 8: What is the probability of a future or past meteor event impacting Earth? Lesson 8 - P.4 Meteors, Orb…  	P.4 Lesson 8 Teacher Edition **Duffy combined handout version of Lesson 8:** **Frequency vs. Mass - Duffy** **-USE MATHEMATICAL THINKING TO PREDICT FREQUENCY OF EVENTS** **-QUANTIFY DANGER** **-BUILDING UNDERSTANDINGS DISCUSSION ABOUT THE SCALE OF DANGER** **P.4 Lesson 8 Handout Frequ…**	**Learning Target:** I can use math and data to build a model that predicts how often meteors of different sizes hit Earth, how much energy they carry, and the scale of damage they could cause. **Success Criteria:** I will… • identify the variables in my dataset, including meteor size, frequency, and speed. • choose and apply the correct function to fit the data.	**What students will wonder:** What is the probability of a future or past meteor event impacting Earth? We discuss how often we might need to deflect incoming objects and identify what types of data we need to figure this out. We analyze a graph of different-sized objects that have entered Earth's atmosphere over a 28-year period, construct a line that best fits it, and use it to predict the frequency of larger-mass objects reaching Earth's atmosphere. We calculate the related kinetic energy and estimate the potential damage

	P.4 Lesson 8 Handout Impac… **(OPTIONAL RESOURCE)** **P.4 Lesson 8 Reading Cana…**	• use math to calculate kinetic energy for meteors of different sizes. • describe how the energy and potential damage change as meteor size or speed changes. • use the model to predict the frequency, energy, and possible impact effects of meteors in the future. • compare predicted future impacts with historical rates of meteor collisions and explain any patterns or trends. **8.A** Develop and use a mathematical model based on a function fit to data to predict the number, frequencies (proportions), kinetic energy, and scale of potential destruction from meteors of different sizes reaching Earth in the near future and the rate of such events in the past (SEP: 5.2; DCI: ESS3.B.1, PS3.B.3; CCC: 3.1).	these could inflict. We argue for why we should continue to invest in DART-like technologies and what this also might imply about Earth's past. **What students will figure out:** • There is a linear correlation between the size and frequency of meteors reaching Earth during a 28-year data collection period. • Although exceptionally large meteors are rare and unlikely to reach us in our lifetime, their potential impact could extend beyond city destruction, potentially altering human history. • The mathematical relationship we've established should guide our future plans, especially regarding investments in DART-like technologies. • While these relationships offer insights into Earth's 4.5-billion-year history, more data are needed to confirm or refute their historical predictions. ***What's next?*** *We will share initial explanations*

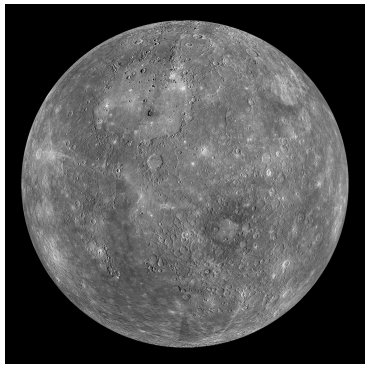
			for what might have happened to all the objects of different sizes that reached Earth from space over its 4.5-billion-year history. We will brainstorm factors besides mass that might affect what happens to these objects when they reach Earth. We will record new questions we have and sources of data and investigations that could help us answer these questions.
Lesson 9: What happened to all the meteors that reached Earth over its history? Lesson 9 - P.4 Meteors, Orb… 	P.4 Lesson 9 Teacher Edition This lesson has no additional handouts from Lesson 8… **-DEVELOP NEW QUESTIONS** **-BRAINSTORM DATA AND INVESTIGATIONS NEEDED** **-ADD TO THE DRIVING QUESTION BOARD**	**Learning Target:** I can ask and investigate questions based on a mathematical model that predicts how often large meteors collide with Earth and how those impacts have influenced Earth's history. **Success Criteria:** I will… • use data and models to make predictions about the frequency and scale of large meteor impacts. • ask meaningful questions about how those impacts may have affected Earth's surface, atmosphere, and life. • identify what evidence or data I would need to answer those questions. • use scientific reasoning to connect model predictions with real-world evidence	**What students will wonder:** What happened to all the meteors that reached Earth over its history? We share initial explanations for what might have happened to all the objects of different sizes that reached Earth from space over its 4.5-billion-year history. We brainstorm factors besides mass that might affect what happens to these objects when they reach Earth. We record new questions we have and sources of data and investigations that could help us answer these questions. **What students will figure out:** • The mass of a meteor (or space object) probably affects whether anything impacts Earth's surface or whether it all burns up in

		from Earth's geologic record. **9.A:** Ask questions that arise from using a mathematical model to predict the relative frequency, scale, and significance of impact or collisions from large meteors on the history of our planet and identify sources of evidence needed to answer these questions. (SEP: 1.2; CCC: 3.1; DCI: ESS1.C.2)	the atmosphere. • There are additional factors besides mass (e.g., speed, angle, or trajectory, material of the meteor, and where it hits) that may also affect the outcome. • We are not certain that our mathematical model from the last lesson holds for earlier in Earth's history or for moons and other planets. ***What's next?*** *We will investigate whether a meteor's velocity or mass better predicts its crater size. We will analyze our results using the coefficient of correlation to establish that the velocity of an impactor better predicts the crater's size. We will learn that meteors with sufficient kinetic energy can vaporize upon surface impact. We will explain the changes in matter and energy within the meteor-Earth system.*
Lesson 10: What determines the size of the crater made on impact? Lesson 10 - P.4 Meteors, Or…	P.4 Lesson 10 Teacher Edition **Duffy combined handout version of Lesson 10:** **Crater Size Investigation - D…** **Lesson #10 BTC stations**	**Learning Target:** I can plan and carry out an investigation to collect data showing how the kinetic energy of an impactor affects the size of the crater it makes. **Success Criteria:** I will…	**What students will wonder:** What determines the size of the crater made on impact? We consider whether the velocity or the mass of a meteor better predicts the size of the crater it forms. We plan and carry out an

 P.4 Lesson 10 Sample of Cr…	**P.4 Lesson 10 Handout Lab …** **P.4 Lesson 10 Crater Data C…** **-DETERMINING DAMAGE CAUSED BY METEOR** **-PLAN CRATER INVESTIGATION** **-CARRY OUT INVESTIGATION** **-ANALYZE AND INTERPRET DATA** **-CONSIDER CHANGES IN MATTER OF METEOR** **-REVISE EXPLANATION**	• use the formula KE = 1/2mv2 to calculate the kinetic energy of each impact. • describe how changing the mass or velocity of the impactor changes its kinetic energy and the resulting crater size. • explain why velocity has a greater effect on kinetic energy than mass. **10.A** Plan an investigation in groups and as a class to produce data to serve as the basis for evidence regarding the relationship between the kinetic energy of the impactor and the size of the crater it produces and how changes in the mass and velocity of the impactor do not have equal effects on its kinetic energy. (SEP: 3.1; DCI: PS3.B.4; CCC: 1.5) --- **Learning Target:** I can use data analysis, including the correlation coefficient, to explain how changes in an impactor's mass and velocity affect crater size and to refine my explanation of how matter and energy change during a meteor impact.	investigation to generate data for testing our predictions. Using the coefficient of correlation, we analyze our results and determine that the velocity of an impactor better predicts the size of the crater. We learn that meteors with enough kinetic energy can vaporize upon impact with the surface, and we use these ideas to refine our explanation of the changes in matter and energy within the meteor-Earth system. We wonder how the planet was affected by a meteor that struck 65 million years ago. **What students will figure out:** • Craters are not imprints of the objects but are larger than the object was. • Craters are surrounded by areas of ejecta. • The kinetic energy of an impactor is a good predictor of the size of a crater. • In comparison to mass, the velocity of an impactor has a stronger relationship with the size of the crater it creates. • Increasing the mass also increases the size of the crater.

		Success Criteria: I will… ● calculate and interpret the correlation coefficient (r) to describe how strongly crater size is related to impactor mass and velocity. ● identify which variable (mass or velocity) has the stronger relationship to crater size. ● use evidence from my analysis to explain how kinetic energy is transferred and transformed during a meteor impact. ● refine my explanation of how matter and energy interact within the meteor–Earth system based on the data. **10.B.** Apply the correlation coefficient to analyze the relationship between changes in the mass and velocity of an impactor and the size of the crater it produces and use these ideas to refine an explanation about the changes in matter and energy within the meteor-Earth system. (SEP: 4.2, 4.5; DCI: PS3.B.4; CCC: 1.5, 5.2)	● Impactors with enough kinetic energy can vaporize upon surface impact. ***What's next?*** *We will analyze data from a video of a satellite being tested in a high-speed wind tunnel. We will develop an explanation for why only a relatively small amount of the Chelyabinsk meteor's matter was in solid pieces when it reached the surface. We will argue that only a small fraction of the matter that most frequently enters Earth's atmosphere actually ends up leaving an impact on its surface.*

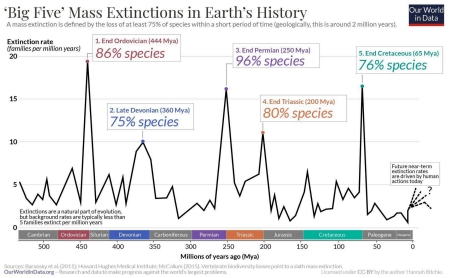
Lesson 11: What happens to the thousands of objects the size of the Chelyabinsk meteor and smaller that enter Earth's atmosphere every year? Lesson 11 - P.4 Meteors, Or… 	P.4 Lesson 11 Teacher Edition **Duffy combined handout version of Lesson 11:** **Magnetosphere Reading - D…** **-ANALYZE AND INTERPRET DATA** **-ANALYZE DATA FROM A HIGH-SPEED WIND TUNNEL** **-MAKE PREDICTIONS AND ANALYZE DATA** **-CONSTRUCT EXPLANATIONS** **-ARGUE FROM EVIDENCE** **-HOME LEARNING: SELF REFLECTION** **P.4 Lesson 11 Reading Mag…**	**Learning Target:** I can use scientific ideas about matter and energy to explain why most objects that enter Earth's atmosphere burn up or break apart instead of leaving an impact on the surface. **Success Criteria:** • explain how friction with air causes energy transfer that heats and breaks apart meteors. • identify the changes in energy forms (from motion to heat and light) during atmospheric entry. • support my explanation with evidence from data, models, or real-world examples of meteors and fireballs. **11.A** Apply scientific ideas and principles related to changes in matter and energy to provide an explanation for why much of the matter that makes up the objects that enter Earth's atmosphere end up not leaving an impact on the surface. (SEP: 6.3; CCC: 3.1, 5.2; DCI: PS3.A.2, PS3.A.4)	**What students will wonder:** What happens to the thousands of objects the size of the Chelyabinsk meteor and smaller that enter Earth's atmosphere every year? We analyze data from a video of a satellite being tested in a high-speed wind tunnel. We develop an explanation for why only a relatively small amount of the Chelyabinsk meteor's matter was still in solid pieces when it reached the surface. We argue that only a small fraction of the matter that most frequently enters Earth's atmosphere actually ends up leaving an impact on its surface. **What students will figure out:** • As objects from space move through the atmosphere at high speeds, they collide with air particles, causing changes in both matter and energy along their paths. • All the matter that melts, vaporizes, or breaks off in solid pieces in this process will eventually end up deposited across Earth's surface. • Only a fraction of the matter that enters Earth's atmosphere leaves an impact

			on the surface because it either has so little mass to begin with or is in really small pieces by the time it reaches the surface. ***What's next?*** *We will examine images of objects in space that lack atmospheres to see what happens when objects fall into them without burning up in an atmosphere. We will make observations about patterns of cratering activity on the Moon over its history and will identify periods with high and low cratering activity. We will consider why we don't see evidence of large meteor impacts on the Moon.*
Lesson 12: What happens when rocks hit planets or moons with minimal atmosphere? Lesson 12 - P.4 Meteors, Or…  P.4 Lesson 13 Answer Key …	P.4 Lesson 12 Teacher Edition **Duffy combined handout version of Lesson 12:** **Lunar Time Periods - Duffy** **Frequency of Small Craters -…** **Frequency of Medium Crater…** **Frequency of Large Craters …** **-INVESTIGATE IMAGE DATA** **P.4 Lesson 12 Reference Cr…** **-DRAW INFERENCES FROM DATA**	**Learning Target:** I can analyze evidence from craters on other planets and moons to identify patterns and use them to explain how cratering activity on Earth has changed over time. **Success Criteria:** ● examine empirical evidence (images or data) of craters on solar system objects without atmospheres. ● identify/compare patterns in crater size, shape, and	**What students will wonder:** What happens when rocks hit planets or moons with minimal atmosphere? We examine images of objects in space that lack atmospheres to see what happens when objects fall into them without burning up in an atmosphere. We make observations about patterns of cratering activity on the Moon over its history and find periods with high and low cratering activity. We consider why we don't see evidence of large meteor impacts on the Moon. **What students will figure out:** ● There are a lot of craters

	-INVESTIGATE LUNAR DATA **P.4 Lesson 12 Handout Moo…** **-ANALYZE CRATER FREQUENCY DATA** **-REVISE DATA SET** **-UPDATE PROGRESS TRACKER** **1B Summary Table - Meteor…**	number across different surfaces. • explain how the presence of an atmosphere and geologic activity influence how many craters we see on Earth versus other objects. **12.A** Analyze empirical evidence to identify patterns in cratering on solar system objects without atmospheres that can support claims about the changes in cratering activity on Earth. (SEP: 4.1; CCC: 1.5; DCI: ESS1.C.2)	on other space objects, suggesting there have been a lot of collisions on everything. • Evidence from other space objects suggests there must have been a large number of things that came towards Earth too (many of which probably burned up in the atmosphere). • There are very large craters on other space objects, so there should be some large craters on Earth. • Craters have been created over billions of years. • The age distribution of large craters on the Moon has decreased over time, while the age distribution of small and medium-size craters has fluctuated. ***What's next?*** *We will analyze Earth's cratering data and will find visible impact cratering is present in recent history but absent in over half of Earth's timeline. We will use images of terrestrial craters to observe that older ones have less-clear features. We will use an erosion model to test how the surface can change. We will read about geological processes and*

			will use these ideas to explain differences in cratering evidence between the Moon and Earth.
Lesson 13: Why don't we see many craters on the surface of Earth? Lesson 13 - P.4 Meteors, Or…  P.4 Lesson 13 Answer Key …	P.4 Lesson 13 Teacher Edition **Duffy combined handout version of Lesson 13:** **Earth Reference Crater Car…** **-COMPARE AGE DISTRIBUTION OF CRATERS** **-ANALYZE CRATER CARDS** **P.4 Lesson 13 Slides Earth …** **-USE MODEL TO TEST IDEAS ABOUT EROSION** **-EXPLORE EARTH PROCESSES THAT CAN ALTER EVIDENCE OF CRATERING ACTIVITY ON EARTH** **-OBTAIN AND COMMUNICATE INFORMATION ABOUT EARTH PROCESSES** **P.4 Lesson 13 Handout Accr…** **P.4 Lesson 13 Handout Glac…** **P.4 Lesson 13 Handout Plat…** **P.4 Lesson 13 Handout Wea…** **-CREATE A TIMELINE OF GEOLOGIC PROCESSES ACTING ON EARTH'S SURFACE**	**Learning Target:** I can obtain information and communicate information about how wind, water, or other processes can obscure the visible evidence of craters over time. **Success Criteria:** • use a small-scale model to illustrate how erosion, acting over long periods of time, can alter the evidence of cratering activity on Earth's surface. • compare the timescales and intensity of surface changes on both bodies. • use evidence from my reading to support an explanation of why Earth's craters are erased while the Moon's remain visible. **13.A** Use a small-scale model to illustrate how erosion, acting over long periods of time, can alter the evidence of cratering activity on Earth's surface. (SEP: 2.3; DCI: ESS1.C.2; CCC: 3.2)	**What students will wonder:** Why don't we see many craters on the surface of Earth? We analyze Earth's cratering activity data and find that visible impact cratering is present in relatively recent history but absent in over half of Earth's timeline. We analyze images of terrestrial craters and find the older craters have less-clear features. We brainstorm mechanisms that can explain this and use a model of erosion to test our ideas. We read about additional geological processes that have shaped our planet's landforms and apply that information to explain the differences in cratering evidence between the Moon and Earth. We learn that 65 million years ago, a meteor with enough kinetic energy to create a crater 112 miles (180 km) in diameter collided with Earth. **What students will figure out:** • We see that visible Earth craters have been found mostly in the last 650 Million years of our 4.5 Billion year history. • We see that Earth's craters are less well defined than

	-EXPLAIN PATTERNS IN EARTH'S CRATERING ACTIVITY **-UPDATE PROGRESS TRACKER** **1B Summary Table - Meteor…**	**13.B** Read scientific literature to determine how geological processes over long periods of time can help explain the stability of the Moon's surface as it compares to Earth's changing surface. (SEP:6.4, 8.1; DCI: ESS1.C.2; CCC: 3.2, 7.1)	those of the Moon. ● We learn about four Earth processes or mechanisms which shaped Earth's landform throughout its history. ● 65 million years ago, a meteor with enough kinetic energy to create a crater 112 miles (200 km) in diameter, collided with Earth. ***What's next?*** We will analyze a graph showing mass extinctions in Earth's history. We will develop a model to explain how an impactor collision led to mass extinctions. We will gather information about the Chicxulub crater formation. We will revise our initial model to explain how the impactor led to both short-term and longer-term effects that caused the extinction of only some types of organisms and not others.
Lesson 14: How could an impactor have killed off some types of life on Earth but not all? Lesson 14 - P.4 Meteors, Or…	P.4 Lesson 14 Teacher Edition **Duffy combined handout version of Lesson 14:** **Evaluate Alternate Mechanis…**	**Learning Target:** I can obtain and communicate scientific information about how the Chicxulub meteor impact changed Earth's systems and affected life on our planet over different times and places. **Success Criteria:** ● identify the central ideas about how the impact	**What students will wonder:** How could an impactor have killed off some types of life on Earth but not all? We analyze a graph of mass extinction events over Earth's history. We develop an initial model to explain how an impactor collision would have led to the extinction of some types of organisms and not others. We gather and communicate



P.4 Lesson 14 Answer Key …

P.4 Lesson 14 Answer Key …

P.4 Lesson 14 Handout Alter…

-DEVELOP LESSON DRIVING QUESTION

-EXPLORE MATTER AT THE CHICXULUB CRATER

-CREATE INITIAL MODEL

-USE JIGSAW STRATEGY FOR CHICXULUB CRATER READINGS

P.4 Lesson 14 Handout Chic…

P.4 Lesson 14 Handout Chic…

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P.4 Lesson 14 Handout Eval…

P.4 Lesson 14 Handout Exti…

P.4 Lesson 14 Reading Past…

-HAVE GROUP DISCUSSION ON GEOLOGICAL EVIDENCE

-EVALUATE ADDITIONAL MECHANISMS

-SHARE ALTERNATE CLAIMS

-ARGUE FOR OR AGAINST MULTIPLE MECHANISMS

-OBTAIN INFORMATION ABOUT PAST MASS EXTINCTIONS

-SHARE INFORMATION ABOUT PAST MASS EXTINCTIONS

-DEVELOP A FINAL MODEL

changed Earth's atmosphere, climate, and surface.

- explain how those changes affected different organisms and ecosystems over time.
- describe the effects of the impact at different spatial and temporal scales (local, global, short-term, long-term).
- use evidence from my reading to support explanations of how one event can cause large-scale Earth system changes.

14.A Read scientific literature to determine the central ideas and summarize the different changes in earth systems due to the Chicxulub meteor impac and their effects on different types of organisms and ecosystems across different spatial and temporal scales by paraphrasing them in simpler but still accurate terms. (SEP: 8.1, CCC: 2.4, DCI: ESS1.C.2)

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information about matter changes, force interactions, and energy transfers related to the formation of the Chicxulub crater. We revise our initial model to explain how the impactor led to both short-term and longer-term effects that caused the extinction of only some types of organisms and not others.

What students will figure out:

- The fossil record provides evidence that some types of organisms went extinct around the time of the impact (e.g., dinosaurs, herbivores, terrestrial plants), while others survived.
- There are alternate mechanisms to explain how the impactor affected energy transfers and matter flows in and through other earth systems (global forests, oceans, mantle, atmosphere).
- There would be longer-term effects on how energy flows to photosynthetic organisms and through food chains due to the longer-term changes in matter in different earth systems, that would have resulted from the meteor's impact.

	-LEAVE FEEDBACK IN A GALLERY WALK **-RESPOND TO QUESTIONS** **-DISCUSS THE IMPLICATIONS FOR THE FUTURE AND IDENTIFY A NEW QUESTION**	**Learning Target:** I can compare and evaluate different scientific explanations for how energy and matter changed across Earth's systems after the Chicxulub impact. **Success Criteria:** ● identify competing explanations for how energy was transferred ● revise my explanations using reliable evidence to answer questions about the motion of space objects, how often meteors collide with Earth, and changes to Earth's surface. ● communicate my evaluation clearly using text, diagrams, or models. **14.B** Compare and evaluate competing arguments for different mechanisms for how energy was transferred and matter changed across different earth systems as a result of the formation of the Chicxulub crater. (SEP: 7.1, CCC: 5.2, DCI: PS3.A.2)	***What's next?*** *We will return to the DQB to evaluate which questions we have answered in this unit. We will work through an assessment task where we will assess whether the evidence from moon rocks supports scientists' ideas about the formation of the Moon from a giant impact between Earth and another planet known as Theia.*
Common Assessment: **LS2 Summative Assessment: Transfer Task**		**Learning Target:** I can use scientific reasoning and evidence from ancient Earth materials,	**What students will wonder:** How can we use our science ideas to explain the formation of the

Lesson 15: How can we use our science ideas to explain the formation of the Moon?

P.4 Lesson 15 Assessment Moon Formation

Built in Canvas:

P.4 Lesson 15 Answer Key Moon Formation KEY

meteorites, the Moon, and other planetary surfaces to explain and model how Earth formed and what its early history was like.

Success Criteria:

- identify which parts of my explanatory model need updating based on valid and reliable evidence.
- revise my explanations to accurately describe:
    - the stability and changes in motion of planets, asteroids, and comets
    - how Earth's surface has been affected over time.
- ensure my revised explanation clearly connects evidence to claims.

15.A Revise an explanation based on valid and reliable evidence to answer Driving Question Board questions that involve explaining the stability and/or change in the motion of space objects, the frequency of meteor collisions, and Earth's surface. (SEP: 6.2; CCC: 5.2, 7.1; DCI: ESS1.B.1, ESS1.C.2, PS2.B.1, PS3.A.2)

Moon? We return to the DQB to evaluate which questions we have answered in this unit. We work through an assessment task where we assess whether the evidence from moon rocks supports scientists' ideas about the formation of the Moon from a giant impact between Earth and another planet known as Theia.

What students will figure out:

- The Moon was formed after Theia, a planet from the young solar system, collided with Earth.
- Ideas about matter changes, forces acting on matter, and energy flow can be used to assess whether the available evidence supports ideas about the formation of the Moon.

What's next?

There is no next lesson.

Astronomy: Unit 1 Meteors, Orbits, & Gravity

Unit Written by Kelsey Duffy
Presentation Created by Lisa Daigle

The Phenomenon

What will students be wondering about?

The Chelyabinsk Meteor

How have collisions with objects from space changed Earth in the past, and how could they affect our future?

- Newton's Universal Law of Gravitation
- Orbital Motion
- Energy Transfer with Gravitational Fields
- History of Earth

Performance Expectations

Earth Science

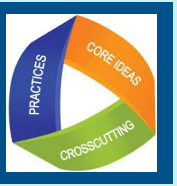
- **HS-ESS1-4:** Use mathematical or computational representations to predict the motion of orbiting objects in the solar system.
- **HS-ESS1-6:** Apply scientific reasoning and evidence from ancient Earth materials, meteorites, and other planetary surfaces to construct an account of Earth's formation and early history.

Performance Expectations

Physical Science

- **HS-PS2-4:** Use mathematical representations of Newton's Law of Gravitation and Coulomb's Law to describe and predict the gravitational and electrostatic forces between objects.
- **HS-PS3-1:** Create a computational model to calculate the change in the energy of one component in a system when the change in energy of the other component(s) and energy flows in and out of the system are known.
- **HS-PS3-2:** Develop and use models to illustrate that energy at the macroscopic scale can be accounted for as a combination of energy associated with the motion of particles (objects) and energy associated with the relative positions of particles (objects).

