

8th Grade Mathematics Syllabus
Edgemont Elementary School

Part 1: Course Information

Standards: [Link to State Standards](#)

Part 2: Student Learning Outcomes

The Number System

- Know the difference between rational and irrational numbers.
- Approximate irrational numbers by rational numbers.

Expressions and Equations

- Write equivalent expressions between exponents and fractions.
- Use scientific notation to estimate very large or small quantities.
- Perform operations with scientific notation.
- Understanding the connection between proportional relationships, lines, linear equations.
- Graph proportional relationships.
- Use similar triangles to explain slope.
- Know and derive the equations $y = mx$ and $y = mx + b$.
- Solve linear equations in one variable.
- Analyze and solve linear equations and systems of two linear equations.
- Solve real-world problems leading to two linear equations in two variables.

Functions

- Compare properties of two functions written in different ways.
- Construct a function to model a linear relationship between two quantities.
- Determine and interpret the rate of change.
- Define, evaluate, and compare functions.
- Describe qualitatively the functional relationship between two quantities by analyzing a graph.

Geometry

- Describe the effect of dilations, translations, rotations, and reflections on two-dimensional figures using coordinates.
- Use informal arguments to establish facts about angles.
- Explain proof of the Pythagorean Theorem and its converse.
- Apply the Pythagorean Theorem.
- Solve real-world problems involving volume of cylinders, cones, and spheres.

Statistics and Probability

- Construct and interpret scatter plots.

Part 3: Topic Outline/Schedule

1st 9 Weeks

Unit 1: Rational and Irrational Numbers (8.ns.1, 8.ns.2, 8.ee.2)

- Squares and Square Roots • Estimating Square Roots • Classifying Real Numbers • Comparing and Ordering Real Numbers

Unit 2: Exponents of Scientific Notation (8.ee.1, 8.ee.2, 8.ee.3, 8.ee.4)

- Properties of Exponents • Square Roots and Cube Roots • Estimating Square Roots • Writing numbers in Scientific Notation • Operations with Scientific Notation

Unit 3: Functions (8.f.1, 8.f.2, 8.f.3, 8.f.4)

- Identifying and comparing functions • Linear vs. nonlinear functions • Writing equations from Tables and Ordered Pairs • Analyzing Functions and Graphs

2nd 9 Weeks

Unit 4: Linear Relationships (8.ee.5, 8.ee.6, 8.f.4, 8.f.5)

- Slope and rate of change • Slope and similar triangles • Slope formula • Proportional / Nonproportional relationships • Graphing equations on coordinate grid • Representing linear relationships as graphs, tables, ordered pairs

Unit 5: Linear Equations (8.ee.7a, 8.ee.7b)

- Review: Simplifying Expression, Distributive property, one and two step equations • Multi-step equations with distributive property • Equations with variables on both sides • Writing equations that have variables on both sides • No solution and infinite/many solution equations.

Unit 6: System of Equations (8.ee.8.a, 8.ee.8.b, 8.ee.8.c)

- Review: Graphing linear equations • Solving systems by graphing • Solving systems by substitution • Graphing systems by elimination

Unit 7: Pythagorean Theorem (8.g.6, 8.g.7, 8.g.8)

- $A^2 + B^2 = C^2$ • Pythagorean theorem converse • Applying the Pythagorean theorem to the real world • Distance on the coordinate plane • Pythagorean theorem in 3D

3rd 9 Weeks

Unit 8: Volume (8.g.9)

- Volume of cylinders • Volume of cones • Volume of spheres • Applying the volume of cylinders, cones, and spheres to the real world

Unit 9: Angle Relationships (8.g.5)

- Parallel lines and transversals • Angle relationships (vertical, alternate exterior, ect...)
- Interior angles • Exterior angles • Angles in similar triangles

Unit 10: Transformations (8.g.1, 8.g.2, 8.g.3, 8.g.4)

- Translations • Reflections • Rotations • Scale factor/Dilations • Transformation rules

Unit 11: Bivariate Data (8.sp.a.1, 8.sp.a.2, 8.sp.a.3, 8.sp.b.4)

- Scatter plot association • Constructing scatter plots • Trend lines • Review: Probability of simple events • Probability of compound events

4th 9 weeks

TNReady Review

Part 4: Grading Policy

10 points each Daily Practice Worksheet

200 points each Unit Test

100 points each Quiz

10 points each Exit Ticket

100 points each Project/Math Task

*subject to change if necessary

The total number of points a student earns over the course of the nine weeks will be divided by the total points possible to get an average. That average will fall in one of the following categories to give students a letter grade: A 93 - 100 B 85 - 92 C 75 - 84 D 70 - 74 F 0 - 69

Part 5: Course Policy

Classroom expectations:

1. Be respectful.
2. Be prepared.
3. Make wise choices.

*Any additional rules or amendments will be made by the teacher as needed.

Consequences: Each minor infraction of the rules will be met with a warning which is denoted by the student's name being written on the board. Additional minor infractions will be met with a demerit. For every three demerits accumulated a classroom write-up will be issued. Demerits are tallied across all classrooms, and write-ups accumulate over a 9-week period. Each write up will result in escalating severity until the behavior or behaviors are corrected. Write up consequences are as follows:

1. Write up #1 - Math Facts penalty
2. Write up #2 - Historical Essay
3. Write up #3 -
4. Write up #4 - Community Clean-up
5. Write up #5 - Office Referral

- Extreme discipline problems will result in a direct referral to the office.
- If a penalty is not completed within one week, it will result in the next level write-up.
- All write-up forms must be signed by a parent and returned to school the very next day. If it is not turned in the following day, the student will receive a daily grade of zero. Late Work Policy: Students are expected to be in class every day. If a student does have to be absent they are responsible to get any missing notes from a classmate. All missing work will be added to the missing work folder and students will be expected to locate, complete, and turn that work in. Students will have until the end of a nine weeks to turn in any missing work.

Viewing Grades in ASPEN:

Points you receive for graded activities are posted in the ASPEN GradeBook. Click on the My Grades link on the left navigation to view your points. If you see a "M" in place of a grade that means the student did not turn in that assignment. If you see an E in place of a grade that means the student has not completed that assignment and does not need to make it up. Grades are updated as soon as possible for the teacher. Tests and projects will take longer to grade and will not be updated as quickly as other assignments. Please give 2-3 days for all classwork and quizzes, and 3-5 days for all tests and projects.