



Petersburg High School

109 Charles W. St.
P. O. Box 289
Petersburg, Alaska 99833-0289

Brad King
Principal
877-526-7656

Proposed Mathematics Course

Course Title: **Practical Math**
Instructor: Rebecca Shatwell
Course Category: Mathematics
Grade Level: 11-12

Course Description: This course is built for the student who sees their future in a hands on business operation. We reclaim "basic" math—fractions, ratios, and proportions—and transform them into the essential tools required to run an operation or manage a firm. Students will progress from scaling blueprints and mixing fuel to using mathematics for optimizing processing lines and calculating total escapement.

36-Week Syllabus

Quarter 1: The Logistics of the Operations (Weeks 1–9)

- Weeks 1–3: Fractional Foundations. Mastery of complex ratios.
- Weeks 4–6: Unit Rates & Market Ratios. * Application: Calculating price-per-pound vs. price-per-ton and currency conversion for international markets.
- Weeks 7–9: Scaling & Blueprints. Using geometric ratios.

Quarter 2: The Algebra of Machinery (Weeks 10–18)

Algebraic Concept Application

- Weeks 10–12 Direct & Inverse Variation
- Weeks 13–15 Rational Functions Economics
- Weeks 16–18 Systems of Equations
 - Management: Break-even analysis

Quarter 3: Probability & Risk (Weeks 19-27)

- Weeks 19–21: Relative Frequency.
- Weeks 22–24: Conditional Probability (Bayes' Theorem).
- Weeks 25–27: Expected Value & Insurance.

Quarter 4: The Mathematics of the Factory (Weeks 28–36)

- Weeks 28–30: Instantaneous Rates of Change. (Intro to Derivatives).
- Weeks 31–33: Optimization Limits.
- Weeks 34–36: Total Accumulation (The Integral).