3D Learning



Science & Engineering Practices

- Using Mathematical and Computational Thinking
- Constructing Explanations and Designing Solutions
- Developing and Using Models

Disciplinary Core Ideas

- ESS1.B: Earth and the Solar System
- ESS1.C: The History of Planet Earth
- PS1.C: Nuclear Processes
- PS2.B: Types of Interactions
- PS3.A: Definitions of Energy
- PS3.B: Conservation of Energy and Energy Transfer

Cross Cutting Concepts

- Scale, Proportion, and Quantity
- Stability and Change
- Patterns
- Systems and System Models
- Energy and Matter

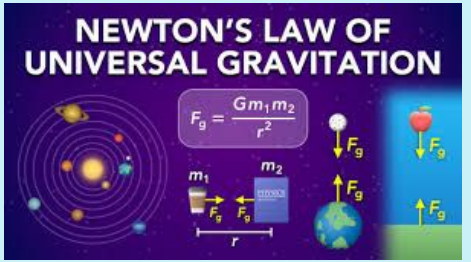
How will Students be Assessed?

First Assessment: Earth & The Force of Gravity

Learning Target: I can use simple examples and math to show how magnetic and gravitational forces change when the distance between two objects changes.

Success Criteria:

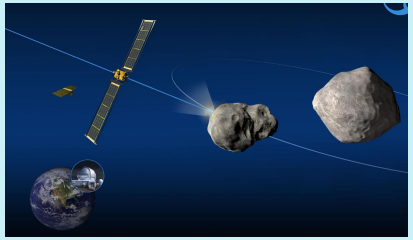
- Identify the variables in Newton's law of universal gravitation (mass of each object, distance between them, and the gravitational constant).
- Use algebra to solve for the gravitational force between Earth and another object.
- Check if my answer makes sense based on the size of the objects and their distance apart.
- Lesson-level performance expectation is assessed.



Use simple limit cases and mathematical representations to describe patterns in the change of magnitudes of magnetic and gravitational forces on two objects caused by changes in their distances from each other. (SEP: 5.2, 5.4; CCC: 1.4; DCI: PS2.B.1, PS2.B.2)

How will Students be Assessed?

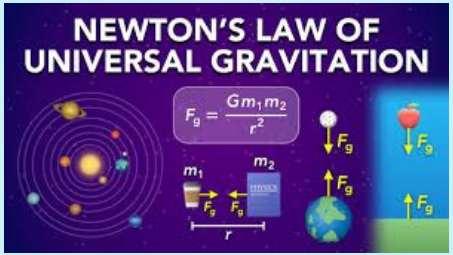
Second Assessment: What can we do if an orbiting object poses a significant risk for Earth? Transfer Task



Learning Target: I can use math with Newton's Law of Gravitation to describe and predict the forces between objects caused by gravity and electric charge.

Success Criteria:

- Identify the variables in Newton's Law of Gravitation and Coulomb's Law.
- Use the correct formulas to calculate gravitational and electrostatic forces.
- Describe how the size of the force changes when distance or mass/charge changes.
- Use math to predict what will happen to the forces in different situations.



Transfer Task PE: HS-PS2-4 Use mathematical representations of Newton's Law of Gravitation to describe and predict the gravitational and electrostatic forces between objects. (SEP: 2.3, 5.2; DCI:PS2.B.1, PS2.B.2, PS3.B.2, ESS1.B.1; CCC:1.1, 3.5)

How will Students be Assessed?

Third Assessment: How can we use our science ideas to explain the formation of the Moon? Transfer Task

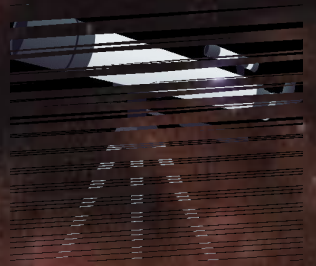
Learning Target: I can use scientific reasoning and evidence from ancient Earth materials, meteorites, the Moon, and other planetary surfaces to explain and model how Earth formed and what its early history was like.

Success Criteria:

- Identify which parts of my explanatory model need updating based on valid and reliable evidence.
- Revise my explanations to accurately describe:
  - the stability and changes in motion of planets, asteroids, and comets
  - how Earth's surface has been affected over time.
- Ensure my revised explanation clearly connects evidence to claims.

Transfer Task PE: 15.A Revise an explanation based on valid and reliable evidence to answer Driving Question Board questions that involve explaining the stability and/or change in the motion of space objects, the frequency of meteor collisions, and Earth's surface. (SEP: 6.2; CCC: 5.2, 7.1; DCI: ESS1.B.1, ESS1.C.2, PS2.B.1, PS3.A.2)

Any Questions?



BOARD OF EDUCATION
SOUTHINGTON, CONNECTICUT

Informational Only X **Board Meeting Date** April 16, 2026

Decision Requested _____ **Agenda Code** 11 o.

AGENDA REPORTING FORM

Agenda Topic: SHS Science – Astronomy – Unit 2 - Stars and the Big Bang - NEW - First Reading.

Summary of Issue: SHS Science – Astronomy – Unit 2 - Stars and the Big Bang - NEW - First Reading.

Background:

Alternative Strategies: N/A

Cost (if applicable): N/A **Funding Source:** N/A

Beginning Date of Program or Project: N/A

Ending Date of Program or Project: N/A

Recommendation or Comment: The Board of Education Curriculum & Instruction Committee is bringing the SHS Science – Astronomy – Unit 2 - Stars and the Big Bang - NEW – to the full Board for a First Reading.

Titles of Attachments:

1. Course Proposal

Signature of Staff Member Submitting Report

Signature of Superintendent of Schools

Unit Overview	
Unit Title:	Astronomy: Unit 2-Stars and the Big Bang
Teacher:	Duffy
Grade Level/Course:	10-12 Astronomy
Length/Dates:	6 weeks
Unit Summary:	This unit is anchored by historical accounts of stars that suddenly appear and disappear shortly later. Students wonder about how some stars appear unchanging while these stars change so drastically within such a short period of time. That makes students wonder why stars shine and what could cause stars to change. They organize their questions regarding matter, energy, and forces and decide to look more closely at the places in the sky where these historical events took place using modern technology. In Lesson Set 1 (Lessons 2-5), students investigate photos and spectra of the remnants of these events and then develop two sets of research questions to investigate in small groups before coming together to come to consensus in Lesson 5 around the fusion and the lifecycle of stars. Students' small-group internet research is scaffolded by a set of tools introduced strategically across the unit: the Planning for Obtaining Information Tool, the Obtaining Information Tool, and the Evaluating Sources of Information Tool. OpenSciEd Unit P.6 Stars & the Big Bang

Performance Expectations
• HS-ESS1-1 Develop a model based on evidence to illustrate the life span of the sun and the role of nuclear fusion in the sun's core to release energy in the form of radiation. • HS-ESS1-2 **C**onstruct an explanation of the Big Bang theory based on astronomical evidence of light spectra, motion of distant galaxies, and composition of matter in the universe. • HS-ESS1-3 Communicate scientific ideas about the way stars, over their life cycle, produce elements**.** • HS-PS1-8 Develop models to illustrate the changes in the composition of the nucleus of the atom and the energy released during the processes of fission, fusion, and radioactive decay.

SEP Implications (Science and Engineering Practices)	DCI Implications (Disciplinary Core Ideas)	CCC Implications (Cross Cutting Concepts)

Developing and Using Models Modeling in 9–12 builds on K–8 experiences and progresses to using, synthesizing, and developing models to predict and show relationships among variables between systems and their components in the natural and designed world(s). ● Develop a model based on evidence to illustrate the relationships between systems or between components of a System. **Constructing Explanations and Designing Solution**s Constructing explanations and designing solutions in 9–12 builds on K–8 experiences and progresses to explanations and designs that are supported by multiple and independent student-generated sources of evidence consistent with scientific ideas, principles, and theories. ● Construct an explanation based on valid and reliable evidence obtained from a variety of sources (including students' own investigations, theories, simulations, peer review) and the assumption that theories and laws that describe the natural world operate today as they did in the past and will continue to do so in the future. **Obtaining, Evaluating, and Communicating Information** Obtaining, evaluating, and communicating information in 9–12 builds on K–8 experiences and progresses to evaluating the validity and reliability of the claims, methods, and designs. ● Communicate scientific ideas (e.g., about phenomena and/or the process of development and the design and performance of a proposed process or	**ESS1.A: The Universe and Its Stars** ● The star called the sun is changing and will burn out over a lifespan of approximately 10 billion years. **PS3.D: Energy in Chemical Processes and Everyday Life** ● Nuclear fusion processes in the center of the sun release the energy that ultimately reaches Earth as radiation. (secondary) **ESS1.A: The Universe and Its Stars** ● The study of stars' light spectra and brightness is used to identify compositional elements of stars, their movements, and their distances from Earth. ● The Big Bang theory is supported by observations of distant galaxies receding from our own, of the measured composition of stars and nonstellar gases, and of the maps of spectra of the primordial radiation (cosmic microwave background) that still fills the universe. ● Other than the hydrogen and helium formed at the time of the Big Bang, nuclear fusion within stars produces all atomic nuclei lighter than and including iron, and the process releases electromagnetic energy. Heavier elements are produced when certain massive stars achieve a supernova stage and explode. **PS4.B: Electromagnetic Radiation** ● Atoms of each element emit and	**Scale, Proportion, and Quantity** ● The significance of a phenomenon is dependent on the scale, proportion, and quantity at which it occurs. **Energy and Matter** ● Energy cannot be created or destroyed–only moved between one place and another place, between objects and/or fields, or between systems. **Energy and Matter** ● In nuclear processes, atoms are not conserved, but the total number of protons plus neutrons is conserved. **Energy and Matter** ● In nuclear processes, atoms are not conserved, but the total number of protons plus neutrons is conserved.

system) in multiple formats (including orally, graphically, textually, and mathematically). **Developing and Using Models** Modeling in 9–12 builds on K–8 and progresses to using, synthesizing, and developing models to predict and show relationships among variables between systems and their components in the natural and designed worlds. ● Develop a model based on evidence to illustrate the relationships between systems or between components of a system.	absorb characteristic frequencies of light. These characteristics allow identification of the presence of an element, even in micro **ESS1.A: The Universe and Its Stars** ● The study of stars' light spectra and brightness is used to identify compositional elements of stars, their movements, and their distances from Earth. Other than the hydrogen and helium formed at the time of the Big Bang, nuclear fusion within stars produces all atomic nuclei lighter than and including iron, and the process releases electromagnetic energy. Heavier elements are produced when certain massive stars achieve a supernova **PS1.C: Nuclear Processes** ● Nuclear processes, including fusion, fission, and radioactive decays of unstable nuclei, involve release or absorption of energy. The total number of neutrons plus protons does not change in any nuclear process.	

Transfer Goals (Vision of the Graduate)
List the long-term and/or school-wide independent student behaviors that this unit will address.

Critical Thinking Transdisciplinary Goal:
Students inquire, identify, and ethically solve real-world problems through reasoning and a reflection on the challenges and benefits of the process and/or solution(s).
Creativity/Innovation Transdisciplinary Goal:

Students work creatively to design and refine implementation of ideas by taking risks, persevering, and exploring possibilities.

Collaboration Transdisciplinary Goal:

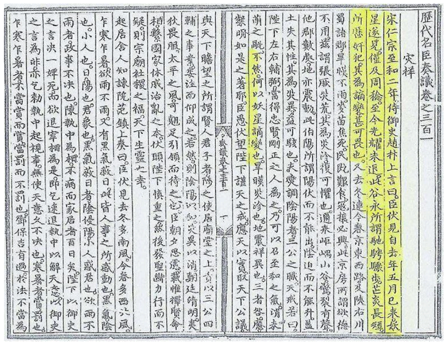
Students flexibly and cooperatively work with others in physical and virtual environments and assume shared responsibility for completing a project or achieving a goal.

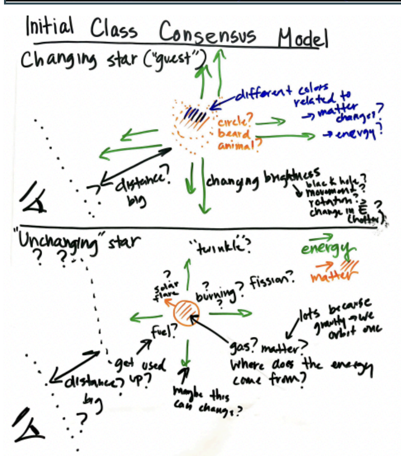
Communication Transdisciplinary Goal:

Students effectively communicate and use interpersonal skills in a range of formal and informal contexts.

C District Rubrics

Target Question	Activity	Standard Objectives/Learning Target	Student will know and wonder
Learning Sequence 1: Class Notes - LS1: Stars and the Big Bang - Duffy			
Lesson 1: Why do some stars seem unchanging, while others appear briefly, change dramatically, and fade away? Lesson 1 - P.6 Stars & the B…	P.6 Lesson 1 Teacher Edition **Duffy combined handout version of Lesson 1:** Handout Historical Guest St… -**INTRODUCE A NEW PHENOMENON** -**READ ABOUT OTHER GUEST**	**Learning Target:** I can create and use models to explain why most stars we see in the night sky appear stable over time, while some "guest stars" change suddenly and dramatically. **Success Criteria:** I will… ● develop a system model that shows the parts and	**What students will wonder:** Why do some stars seem unchanging, while others appear briefly, change dramatically, and fade away? We examine historical evidence that some stars appear in the night sky even though we could not see a star there previously. The star fades away and seems to disappear. We map these events on a star map and look for patterns. We figure out: A





STARS

P.6 Lesson 1 Handout Histor…

-DISCUSS IN JIGSAW GROUPS

-1987 GUEST STAR DEEP DIVE

-INDIVIDUAL MODELING

-DEVELOP INITIAL CONSENSUS MODEL

-BUILD THE DQB

processes of a star (matter, energy, and forces).

- use my model to explain why most stars appear constant in brightness and position over long periods.
- ask scientific questions based on historical observations of stars that changed in brightness, shape, or color, and use those questions to improve and clarify models of how stars change over time.

1.A Develop system models (or sets of models) to explain why the stars we see at night appear stable over time, while historical accounts of guest stars describe them changing dramatically. (SEP: 2.3; CCC: 7.1; DCI: ESS1.A.1)

1.B Ask questions that arise from historical observations of dramatic changes in the brightness, shape, and color of stars to clarify our models, and seek additional information. (SEP: 1.1, 1.4; CCC: 7.1; DCI: ESS1.A.2)

guest star is a star that appears and then seems to disappear a short time later. Guest stars are distributed across the sky but seem to be concentrated along the plane of our galaxy (the Milky Way).

What students will figure out:

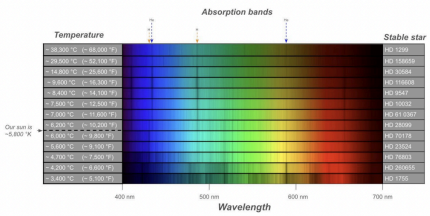
- A guest star is a star that appears and then seems to disappear a short time later.
- Guest stars are distributed across the sky but seem to be concentrated along the plane of our galaxy (the Milky Way).

What's next?

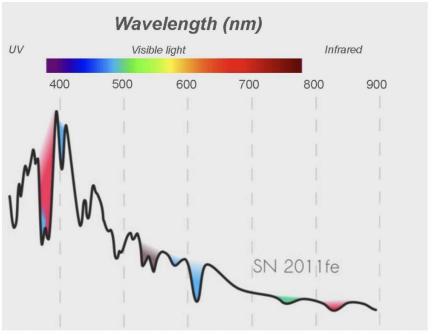
We will compare photos of the parts of the sky where some of these guest star events were observed and notice remnants of what looks like gas or dust. We will analyze spectra to determine the composition of the matter that these remnants are made of and its temperature. We will compare these to the spectra of stable stars and add to our Progress Trackers. We will ask new questions and add them to our Driving Question Board.

Lesson 2: How does the matter in guest stars compare to stable stars?

Lesson 2 - P.6 Stars & the B…



Semi-spherical shaped clouds of dust and gas can be seen in telescopic images from locations in the sky where guest stars were once observed.



P.6 Lesson 2 Teacher Edition

Duffy combined handout version of Lesson 2:

Reference Star Spectra and …

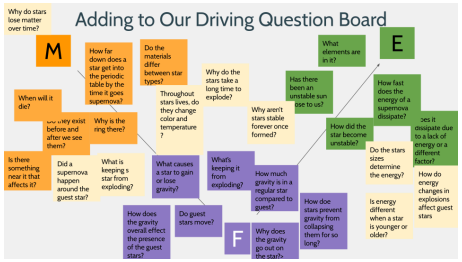
-ANALYZE IMAGES OF GUEST STAR REMNANTS AND THE SUN

-OPTIONAL: REVIEW HOW SPECTROSCOPY WORKS

-ANALYZE DATA TO IDENTIFY THE COMPOSITION AND TEMPERATURE OF STABLE STARS

-MAKE PREDICTIONS AND ANALYZE GUEST STAR REMNANTS

-ASK QUESTIONS



Learning Target: I can use and compare different spectra to explain how the composition and temperature of stable stars differ from stars that suddenly change, like guest stars.

Success Criteria: I will…

- analyze and interpret light spectra from different stars.
- identify the patterns of absorption or emission lines that reveal what elements are present in a star.
- describe how the color and shape of a spectrum relate to a star's composition and temperature.
- use evidence from multiple spectra to explain why guest stars appear brighter or change color during stellar events.

2.A Integrate information from multiple spectra representations to describe differences in the composition and temperature scale of a stable star versus guest stars. (SEP: 8.2; CCC: 3.1; DCI: ESS1.A.2)

What students will wonder:

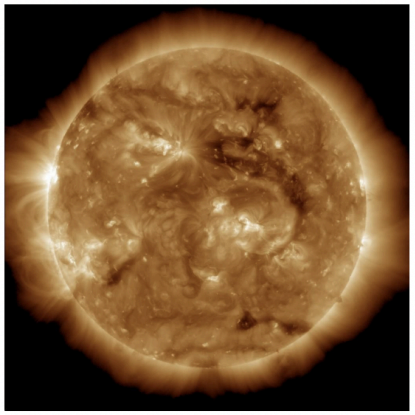
How does the matter in guest stars compare to stable stars? We compare photos of the parts of the sky where some of these guest star events were observed and notice remnants of what looks like gas or dust. We analyze spectra to determine the composition of the matter that these remnants are made of and its temperature. We compare these to the spectra of stable stars and add to our Progress Trackers. We ask new questions and add them to our Driving Question Board.

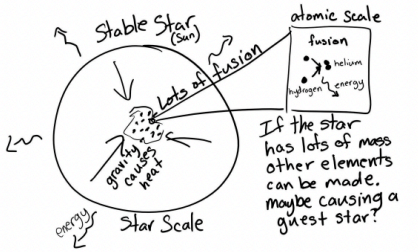
What students will figure out:

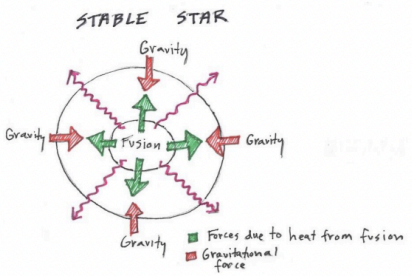
What's next?

We will consider how studying energy and matter in stable stars could help us answer our questions. We will be introduced to two new tools, the Planning for Obtaining Information Tool and the Obtaining Information Tool, and we will use them to research answers to our questions. We will come to consensus and record our ideas in our Progress Trackers and Personal Glossaries. We will revisit the DQB.

		Learning Target: I can ask questions based on the spectra of a guest star to figure out why some stars stay stable for a long time while others change suddenly. **Success Criteria:** I will… ● examine spectra from guest stars and stable stars to notice patterns and differences. ● ask scientific questions about what causes changes in a star's brightness, color, or composition. ● identify what additional information (like temperature, age, or fusion processes) would help answer my questions. ● connect my questions to models of how stars form, live, and change over time. ● use my questions to guide further research or investigation about star stability and change. **2.B** Ask questions that arise from the spectra of a guest star to seek additional information about how and why some stars appear to	

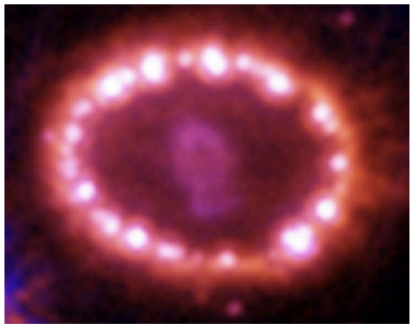
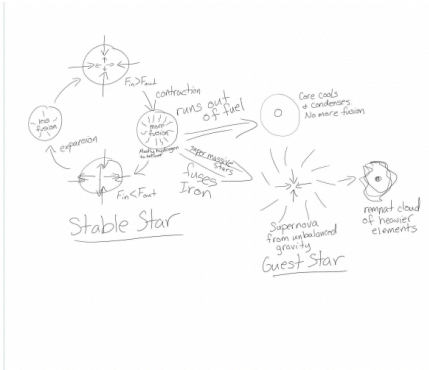
		remain stable for so long and others change so quickly. (SEP: 1.1; CCC: 7.1; DCI: ESS1.A.2)	
Lesson 3: What is happening with matter and energy in stable stars, like our Sun, and how does this help us understand guest stars? Lesson 3 - P.6 Stars & the B…  *Stars like the Sun are very hot and transfer energy out toward the Earth. The remnant cloud of gas left over after a guest star event also appears to transfer energy and contain different types of matter than stable stars.*	P.6 Lesson 3 Teacher Edition **Duffy combined handout version of Lesson 3:** **Planning for Obtaining Infor…** **-INTRODUCE THE PLANNING FOR OBTAINING INFORMATION TOOL** **-CONTINUE FIRST RESEARCH CYCLE** **-BUILD CONSENSUS IN A SCIENTISTS CIRCLE** **-MODELING OUR SUN, A STABLE STAR**	**Learning Target:** I can use information from multiple sources to explain how nuclear processes in stars affect their behavior and changes during the beginning and middle stages of their lives. **Success Criteria:** I will… • find and compare information about nuclear fusion processes in stars using multiple web sources. • identify how the scale of fusion reactions affects the star's energy output and behavior. • use the information to answer questions about how stars like the Sun change over time. • integrate evidence from different sources to update or refine my models of stellar evolution. • explain my reasoning clearly, showing how nuclear processes drive changes in matter and energy inside stars.	**What students will wonder:** What is happening with matter and energy in stable stars, like our Sun, and how does this help us understand guest stars? We consider how studying energy and matter in stable stars, including the Sun, could help us answer our questions about guest stars and form research groups. We are introduced to the [material: PB.L3.HO1] and consider the credibility of sources. We use a new tool called the Obtaining Information Tool to keep track of what we find out. We come to consensus around the answers to our research questions and record our ideas in our Progress Trackers and Personal Glossaries. We revisit questions on the DQB. **What students will figure out:** ***What's next?*** We consider how studying energy and matter in stable stars, including the Sun, could help us answer our questions about guest stars and form research groups. We are introduced to the Planning for Obtaining Information Tool and

		3.A Compare and integrate information about nuclear processes in stars and how their scale affects their significance from a list of web sources in order to obtain information to address a question and make progress on our models of why and how stars like the Sun change at the beginning and middle of their lives. (SEP: 8.2; CCC: 3.1, 5.2, 5.5; DCI: ESS1.A.4, PS1.C.1, PS3.D.4, ESS1.A.1)	consider the credibility of sources. We use a new tool called the Obtaining Information Tool to keep track of what we find out. We come to consensus around the answers to our research questions and record our ideas in our Progress Trackers and Personal Glossaries. We revisit questions on the DQB. We figure out: A star is an object that is massive enough to ignite fusion. Energy from fusion causes stars to emit electromagnetic energy. Fusion creates new elements as multiple nuclei become one.  ***What's next?*** *We will model the macro forces of a star to help us figure out what keeps stars stable. We will develop research questions, and we will be introduced to a new tool for evaluating sources. We will gather information and communicate our findings in a*

			gallery tour. We will come to consensus on what causes stars to remain stable or become unstable and change and record those ideas in our Progress Trackers.
Lesson 4: How does running out of fuel cause a star to change? Lesson 4 - P.6 Stars & the B…   *A model of the balance between the force of gravity and the force from fusion doesn't explain what will happen if there is not sufficient fuel for fusion.*	P.6 Lesson 4 Teacher Edition **Duffy combined handout version of Lesson 4:** **-MODEL STABILITY IN STAR SYSTEMS** **-DEVELOP RESEARCH QUESTIONS** **-BEGIN SECOND RESEARCH CYCLE WITH EVALUATE SOURCES AND OBTAIN INFORMATION** **Star Research Posters - Duffy** **-GALLERY TOUR** **-COME TO CONSENSUS ON WHAT WE FIGURED OUT**	**Learning Target:** I can ask questions based on my research on fusion and models of forces in stars to understand how stars change when they run out of fuel. **Success Criteria:** I will… • analyze my models of stable stars and the forces acting within them. • identify what happens to matter and energy when a star's fusion fuel is depleted. • ask meaningful questions about the processes that drive stellar changes in late stages of life. • determine what additional information or evidence is needed to answer my questions. • connect my questions to refine or improve my models of how stars evolve after fusion slows or stops.	**What students will wonder:** How does running out of fuel cause a star to change? We model the macro forces of a star to help us figure out what keeps stars stable and make sense of the balance between gravity and outward pressure in stable stars. We develop research questions and are introduced to a new tool: the [material:PB.L4.HO1]. We gather information and communicate our findings in a gallery tour. We come to consensus on what causes stars to remain stable or become unstable and change and record those ideas in our Progress Trackers. **What students will figure out:** • Stars exist because there is a balance (or equilibrium) between gravity forces pushing inward and the outward pushing forces of the hot, fast moving particles at the

		4.A Ask questions that arise from our research on fusion and from modeling the forces in stars when they are stable to clarify and seek additional information about how stars change when their fuel runs out. (SEP: 1.1, 1.4; CCC: 5.2, 7.1, 7.3; DCI: ESS1.A.4, PS3.D.4) --- **Learning Target:** I can gather and use information from multiple reliable sources to explain how stars, including the Sun, remain stable and how they can become unstable over their life cycles. **Success Criteria:** I will… ● evaluate the quality and usefulness of multiple sources for answering my questions. ● integrate information from different sources to refine my explanations of star behavior. ● use graphics and text to communicate my understanding clearly. ● explain how changes in matter and energy within a star cause it to stay stable	center of the star (due to energy released by fusion). ● A feedback loop between gravity and fusion maintains this equilibrium. ● Stars eventually run out of hydrogen in their cores. When there is not enough concentration of particles to keep fusing heavier elements, the equilibrium is broken, and the star will die. ● What happens to a star when it dies depends on its mass. More massive stars run out of fuel faster because their gravity will cause the concentration of particles in the core to be higher, increasing fusion rates. ● When a star like the Sun runs out of hydrogen to produce energy, the core will cool and condense. The Sun will become a red giant because of a multi-step process kicked off by this cooling and condensing and eventually fade away. ● Massive stars can fuse heavier elements, up to iron for super-massive

		or become unstable over time. **4.B** Gather, read, evaluate, and integrate information from multiple authoritative internet sources, assessing the evidence and usefulness of each source in answering our questions about how stars (including our Sun) remain stable and can become unstable over their life cycles and communicate the information with graphics and text. (SEP: 8.2, 8.3, 8.5; CCC: 7.1, 7.3; DCI: ESS1.A.1, ESS1.A.4, PS1.C.1)	stars. • When a very massive star fuses iron in its core, the reaction will no longer release energy, and there will not be enough outward force to balance gravity, disrupting the stable feedback loop. The star collapses and bounces back in what is called a supernova. • Supernovae transfer a lot of energy into space. What ancient astronomers called "guest stars" are actually the light that results from this transfer of energy. ***What's next?*** *We will create a Gotta-Have-It Checklist to explain what cause-effect relationships occur within stars. We will model the feedback loop that keeps stars stable and what happens when this loop is disrupted. We will update the Scale Chart and revisit the DQB.*
Lesson 5: Why do some stars seem unchanging, while others appear briefly, change dramatically, and fade away? Lesson 5 - P.6 Stars & the B…	P.6 Lesson 5 Teacher Edition **Duffy combined handout version of Lesson 5:** **Modeling Stellar Stability - D…**	**Learning Target:** I can develop and revise models to show how feedback loops keep stars stable, and how disruptions in these loops can cause sudden, dramatic	**What students will wonder:** Why do some stars seem unchanging, while others appear briefly, change dramatically, and fade away? We think we are ready to explain why a guest star

P.6 Lesson 5 Answer Key El…  *A guest star appears and then disappears, but other stars shine with steady light. The cloud left over after a supernova is hotter than the original star and contains different matter.* 	**-INDIVIDUAL MODELING AND PEER FEEDBACK** **-CONSENSUS MODELING** **-UPDATE THE SCALE CHART** **-DQB REVISIT** **-EXIT TICKET ASSESSMENT (BELOW IN PURPLE)**	changes depending on a star's mass. **Success Criteria:** I will… • create and update models of stellar systems based on evidence from multiple sources. • describe how feedback loops regulate matter, energy, and forces within stars. • explain how the mass of a star affects its stability and response to disruptions. • use my models to illustrate how changes in these loops can lead to sudden, catastrophic events. • support my explanations with evidence from data, simulations, or observations of real stars. **5.4** Develop and revise models based on evidence from a variety of sources to illustrate how feedback loops keep stellar systems stable and how, depending on the mass of the star, disruptions in these loops can cause sudden, catastrophic changes.(SEP: 2.3; CCC: 3.1, 7.1, 7.3; DCI: ESS1.A.4, ESS1.A.1)	appears and disappears, so we create a Gotta-Have-It Checklist to explain what cause-effect relationships occur within stars. We individually, then collectively, model the feedback loop that keeps stars stable and what happens when this loop is disrupted. We update the Scale Chart and revisit the DQB. We begin to wonder where the stuff for the first stars came from. **What students will figure out:** • A guest star is a star that tried to fuse iron in its core, which is an endothermic reaction (it needs energy). This breaks the feedback loop that keeps stars stable. • The stable period for a star ranges from a few million years for the most massive to trillions of years for the least massive. • When the feedback loop is broken for a super-massive star, the star will collapse and bounce back out. releasing a lot of energy and fusing elements heavier than iron. When this happens, the star in the sky appears very bright.

			• After this event, the energy will move outward into space, and the star will fade away as the gas begins to disperse into a remnant cloud of heavier elements. ***What's next?*** *We will look at spectra of stars, galaxies, and empty space and notice puzzling patterns in each that might hold clues to how the matter in the Universe has changed over time. We will be introduced to the Communicating Information Planning Tool and use all four research tools in small groups to obtain, evaluate, and communicate our ideas. We will come to a consensus about the evidence we uncovered, which points to an event called the Big Bang, and read about what it means that people call the Big Bang a "theory."*
Common Assessment: Built in Canvas based on this google form Also incorporated feedback loop model from Lesson 5 P.6 Lesson 5 Answer Key Electronic Exit Ticket		**Learning Target:** I can develop and revise models to show how feedback loops keep stars stable, and how disruptions in these loops can cause sudden, dramatic changes depending on a star's mass. **Success Criteria:** I will… • create and update models of stellar systems based on evidence from multiple sources. • describe how feedback loops regulate matter, energy, and forces within stars.	

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explain how the mass of a star affects its stability and response to disruptions.
use my models to illustrate how changes in these loops can lead to sudden, catastrophic events.
support my explanations with evidence from data, simulations, or observations of real stars.

5.A Develop and revise models based on evidence from a variety of sources to illustrate the feedback loop processes within star systems that keep them stable and the disruptions in these loops that can cause sudden change in the system and what happens then, based on the mass of the star. (SEP: 2.3; CCC: 3.1, 7.1, 7.3; DCI: ESS1.A.4, ESS1.A.1)
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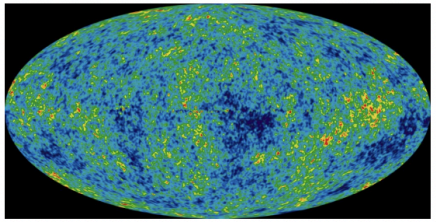
Lesson 6: How has the matter in the Universe changed over time, and how do we know?
Lesson 5 - P.6 Stars & the B…


When we look at spectra of stars, galaxies, and empty space, we notice puzzling patterns that cannot yet be explained by our model.
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P.6 Lesson 6 Teacher Edition

Duffy combined handout version of Lesson 6:

-LOOK AT SPECTRA OF STARS, GALAXIES, AND SPACE

-THIRD RESEARCH CYCLE

-TIMED GALLERY TOUR’
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Learning Target: I can explain how evidence from spectra, galaxy motion, element composition, and cosmic radiation supports the Big Bang theory.

Success Criteria: I will…

read and evaluate information from multiple reliable sources about the Big Bang theory.
identify empirical evidence that supports the theory, including:

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What students will wonder:
How has the matter in the Universe changed over time, and how do we know? We look at spectra of stars, galaxies, and empty space and notice puzzling patterns in each that might hold clues to how the matter in the Universe has changed over time. We decide to research each question and come back together to communicate our findings. We are introduced to the [material: PB.L6.HO2] and use all four research tools in small groups to
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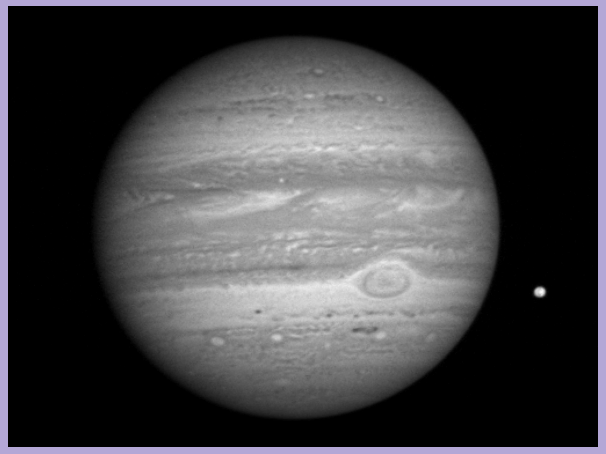
		○ spectral patterns from distant galaxies, ○ the redshift showing galaxies moving away from us, ○ the composition of stars and gases, and ○ maps of cosmic background radiation. ● explain how my researched evidence shows that the Universe has expanded over time. ● communicate my understanding using clear graphics, models, or text-based explanations. ● connect each type of evidence to the scientific reasoning that supports the Big Bang model.	obtain, evaluate, and communicate our ideas. We come to consensus about the evidence we uncovered, which points to an event called the Big Bang, and read about what it means that people call the Big Bang a "theory." Finally, we add to our Progress Trackers and our Personal Glossaries. **What students will figure out:** ***What's next?***
Common Assessment: **-LS1 Summative Assessment: Transfer Task** Lesson 7: How can we use the practices and crosscutting concepts we have developed to figure things out on our own? Built in Canvas:		**Learning Target:** I can ask meaningful scientific questions about real-world phenomena and plan how to find, evaluate, and share information to answer them using the science and engineering practices I've learned.	**What students will wonder:** How can we use the practices and crosscutting concepts we have developed to figure things out on our own? We consider how the M-E-F triangle frames and our understanding of stability and



P.6 Lesson 7 Answer Key Jupiter Transfer Task

Success Criteria: I will…

- reflect on my own life experiences to identify puzzling phenomena I want to explain.
- ask testable and relevant questions that connect to ideas from this course.
- plan how to obtain and evaluate information to investigate my questions.
- decide how to communicate my findings clearly using scientific reasoning and evidence.
- apply the science and engineering practices and crosscutting concepts I've developed throughout this and other OpenSciEd High School units.

change help us make sense of our phenomena. We record questions we still want answered on our DQB and then broaden to think about questions we have about other types of phenomena. We reflect on what investigations we can through online research, future science classes, a career in STEM, and/or a lifetime of curiosity. We then engage in a final transfer task.

What students will figure out:

- Stability and change and the M-E-F triangle frames are valuable tools for making sense of our natural world.
- We can use the lenses we have developed and our research tools to continue to investigate our questions outside of class and beyond

What's next?

END OF UNIT.

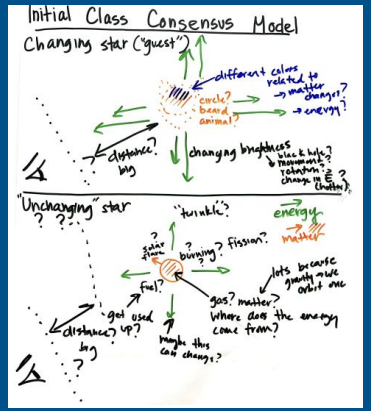
Astronomy: Unit 2 Stars and the Big Bang

Unit Written by Kelsey Duffy
Presentation Created by Lisa Daigle

The Phenomenon

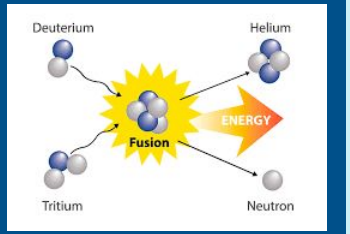
What will students be wondering about?

Why stars shine and what could cause stars to change?



Why do some stars seem unchanging, while others appear briefly, change dramatically, and fade away?

- Nuclear Fusion
- Big Bang Theory
- Light Spectra
- Star Life Cycle
- Feedback Loops



Performance Expectations

Earth Science

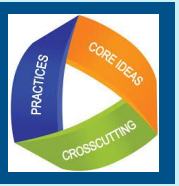
- **HS-ESS1-1** Develop a model based on evidence to illustrate the life span of the sun and the role of nuclear fusion in the sun's core to release energy in the form of radiation.
- **HS-ESS1-2** Construct an explanation of the Big Bang theory based on astronomical evidence of light spectra, motion of distant galaxies, and composition of matter in the universe.
- **HS-ESS1-3** Communicate scientific ideas about the way stars, over their life cycle, produce elements.

Performance Expectations

Physical Science

- **HS-PS1-8** Develop models to illustrate the changes in the composition of the nucleus of the atom and the energy released during the processes of fission, fusion, and radioactive decay.

3D Learning



Science & Engineering Practices

- Developing and Using Models
- Constructing Explanations and Designing Solutions
- Obtaining, Evaluating, and Communicating Information

Disciplinary Core Ideas

- ESS1.A: The Universe and Its Stars
- PS3.D: Energy in Chemical Processes and Everyday Life
- ESS1.A: The Universe and Its Stars
- PS4.B: Electromagnetic Radiation
- ESS1.A: The Universe and Its Stars
- PS1.C: Nuclear Processes

Cross Cutting Concepts

- Scale, Proportion, and Quantity
- Energy and Matter

How will Students be Assessed?

First Assessment: Feedback Loops

Learning Target: I can develop and revise models to show how feedback loops keep stars stable, and how disruptions in these loops can cause sudden, dramatic changes depending on a star's mass.

Success Criteria:

- create and update models of stellar systems based on evidence from multiple sources.
- describe how feedback loops regulate matter, energy, and forces within stars.
- explain how the mass of a star affects its stability and response to disruptions.
- use my models to illustrate how changes in these loops can lead to sudden, catastrophic events.
- support my explanations with evidence from data, simulations, or observations of real stars.

5.A Develop and revise models based on evidence from a variety of sources to illustrate the feedback loop processes within star systems that keep them stable and the disruptions in these loops that can cause sudden change in the system and what happens then, based on the mass of the star. (SEP: 2.3; CCC: 3.1, 7.1, 7.3; DCI: ESS1.A.4, ESS1.A.1)

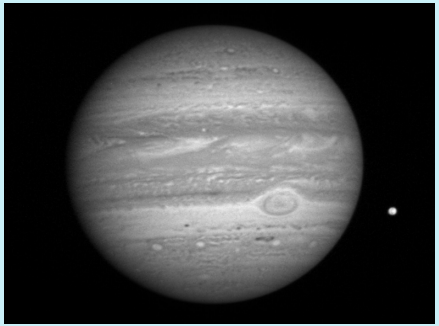
How will Students be Assessed?

Second Assessment: Jupiter Transfer Task

Learning Target: I can ask meaningful scientific questions about real-world phenomena and plan how to find, evaluate, and share information to answer them using the science and engineering practices I've learned.

Success Criteria:

- reflect on my own life experiences to identify puzzling phenomena I want to explain.
- ask testable and relevant questions that connect to ideas from this course.
- plan how to obtain and evaluate information to investigate my questions.
- decide how to communicate my findings clearly using scientific reasoning and evidence.



Transfer Task PE: HS-ESS1-1 Develop a model based on evidence to illustrate the life span of the Sun and the role of nuclear fusion in the Sun's core to release energy that eventually reaches Earth in the form of radiation. (SEP: 2.3; CCC: 3.1; DCI: ESS1.A.1, PS3.D.4)


Any
Questions?

BOARD OF EDUCATION
SOUTHINGTON, CONNECTICUT

Informational Only X **Board Meeting Date** April 16, 2026

Decision Requested _____ **Agenda Code** 11 p.

AGENDA REPORTING FORM

Agenda Topic: SHS Agricultural Science – Advanced Non-ruminant Livestock Management - NEW - First Reading.

Summary of Issue: SHS Agricultural Science – Advanced Non-ruminant Livestock Management - NEW - First Reading.

Background:

Alternative Strategies: N/A

Cost (if applicable): N/A **Funding Source:** N/A

Beginning Date of Program or Project: N/A

Ending Date of Program or Project: N/A

Recommendation or Comment: The Board of Education Curriculum & Instruction Committee is bringing the SHS Agricultural Science – Advanced Non-ruminant Livestock Management – NEW – to the full Board for a First Reading.

Titles of Attachments:

1. Course Proposal

Signature of Staff Member Submitting Report

Signature of Superintendent of Schools

Advanced Non-ruminant Livestock Management: Scope and Sequence

This course is designed to provide students with an understanding of how to properly manage and care for non-ruminant production livestock species (swine, poultry, exotics). Students will be introduced to best industry practices and standards when raising non-ruminant livestock; becoming more aware of how the production livestock industry operates. Students will learn about; terminology, anatomy, physiology, breed standards, nutrition, reproduction, and products. Hands-on skills will be incorporated throughout the class to provide students skills that will make them more marketable in the livestock industry for employment opportunities. The understanding of these various animal systems will make the students more informed as consumers to help make better decisions when purchasing.

Unit 1: Introduction
September

Unit Summary and Lesson Overviews

This unit extends students' understanding of basic safety principals when working with large animals as well as what production livestock is.

Unit Skills/Topics:

- Safety around large animals
- Proper footwear and clothing
- History of livestock
- Uses of livestock
- Products from livestock

Common Core State Standards Addressed:

- CRP.01.01. Performance Indicator: Model personal responsibility in the workplace and community.
- CRP.02.01. Performance Indicator: Use strategic thinking to connect and apply academic learning, knowledge and skills to solve problems in the workplace and community.
- CRP.04.01. Performance Indicator: Speak using strategies that ensure clarity, logic, purpose and professionalism in formal and informal settings.
- CRP.04.02. Performance Indicator: Produce clear, reasoned and coherent written and visual communication in formal and

informal settings.

- AS.01.01. Performance Indicator: Evaluate the development and implications of animal origin, domestication and distribution on production practices and the environment.

Unit 2: Swine

September ~ November

Unit Summary and Lesson Overviews

This unit extends students' understanding of swine as a production livestock species. Students will learn terminology, anatomy and physiology, handling and restraint, nutrition and digestion, reproduction, and health and disease.

Unit Skills/Topics:

- Terminology
- External anatomy
  - Parts of the body
- Musculo-skeletal system
  - Names of specific bones
  - Names of specific muscles
  - Types of bones
  - Types of muscles
- Digestive system
  - Organs in the system
  - Function of the organs
  - How the simple stomach system is different from a ruminant animal
- Nutrition
  - Nutrient classes
  - Forage types
  - Ration balancing
- Reproduction
  - Parts of the female system
  - Parts of the male system
  - Hormones of the reproductive cycle
  - Methods of breeding
  - Managing the breeding animal
  - Partitution
- Health and disease
  - Common diseases

    - Vaccinations
    - Biosecurity
- Handling and restraint
    - Proper handling/leading
    - Proper restraint techniques
    - Flight zones
    - Showing skills

Common Core State Standards Addressed:

- AS.01.02. Performance Indicator: Assess and select animal production methods for use in animal systems based upon their effectiveness and impacts.
- AS.02.01. Performance Indicator: Demonstrate management techniques that ensure animal welfare.
- AS.02.02. Performance Indicator: Analyze procedures to ensure that animal products are safe for consumption (e.g., use in food system, etc.).
- AS.03. CCTC Framework: Design and provide proper animal nutrition to achieve desired outcomes for performance, development, reproduction and/or economic production.
- AS.04. CCTC Framework: Apply principles of animal reproduction to achieve desired outcomes for performance, development and/or economic production.
- AS.05.01. Performance Indicator: Design animal housing, equipment and handling facilities for the major systems of animal production.
- AS.06. CCTC Framework: Classify, evaluate and select animals based on anatomical and physiological characteristics.
- AS.07. CCTC Framework: Apply principles of effective animal health care.

Unit 3: Poultry

September ~ November

Unit Summary and Lesson Overviews

This unit extends students' understanding of poultry as a production livestock species. Students will learn terminology, anatomy and

physiology, handling and restraint, nutrition and digestion, reproduction, and health and disease.

Unit Skills/Topics:

- Terminology
- External anatomy
    - Parts of the body
- Musculo-skeletal system
    - Names of specific bones
    - Names of specific muscles
    - Types of bones
    - Types of muscles
- Digestive system
    - Organs in the system
    - Function of the organs
    - How the simple stomach system is different from a ruminant animal
- Nutrition
    - Nutrient classes
    - Forage types
    - Ration balancing
- Reproduction
    - Parts of the female system
    - Parts of the male system
    - Hormones of the reproductive cycle
    - Methods of breeding
    - Managing the breeding animal
    - Partitution
- Health and disease
    - Common diseases
    - Vaccinations
    - Biosecurity
- Handling and restraint
    - Proper handling/leading
    - Proper restraint techniques
    - Flight zones
    - Showing skills

Common Core State Standards Addressed:

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- AS.05.01. Performance Indicator: Design animal housing, equipment and handling facilities for the major systems of animal production.
- AS.06. CCTC Framework: Classify, evaluate and select animals based on anatomical and physiological characteristics.
- AS.07. CCTC Framework: Apply principles of effective animal health care.

Unit 4: Exotics

September ~ November

Unit Summary and Lesson Overviews

This unit extends students' understanding of exotics (llamas, alpacas, ostriches, emus, buffalo) as a production livestock species. Students will learn terminology, anatomy and physiology, handling and restraint, nutrition and digestion, reproduction, and health and disease.

Unit Skills/Topics:

- Terminology
- External anatomy
    - Parts of the body
- Musculo-skeletal system
    - Names of specific bones
    - Names of specific muscles
    - Types of bones
    - Types of muscles
- Digestive system

    - Organs in the system
    - Function of the organs
    - How the simple stomach system is different from a ruminant animal
- Nutrition
    - Nutrient classes
    - Forage types
    - Ration balancing
- Reproduction
    - Parts of the female system
    - Parts of the male system
    - Hormones of the reproductive cycle
    - Methods of breeding
    - Managing the breeding animal
    - Partitution
- Health and disease
    - Common diseases
    - Vaccinations
    - Biosecurity
- Handling and restraint
    - Proper handling/leading
    - Proper restraint techniques
    - Flight zones
    - Showing skills

Common Core State Standards Addressed:

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- AS.04. CCTC Framework: Apply principles of animal reproduction to achieve desired outcomes for performance, development and/or economic production.

- AS.05.01. Performance Indicator: Design animal housing, equipment and handling facilities for the major systems of animal production.
- AS.06. CCTC Framework: Classify, evaluate and select animals based on anatomical and physiological characteristics.
- AS.07. CCTC Framework: Apply principles of effective animal health care.

BOARD OF EDUCATION
SOUTHINGTON, CONNECTICUT

Informational Only X **Board Meeting Date** April 16, 2026

Decision Requested _____ **Agenda Code** 11 q.

AGENDA REPORTING FORM

Agenda Topic: SHS Agricultural Science – Advanced Ruminant Livestock Management -NEW - First Reading.

Summary of Issue: SHS Agricultural Science – Advanced Ruminant Livestock Management - NEW - First Reading.

Background:

Alternative Strategies: N/A

Funding Source: N/A

Cost (if applicable): N/A

Beginning Date of Program or Project: N/A

Ending Date of Program or Project: N/A

Recommendation or Comment: The Board of Education Curriculum & Instruction Committee is bringing the SHS Agricultural Science – Advanced Ruminant Livestock Management –NEW – to the full Board for a First Reading.

Titles of Attachments:

1. Course Proposal

Signature of Staff Member Submitting Report

Signature of Superintendent of Schools

Advanced Ruminant Livestock Management: Scope and Sequence

This course is designed to provide students with an understanding of how to properly manage and care for ruminant production livestock species (cattle, sheep, and goats). Students will be introduced to best industry practices and standards when raising ruminant livestock; becoming more aware of how the production livestock industry operates. Students will learn about; terminology, anatomy, physiology, breed standards, nutrition, reproduction, and products. Hands-on skills will be incorporated throughout the class to provide students skills that will make them more marketable in the livestock industry for employment opportunities. The understanding of these various animal systems will make the students more informed as consumers to help make better decisions when purchasing.

Unit 1: Introduction
September

Unit Summary and Lesson Overviews

This unit extends students' understanding of basic safety principals when working with large animals as well as what production livestock is.

Unit Skills/Topics:

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- History of livestock
- Uses of livestock
- Products from livestock

Common Core State Standards Addressed:

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- CRP.04.01. Performance Indicator: Speak using strategies that ensure clarity, logic, purpose and professionalism in formal and informal settings.
- CRP.04.02. Performance Indicator: Produce clear, reasoned and coherent written and visual communication in formal and informal settings.

- AS.01.01. Performance Indicator: Evaluate the development and implications of animal origin, domestication and distribution on production practices and the environment.

Unit 2: Goats

September ~ November

Unit Summary and Lesson Overviews

This unit extends students' understanding of goats as a production livestock species. Students will learn terminology, anatomy and physiology, handling and restraint, nutrition and digestion, reproduction, and health and disease.

Unit Skills/Topics:

- Terminology
- External anatomy
  - Parts of the body
- Musculo-skeletal system
  - Names of specific bones
  - Names of specific muscles
  - Types of bones
  - Types of muscles
- Digestive system
  - Organs in the system
  - Function of the organs
  - How the ruminant system is different from simple stomach animal
- Nutrition
  - Nutrient classes
  - Forage types
  - Ration balancing
- Reproduction
  - Parts of the female system
  - Parts of the male system
  - Hormones of the reproductive cycle
  - Methods of breeding
  - Managing the breeding animal
  - Partitution
- Health and disease

    - Common diseases
    - Vaccinations
    - Biosecurity
- Handling and restraint
    - Proper handling/leading
    - Proper restraint techniques
    - Flight zones
    - Showing skills

Common Core State Standards Addressed:

- AS.01.02. Performance Indicator: Assess and select animal production methods for use in animal systems based upon their effectiveness and impacts.
- AS.02.01. Performance Indicator: Demonstrate management techniques that ensure animal welfare.
- AS.02.02. Performance Indicator: Analyze procedures to ensure that animal products are safe for consumption (e.g., use in food system, etc.).
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- AS.04. CCTC Framework: Apply principles of animal reproduction to achieve desired outcomes for performance, development and/or economic production.
- AS.05.01. Performance Indicator: Design animal housing, equipment and handling facilities for the major systems of animal production.
- AS.06. CCTC Framework: Classify, evaluate and select animals based on anatomical and physiological characteristics.
- AS.07. CCTC Framework: Apply principles of effective animal health care.

Unit 3: Sheep

September ~ November

Unit Summary and Lesson Overviews

This unit extends students' understanding of sheep as a production livestock species. Students will learn terminology, anatomy and physiology, handling and restraint, nutrition and digestion, reproduction, and health and disease.

Unit Skills/Topics:

- Terminology
- External anatomy
  - Parts of the body
- Musculo-skeletal system
  - Names of specific bones
  - Names of specific muscles
  - Types of bones
  - Types of muscles
- Digestive system
  - Organs in the system
  - Function of the organs
  - How the ruminant system is different from simple stomach animal
- Nutrition
  - Nutrient classes
  - Forage types
  - Ration balancing
- Reproduction
  - Parts of the female system
  - Parts of the male system
  - Hormones of the reproductive cycle
  - Methods of breeding
  - Managing the breeding animal
  - Partitution
- Health and disease
  - Common diseases
  - Vaccinations
  - Biosecurity
- Handling and restraint
  - Proper handling/leading
  - Proper restraint techniques
  - Flight zones
  - Showing skills

Common Core State Standards Addressed:

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- AS.05.01. Performance Indicator: Design animal housing, equipment and handling facilities for the major systems of animal production.
- AS.06. CCTC Framework: Classify, evaluate and select animals based on anatomical and physiological characteristics.
- AS.07. CCTC Framework: Apply principles of effective animal health care.

Unit 4: Cattle

September ~ November

Unit Summary and Lesson Overviews

This unit extends students' understanding of cattle as a production livestock species. Students will learn terminology, anatomy and physiology, handling and restraint, nutrition and digestion, reproduction, and health and disease.

Unit Skills/Topics:

- Terminology
- External anatomy
  - Parts of the body
- Musculo-skeletal system
  - Names of specific bones
  - Names of specific muscles
  - Types of bones
  - Types of muscles

- Digestive system
    - Organs in the system
    - Function of the organs
    - How the ruminant system is different from simple stomach animal
- Nutrition
    - Nutrient classes
    - Forage types
    - Ration balancing
- Reproduction
    - Parts of the female system
    - Parts of the male system
    - Hormones of the reproductive cycle
    - Methods of breeding
    - Managing the breeding animal
    - Partitution
- Health and disease
    - Common diseases
    - Vaccinations
    - Biosecurity
- Handling and restraint
    - Proper handling/leading
    - Proper restraint techniques
    - Flight zones
    - Showing skills

Common Core State Standards Addressed:

- AS.01.02. Performance Indicator: Assess and select animal production methods for use in animal systems based upon their effectiveness and impacts.
- AS.02.01. Performance Indicator: Demonstrate management techniques that ensure animal welfare.
- AS.02.02. Performance Indicator: Analyze procedures to ensure that animal products are safe for consumption (e.g., use in food system, etc.).
- AS.03. CCTC Framework: Design and provide proper animal nutrition to achieve desired outcomes for performance, development, reproduction and/or economic production.
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and/or economic production.

- AS.05.01. Performance Indicator: Design animal housing, equipment and handling facilities for the major systems of animal production.
- AS.06. CCTC Framework: Classify, evaluate and select animals based on anatomical and physiological characteristics.
- AS.07. CCTC Framework: Apply principles of effective animal health care.

BOARD OF EDUCATION
SOUTHINGTON, CONNECTICUT

Informational Only X **Board Meeting Date** April 16, 2026

Decision Requested _____ **Agenda Code** 11 r.

AGENDA REPORTING FORM

Agenda Topic: SHS UCONN SPS 1150 Agriculture Technology – NEW - First Reading.

Summary of Issue: SHS UCONN SPS 1150 Agriculture Technology – NEW - First Reading.

Background: _____

Alternative Strategies: N/A

Cost (if applicable): N/A **Funding Source:** N/A

Beginning Date of Program or Project: N/A

Ending Date of Program or Project: N/A

Recommendation or Comment: The Board of Education Curriculum & Instruction Committee is bringing the SHS UCONN SPS 1150 Agriculture Technology – NEW – to the full Board for a First Reading.

Titles of Attachments:

1. Course Proposal

Signature of Staff Member Submitting Report

Signature of Superintendent of Schools

Course Name: UConn SPSS 1150 Agriculture Technology

This course is designed to provide students with a comprehensive understanding of the historical, technological, and cultural developments that have shaped global agriculture from early human civilizations to the present day. Guided by the National Agriculture, Food, and Natural Resources (AFNR) Career Cluster Standards and aligned with the academic rigor of the University of Connecticut's Early College Experience (ECE) program, the course equips students with the analytical, historical, and technological perspectives needed to understand modern agriculture in a global context.

Students will explore the dynamic relationship between society and agriculture, tracing the evolution of farming practices, agricultural tools, land use systems, and economic policies across cultures and time periods. Through research-based learning, primary source analysis, and hands-on historical practicums, students will develop competencies in evaluating the cultural, environmental, and technological forces that continue to influence agriculture today.

As part of the experiential component of the course, students will engage in historical reconstruction projects (e.g., model barn building), crop studies, and laboratory-based food history analysis, fostering a deeper appreciation for how human innovation and societal needs have shaped agricultural development through the ages.

Unit I: Evolution of Early Humans and Agricultural Beginnings

Unit Summary and Lesson Overviews

This unit provides a foundational overview of early human evolution and the pivotal transition from nomadic lifestyles to settled agricultural societies. Students will investigate how brain development, food preparation (e.g., cooking and meat consumption), and population dispersion played key roles in early food systems and permanent settlements.

Unit Skills/Topics:

- Evolution of early Homo species leading to Homo sapiens
- Global migration patterns and food sourcing
- Role of meat and cooking in human development
- Shift from hunter-gatherer to agrarian societies
- Early signs of domestication and plant cultivation

AFNR Standards Addressed:

- ESS.03.01. Evaluate human impacts on natural resource systems.
- NRS.01.01. Investigate the relationship between humans and environmental resources.
- CRP.07.01. Apply reasoning and critical thinking to solve historical problems.

Unit II: The World's First Agricultural Societies

Unit Summary and Lesson Overviews

Unit Summary and Lesson Overviews:
Students will analyze the first major civilizations that emerged in fertile river valleys, such as Sumer, Egypt, and ancient China. The unit explores how environmental factors, irrigation systems, and early food production shaped cultural identities and long-term agricultural patterns.

Unit Skills/Topics:

- Geography of early river-based civilizations
- Agricultural tools and irrigation systems
- Crop domestication and diet in ancient societies
- Development of early agricultural economies
- Comparative analysis of Sumerian, Egyptian, and Chinese agriculture

AFNR Standards Addressed:

- PS.01.01. Analyze the role of agriculture in early civilization development.
- ESS.03.03. Evaluate sustainability of ancient food systems.
- CS.01.01. Analyze historical texts and documents relating to agriculture.

Unit III: Agriculture in Ancient Rome

Unit Summary and Lesson Overviews

Unit Summary and Lesson Overviews:
This unit explores how Roman innovations in agricultural engineering, land use, and estate organization influenced food production and shaped modern Western agriculture. Special attention is given to the Latifundium model and its legacy in Mediterranean and Romance-speaking cultures.

Unit Skills/Topics:

- Structure and economy of Roman agricultural estates (Latifundia)
- Agricultural exports and dietary patterns of the Roman world
- Roman city layouts and integration of rural-agricultural spaces
- Linguistic and cultural continuity in modern Romance-language countries
- Fall of the Roman Empire and its agricultural aftermath

AFNR Standards Addressed:

- ESS.05.01. Evaluate the environmental consequences of long-term land use.
- CRP.01.02. Examine the impact of history and culture on agricultural development.
- CS.02.01. Use historical evidence to support agricultural research findings.

Unit IV: Medieval European Agriculture

Unit Summary and Lesson Overviews

Unit Summary and Lesson Overviews:
This unit examines the agrarian economy during the Middle Ages, including the manorial system, technological stagnation and revival, religious influence on land management, and the domestication of livestock.

Unit Skills/Topics:

- Feudalism and land ownership models
- Christian influences on agricultural practices
- Medieval town and village structures
- Advances in animal domestication and breeding
- Return to meat consumption and dietary shifts

AFNR Standards Addressed:

- AS.02.01. Assess historical animal husbandry methods.
- ESS.01.02. Examine ethical and religious influences on agriculture.
- CRP.02.01. Evaluate the role of belief systems in food production and distribution.

Unit V: European Colonization and the Columbian Exchange

Unit Summary and Lesson Overviews

Unit Summary and Lesson Overviews:
Students will investigate the agricultural impacts of European exploration and colonization, focusing on crop diffusion, the Columbian Exchange, and the shaping of global food systems. A hands-on food lab and crop dissection will help students explore cultural culinary connections.

Unit Skills/Topics:

- Crops of the Columbian Exchange (maize, potatoes, beans, etc.)
- Impacts of colonization on indigenous food systems
- Comparative diets before and after contact
- Global agricultural biodiversity and trade
- Italian cuisine and remnants of Roman agriculture

AFNR Standards Addressed:

- PS.01.02. Assess historical changes in plant use and distribution.
- ESS.03.04. Analyze the long-term effects of crop relocation.
- CS.03.02. Present research findings in written and oral formats.

Unit VI: Colonial New England and Agricultural Identity

Unit Summary and Lesson Overviews

Unit Summary and Lesson Overviews:
Focusing on the agriculture of early American colonies, this unit explores the development of regional farm structures, settlement patterns, and animal domestication practices. Students will also explore European influences in barn architecture and build scale models of historical barns.

Unit Skills/Topics:

- Settlement patterns in Jamestown and Plymouth
- Colonial land use, crop choices, and livestock
- European barn styles: Dutch, German (Banked), English
- New England vs. Southern plantation systems
- Heritage breed analysis (cattle, goats, sheep)

AFNR Standards Addressed:

- AS.03.03. Investigate animal production in historical contexts.

- PST.02.01. Apply structural design concepts to historical buildings.
- CS.01.03. Construct physical models representing agricultural architecture.

Unit VII: The Second Agricultural Revolution

Unit Summary and Lesson Overviews

Unit Summary and Lesson Overviews:
This unit explores the transformative impact of industrial mechanization on agriculture, population growth, and rural life. Students will trace the evolution of tractors, implements, and the emergence of youth agricultural organizations.

Unit Skills/Topics:
- Early tractors and agricultural machinery
- Population growth and urbanization
- Role of 4-H and FFA in American agricultural history
- Mechanized vs. manual labor: pros and cons

AFNR Standards Addressed:
- PST.01.01. Investigate the historical development of agricultural tools and machinery.
- CRP.04.01. Communicate the historical context of agricultural revolutions.
- CRP.10.02. Explore careers in agricultural engineering and innovation.

Unit VIII: Agriculture Under Communism

Unit Summary and Lesson Overviews

Unit Summary and Lesson Overviews:
This unit examines the negative effects of political ideologies on food systems, land ownership, and agricultural productivity in the Soviet Union and China, with case studies of Stalin's Five-Year Plans and Mao's Great Leap Forward.

Unit Skills/Topics:
- Collectivization and its consequences
- Political oppression of farmers and landowners
- Impact of communist policies on food security
- Long-term environmental and human outcomes

AFNR Standards Addressed:
- ESS.01.01. Evaluate the role of government and policy in resource management.
- CRP.08.01. Examine ethical and legal implications in agriculture.
- CS.04.02. Analyze cause-effect relationships using case studies.

Unit IX: Third Agricultural Revolution and the Future

Unit Summary and Lesson Overviews

Unit Summary and Lesson Overviews:
The final unit addresses modern agricultural advancements including biotechnology, sustainability, and automation. Students will evaluate GMOs, vertical farming, and the future of food production in a growing global population.

Unit Skills/Topics:

- Fertilizers, pesticides, and selective breeding
- GMOs: scientific, ethical, and economic dimensions
- Urban farming, hydroponics, and automation
- Food insecurity and population challenges

AFNR Standards Addressed:

- BS.01.01. Evaluate biotechnological advancements in agriculture.
- PST.02.02. Investigate innovations in agricultural technology.

BOARD OF EDUCATION
SOUTHINGTON, CONNECTICUT

Informational Only X **Board Meeting Date** April 16, 2026

Decision Requested _____ **Agenda Code** 11 s.

AGENDA REPORTING FORM

Agenda Topic: SHS Agriculture Science – ECE Turfgrass - REVISED - First Reading.

Summary of Issue: SHS Agriculture Science – ECE Turfgrass - REVISED - First Reading.

Background: _____

How

Alternative Strategies: N/A

Cost (if applicable): N/A **Funding Source:** N/A

Beginning Date of Program or Project: N/A

Ending Date of Program or Project: N/A

Recommendation or Comment: The Board of Education Curriculum & Instruction Committee is bringing the SHS Agriculture Science – ECE Turfgrass - REVISED – to the full Board for a First Reading.

Titles of Attachments:

1. Course Proposal

Frank Ryan

Signature of Staff Member Submitting Report

Peter Maduray

Signature of Superintendent of Schools

Unit Overview	
Unit Title:	Turfgrass
Teacher:	O'Keefe
Grade Level/Course:	Grade 11/12 Ag Sci
Length/Dates:	2 Weeks
Unit Summary: 2-4 sentences describing the main ideas, content and skills of the unit.	The turfgrass field plays a vital role in environmental enhancement, recreation, and the economy, supporting careers in landscape management, sports field maintenance, and golf course operations. Understanding the characteristics, growth habits, and classifications of various turfgrass species—including cool-season and warm-season grasses—is essential for selecting the right grass for specific climates and uses. Turfgrasses are evaluated based on their performance, appearance, and ability to withstand stress, and successful management begins with foundational knowledge of species identification and turfgrass functions. This unit also introduces students to the fundamental concepts of turfgrass science, including classification, plant growth, anatomy, and methods for evaluating turf quality. Students will learn to distinguish monocots from dicots, identify major grass plant structures, and understand how grasses spread through stolons, rhizomes, and tillers. The unit also covers how turf quality is measured—color, texture, density, and uniformity—and explores the relationship between turfgrass maintenance levels and cultural intensity. Students will build foundational knowledge of plant biology, including photosynthesis, respiration, dormancy, and water/nutrient movement through xylem and phloem.

Stage 1: Desired Results

Grade Level/Subject Standard(s)
List the Content Standards, Guiding Principles, or Cross-Curricular Skills this unit will address

Turfgrass Unit 1 State Standards

Transfer Goals (Vision of the Graduate)
List the long-term and/or school-wide independent student behaviors that this unit will address.

Critical Thinking Transdisciplinary Goal:
Students inquire, identify, and ethically solve real-world problems through reasoning and a reflection on the challenges and benefits of the process and/or solution(s).

Creativity/Innovation Transdisciplinary Goal:
Students work creatively to design and refine implementation of ideas by taking risks, persevering, and exploring possibilities.

Collaboration Transdisciplinary Goal:
Students flexibly and cooperatively work with others in physical and virtual environments and assume shared responsibility for completing a project or achieving a goal.

Communication Transdisciplinary Goal:

Students effectively communicate and use interpersonal skills in a range of formal and informal contexts.

Enduring Understanding(s): What are the big picture understandings that are transferable across contexts, places, and times?	• Turfgrass is a significant component of various industries, contributing to environmental, economic, and social benefits. • The turfgrass industry is diverse, encompassing various sectors such as sports fields, golf courses, residential lawns, and commercial landscapes. • Sustainable turfgrass management practices are essential for balancing industry demands with environmental stewardship. • Turfgrass serves crucial roles in environmental management, aesthetics, and recreational spaces, providing both ecological and economic benefits. • Understanding the basic characteristics and growth habits of different turfgrass species is essential for effective management. • Turfgrass physiology and management practices are interconnected, impacting the health, durability, and appearance of turfgrass in various applications.

Essential Question(s): These questions are related to the enduring understandings and provide relevance for the learning in the unit.	• What is the scope and significance of the turfgrass industry? • How has the turfgrass industry evolved over time? • What are the primary sectors within the turfgrass industry, and what career opportunities do they offer? • How do turfgrass management practices impact the environment and economy? • What are the primary functions and benefits of turfgrass in environmental and recreational contexts? • How do different turfgrass species vary in their characteristics and suitability for various climates and uses? • What are the fundamental principles of turfgrass growth and development? • How does an understanding of turfgrass physiology inform best practices in turfgrass management?

What will students <u>know...</u> Factual information, vocabulary and basic concepts related to each indicator	**What will students <u>be able to do…</u>** Skills, processes and/or knowledge that are related to each indicator and which students will be able to use in new contexts/with new material
Turfgrass Unit 1 Vocab	Turfgrass Unit 1 Skills

Stage 2/3: Instructional Design

Chapter 1 The Turfgrass Industry

1.5 Days

Learning Target:	Success Criteria:
1. **Knowledge and Understanding** ○ Students will understand the significance and scope of the turfgrass industry. ○ Students will trace the historical development and evolution of the turfgrass industry. ○ Students will identify the primary sectors within the turfgrass industry and explore related career opportunities. ○ Students will analyze the environmental and economic impacts of turfgrass management practices. 2. **Skills and Application** ○ Students will research and present on different sectors within the turfgrass industry. ○ Students will analyze case studies to understand the impact of turfgrass management on the environment. ○ Students will identify and evaluate career opportunities within the turfgrass industry.	• **I can articulate the significance of the turfgrass industry in written and oral presentations.** • **I can accurately identify key sectors within the turfgrass industry and associated career paths.** • **I can demonstrate a thorough understanding of the historical development of the turfgrass industry.** • **I can effectively analyze the environmental and economic impacts of various turfgrass management practices.** • **I can propose solutions for balancing industry needs with environmental sustainability.**

Learning Activities

What is the actual instructional task that supports student learning in this lesson?
Tasks can be linked in here. Include technology integration as applicable to support learning.

Elevator Speech Topics Turfgrass

Sports Turf Magazine Think, Pair, Share

Assessment

List any formative or summative assessments that should be administered within this learning sequence.
(They can be listed/linked below)

Chapter 1 Assessment Turfgrass

Chapter 2 Introduction to Turfgrass

Time: 1.5 Days

Learning Target:	Success Criteria:
○ Students will identify and describe the primary functions and benefits of turfgrass. ○ Students will differentiate between various turfgrass species and their characteristics. ○ Students will understand the basic principles of turfgrass growth and development. ○ Students will apply knowledge of turfgrass physiology to develop effective management practices. ○ Students will accurately identify different species of turfgrass through observation and research. ○ Students will analyze case studies to understand the application of turfgrass management practices in real-world scenarios. ○ Students will design a basic turfgrass management plan, taking into account species selection, environmental conditions, and intended use.	● I can accurately describe the roles and benefits of turfgrass in environmental and recreational settings. ● I can correctly identify various turfgrass species and describe their growth characteristics. ● I can demonstrate an understanding of turfgrass growth principles through written explanations and practical applications. ● I can apply knowledge to create a basic turfgrass management plan that addresses species selection and environmental conditions. ● I can evaluate the effectiveness of turfgrass management strategies and propose improvements.

Learning Activities

What is the actual instructional task that supports student learning in this lesson?
Tasks can be linked in here. Include technology integration as applicable to support learning.

Elevator Speech Topics Turfgrass

Assessment

List any formative or summative assessments that should be administered within this learning sequence.
(They can be listed/linked below)

Chapter 2 Assessment UConn Turfgrass

Shop Skill of the Week- Checking Fluids

Time: 1.5 Days

Learning Target:	Success Criteria:
○ Students will identify the different types of fluids used in equipment (e.g., engine oil, hydraulic fluid, coolant) and explain their specific functions and importance in maintaining equipment performance. ○ Students will demonstrate the correct procedure for checking fluid levels in various types of equipment, including locating dipsticks or reservoirs and interpreting fluid level indicators. ○ Students will assess the condition of fluids by checking for signs of contamination, degradation, or incorrect fluid levels, understanding the implications of each for equipment operation. ○ Students will perform routine fluid maintenance tasks, such as topping off fluids, replacing filters, and documenting maintenance activities according to best practices.	○ Students can accurately name the types of fluids (e.g., oil, coolant, hydraulic fluid) and describe their roles in equipment maintenance, such as lubrication, cooling, and power transmission. ○ Students demonstrate the ability to check fluid levels independently, correctly identifying and using dipsticks, sight glasses, or other indicators. They can interpret whether fluid levels are within the recommended range. ○ Students identify and describe signs of fluid issues, such as oil discoloration, coolant cloudiness, or hydraulic fluid leaks. They understand the impact of these issues on equipment performance and safety. ○ Students complete fluid checks and maintenance tasks correctly and efficiently, including topping off fluids and changing filters, and can explain the reasons behind each step in the process.

Learning Activities
What is the actual instructional task that supports student learning in this lesson?
Tasks can be linked in here. Include technology integration as applicable to support learning.

Compact Tractor Checking Fluids/ Maintenance Worksheet

Assessment
List any formative or summative assessments that should be administered within this learning sequence.
(They can be listed/linked below)

No Assessment

Hands On Activity of the Week- Mowing

Time: 6 Days

Learning Target:	Success Criteria:
• Students will understand the importance of proper mowing techniques for maintaining healthy turfgrass. • Students will identify the appropriate mowing height for different species of turfgrass. • Students will recognize the impact of mowing frequency on turfgrass health and growth. • Students will demonstrate the ability to properly set the mowing height according to turfgrass species requirements. • Students will correctly mow a section of turfgrass using the appropriate techniques and equipment. • Students will perform routine mower maintenance, including blade sharpening, to ensure effective mowing.	○ Students can explain the optimal mowing heights for different turfgrass species and the consequences of improper mowing practices. ○ Students consistently set the correct mowing height and achieve an even, clean cut across the entire turfgrass area. ○ Students correctly sharpen mower blades and maintain equipment to ensure high-quality mowing results. ○ Students assess the turfgrass condition after mowing and propose adjustments to improve future mowing outcomes. ○ Students successfully coordinate with peers to complete mowing tasks and equipment maintenance, demonstrating effective communication and teamwork. ○ Students identify specific areas for improvement in their mowing practices and outline actionable steps to enhance their skills.

Learning Activities

What is the actual instructional task that supports student learning in this lesson?
Tasks can be linked in here. Include technology integration as applicable to support learning.

Students are taught to successfully complete mowing tasks and equipment maintenance, demonstrating effective communication and teamwork.

Assessment

List any formative or summative assessments that should be administered within this learning sequence.
(They can be listed/linked below)

Two-Level Rubric for Safely Operating a Zero-Turn Mower

Resources

Any materials and resources related to Stage 3 learning activities.

Textbook - Turfgrass Science and Management
Shop and Mechanic Handtools
Turf Equipment and Fuel

Land Lab on which to perform tasks

Out of the Gate in Eight- Blank

Unit Overview	
Unit Title:	Turfgrass
Teacher:	O'Keefe
Grade Level/Course:	Grade 11/12 Ag Sci
Length/Dates:	2 Weeks
Unit Summary: 2-4 sentences describing the main ideas, content and skills of the unit.	This unit introduces students to cool season turfgrasses, focusing on why certain grasses thrive in the cool season zone, their key characteristics, and how to select the most appropriate species for specific sites. Students will learn about the temperate zone, heat tolerance limits, and common turfgrass species such as Kentucky bluegrass, perennial ryegrass, creeping bentgrass, tall fescue, and fine fescues. The lesson also explores the concepts of grass blends and mixes, providing students with practical skills to make informed turfgrass selection decisions. This unit also introduces the fundamentals of soils as they relate to turfgrass growth and management. Students will examine the components of soil, soil texture and structure, and how these physical characteristics impact water movement, nutrient availability, and root development. Students will also study soil profiles, pore space, organic matter, and the processes of weathering and soil formation. Key tools such as the soil texture triangle will be used to identify loam and other soil types. By understanding soil horizons, topsoil quality, and organic materials like peat, students will gain the foundation needed to make informed turf management decisions.

Stage 1: Desired Results

Grade Level/Subject Standard(s)
List the Content Standards, Guiding Principles, or Cross-Curricular Skills this unit will address

Turfgrass Unit 2 State Standards

Transfer Goals (Vision of the Graduate)
List the long-term and/or school-wide independent student behaviors that this unit will address.

Critical Thinking Transdisciplinary Goal:
Students inquire, identify, and ethically solve real-world problems through reasoning and a reflection on the challenges and benefits of the process and/or solution(s).

Creativity/Innovation Transdisciplinary Goal:
Students work creatively to design and refine implementation of ideas by taking risks, persevering, and exploring possibilities.

Collaboration Transdisciplinary Goal:
Students flexibly and cooperatively work with others in physical and virtual environments and assume shared responsibility for completing a project or achieving a goal.

Communication Transdisciplinary Goal:
Students effectively communicate and use interpersonal skills in a range of formal and informal contexts.

Enduring Understanding(s): What are the big picture understandings that are transferable across contexts, places, and times?	• Cool season grasses are adapted to climates with distinct seasonal temperature changes and perform best in moderate temperatures. • Correct turfgrass species selection ensures long-term health, function, and aesthetic quality of turf. • Blends and mixes can increase turf resilience and adaptability. • Healthy turfgrass depends on well-structured, balanced soils. • Soil texture and structure directly influence water infiltration, drainage, and root health. • Soil development is shaped over time by natural processes and human management.

Essential Question(s): These questions are related to the enduring understandings and provide relevance for the learning in the unit.	• What environmental factors make certain grasses well-suited to the cool season zone? • How do the characteristics of Kentucky bluegrass, perennial ryegrass, creeping bentgrass, tall fescue, and fine fescues compare? • What role do grass blends and mixes play in turf management? • How does heat tolerance affect species selection in the temperate zone? • How do soil texture and structure influence turfgrass health? • Why is understanding the soil profile important in turf management? • In what ways does organic matter contribute to a healthy soil environment? • How can turf managers use knowledge of soils to improve plant growth?

What will students <u>know...</u> Factual information, vocabulary and basic concepts related to each indicator	**What will students <u>be able to do…</u>** Skills, processes and/or knowledge that are related to each indicator and which students will be able to use in new contexts/with new material
Turfgrass Unit 2 Vocab	**Overseeding, Greasing** 1. Students will demonstrate the correct soil preparation techniques for overseeding. 2. Students will accurately measure and apply seed to a designated area. 3. Students will execute the overseeding process using proper tools and techniques. 4. Students will accurately locate and identify all necessary grease points on the equipment, demonstrating a clear understanding of which parts require lubrication. 5. Students will choose the correct type of grease for the equipment, considering factors like temperature, load, and manufacturer recommendations.

	6. Students will use the grease gun effectively, applying the right amount of grease without over-lubricating. They ensure all grease points are serviced and can demonstrate proper technique to ensure even distribution.

Stage 2/3: Instructional Design

Chapter 4 Cool Season Grasses

1.5 Days	
Learning Target:	**Success Criteria:**
• Describe why cool season grasses grow best in certain climates. • Identify key characteristics of common cool season turfgrasses. • Select an appropriate cool season turfgrass for a given site based on environmental and use factors. • Explain the benefits of grass blends and mixes.	• I can match each cool season turfgrass species with its key characteristics and uses. • I can recommend a grass or mix that would thrive in a specific set of site conditions. • I can correctly use turfgrass terminology in written and spoken explanations.
Learning Activities What is the actual instructional task that supports student learning in this lesson? Tasks can be linked in here. Include technology integration as applicable to support learning.	
Elevator Speech Topics Turfgrass **Sports Turf Magazine Think, Pair, Share**	
Assessment List any formative or summative assessments that should be administered within this learning sequence. *(They can be listed/linked below)*	
YCh 4 Assessment Cool Season Grasses	

Chapter 5 Intro to Soils

Time: 1.5 Days

Learning Target:	**Success Criteria:**

• identify soil components and explain their role in plant growth. • classify soil texture using a soil triangle. • describe the differences between soil texture and soil structure. • explain how pore space, organic matter, and soil horizons impact turfgrass growth.	• I understand the composition, classification, and formation of soils. • I can interpret soil texture and structure to predict turf performance. • I can use a soil triangle to determine soil classification. • I can create a labeled diagram of a soil profile and identify its horizons.

Learning Activities

What is the actual instructional task that supports student learning in this lesson?
Tasks can be linked in here. Include technology integration as applicable to support learning.

Elevator Speech Topics Turfgrass

Assessment

List any formative or summative assessments that should be administered within this learning sequence.
(They can be listed/linked below)

YCh 5 Assessment

Shop Skill of the Week- Greasing Equipment

Time: 1.5 Days

Learning Target:	Success Criteria:
○ Students will explain the role of greasing in maintaining equipment, including reducing friction, preventing wear and tear, and extending the lifespan of moving parts. ○ Students will locate and identify all grease points on a given piece of equipment, understanding the specific parts that require regular lubrication. ○ Students will demonstrate knowledge of different types of grease and select	○ Students can articulate why regular greasing is essential, including its effects on reducing friction, preventing equipment failure, and ensuring smooth operation of moving parts. ○ Students accurately locate and identify all necessary grease points on the equipment, demonstrating a clear understanding of which parts require lubrication and why. ○ Students choose the correct type of grease for the equipment, considering

the appropriate type based on equipment specifications and operating conditions. ○ Students will perform the greasing process, including preparing the grease gun, applying the correct amount of grease, and ensuring even distribution to all necessary parts. ○ Students will properly maintain and store greasing tools and materials, ensuring they are in good working condition for future use.	factors like temperature, load, and manufacturer recommendations. They can explain the rationale behind their selection. ○ Students use the grease gun effectively, applying the right amount of grease without over-lubricating. They ensure all grease points are serviced and can demonstrate proper technique to ensure even distribution. ○ Students clean and store greasing tools correctly, checking for wear or damage, and ensuring the equipment is ready for future use. They demonstrate awareness of how to avoid contamination of grease and tools.

Learning Activities
What is the actual instructional task that supports student learning in this lesson?
Tasks can be linked in here. Include technology integration as applicable to support learning.

Torque Talk Machinery Research Worksheet– Safe Machinery Operation

Assessment
List any formative or summative assessments that should be administered within this learning sequence.
(They can be listed/linked below)

No Assessment

Hands On Activity of the Week- Overseeding

Time: 6 Days

Learning Target:	Success Criteria:
● Students will explain the purpose and benefits of overseeding turfgrass. ● Students will identify the ideal conditions and timing for overseeding turfgrass. ● Students will understand the characteristics of different turfgrass species used in overseeding. ● Students will demonstrate the correct soil preparation techniques for overseeding.	● Students can clearly articulate the reasons for overseeding, such as filling bare spots and enhancing turf density. ● Students identify the best environmental conditions (e.g., temperature, soil moisture) and seasons for overseeding. ● Students can differentiate between various grass species used for overseeding and explain their specific benefits.

• Students will accurately measure and apply seed to a designated area. • Students will execute the overseeding process using proper tools and techniques.	• Students prepare the soil by properly mowing, dethatching, and aerating the turf. • Students measure and apply the correct amount of seed, ensuring even coverage across the area. • Students perform overseeding with minimal guidance, using appropriate tools and techniques.

Learning Activities

What is the actual instructional task that supports student learning in this lesson?
Tasks can be linked in here. Include technology integration as applicable to support learning.

Students are taught to perform overseeding with minimal guidance, using appropriate tools and techniques.

Assessment

List any formative or summative assessments that should be administered within this learning sequence.
(They can be listed/linked below)

Two-Level Rubric for Safely Operating a Walk-Behind Overseeder

Resources

Any materials and resources related to Stage 3 learning activities.

Textbook - Turfgrass Science and Management
Shop and Mechanic Handtools
Turf Equipment and Fuel
Land Lab on which to perform tasks

Out of the Gate in Eight- Blank

Unit Overview	
Unit Title:	Turfgrass
Teacher:	O'Keefe
Grade Level/Course:	Grade 11/12 Ag Sci
Length/Dates:	2 Weeks
Unit Summary: 2-4 sentences describing the main ideas, content and skills of the unit.	Soil chemistry directly impacts the health, growth, and maintenance of turfgrass. This unit explores the principles of soil fertility, how pH affects nutrient availability, and the ways soil amendments can alter pH. Students will investigate the role of ions and cation exchange capacity (CEC), the effects of soil salinity, and how water movement (osmosis and leaching) influences nutrient distribution. The unit also covers macronutrients, trace minerals, and the causes and prevention of fertilizer burn, connecting theory to practical turfgrass management strategies. Soil testing is the foundation for proper turfgrass management. This lesson introduces students to why soil testing is important, how to collect a representative sample, when and how often to test, and the different types of analysis that can be performed. Students will also learn about tissue testing, tools such as soil probes, and how to interpret results to make informed turf management decisions.

Stage 1: Desired Results

Grade Level/Subject Standard(s)
List the Content Standards, Guiding Principles, or Cross-Curricular Skills this unit will address

Turfgrass Unit 3 State Standards

Transfer Goals (Vision of the Graduate)
List the long-term and/or school-wide independent student behaviors that this unit will address.

Critical Thinking Transdisciplinary Goal:
Students inquire, identify, and ethically solve real-world problems through reasoning and a reflection on the challenges and benefits of the process and/or solution(s).

Creativity/Innovation Transdisciplinary Goal:
Students work creatively to design and refine implementation of ideas by taking risks, persevering, and exploring possibilities.

Collaboration Transdisciplinary Goal:
Students flexibly and cooperatively work with others in physical and virtual environments and assume shared responsibility for completing a project or achieving a goal.

Communication Transdisciplinary Goal:
Students effectively communicate and use interpersonal skills in a range of formal and informal contexts.

Enduring Understanding(s): What are the big picture understandings that are transferable across contexts, places, and times?	• Soil chemistry influences nutrient availability, water movement, and overall turfgrass performance. • Adjusting soil pH is essential for optimizing plant health and nutrient uptake. • Managing soil salinity and preventing fertilizer burn are key to sustainable turf maintenance. • Healthy turfgrass depends on knowing the nutrient and pH status of the soil. • Soil testing is a proactive practice that saves money, improves turf quality, and protects the environment. • Proper sampling technique is just as important as the lab analysis.

Essential Question(s): These questions are related to the enduring understandings and provide relevance for the learning in the unit.	• How does soil pH affect turfgrass growth and nutrient availability? • What materials can be used to raise or lower soil pH, and when should they be applied? • How does cation exchange capacity influence soil fertility? • Why is soil salinity harmful to turfgrass, and how can it be reduced? • What role do macronutrients and trace minerals play in turfgrass health? • Why should turf managers perform soil tests regularly? • What steps ensure that a soil sample is truly representative of an area? • How do the results of soil testing influence turf management decisions?

What will students <u>know...</u> Factual information, vocabulary and basic concepts related to each indicator	**What will students <u>be able to do…</u>** Skills, processes and/or knowledge that are related to each indicator and which students will be able to use in new contexts/with new material
Turfgrass Unit 3 Vocab	Skills- Sharpening Blades, Fertilizing • Students will demonstrate the correct procedure for safely removing mower blades from the mower. • Students will accurately sharpen a mower blade using the appropriate tools and techniques. • Students will reinstall and balance the sharpened blade on the mower, ensuring proper alignment and function. • Students will demonstrate the correct procedure for calibrating a fertilizer spreader based on specific application requirements. • Students will correctly operate a fertilizer spreader, ensuring even coverage across the designated turf area. • Students will safely and effectively clean and maintain the fertilizer spreader after use.

Stage 2/3: Instructional Design

Chapter 7 Soil Chemistry

1.5 Days	
Learning Target:	**Success Criteria:**
• Students will explain how soil chemistry impacts turfgrass growth. • Students will identify and recommend pH adjustment materials. • Students will describe the role of CEC in nutrient management. • Students will explain how salinity affects turfgrass and ways to reduce it. • Students will differentiate between macronutrients and trace minerals.	• I can test and interpret soil pH results. • I can select appropriate amendments for pH correction. • I can explain fertilizer burn prevention methods. • I can recommend practices to address soil salinity problems. • I can list the essential macronutrients and trace minerals for turfgrass.
Learning Activities What is the actual instructional task that supports student learning in this lesson? Tasks can be linked in here. Include technology integration as applicable to support learning.	
Elevator Speech Topics Turfgrass **Sports Turf Magazine Think, Pair, Share**	
Assessment List any formative or summative assessments that should be administered within this learning sequence. *(They can be listed/linked below)*	
YCh 7 Assessment	

Chapter 8 Soil Testing

Time: 1.5 Days

Learning Target:	**Success Criteria:**
• Students will explain the purpose and benefits of soil testing.	• I can verbally explain at least three benefits of soil testing.

• Students will collect a soil sample using correct procedures. • Students will identify the main types of soil analysis and their uses. • Students will explain when and why tissue testing is helpful.	• I can demonstrate the correct use of a soil probe. • I can list the correct steps for collecting and submitting a sample. • I can match soil test types with their purposes on a quiz.

Learning Activities

What is the actual instructional task that supports student learning in this lesson?
Tasks can be linked in here. Include technology integration as applicable to support learning.

Elevator Speech Topics Turfgrass

Assessment

List any formative or summative assessments that should be administered within this learning sequence.
(They can be listed/linked below)

YChapter 8 – Soil Testing: Assessment

Shop Skill of the Week- Sharpening Blades

Time: 1.5 Days

Learning Target:	Success Criteria:
• Students will explain the importance of maintaining sharp mower blades for turf health and equipment efficiency. • Students will identify the signs that indicate a mower blade needs sharpening. • Students will understand the safety protocols required when handling and sharpening mower blades. • Students will demonstrate the correct procedure for safely removing mower blades from the mower. • Students will accurately sharpen a mower blade using the appropriate tools and techniques. • Students will reinstall and balance the sharpened blade on the mower, ensuring proper alignment and function.	• Students can clearly articulate why sharp mower blades are crucial for turf maintenance and mower longevity. • Students can identify dull blades and explain the potential consequences of using them on turfgrass. • Students demonstrate an understanding of all safety measures required during the sharpening process. • Students successfully and safely remove mower blades, following all safety protocols. • Students sharpen the mower blades to a precise edge, using correct sharpening tools and techniques.

	• Students reinstall the blade, ensuring it is properly balanced and functions effectively when reattached to the mower.

Learning Activities
What is the actual instructional task that supports student learning in this lesson?
Tasks can be linked in here. Include technology integration as applicable to support learning.

Elevator Speech Topics Turfgrass

Assessment
List any formative or summative assessments that should be administered within this learning sequence.
(They can be listed/linked below)

junior and senior equipment id quiz .pptx

Hands On Activity of the Week- Fertilizing

Time: 6 Days

Learning Target:	Success Criteria:
• Students will explain the purpose and benefits of using a fertilizer spreader in turfgrass management. • Students will identify the different types of fertilizer spreaders (e.g., broadcast, drop, handheld) and their specific uses. • Students will understand the importance of calibrating a fertilizer spreader to ensure accurate application rates. • Students will demonstrate the correct procedure for calibrating a fertilizer spreader based on specific application requirements. • Students will correctly operate a fertilizer spreader, ensuring even coverage across the designated turf area. • Students will safely and effectively clean and maintain the fertilizer spreader after use.	• I can clearly describe why using a fertilizer spreader is crucial for consistent turfgrass nutrition. • I can identify the appropriate type of spreader for different turfgrass areas and fertilizer types. • I can demonstrate an understanding of the importance of spreader calibration and its impact on fertilizer application. • I can accurately calibrate a fertilizer spreader according to specific instructions or guidelines, ensuring the correct application rate. • I can operate the spreader efficiently, covering the designated turf area evenly without missing sections or overlapping too much. • I can clean and maintain the fertilizer spreader after use, ensuring it is ready for future applications.

Learning Activities

What is the actual instructional task that supports student learning in this lesson?
Tasks can be linked in here. Include technology integration as applicable to support learning.

Students are taught to operate the spreader efficiently, covering the designated turf area evenly without missing sections or overlapping.

Assessment

List any formative or summative assessments that should be administered within this learning sequence.
(They can be listed/linked below)

Two-Level Rubric for Safely Operating a Lesco PermaGreen Fertilizer

Resources

Any materials and resources related to Stage 3 learning activities.

Textbook - Turfgrass Science and Management
Shop and Mechanic Handtools
Turf Equipment and Fuel
Land Lab on which to perform tasks
Out of the Gate in Eight- Blank

Unit Overview	
Unit Title:	Turfgrass
Teacher:	O'Keefe
Grade Level/Course:	Grade 11/12 Ag Sci
Length/Dates:	2 Weeks
Unit Summary: 2-4 sentences describing the main ideas, content and skills of the unit.	This unit focuses on the complete process of establishing turfgrass, from selecting the appropriate species and cultivar to caring for newly planted turf. Students will learn to evaluate site conditions, prepare the soil, select quality seed or sod, and choose the best establishment method. They will also interpret seed labels, understand terms like purity, chaff, and noxious weeds, and explore advanced practices such as dormant seeding, hydromulching, overseeding, and top dressing. The unit concludes with strategies for maintaining newly seeded turf to ensure a healthy, sustainable lawn or sports surface. Fertilization is essential to maintaining healthy, attractive, and durable turfgrass. This lesson covers the nutrients turf needs, the types and ratios of fertilizers, how to choose and manage a fertility program, and the science behind why nitrogen is the most critical nutrient. Students will compare slow-release and quick-release products, understand the environmental impacts of overfertilization, and practice reading fertilizer labels. By the end of this unit, students will be able to design and justify a turf fertilization plan that meets plant needs while protecting the environment.

Stage 1: Desired Results

Grade Level/Subject Standard(s)
List the Content Standards, Guiding Principles, or Cross-Curricular Skills this unit will address

Turfgrass Unit 4 State Standards

Transfer Goals (Vision of the Graduate)
List the long-term and/or school-wide independent student behaviors that this unit will address.

Critical Thinking Transdisciplinary Goal:
Students inquire, identify, and ethically solve real-world problems through reasoning and a reflection on the challenges and benefits of the process and/or solution(s).

Creativity/Innovation Transdisciplinary Goal:
Students work creatively to design and refine implementation of ideas by taking risks, persevering, and exploring possibilities.

Collaboration Transdisciplinary Goal:
Students flexibly and cooperatively work with others in physical and virtual environments and assume shared responsibility for completing a project or achieving a goal.

Communication Transdisciplinary Goal:

Students effectively communicate and use interpersonal skills in a range of formal and informal contexts.

Enduring Understanding(s): What are the big picture understandings that are transferable across contexts, places, and times?	• Turfgrass establishment is most successful when site preparation, species selection, and timing are matched to environmental conditions. • Seed label interpretation is essential for ensuring quality planting materials. • Proper aftercare during the early growth stages determines long-term turf health. • Proper fertilization balances plant health with environmental stewardship. • Nitrogen plays the most important role in turf growth and appearance. • Fertilizer type, ratio, and application method must be matched to turf needs and environmental conditions.

Essential Question(s): These questions are related to the enduring understandings and provide relevance for the learning in the unit.	• How does site preparation influence turfgrass establishment success? • Why is timing critical for seeding turfgrass? • What information on a seed label is most important to ensure quality? • How do different turf establishment methods compare in terms of cost, time, and quality? • What practices promote strong establishment and long-term turf health? • Why is nitrogen the most important nutrient for turfgrass? • How do slow-release and quick-release fertilizers differ in effectiveness and environmental impact? • What role does fertilizer selection play in preventing problems like algal blooms or chlorosis? • How do you determine the right fertilizer ratio for turf?

What will students <u>know...</u> Factual information, vocabulary and basic concepts related to each indicator	**What will students <u>be able to do…</u>** Skills, processes and/or knowledge that are related to each indicator and which students will be able to use in new contexts/with new material
Turfgrass Unit 4 Vocab	• Students apply an infield conditioner using the correct techniques, ensuring even distribution across the field. • Students adjust the quantity of conditioner based on field assessments, ensuring that the application meets the needs of the playing surface. • Students effectively incorporate the infield conditioner into the soil, ensuring it is well integrated and enhances field performance.

	• Students accurately refuel equipment using the correct fuel and following all safety protocols, such as grounding and spill prevention. • Students efficiently measure and dispense fuel, ensuring the equipment is properly fueled without overfilling. • Students consistently follow safety guidelines throughout the refueling process, including cleaning up any spills immediately and storing fuel containers properly.

Stage 2/3: Instructional Design

Chapter 9 Turfgrass Establishment

1.5 Days	
Learning Target:	**Success Criteria:**
• Students will identify and define key turfgrass establishment terms. • Students will evaluate which establishment method is best for a given scenario. • Students will interpret a seed label and calculate PLS. • Students will create a plan for establishing turfgrass on a specific site.	• I can correctly identify the best species and cultivar for a specific site. • I can prepare a site for planting according to best management practices. • I can read and interpret a seed label, including calculating PLS. • I can select and justify the best turf establishment method for a given situation. • I can recommend proper care for newly established turf.
Learning Activities What is the actual instructional task that supports student learning in this lesson? Tasks can be linked in here. Include technology integration as applicable to support learning.	
Elevator Speech Topics Turfgrass **Sports Turf Magazine Think, Pair, Share**	
Assessment List any formative or summative assessments that should be administered within this learning sequence. *(They can be listed/linked below)*	
YCh 9 Assessment Establishment	

Chapter 10 Fertilization

Time: 1.5 Days

Learning Target:	Success Criteria:
• Students will identify and describe turfgrass nutrient needs. • Students will read and interpret a fertilizer label. • Students will explain the pros and cons of different fertilizer types. • Students will select an application method and frequency appropriate for the situation.	• I can match a turfgrass nutrient problem with the correct fertilizer. • I can choose a fertilizer ratio based on a soil test. • I can explain how fertilizer choice impacts the environment.

Learning Activities

What is the actual instructional task that supports student learning in this lesson?
Tasks can be linked in here. Include technology integration as applicable to support learning.

Elevator Speech Topics Turfgrass

Assessment

List any formative or summative assessments that should be administered within this learning sequence.
(They can be listed/linked below)

YCh 10 Assessment Fertilization

Shop Skill of the Week- Refueling Equipment

Time: 1.5 Days

Learning Target:	Success Criteria:
• Students will explain the importance of refueling equipment properly to ensure safety and maintain engine performance. • Students will identify the different types of fuel used in various pieces of equipment (e.g., gasoline, diesel, mixed fuel) and their specific requirements. • Students will understand the potential hazards associated with refueling, such as spills, fire risks, and environmental contamination.	• Students can clearly explain why proper refueling procedures are critical for equipment safety and performance. • Students can identify the correct type of fuel for different types of equipment and understand the implications of using the wrong fuel. • Students demonstrate awareness of the risks associated with refueling and how to mitigate those risks.

• Students will demonstrate the correct procedures for refueling equipment, including checking fuel levels, selecting the appropriate fuel, and using safe refueling techniques. • Students will accurately measure and dispense the correct amount of fuel for the equipment being serviced. • Students will apply safety protocols during the refueling process, such as grounding the fuel container, avoiding overfilling, and cleaning up any spills.	• Students accurately refuel equipment using the correct fuel and following all safety protocols, such as grounding and spill prevention. • Students efficiently measure and dispense fuel, ensuring the equipment is properly fueled without overfilling. • Students consistently follow safety guidelines throughout the refueling process, including cleaning up any spills immediately and storing fuel containers properly.

Learning Activities
What is the actual instructional task that supports student learning in this lesson?
Tasks can be linked in here. Include technology integration as applicable to support learning.

Lesson Plan: Safe Refueling of Equipment

Assessment
List any formative or summative assessments that should be administered within this learning sequence.
(They can be listed/linked below)

No Assessment

Resources
Any materials and resources related to Stage 3 learning activities.

Torque Talk Machinery Research Worksheet– Safe Machinery Operation

Hands On Activity of the Week- Infield Conditioner

Time: 6 Days

Learning Target:	Success Criteria:
• Students will explain the purpose and benefits of using an infield conditioner in maintaining baseball and softball field surfaces. • Students will identify the different types of infield conditioners and their specific properties (e.g., moisture retention, dust control, firmness).	• Students can articulate why infield conditioners are essential for maintaining safe and playable field surfaces. • Students can differentiate between various types of infield conditioners and select the appropriate one based on specific field needs.

• Students will understand the proper conditions under which to apply an infield conditioner to achieve optimal field performance and safety. • Students will demonstrate the correct procedure for applying an infield conditioner, including preparation, distribution, and incorporation into the soil. • Students will correctly adjust the amount of infield conditioner used based on field conditions, weather patterns, and usage requirements. • Students will apply an infield conditioner to a section of the field, ensuring even coverage and proper integration into the playing surface.	• Students understand the timing and conditions necessary for effective application of an infield conditioner. • Students apply an infield conditioner using the correct techniques, ensuring even distribution across the field. • Students adjust the quantity of conditioner based on field assessments, ensuring that the application meets the needs of the playing surface. • Students effectively incorporate the infield conditioner into the soil, ensuring it is well integrated and enhances field performance.

Learning Activities

What is the actual instructional task that supports student learning in this lesson?
Tasks can be linked in here. Include technology integration as applicable to support learning.

Hands-On Lesson Plan: Operating an Infield Conditioner

Assessment

List any formative or summative assessments that should be administered within this learning sequence.
(They can be listed/linked below)

Two-Level Rubric for Safely Operating an Infield Conditioner

Resources

Any materials and resources related to Stage 3 learning activities.

Textbook - Turfgrass Science and Management
Shop and Mechanic Handtools
Turf Equipment and Fuel
Land Lab on which to perform tasks

Out of the Gate in Eight- Blank

Unit Overview	
Unit Title:	Turfgrass
Teacher:	O'Keefe
Grade Level/Course:	Grade 11/12 Ag Sci
Length/Dates:	2 Weeks
Unit Summary: 2-4 sentences describing the main ideas, content and skills of the unit.	Water is essential for turfgrass growth and health, but not all water present in the soil is available for plant use. This unit focuses on understanding how water moves through soil, how plants use it, and how to manage irrigation effectively. Students will explore the physical properties of soil that influence water availability, recognize the signs of water stress, and analyze methods of irrigation scheduling. Special emphasis is placed on evapotranspiration, infiltration, water-holding capacity, and the tools turf managers use to monitor soil moisture. Students will also discuss advanced practices like syringing, effluent water use, desalinization, wetting agents, and management of hydrophobic soils. Weeds are one of the most common problems faced in turfgrass management. This unit examines the causes of weed invasion, important weed species, and how maintenance practices influence weed populations. Students will learn how herbicides work, differences between annual and perennial weeds, and the importance of proper timing, uniformity, and application methods. Special attention is given to understanding herbicide characteristics, including nonselective and pre-emergent types, as well as risks such as phytotoxicity and volatilization. Students will connect weed management strategies to integrated turfgrass care.

Stage 1: Desired Results

Grade Level/Subject Standard(s)
List the Content Standards, Guiding Principles, or Cross-Curricular Skills this unit will address

Turfgrass Unit 5 State Standards

Transfer Goals (Vision of the Graduate)
List the long-term and/or school-wide independent student behaviors that this unit will address.

Critical Thinking Transdisciplinary Goal:
Students inquire, identify, and ethically solve real-world problems through reasoning and a reflection on the challenges and benefits of the process and/or solution(s).

Creativity/Innovation Transdisciplinary Goal:
Students work creatively to design and refine implementation of ideas by taking risks, persevering, and exploring possibilities.

Collaboration Transdisciplinary Goal:
Students flexibly and cooperatively work with others in physical and virtual environments and assume shared responsibility for completing a project or achieving a goal.

Communication Transdisciplinary Goal:
Students effectively communicate and use interpersonal skills in a range of formal and informal contexts.

Enduring Understanding(s): What are the big picture understandings that are transferable across contexts, places, and times?	• Turfgrass requires careful irrigation management to balance plant health with environmental responsibility. • Not all water present in the soil is usable by turfgrass; soil type and structure determine water availability. • Proper irrigation scheduling conserves water, reduces disease risk, and promotes sustainable turfgrass systems. • Proper turfgrass maintenance practices reduce weed competition. • Weed species differ in life cycle and susceptibility to control methods. • Herbicides must be selected and applied carefully to avoid damage and ensure effectiveness. • Long-term turf health depends on integrated weed management strategies.

Essential Question(s): These questions are related to the enduring understandings and provide relevance for the learning in the unit.	• Why is not all soil water available to plants? • How can turfgrass managers determine when irrigation is needed? • What role does evapotranspiration play in scheduling irrigation? • How can irrigation practices conserve water and protect the environment? • Why do healthy, well-maintained turf areas have fewer weed problems? • What are the most common turfgrass weed species and how are they classified? • How do herbicides work, and what factors influence their effectiveness? • What risks are associated with herbicide use, and how can they be minimized? • How can managers balance cultural practices and chemical control for sustainable turfgrass management?

What will students <u>know...</u> Factual information, vocabulary and basic concepts related to each indicator	**What will students <u>be able to do…</u>** Skills, processes and/or knowledge that are related to each indicator and which students will be able to use in new contexts/with new material
Turfgrass Unit 5 Vocab	**Skills- Organizing, Aerating** • Students can successfully group tools and equipment in logical categories and place them in designated storage areas.

	• Students create a labeling and storage system that is easy to understand and maintain, with all items clearly marked and easily accessible. • Students successfully operate an aerator on a designated area of turf, ensuring even and consistent aeration without damaging the grass. • Students can evaluate the effectiveness of their aeration process by identifying improvements in turf quality and identifying any issues or areas for improvement. • Students can identify problems during the aeration process and propose effective solutions, ensuring successful completion of the task.

Stage 2/3: Instructional Design

Chapter 12 Irrigation

1.5 Days	
Learning Target:	**Success Criteria:**
• Students will explain how water moves through soil and why some water is unavailable to plants. • Students will identify signs of turfgrass water stress. • Students will calculate irrigation needs using evapotranspiration and soil capacity. • Students will describe advanced irrigation practices and tools.	• I can correctly define soil-water terms like field capacity, infiltration, and evapotranspiration. • I can determine when and how much irrigation is needed for turf. • I can explain how syringing, effluent water, and wetting agents are used in turf management. • I can complete an irrigation planning scenario using correct concepts.
Learning Activities What is the actual instructional task that supports student learning in this lesson? Tasks can be linked in here. Include technology integration as applicable to support learning.	
Elevator Speech Topics Turfgrass **Sports Turf Magazine Think, Pair, Share**	
Assessment List any formative or summative assessments that should be administered within this learning sequence. *(They can be listed/linked below)*	

Chapter 12 Water & Irrigation Assessment

Chapter 14 Turfgrass Weeds

Time: 1.5 Days

Learning Target:	Success Criteria:
• Students will explain why strong turfgrass maintenance prevents weeds. • Students will identify weed species and classify them as annuals or perennials. • Students will compare different herbicides and explain how they work. • Students will evaluate herbicide application methods and risks.	• I can describe how good cultural practices limit weed growth. • I can classify weeds by type and life cycle. • I can explain how pre-emergent and nonselective herbicides differ. • I can identify when to use spot treatment vs. uniform application. • I can define and correctly use weed management vocabulary.

Learning Activities

What is the actual instructional task that supports student learning in this lesson?
Tasks can be linked in here. Include technology integration as applicable to support learning.

Elevator Speech Topics Turfgrass
2024 Turf Weeds.pptx

Assessment

List any formative or summative assessments that should be administered within this learning sequence.
(They can be listed/linked below)

yChapter 14 – Weeds Assessment

Shop Skill of the Week- Organizing Tools and Supplies

Time: 1.5 Days

Learning Target:	Success Criteria:
○ Students will explain the importance of maintaining an organized shop for safety, efficiency, and productivity.	○ Students can clearly articulate the benefits of an organized shop, including reduced accidents,

○ Students will identify key organizational principles and strategies for managing tools, equipment, and materials in a shop setting. ○ Students will demonstrate the ability to categorize and arrange tools, equipment, and materials in an orderly manner. ○ Students will develop and implement a system for labeling and storing shop items to ensure easy access and inventory management. ○ Students will assess the current state of the shop's organization and identify areas for improvement. ○ Students will evaluate the effectiveness of their organizational system in maintaining order over time.	increased work efficiency, and better tool management. ○ Students can list and describe organizational strategies, such as grouping similar tools together, using pegboards, and implementing a labeling system. ○ Students can successfully group tools and equipment in logical categories and place them in designated storage areas. ○ Students create a labeling and storage system that is easy to understand and maintain, with all items clearly marked and easily accessible. ○ Students conduct a thorough assessment of the shop's organization, identifying problem areas and suggesting practical improvements. ○ Students monitor the shop's organization over time and make adjustments to ensure long-term order and accessibility.

Learning Activities

What is the actual instructional task that supports student learning in this lesson?
Tasks can be linked in here. Include technology integration as applicable to support learning.

Lesson Plan for Putting tools away and for Organizing a Shop

Assessment

List any formative or summative assessments that should be administered within this learning sequence.
(They can be listed/linked below)

Hand Tool Study Guide

Resources

Any materials and resources related to Stage 3 learning activities.

Torque Talk Machinery Research Worksheet– Safe Machinery Operation

Hands On Activity of the Week- Aerating

Time: 6 Days

Learning Target:	Success Criteria:
• Students will explain the purpose and benefits of aerating turfgrass, including improved soil structure, enhanced water infiltration, and better root growth. • Students will demonstrate the correct procedure for using an aerator, including setting up the equipment, choosing the right tine depth, and operating the aerator across the turf. • Students will assess the condition of the turfgrass before and after aeration, noting changes in soil compaction, root growth, and overall turf health.	• Students can articulate how aeration impacts turf health, including its effects on soil compaction and oxygen availability. • Students successfully operate an aerator on a designated area of turf, ensuring even and consistent aeration without damaging the grass. • Students can evaluate the effectiveness of their aeration process by identifying improvements in turf quality and identifying any issues or areas for improvement.

Learning Activities

What is the actual instructional task that supports student learning in this lesson?
Tasks can be linked in here. Include technology integration as applicable to support learning.

Student watch instructor operate machinery and then divide into groups to try operating aerator themselves. After learning to operate equipment efficiently students can work more independently maintaining the schools many ball fields.

Assessment

List any formative or summative assessments that should be administered within this learning sequence.
(They can be listed/linked below)

Rubric for Safely Operating an Aerator on Turfgrass

Resources

Any materials and resources related to Stage 3 learning activities.

Textbook - Turfgrass Science and Management
Shop and Mechanic Handtools
Turf Equipment and Fuel
Land Lab on which to perform tasks
Out of the Gate in Eight- Blank

Turfgrass Science and Management

Freshmen Course
1 Quarter Long

Unit 1 - Summary

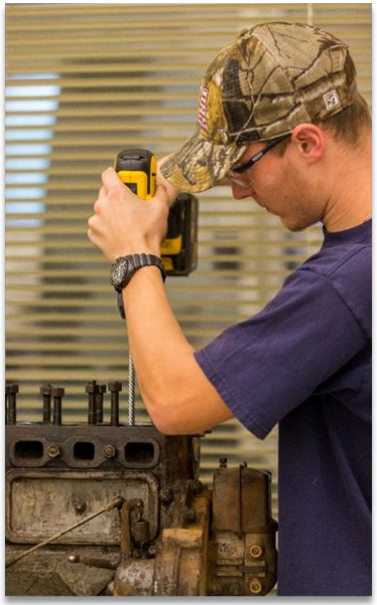
The turfgrass field plays a vital role in environmental enhancement, recreation, and the economy, supporting careers in landscape management, sports field maintenance, and golf course operations. Understanding the characteristics, growth habits, and classifications of various turfgrass species—including cool-season and warm-season grasses—is essential for selecting the right grass for specific climates and uses. Turfgrasses are evaluated based on their performance, appearance, and ability to withstand stress, and successful management begins with foundational knowledge of species identification and turfgrass functions. This unit also introduces students to the fundamental concepts of turfgrass science, including classification, plant growth, anatomy, and methods for evaluating turf quality. Students will learn to distinguish monocots from dicots, identify major grass plant structures, and understand how grasses spread through stolons, rhizomes, and tillers. The unit also covers how turf quality is measured—color, texture, density, and uniformity—and explores the relationship between turfgrass maintenance levels and cultural intensity. Students will build foundational knowledge of plant biology, including photosynthesis, respiration, dormancy, and water/nutrient movement through xylem and phloem.

Enduring Understanding

- Turfgrass is a significant component of various industries, contributing to environmental, economic, and social benefits.
- The turfgrass industry is diverse, encompassing various sectors such as sports fields, golf courses, residential lawns, and commercial landscapes.
- Sustainable turfgrass management practices are essential for balancing industry demands with environmental stewardship.
- Turfgrass serves crucial roles in environmental management, aesthetics, and recreational spaces, providing both ecological and economic benefits.
- Understanding the basic characteristics and growth habits of different turfgrass species is essential for effective management.
- Turfgrass physiology and management practices are interconnected, impacting the health, durability, and appearance of turfgrass in various applications.

Unit 1 - Activities

Students perform regular maintenance on equipment all semester. Mowing is the biggest duty that we perform for the school system so it is where we start our hands on learning.



Unit 2 - Summary

This unit introduces students to cool season turfgrasses, focusing on why certain grasses thrive in the cool season zone, their key characteristics, and how to select the most appropriate species for specific sites. Students will learn about the temperate zone, heat tolerance limits, and common turfgrass species such as Kentucky bluegrass, perennial ryegrass, creeping bentgrass, tall fescue, and fine fescues. The lesson also explores the concepts of grass blends and mixes, providing students with practical skills to make informed turfgrass selection decisions. This unit also introduces the fundamentals of soils as they relate to turfgrass growth and management. Students will examine the components of soil, soil texture and structure, and how these physical characteristics impact water movement, nutrient availability, and root development. Students will also study soil profiles, pore space, organic matter, and the processes of weathering and soil formation. Key tools such as the soil texture triangle will be used to identify loam and other soil types. By understanding soil horizons, topsoil quality, and organic materials like peat, students will gain the foundation needed to make informed turf management decisions.

Unit 2 - Enduring Understandings

- Cool season grasses are adapted to climates with distinct seasonal temperature changes and perform best in moderate temperatures.
- Correct turfgrass species selection ensures long-term health, function, and aesthetic quality of turf.
- Blends and mixes can increase turf resilience and adaptability.
- Healthy turfgrass depends on well-structured, balanced soils.
- Soil texture and structure directly influence water infiltration, drainage, and root health.
- Soil development is shaped over time by natural processes and human management.

Unit 2 - Activities

Regular maintenance of the infields including removal lips (build up of material) around the bases is performed during the semester. Dethatching is performed when thatch builds up during high growth months.

Unit 3 - Summary

Soil chemistry directly impacts the health, growth, and maintenance of turfgrass. This unit explores the principles of soil fertility, how pH affects nutrient availability, and the ways soil amendments can alter pH. Students will investigate the role of ions and cation exchange capacity (CEC), the effects of soil salinity, and how water movement (osmosis and leaching) influences nutrient distribution. The unit also covers macronutrients, trace minerals, and the causes and prevention of fertilizer burn, connecting theory to practical turfgrass management strategies. Soil testing is the foundation for proper turfgrass management. This lesson introduces students to why soil testing is important, how to collect a representative sample, when and how often to test, and the different types of analysis that can be performed. Students will also learn about tissue testing, tools such as soil probes, and how to interpret results to make informed turf management decisions.

Unit 3 - Enduring Understandings

- Soil chemistry influences nutrient availability, water movement, and overall turfgrass performance.
- Adjusting soil pH is essential for optimizing plant health and nutrient uptake.
- Managing soil salinity and preventing fertilizer burn are key to sustainable turf maintenance.
- Healthy turfgrass depends on knowing the nutrient and pH status of the soil.
- Soil testing is a proactive practice that saves money, improves turf quality, and protects the environment.
- Proper sampling technique is just as important as the lab analysis.

Unit 3 - Activities

Students continue to do routine maintenance on the equipment and learn more complicated processes such as aerating the ball fields.

Unit 4 - Summary

This unit focuses on the complete process of establishing turfgrass, from selecting the appropriate species and cultivar to caring for newly planted turf. Students will learn to evaluate site conditions, prepare the soil, select quality seed or sod, and choose the best establishment method. They will also interpret seed labels, understand terms like purity, chaff, and noxious weeds, and explore advanced practices such as dormant seeding, hydromulching, overseeding, and top dressing. The unit concludes with strategies for maintaining newly seeded turf to ensure a healthy, sustainable lawn or sports surface. Fertilization is essential to maintaining healthy, attractive, and durable turfgrass. This lesson covers the nutrients turf needs, the types and ratios of fertilizers, how to choose and manage a fertility program, and the science behind why nitrogen is the most critical nutrient. Students will compare slow-release and quick-release products, understand the environmental impacts of overfertilization, and practice reading fertilizer labels. By the end of this unit, students will be able to design and justify a turf fertilization plan that meets plant needs while protecting the environment.

Unit 4 - Enduring Understandings

- Turfgrass establishment is most successful when site preparation, species selection, and timing are matched to environmental conditions.
- Seed label interpretation is essential for ensuring quality planting materials.
- Proper aftercare during the early growth stages determines long-term turf health.
- Proper fertilization balances plant health with environmental stewardship.
- Nitrogen plays the most important role in turf growth and appearance.
- Fertilizer type, ratio, and application method must be matched to turf needs and environmental conditions.

Unit 4 - Activities

Students continue learning maintenance eventually having worked on all the equipment here at SHS. As the weather gets colder the class moves from working on field maintenance to other projects at SHS.

Unit 5 - Summary

Water is essential for turfgrass growth and health, but not all water present in the soil is available for plant use. This unit focuses on understanding how water moves through soil, how plants use it, and how to manage irrigation effectively. Students will explore the physical properties of soil that influence water availability, recognize the signs of water stress, and analyze methods of irrigation scheduling. Special emphasis is placed on evapotranspiration, infiltration, water-holding capacity, and the tools turf managers use to monitor soil moisture. Students will also discuss advanced practices like syringing, effluent water use, desalinization, wetting agents, and management of hydrophobic soils. Weeds are one of the most common problems faced in turfgrass management. This unit examines the causes of weed invasion, important weed species, and how maintenance practices influence weed populations. Students will learn how herbicides work, differences between annual and perennial weeds, and the importance of proper timing, uniformity, and application methods. Special attention is given to understanding herbicide characteristics, including nonselective and pre-emergent types, as well as risks such as phytotoxicity and volatilization. Students will connect weed management strategies to integrated turfgrass care.

Unit 5- Enduring Understandings

- Turfgrass requires careful irrigation management to balance plant health with environmental responsibility.
- Not all water present in the soil is usable by turfgrass; soil type and structure determine water availability.
- Proper irrigation scheduling conserves water, reduces disease risk, and promotes sustainable turfgrass systems.
- Proper turfgrass maintenance practices reduce weed competition.
- Weed species differ in life cycle and susceptibility to control methods.
- Herbicides must be selected and applied carefully to avoid damage and ensure effectiveness.
- Long-term turf health depends on integrated weed management strategies.

Unit 5- Activities

Not all jobs at SHS involve working with big machinery. Dethatching a smaller area involves using a smaller tool. Students also prepare for the annual tractor driving contest in which students compete against other ag sci students from across the state.

BOARD OF EDUCATION
SOUTHINGTON, CONNECTICUT

Informational Only X **Board Meeting Date** April 16, 2026

Decision Requested _____ **Agenda Code** 11 t.

AGENDA REPORTING FORM

Agenda Topic: SHS Math for Technology and Innovation - NEW - First Reading.

Summary of Issue: SHS Math for Technology and Innovation - NEW - First Reading.

Background: _____

Alternative Strategies: N/A

Cost (if applicable): N/A **Funding Source:** N/A

Beginning Date of Program or Project: N/A

Ending Date of Program or Project: N/A

Recommendation or Comment: The Board of Education Curriculum & Instruction Committee is bringing the SHS Math for Technology and Innovation - NEW – to the full Board for a First Reading.

Titles of Attachments:

1. Course Proposal

Signature of Staff Member Submitting Report

Signature of Superintendent of Schools

Principles of Manufacturing Mathematics

Course Description

This course was designed with the core values that: All students can excel in technology education. Historical practices and entrenched cultural perceptions of technology education need to be challenged. The technology education community, together, can solve problems in technology classrooms. High-quality technology should be freely available and customizable. Technology teachers feel empowered when allowed to use their expertise and creativity in the implementation of the materials. Professional learning is key in unlocking the power of great materials. And teachers and students need equitable and exciting learning experiences.

Guided by the vision for technology education described in the Connecticut State Technology Education Standards as well as the International Society of Technology Education (ISTE) Standards, and the Common Core Standards for Mathematics, this course seeks to provide a foundation of applied manufacturing mathematics to students so that they have the fundamental skills in this domain to begin their careers in production. This includes an application of the four basic functions (addition, subtraction, multiplication, and division), as well as 3 dimensional geometry, algebra, and trigonometry. Various industry specific hand measuring tools (i.e. ruler, caliper, micrometer, etc.) are utilized throughout the course. In addition, industry-specific calculations (i.e. speeds and feeds, spur gears, center-to-center distances, dovetails, tapers, etc.) are performed throughout the course. By the end of this course, students should have a clear understanding of the need for a keen sense of mathematics in the manufacturing sector. In providing this critical foundation to all learners, this course exists to fundamentally change the status quo, removing predictability about who succeeds/shows affection for manufacturing.

Course Standards (i.e. Common Core, ISTE, etc.)

Connecticut State Department of Education - Technology Education
International Technology & Engineering Education Association (ITEEA)
International Society for Technology in Education (ISTE)
Common Core Standards for Mathematics

Link to Standards based on Unit and Section- Math and Technology Standards

Textbook

Math for Machinists; Second Edition by Huth; The Goodheart-Wilcox Company, Inc.; ISBN 9781637767078

Course Goals

1. Calculate the conversion between common fractions and decimals
2. Calculate powers and roots of numbers
3. Explain and calculate ratios, proportions and percentage
4. Specify and convert units of measure
5. Determine tolerances, clearances and interferences
6. Operate measurement devices

7. Employ the fundamentals of algebra
8. Apply formulas to cutting speeds and revolutions
9. Apply the fundamentals of plane geometry
10. Calculate geometric figures areas and volumes
11. Apply the principles of trigonometry

Course Content Outline

Learning Module 1 - Fundamentals of Shop Math
Learning Module 2 - Precision Measurement
Learning Module 3 - Sizes and Dimensions
Learning Module 4 - Common Shop Formulas
Learning Module 5 - Applications of Angles and Trigonometry
Learning Module 6 - CNC Machining

Learning Module 1 - Fundamentals of Shop Math

Learning Module Summary

We will review number systems and decimal places. Students will add, subtract, multiply and divide whole numbers, fractions and decimals. We will use that knowledge to apply it to proportions and ratios. During this unit, students will also be introduced to shop terms for machinists such as thou.

Learning Module Essential Questions

- What are the basic math skills needed to succeed in the real world?
- How can knowledge of the four basic operations help me succeed in an entry level job as a machinist?
- How can building mathematical fluency with decimals and fractions help me in a career in quality assurance?
- In what ways can the concept of scaling up/down apply to production?

Learning Module Enduring Understandings

- Mathematical concepts that you've already learned have key applications throughout the manufacturing industry.
- Fluency with decimals and fractions is fundamental to making accurate and precise measurements within the Customary and Metric systems.
- An ability to think in terms that are orders of magnitude greater/smaller than "usual" helps solve problems of scale within industry.

Content Specific Vocabulary

Mathematical

Abstract number, Arabic number system, concrete number, decimal number system, denominate number, difference, dividend, divisor, multiplicand, multiplication table, multiplier, negative, positive, product, quotient, remainder, sum, zero, common denominator, denominator, equivalent fractions, fraction bar, improper fraction, invert, least common denominator, lowest terms, mixed numbers, numerator, proper fraction, reducing, whole, decimal, decimal fraction, decimal point, nearer fractional equivalent, extremes, inverse proportion, means, percent, percentage, proportion, ratio, rule of three

Manufacturing

Chamfer, groove, kerf, bolt, bolt body, thread, drift punch, hacksaw, center punch, steel rule, layout fluid, sine bar, caliper, screwdriver, Allen wrench, hammer, ∅, lathe, CNC machining center, mill, quality control, sleeve bushing, bar stock, chucking, band saw, mounting plate, center-to-center distance, stud, hex nut, acetylene, coolant, inside diameter, outside diameter, keyway, turn down, step, gear train, input shaft, output shaft, "one hundred thousandths," "one

hundredth," "one thousandth," one "thou," "one tenth," "ten millionths," "ten microinches," "one millionth," "one microinch," bushing, washer, bearing, axle, gage block, threads per inch (TPI), coarse series thread (UNC), fine series thread (UNF), torque, efficiency, BTU, annealing, horsepower, drive gear, driven gear, gear ratio, revolutions per minute (rpm)

Learning Module Overview

Textbook: **Unit=Chapter**
Chapter 1 - Number Systems
Chapter 2 - Adding Whole Numbers
Chapter 3 - Subtracting Whole Numbers
Chapter 4 - Multiplying Whole Numbers
Chapter 5 - Dividing Whole Numbers
Chapter 6 - Combined Operations
Chapter 7 - Parts of a Fraction
Chapter 8 - Proper Fractions, Improper Fractions, and Mixed Numbers
Chapter 9 - Least Common Denominator
Chapter 10 - Adding Fractions
Chapter 11 - Subtracting Fractions
Chapter 12 - Multiplying Fractions
Chapter 13 - Dividing Fractions
Chapter 14 - Decimal System
Chapter 15 - Converting between Common Fractions and Decimal Fractions
Chapter 16 - Adding Decimal Fractions
Chapter 17 - Subtracting Decimal Fractions
Chapter 18 - Multiplying Decimal Fractions
Chapter 19 - Dividing Decimal Fractions
Chapter 20 - Percent and Percentage
Chapter 21 - Ratio and Proportion

Days	Learning Target/Objective (*SWBAT*)	Lesson at a glance
Day 1	● *Add and Subtract whole numbers.* ● *Use terminology of abstract, concrete and denominate numbers* ● *Add and Subtract within the context of machined parts and diagrams*	Pg 2-28
Day 2	● *Multiply and Divide whole numbers* ● *Apply the operations within the context of a word problem or diagram*	Pg 29-48
Day 3	● *Solve a problem using all the operations in combination* ● *Apply Order of Operation in applications*	Pg 49-59

Day 4	• *Simplify fractions to their lowest term.* • *Change fractional numbers to a different denominator* • *Express fractions with pictures/diagrams(shade)* • *Change fractions from mixed numbers to improper fractions and vice a versa* • *Finding least common denominator*	Pg 60-86
Day 5	• *Add and subtract fractions including mixed numbers* • *Converting answers to mixed numbers* • *Applying the skills to machinist diagrams and tools such as bolt size/thread*	Pg 87-108
Day 6	• *Multiply and Divide fractions* • *Applying the skill to machinist terms such as thread size(pitch)*	Pg 109-124
Day 7	• *Use shop terms with decimal numbers(thou)* • *Write decimals using mathematical terms and shop terms* • *Convert common fractions to decimals and vice a versa* • *Estimate fractions/decimals using Decimal Conversion Chart on pg 138*	Pg 125-142
Day 8	• *Add and subtract decimals*	Pg 143-162
Day 9	• *Multiply and divide decimals*	Pg 163-184
Day 10	• *Convert fractions to percents vice a versa* • *Finding percent of, what is __% of type problems* • *Write a ratio with shop terms and diagram such as drive gear teeth ratios and pulleys*	Pg 185-206
Performance Task	*Students may do a performance task with fractions and decimals in a recipe or technical drawing*	Performance Task Mod…

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Learning Module 2 - Precision Measurement

Learning Module Summary

In this learning module, students will revisit concepts from previous grades related to standard and metric measuring systems and tools. As they rediscover familiarity with these ideas, they will be pushed to further their understanding by exploring the concept of precision measurement. They will gain familiarity with hand measurement tools that they will commonly see in industry such as micrometers and calipers. This will naturally lead to a discussion of concepts such as accuracy and tolerance. As it relates to industry, this will directly prepare students for future careers in quality assurance.

Learning Module Essential Questions

- What hand measurement tools should I be comfortable using before I apply for an entry level job in manufacturing?
- How do precision and accuracy in production relate to customer satisfaction?
- Why do different countries have different systems for measurement, and is one “better” than the other?

Learning Module Enduring Understandings

- Precise and accurate measurements result in products that meet predetermined standards so that customers are protected and waste is eliminated.
- Deep understanding of systems of measurement and measuring tools can lead to a stable and exciting career in quality assurance.

Content Specific Vocabulary

Mathematical

Linear measurement, US Customary System, metric system, graduation, Systeme International d’Unites, precision, accuracy, tolerance, positional tolerance, dimensional tolerance, bilateral tolerance

Manufacturing

Maximum allowable dimension, minimum allowable dimension, micrometer, anvil, spindle, sleeve, frame, locknut, thimble, ratchet, vernier scale, caliper, depth probe

Learning Module Overview

Textbook:
Chapter 22 - Reading Rulers
Chapter 24 - Tolerances
Chapter 25 - Vernier Measuring Instruments

Days	**Learning Target/Objective (*SWBAT*)**	**Lesson at a glance**
Day 1	• *Measure using a metric ruler using fractional or decimal form*	Pg 208-214
Day 2	• *Measure using a standard ruler using fractional or decimal form*	Same as above
Day 3	• *State or show the difference of precision and accuracy* • *Describe tolerance and know difference of positional, dimensional and bilateral tolerance* • *Find the tolerance in diagrams* • *Calculate the tolerance of parts using technical drawings*	Pg 227-236
Day 4	• *Measure using an inch based micrometer*	pg237-248
Day 5	• *Measure using a metric-based micrometer*	Same as above
Day 6	• *Measure using a vernier micrometer*	Same as above
Day 7	• *Measure using calipers- 25 and 50 Division Calipers*	Same as above
PT	*Students will measure parts with a ruler and a dial caliper.*	Performance Task #2

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Learning Module 3 - Sizes and Dimensions

Learning Module Summary

In this module, students will revisit familiar formulas for calculating the area and volume of particular shapes and apply them to industry-related situations. In particular, areas of circles, triangles, and quadrilaterals will be calculated such that students can make connections to production processes such as finishing and plating. In addition, the volume of rectangular prisms cylinders, cones, and spheres will also be calculated such that students can also make further connections to production. In completing this module and revisiting the utility of these formulas, students will be ready for the subsequent module on commonly used formulas for machinists.

Learning Module Essential Questions

- In what ways do manufacturers use 2 dimensional concepts like area, and how is it calculated for different shapes?
- In what ways do manufacturers use 3 dimensional concepts like volume, and how is it calculated for different shapes?

Learning Module Enduring Understandings

- Applications of area are prevalent throughout the manufacturing industry (i.e. finishing, plating, etc.)
- Applications of volume are prevalent throughout the manufacturing industry (i.e. containers for storing coolant/lubricant, determining weights of raw materials, etc.)

Content Specific Vocabulary

Mathematical

Perimeter, square, rectangle, trapezoid, circumference, circle, diameter, radius, π, power of a number, exponent, square of a number, cube of a number, radical symbol, vinculum, index, radicand, chord, circular segment, cone, cube, cuboid, cylinder, irregular polygon, non-polyhedron, octagon, parallelogram, pentagon, polygon, polyhedron, prism, regular polygon, sector, sphere, θ

Manufacturing

Spur gear, pitch diameter, pitch circle

Learning Module Overview

Textbook:

Chapter 23 - Perimeter and Circumference
Chapter 31 - Powers
Chapter 32 - Roots of Numbers

Chapter 43 - Area of Polygons
Chapter 44 - Area of Circles and Circular Segments
Chapter 45 - Volumes of Cubes, Rectangular Solids, and Prisms
Chapter 46 - Volume of Cylinders, Cones, and Spheres

Days	**Learning Target/Objective (*SWBAT*)**	**Lesson at a glance**
Day 1	• *Find perimeter of a closed figure: rectangle, parallelogram and trapezoid* • *Find circumference of a circle* • *Find perimeter of compound figures*	Pg 215- 226(ch 23)
Day 2	• *Find the powers of numbers including fractions with only one part to a power* • *Find area of a square and compound figures*	Can use calculator for some calculations Pg 298-306 (ch 31)
Day 3	• *Find the root of a number* • *Using square roots to find the side of a square or cube roots for a cube.*	Pg 307-314 (ch32)
Day 4	• *Find the area of rectangles, squares, parallelograms, triangles, trapezoids*	Pg 448-460 (ch 43)
Day 5	• *Find the area of pentagons, hexagons and octagons* • *Find the area of compound figures*	Same as above
Day 6	• *Find the area of a Circle* • *Find the area of a Circle Sector*	Pg 461-470 (ch 44) Pg 468 skip #21-22
Day 7	• *Find volume of prisms such as cube, cuboid(rectangular prism), triangular and others from chapter 43*	Pg 471-476 (ch 45)
Day 8	• *Find the volume of cylinders, cones and spheres*	Pg 477-486 Pg 484 #7 review of hexagonal prism
PT	*Students will do a picture/diagram with a park with wood chips or grass seed needed for a landscaping project. They will build a quote for a job submission.*	Backyard Design

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Learning Module 4 - Common Shop Formulas

Learning Module Summary

In this module, students apply their general knowledge of formulas to specific shop situations in order to perform a variety of calculations. Students become comfortable with substituting particular numbers for variables in a given equation. This allows them to solve “real world” problems such as calculating speeds and feeds of various machines and taper, screw, and spur gear dimensions. When provided with commonly used formulas for performing shop calculations, students should be able to accurately and consistently apply their knowledge to each situation such that they are able to arrive at the correct answer.

Learning Module Essential Questions

- What are the most common formulas that someone would need to be familiar with to be successful in a machining career?
- Is it “ok” to not memorize every formula, but still know how to use them in everyday life?

Learning Module Enduring Understandings

- Throughout a career in manufacturing, one will encounter many formulas for many purposes, and it is valuable to have familiarity with the most common ones.
- The use of charts and reference sheets for common machining formulas is incredibly helpful and increases productivity as well as accuracy of calculation.

Content Specific Vocabulary

Mathematics

Addendum, circular pitch, dedendum, diametral pitch, equation, feed, formula, feed rate per tooth per revolution (ftr), major diameter, p, pitch circle, pitch diameter, revolutions per minute (rpm), speed, tailstock offset, taper, threads per inch (tpi), diameter

Manufacturing

Unified Thread Standard (UTS), Unified National Coarse (UNC), Unified National Fine (UNF), Unified National Extra Fine (UNEF), left-hand (LH), gage, end mill, face mill, shell end mill, slab mill, side cutter, turning, milling

Learning Module Overview

Textbook:
Chapter 26 - Equations and Formulas
Chapter 27 - Thread Formulas

Chapter 28 - Taper Formulas
Chapter 29 - Speeds and Feeds
Chapter 30 - Spur Gear Calculations

Days	**Learning Target/Objective (*SWBAT*)**	**Lesson at a glance**
Day 1	• *Solve equations for x.* • *Solve formulas for x.* • *Substitute a value in and solve for the unknown variable*	Pg 250-254
Day 2	• *Find pitch of a thread* • *Find the height of the thread* • *Find the pitch diameter*	Pg 255-266
Day 3	• *Label a taper diagram* • *Calculate a unknown dimension of a taper(formulas given pg 268)* • *Calculate the offset for turning a taper on a lathe*	Pg 267-274 Skip #20
Day 4	• *Calculate cutting speed in terms of revolutions per minute(rpm)* • *Calculate feed rate of cutting tool in terms of inches per minute(IPM)* • *Calculate spindle speed in terms of rpm*	Pg 275-29
Day 5	• *Label a diagram of a spur gear.* • *Solve for missing pieces of a spur gear with formulas*	Pg 291-296
PT	Student will complete a packet on finding the pitch and missing parts on taper, cutting speeds and spur gear.	Performance Task on C…

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Learning Module 5 - Applications of Angles and Trigonometry

Learning Module Summary

In this module, students apply their knowledge of angular and trigonometric calculations to common situations in the machine shop. The use of sine bars and plates is explored and common machining processes such as creating dovetails and tapers are introduced. Throughout the module, students are constantly revisiting the concept that because machining often makes use of circular motion, a deep understanding of angles and trigonometry is critical.

Learning Module Essential Questions

- Why are circles and triangles so important to use in various machining processes?
- How can knowledge of angles and trigonometry make me a better machinist?

Learning Module Enduring Understandings

- Because many machining processes deal with circular motion, an understanding of angular calculations is critical to be able to manufacture a part to a given specification.
- Machining a part to a specified angle requires the use of specialized tools, processes, and mathematical calculations.

Content Specific Vocabulary

Mathematics

Acute angle, acute triangle, adjacent side, base of a triangle, complementary angles, equilateral triangle, height of a triangle, hypotenuse, isosceles triangle, law of cosines, law of cosines (angle version), law of sines, minuend, minute (angular measure), obtuse angle, obtuse triangle, opposite side, Pythagorean theorem, rays, reflex angle, right angle, right triangle, scalene triangle, second (angular measure), soh cah toa, straight angle, subtrahend, supplementary, angles, trigonometry, vertex, altitude, bisect, congruent, constant, dovetail slide, point angle, point of tangency, tangent line, tangent to a circle theorem, transversal, two-tangent theorem

Manufacturing

Bolt circle, chamfer, tolerance, taper, gage blocks, sine bar, sine plate, drill point angle, dovetail, dovetail slide, male dovetail, female dovetail, gage pin

Learning Module Overview

Textbook:
Chapter 33 - Units of Angular Measure
Chapter 34 - Basic Math Operations with Angles

Chapter 35 - Triangles
Chapter 36 - Right Triangle Trigonometry
Chapter 37 - Oblique Triangles
Chapter 38 - Sine Bars and Sine Plates
Chapter 39 - Drill Point Angles
Chapter 40 - Center-to-Center Distances
Chapter 41 - Dovetails
Chapter 42 - Tapers

Days	**Learning Target/Objective (*SWBAT*)**	**Lesson at a glance**
Day 1	● *State the type of angle given* ● *Write angle in terms of degrees, minutes and seconds*	Pg 316-324
Day 2	● *Add, subtract, multiply and divide degree, minutes and second of angles* ● *Convert between degrees, minutes and seconds between decimal angles* ● *Find tolerances with angle measures*	*Pg 325-338*
Day 3	● *Identify the types of triangles* ● *Find the area of triangles*	*Pg 339-346*
Day 4	● *Find a missing side with pythagorean theorem* ● *Label a right triangle with hypotenuse, opposite and adjacent to given/missing angle* ● *Find the missing side of a right triangle using sin, cos and tan*	*Pg 347-372*
Day 5	● *Find a decimal angle and convert it to degrees, minutes and seconds using a calculator* ● *Find the missing angle in a right triangle using sin, cos and tan*	*Same as above*
Day 6	● *State whether law of sines or cosines will find a missing angle or side* ● *Find a missing side or angle with law of sines* ● *Find a missing side or angle with law of cosines*	*Pg 373-382*
Day 7	● *State what the function of a sine bar or sine plate is* ● *Find the missing angle using the sine function*	Pg 384-394

	• *Find the missing height of gage blocks given the angle needed*	
Day 8	• *State or label drill point depth and drill point angle* • *Calculate size of drill point depth* • *Find Drill point constant and state why it is helpful* • *Calculate drill point using the drill point constants* • *Find total depth of hole drilled with a given diameter, drill angle and depth of needed hole*	Pg 395-402
Day 9	• *Calculate center to center distance* • *Calculate pin to pin distance* • *Calculate measurement over pins* • *Calculate measurement between nonadjacent holes* • *Find diameter of bolt circle given other information*	Pg 403-420
Day 10	• *State and label information of a dovetail slide* • *Calculate the small or large end of a dovetail slide given the other dimension* • *Calculate the inner or outer unknown dimensions using gage pins to check the accuracy for the dovetails*	Pg 421-434
Day 11	• *Label a taper* • *Calculate large or small diameter given the other* • *Calculate length of taper* • *Calculate the included angle given large and small diameter of taper*	Pg 435-446
PT	*Thinking of a project with a given angle and students need to find an angle unknown to them. A sine bar is so a machinist can find the angle given the side lengths.*	Not sure what to do with this one.

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Learning Module 6 - CNC Machining

Learning Module Summary

Learning Module Essential Questions

- How can a CNC machine be programmed such that it can perform a specified operation accurately, precisely, and repeatably?

Learning Module Enduring Understandings

- Programming a CNC machine requires a user to define its movements using their knowledge of the coordinate system.

Content Specific Vocabulary

Mathematics
Absolute positioning, Cartesian coordinate system, incremental positioning, plane

Manufacturing
CNC machining center, CNC turning center

Learning Module Overview

Textbook:
Chapter 47 - CNC Milling
Chapter 48 - CNC Turning
Chapter 49 - Bolt Circles

Days	Learning Target/Objective (*SWBAT*)	Lesson at a glance
Day 1	• *State points on a cartesian plane* • *Find and state coordinate points on a given diagram using absolute and incremental positioning* • *Find the absolute positioning on a diagram/blueprint*	Pg 488-506
Day 2	• *State the absolute or incremental positioning points for turning a part on the x and z axis* • *Using part drawings fill out a table of absolute and incremental positioning*	*Pg 507-520*

Day 3	• *Calculate the location of a hole(bolt) using trigonometry and radius of bolt circle when starting at the x axis* • *Calculate the location of a hole(bolt) using trigonometry and radius of bolt circle when starting above or below the x axis*	*Pg 521-542*
PT	*Setup a CNC type machine with coordinate points.*	Take a picture and make a CNC grid for the picture.

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Mathematics for Technology and Innovation

Half-Year Mathematics Elective (Spring)
11th & 12th Grade Students

Overview of Course

This course seeks to provide a foundation of applied manufacturing mathematics to students so that they have the fundamental skills in this domain to begin their careers in production. This includes an application of the four basic functions (addition, subtraction, multiplication, and division), as well as 3 dimensional geometry, algebra, and trigonometry. Various industry specific hand measuring tools (i.e. ruler, caliper, micrometer, etc.) are utilized throughout the course. In addition, industry-specific calculations (i.e. speeds and feeds, spur gears, center-to-center distances, dovetails, tapers, etc.) are performed throughout the course. By the end of this course, students should have a clear understanding of the need for a keen sense of mathematics in the manufacturing sector. In providing this critical foundation to all learners, this course exists to fundamentally change the status quo, removing predictability about who succeeds/shows affection for manufacturing.

Units of Study

Module 1

Fundamentals of Shop Math- Arithmetic of Decimals and Fractions

Module 2

Precision Measurements- Ruler, Calipers, Micrometers

Module 3

Sizes and Dimension- Geometry and Trigonometry

Units of Study

Module 4

Common Shop Formulas- Threads, Spur Gear Calculations, Cutting Speeds

Module 5

Applications of Angles and Trigonometry

Module 5

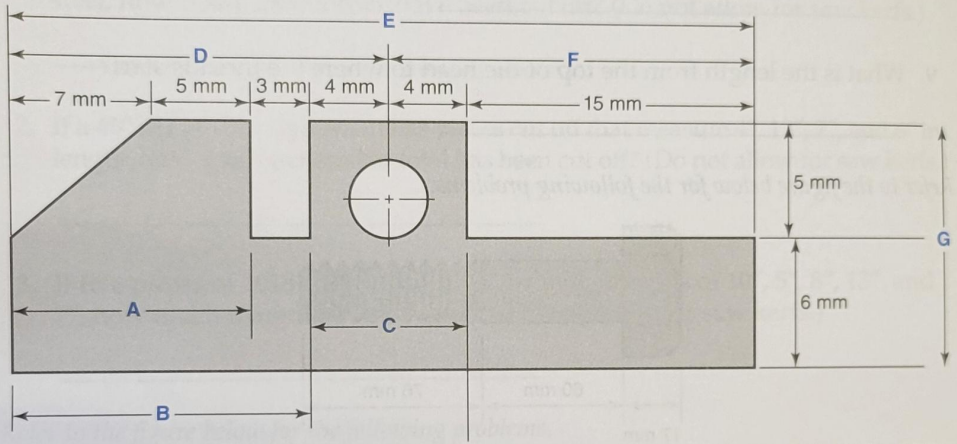
CNC Machining- Coordinate Plane setup

Module 1 - Fundamentals of Shop Math

We will review number systems and decimal places. Students will add, subtract, multiply and divide whole numbers, fractions and decimals. We will use that knowledge to apply it to proportions and ratios. During this unit, students will also be introduced to shop terms for machinists such as thou. From Day one students are looking at machining diagrams to use their knowledge of number systems.

Module 1 - Fundamentals of Shop Math

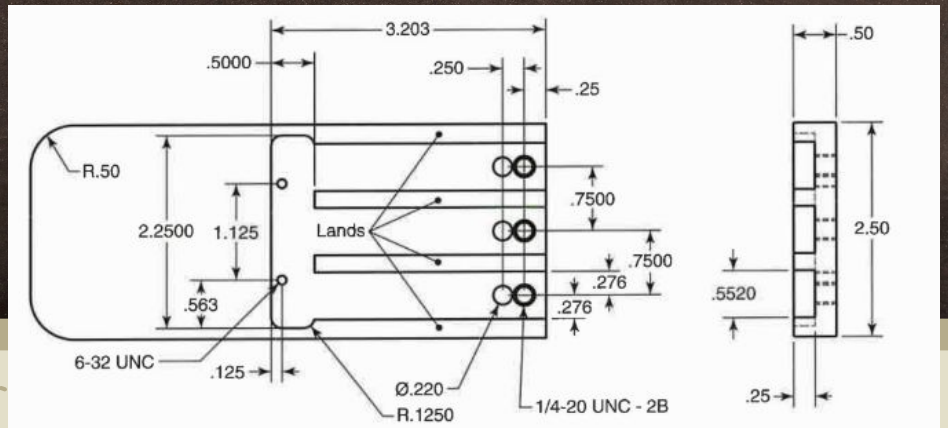
Refer to the figure below to calculate the dimensions in the following problems.



Goodheart-Willcox Publisher

Sample Module 1 Performance Task

Student show their knowledge of the number systems by finding different values in machining diagrams and using a recipe/oil ratios to find multiple or fractional parts.



Module 2 - Precision Measurements

In this learning module, students will revisit concepts from previous grades related to standard and metric measuring systems and tools. As they rediscover familiarity with these ideas, they will be pushed to further their understanding by exploring the concept of precision measurement. They will gain familiarity with hand measurement tools that they will commonly see in industry such as micrometers and calipers. This will naturally lead to a discussion of concepts such as accuracy and tolerance. As it relates to industry, this will directly prepare students for future careers in quality assurance.

Student will measure wire gauge, bearing, and machined parts as practice.

Sample Module 2 Performance Task

Students measure real life machined parts.

Module 3 - Sizes and Dimensions

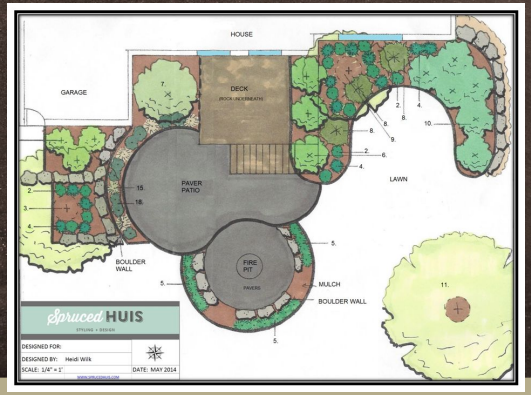
In this module, students will revisit familiar formulas for calculating the area and volume of particular shapes and apply them to industry-related situations. In particular, areas of circles, triangles, and quadrilaterals will be calculated such that students can make connections to production processes such as finishing and plating. In addition, the volume of rectangular prisms cylinders, cones, and spheres will also be calculated such that students can also make further connections to production. In completing this module and revisiting the utility of these formulas, students will be ready for the subsequent module on commonly used formulas for machinists.

Module 3 - Sizes and Dimensions

This module relates back to Module 1 and Module 2 such as they figure out weights and sizes of crates/boxes for shipping. They use pictures of machined parts to find the weight of a determine amount of parts, the reasonable weight for the box, how much a determine amount of boxes will weigh and how many can fit in a truck. They use that as an extension of simply finding a volume of a shape.

Unit 3 - Performance Task

Students design a backyard design using wood chips, flowers, grass seed and fencing. They will draw a makeover for a backyard.



Module 4- Common Shop Formulas

In this module, students apply their general knowledge of formulas to specific shop situations in order to perform a variety of calculations. Students become comfortable with substituting particular numbers for variables in a given equation. This allows them to solve “real world” problems such as calculating speeds and feeds of various machines and taper, screw, and spur gear dimensions. When provided with commonly used formulas for performing shop calculations, students should be able to accurately and consistently apply their knowledge to each situation such that they are able to arrive at the correct answer.

Module 5- Applications of Angles and Trigonometry

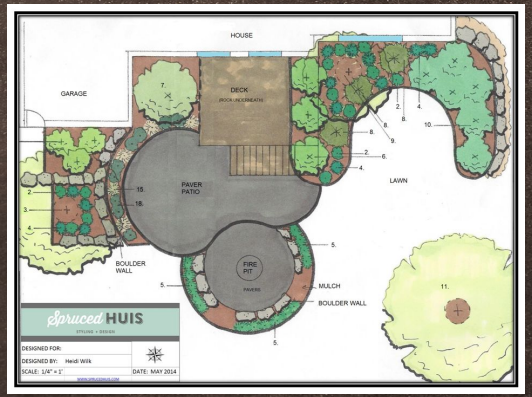
In this module, students apply their knowledge of angular and trigonometric calculations to common situations in the machine shop. The use of sine bars and plates is explored and common machining processes such as creating dovetails and tapers are introduced. Throughout the module, students are constantly revisiting the concept that because machining often makes use of circular motion, a deep understanding of angles and trigonometry is critical.

Module 6- CNC Machining

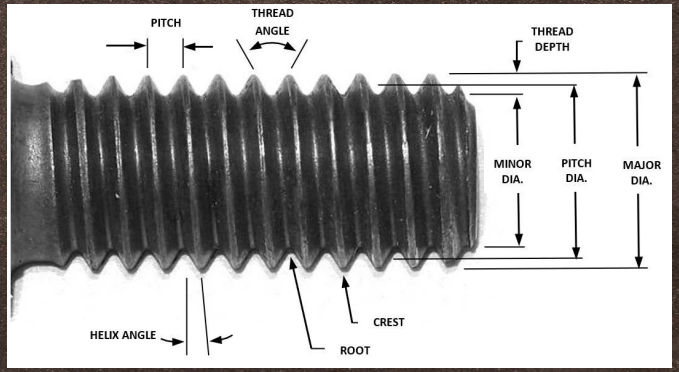
In this module, students create a cartesian plane for a CNC machine using absolute and incremental positioning. They will use part drawings to fill out a table of absolute and incremental positioning. They will also use prior knowledge to calculate the location of a hole(bolt) using trigonometry and radius of bolt circle when starting at the x axis

Great Connections to Real Life

Gears and sprockets

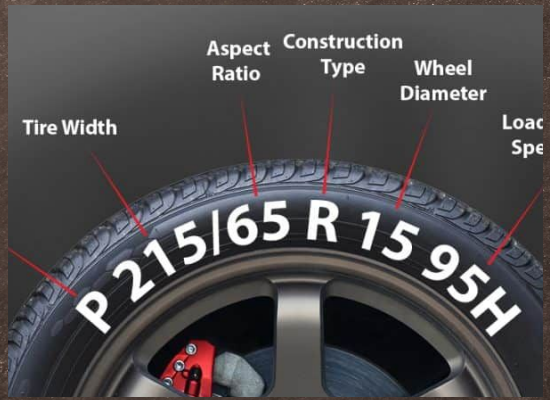


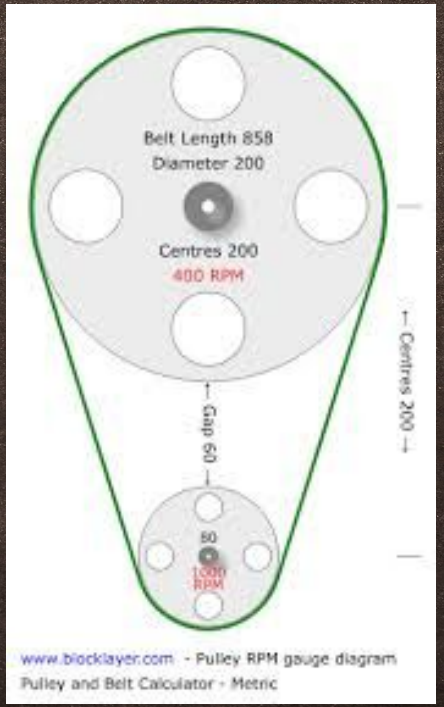
Designing Landscape



Bolt and Screw sizes

Great Connections to Real Life





BOARD OF EDUCATION
SOUTHINGTON, CONNECTICUT

Informational Only X **Board Meeting Date** April 16, 2026

Decision Requested _____ **Agenda Code** 11 u.

AGENDA REPORTING FORM

Agenda Topic: KSA Elective - American Sign Language - NEW - First Reading.

Summary of Issue: KSA Elective - American Sign Language - NEW - First Reading.

Background: _____

Alternative Strategies: N/A

Cost (if applicable): N/A **Funding Source:** N/A

Beginning Date of Program or Project: N/A

Ending Date of Program or Project: N/A

Recommendation or Comment: The Board of Education Curriculum & Instruction Committee is bringing the KSA Elective - American Sign Language - NEW – to the full Board for a First Reading.

Titles of Attachments:

1. Course Proposal

Frank Ryan

Signature of Staff Member Submitting Report

Peter Madaus

Signature of Superintendent of Schools

PROPOSED COURSE/PROGRAM CHANGE FORM

Southington Public Schools
Southington, Connecticut

School: **Karen Smith Academy**

Department: **Elective / Flex block**

Please check appropriate item:

New Course: x☐

Revised Course: ☐

Course Title: **American Sign Language**

1. Proposed Change – **Please give a brief description of proposed new course or revision to existing course.**

We will offer students an American Sign Language class where they will develop a basic proficiency through a participatory, communicative approach. Emphasis will be placed on the development of signing skills and the acquisition of the fundamentals of grammar as it applies to sign language. Students will learn to translate basic English to sign language and signing back to English. Students will learn about the importance of sign language and the expanse of its use in society.

2. Rationale – **What is the purpose of the proposed new course or course change? To what extent will it benefit the students?**

Students will learn and be exposed to a new language and gain perspective and a better understanding of the Deaf community. Students will develop new motor skills and be exposed to a different form of communication that stresses a visual attention span and the use of positive, meaningful body language.

3. Target Population – **Which group of students will be directly affected (grade level, academic level)?**

Grades 9-12 and all academic levels.

PROPOSED COURSE/PROGRAM CHANGE FORM

4. Evaluation – **How do you plan to assess the implementation of the proposed new course or the course change?**

We will assess the implementation of this course through the level of student engagement and participation. Students will be assessed through live conversations with each other about different topics. Students will demonstrate that they are proficient in the sign language alphabet and become conversational.

5. Cost – **What are the anticipated costs for staff, textbooks, materials, other?**

No associated cost.

	YEAR		
	I	II	III
Staff	$	$	$
Textbooks	$	$	$
Materials	$	$	$
Other	$	$	$
TOTAL	$	$	$

Comments: _____

_____

Principal: Approved ☒ Denied ☐

Jess W. Lain

Signature

mp\Curriculum\Proposed Course Change Form, 2010.doc

BOARD OF EDUCATION
SOUTHINGTON, CONNECTICUT

Informational Only X **Board Meeting Date** April 16, 2026

Decision Requested _____ **Agenda Code** 11 v.

AGENDA REPORTING FORM

Agenda Topic: KSA Science – Topics in Science - NEW - First Reading.

Summary of Issue: KSA Science – Topics in Science - NEW - First Reading.

Background: _____

Alternative Strategies: N/A

Cost (if applicable): N/A **Funding Source:** N/A

Beginning Date of Program or Project: N/A

Ending Date of Program or Project: N/A

Recommendation or Comment: The Board of Education Curriculum & Instruction Committee is bringing the KSA Science – Topics in Science - NEW – to the full Board for a First Reading.

Titles of Attachments:

1. Course Proposal

Signature of Staff Member Submitting Report

Signature of Superintendent of Schools

PROPOSED COURSE/PROGRAM CHANGE FORM

Southington Public Schools
Southington, Connecticut

School: **Karen Smith Academy**

Department: **Science**

Please check appropriate item:

New Course: x☐

Revised Course: ☐

Course Title: **Topics in Science**

1. Proposed Change – **Please give a brief description of proposed new course or revision to existing course.**

This course will focus primarily on Ornithology and Entomology. Ornithology is the scientific study of birds. Students will explore bird biology, behavior, ecology, evolution and conservation. Students will develop skills in daily bird identification, data collection and scientific collection.
In Entomology, students will learn about insect anatomy, physiology, social behaviors, diversity and their overall importance to humans and ecosystems.
Unit 1: Foundations of Ornithology
Unit 2: Taxonomy, Evolution, and Diversity
Unit 3: Bird behavior and Ecology
Unit 4: Birds and the environment
Unit 5: Conservation and human connection

2. Rationale – **What is the purpose of the proposed new course or course change? To what extent will it benefit the students?**

Students will gain hands-on experience through lab work, projects, analysis, forming hypotheses, and field observation. Students learn to identify and classify different species across the two disciplines. Students will cultivate new interests through this class and collaborate with other students and think critically.

3. Target Population – **Which group of students will be directly affected (grade level, academic level)?**

Grades 9-12.

PROPOSED COURSE/PROGRAM CHANGE FORM

4. Evaluation – **How do you plan to assess the implementation of the proposed new course or the course change?**

We will monitor student engagement and participation as we pilot this class for the 2025-26 school year. We will assess and process student input and continue to develop the class in collaboration with our students. We will analyze students' class work, verbal contributions, collaboration, and formative and summative assessments.

5. Cost – What are the anticipated costs for staff, textbooks, materials, **other?**

Costs will be minimal and to be determined.

	YEAR		
	I	II	III
Staff	$	$	$
Textbooks	$	$	$
Materials	$	$	$
Other	$	$	$
TOTAL	$	$	$

Comments: _____

_____

Principal: Approved ☒ Denied ☐

PROPOSED COURSE/PROGRAM CHANGE FORM

Signature

mp\Curriculum\Proposed Course Change Form, 2010.doc

BOARD OF EDUCATION
SOUTHINGTON, CONNECTICUT

Informational Only _____ **Board Meeting Date** April 16, 2026

Decision Requested X **Agenda Code** 11 w.

AGENDA REPORTING FORM

Agenda Topic: Leonard and Gladys Joll Scholarship Recipient

Summary of Issue: The Leonard and Gladys Joll Scholarship applications were reviewed by the appointed committee and a recipient was selected to be recommended for Board approval.

Background: Annually the Board of Education selects a recipient for the Leonard and Gladys Joll Scholarship. The recipient's name will not be announced at this meeting, so it will be kept confidential until the Southington High School Awards Ceremony.

Alternative Strategies: Reject

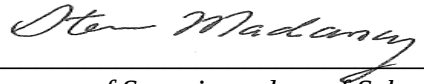
Cost (if applicable): $300.00 **Funding Source:** Joll Scholarship Fund

Beginning Date of Program or Project: N/A

Ending Date of Program or Project: N/A

Recommendation or Comment: The Board of Education approves the recipient recommended by the Leonard and Gladys Joll Scholarship subcommittee.

Signature of Staff Member Submitting Report



Signature of Superintendent of Schools

BOARD OF EDUCATION
SOUTHINGTON, CONNECTICUT

Informational Only_____ Board Meeting Date April 16, 2026

Decision Requested X Agenda Code 11x.

AGENDA REPORTING FORM

Agenda Topic: SHS Rooftop Photovoltaic Plans for submission to Department of Administrative Services

Summary of Issue: The BOE Chair and Superintendent need to sign Form SCG-042 "Request for Review of Final Plans" so the plans may be submitted to the DAS for approval to commence construction.

Background: The SHS Rooftop Photovoltaic System is an integral component that is being overseen by the town's Roof Replacement Building Committee. With the permission of the BOE the SCG -042 needs to be signed by the Board Chairperson and the Superintendent of Schools

Alternative Strategies:

Cost (if applicable): **Funding Source:**

Beginning Date of Program or Project: June 2023

Ending Date of Program or Project: Fall 2026

Recommendation or Comment: Move that the Board of Education authorize the Chair of the Southington Board of Education and the Superintendent of Southington Public Schools to sign Form SCG-042-REQUEST FOR REVIEW OF FINAL PLANS for CT Department of Administrative Services (DAS) Project Number 131-0131 PV, so that Southington Public Schools may submit the Final Plans and professional cost estimate to the CT DAS Office of Grants Administration for their approval prior to commencement of construction of the rooftop solar photovoltaic project at Southington High School.

Steven Madaras

Signature of Superintendent

KLEE SUSTAINABILITY ADVISORS

Robert J. Klee
33 North Racebrook Road
Woodbridge, CT 06525
rob@kleesustainability.com
203-376-5687

Date: April 9, 2026

To: Peter Romano, Director of Operations, Southington Public Schools

From: Robert Klee, Klee Sustainability Advisors
Sam Dzekian, CSW Energy

Subject: Board of Education (BOE) and Building Committee Approvals of Final Plans for the Southington High School rooftop solar project (DAS Project No. 131-0131 PV)

Below is a summary of the status of the Southington High School (SHS) rooftop solar project (DAS Project No. 131-0131 PV), the project financials, and the next steps in the CT Department of Administrative Services (DAS) Office of Grant Administration (OGA) approval process to commence construction.

Project status. Southington plans to construct a 600 kW-ac / 709 kW-dc solar system at SHS that will produce approximately 840,000 kWh of electricity in its first year of operation. Prior to going out to competitive bid for construction of the SHS solar array, Southington completed a structural assessment of the roof of SHS and applied to Eversource for interconnection of the solar array, as was required to qualify for the Eversource Non-Residential Renewable Energy Solutions (NRES) Program school solar incentive. On December 8, 2026, All-Electric Construction & Communication, LLC (All-Electric) was awarded the rooftop solar project at SHS, through a competitive bid process (RFP 2026-06). After All-Electric contracted with Southington in December 2025, All-Electric finalized the engineering of the SHS rooftop solar array. The final plans are in the process of being reviewed and approved by the Southington Building Official, Fire Marshal, Health Official, and Federal Section 504 Official, as required under the DAS-OGA process.

Project financials. The contracted price for constructing the rooftop solar array is $1,342,883.88. This solar project is supported by a DAS-OGA 54.64% reimbursement grant (secured in March 2025). The DAS-OGA reimbursement of the total project costs will be approximately $733,750. Southington and All-Electric have “safe-harbored” a potential federal “elective pay” tax incentive of 30% of the total project costs. The potential federal incentive will be approximately $402,856. The SHS solar array also received an NRES Program school solar incentive of $188.90/MWh of electricity generated, which is estimated to generate annual revenue of $150,000/year, totaling approximately $3,000,000 for the 20-year term of the NRES Program school solar incentive. Operations and Maintenance (O&M) services will be procured through a separate RFP after construction of the solar array and are estimated to cost an average of $4,525/year, totaling approximately $90,500 for the 20 years.

	Amount
Contracted Project Cost	$1,342,884
DAS-OGA Reimbursement (54.64%)	-$733,750
Federal Elective Pay Reimbursement (30%)	-$402,856
Est. Total Out-of-Pocket (~15%)	**$206,278**

	Amount
Incentive revenue (20 years)	$3,013,724
Est. Operations & Maintenance (20 years)	-$90,500
Net Total	**$2,923,224**
Est. simple payback (years)	**1.4**

Approval and Next Steps. The resolutions currently in front of the Southington BOE and Southington Building Committee will authorize the Chair of the BOE, the Superintendent of Southington Public Schools, and the Chair of the Building Committee to sign DAS-OGA Form SCG-042-REQUEST FOR REVIEW OF FINAL PLANS. Once authorized by the BOE and Building Committee, Southington Public Schools will promptly submit All-Electric's final plans to DAS-OGA for their approval prior to commencement of construction of the rooftop solar photovoltaic project at SHS. Once the final plans have been reviewed and approved, DAS-OGA will provide Southington Public Schools and All-Electric authorization to commence construction activities at SHS. The current project schedule estimates that the majority of construction activities for the solar array at SHS will occur during the summer months of 2026. We estimate that construction completion, permission to operate the solar array, and project closeout will occur by the end of the calendar year 2026.

Project Overview

Site Plan

Southington HS

720 Pleasant Street Southington, CT 06489

Project Size (kWdc)	709.0
Year 1 Production (kWh)	840,414.7

Footnote: [1] Disclaimer: This includes forecasts, projections and other predictive statements that represent Project Team assumptions and expectations in light of currently available information. These forecasts, etc., are based on industry trends other factors, variables and uncertainties. The actual results may differ from those projected in this table. Consequently, no guarantee is presented or implied as to the accuracy of specific forecasts, projections or predictive statements contained herein.

DEPARTMENT OF ADMINISTRATIVE SERVICES (DAS)

Office of School Construction Grants & Review (OSCG&R)

REQUEST FOR REVIEW OF FINAL PLANS
FORM SCG-042

STATUTORY REF.: C.G.S. Sections 10-282, 10-283, 10-291, 10-294, 10-292

DISTRICT NAME:	FACILITY NAME AND ADDRESS:	STATE PROJECT NUMBER:
Southington Public Schools	Southington High School 720 Pleasant St, Southington, CT 06489	131-0131 PV
		PHASE NUMBER: 1

Estimated date* to begin construction June 1, 2026 Estimated date to complete construction August 1, 2026

*** NOTE: Construction must begin within 2 years of grant commitment date to maintain grant eligibility.**

Certification of Approval dates:

	Final Plans & Prof. Cost Estimate	Site Approval (if applicable)
Local Board of Education	4 / 16 / 26	/ /
School Building Committee	4 / 14 / 26	/ /

We hereby certify that these **final plans and project manual(s)** as prepared for bidding and dated 1/27/2026, and the **professional cost estimate**, completed in accordance with Level 3 of ASTM International Standard E1557, Standard Classification of Building Elements and Related Sitework-UNIFORMAT II for this project, dated 4/10/2026, have been reviewed and approved for this project on the dates shown above.

For the Town or Regional Board of Education:

Chairperson's Name (Type or print)	Signature	Date**

For the School Building Committee:

Chairperson's Name (Type or print)	Signature	Date**

**** Signature dates cannot precede the date on the submitted plans.**

For the Project Architect/Engineering Firm:

Firm Name (Type or print)	Signature	Telephone No.
CSW Energy		(845) 551-7881

We hereby request a review of the final Project Plans, Project Manual, Ineligible and Limited Eligible Costs Worksheet (ICW) FORM SCG-4000, and professional cost estimate as noted above. Copies of all the above referenced documents are either attached, or available.

Superintendent's Name (Type or print)	Signature	Date

NOTE: NO PHASE OF THIS SCHOOL CONSTRUCTION PROJECT SHALL GO OUT TO BID, AND NO PURCHASE ORDER OVER $10,000.00 SHALL BE ISSUED, UNTIL YOU HAVE RECEIVED WRITTEN NOTIFICATION FROM THE STATE DEPARTMENT OF ADMINISTRATIVE SERVICES (DAS) INDICATING APPROVAL OF FINAL PLANS, PROJECT MANUAL, AND COST ESTIMATE.

FORM SCG-042 Request for Review of Final Plans

State Project No. 131-0131 PV

Project Name: Southington High School

Name of Contact Person:	Telephone:	Date:
Chris Palmer, CSW Energy	(845) 551-7881	1/27/2026

Certifications of Local Approval:

I certify that I have local jurisdiction over the **State Building Code** and that the plans and project manual dated 1/27/2026 for the above referenced project comply with all applicable building codes.

David Riccio _____ _____ _____

Local Building Official's Name Signature Date

I certify that I have local jurisdiction over the **State Fire Safety Code** and that the plans and project manual dated 1/27/2026 for the above referenced project comply with all applicable fire codes.

Scott Lee _____ _____ _____

Local Fire Marshal's Name Signature Date

I certify that I have local jurisdiction over the **State Health Code** and that the plans and project manual dated 1/27/2026 for the above referenced project comply with all applicable health codes.

Susan Lonczak _____ _____ _____

Local Health Official's Name Signature Date

I certify that I have local jurisdiction over **Section 504 of the Rehabilitation Act of 1973**, and the Uniform Federal Accessibility Standards (UFAS). I further certify that the plans and project manual dated 1/27/2026 for the above referenced project comply with all applicable accessibility codes.

David Riccio _____ _____ _____

Local Federal 504 Official's Name Signature Date

NOTES: 1.) THE CERTIFICATIONS OF LOCAL APPROVAL NOTED ABOVE MUST BE OBTAINED, AND ARE REQUIRED TO BE PROVIDED, PRIOR TO RECEIVING APPROVAL-TO-BID BY THE STATE DEPARTMENT OF ADMINISTRATIVE SERVICES (DAS) FOR THIS PROJECT. IF THESE CERTIFICATIONS CANNOT BE OBTAINED LOCALLY, PLEASE CONTACT THE DAS, OFFICE OF SCHOOL CONSTRUCTION GRANTS & REVIEW (OSCG&R) FOR ASSISTANCE.

2.) THE OFFICE OF SCHOOL CONSTRUCTION GRANTS & REVIEW (OSCG&R) APPROVED PROJECT PLANS, PROJECT MANUAL AND COST ESTIMATE MUST BE KEPT ON FILE AT THE LOCAL BOARD OF EDUCATION OFFICE UNTIL THE FINAL GRANT PAYMENT HAS BEEN MADE AND THE DAS AUDIT IS COMPLETE ON THIS PROJECT.

3.) ORIGINAL SIGNATURES ARE REQUIRED ON THIS FORM. IF ORIGINAL SIGNATURES ARE NOT AVAILABLE AT THE PLAN REVIEW MEETING, MAIL OR OVERNIGHT DELIVER THIS COMPLETED FORM TO:
The Office of School Construction Grants & Review
450 Columbus Blvd., Suite 1503
Hartford, CT 06103

BOARD OF EDUCATION
SOUTHINGTON, CONNECTICUT

Informational Only_____ Board Meeting Date April 16, 2026

Decision Requested X Agenda Code 11 y.

AGENDA REPORTING FORM

Agenda Topic: SES Roof Replacement Plans for submission to Department of Administrative Services

Summary of Issue: The BOE Chair and Superintendent need to sign Form SCG-042 "Request for Review of Final Plans" so the plans may be submitted to the DAS for approval to commence construction.

Background: The SES Roof Replacement is being overseen by the town's Roof Replacement Building Committee. With the permission of the BOE the SCG -042 needs to be signed by the Board Chairperson and the Superintendent of Schools

Alternative Strategies:

Cost (if applicable): **Funding Source:**

Beginning Date of Program or Project: June 2026

Ending Date of Program or Project: August 31, 2026

Recommendation or Comment: Move that the Board of Education authorize the Chair of the Southington Board of Education and the Superintendent of Southington Public Schools to sign Form SCG-042-REQUEST FOR REVIEW OF FINAL PLANS for CT Department of Administrative Services (DAS) Project Number 131-0132 RR, so that Southington Public Schools may submit the Final Plans and professional cost estimate to the CT DAS Office of Grants Administration for their approval prior to commencement of the roof replacement project at Strong Elementary School.

Steven Madaras

Signature of Superintendent