7th Grade Pacing Guide/ Scope & Sequence: Math

Unit: Proportionality – 5 EC – A-R
9/11-10/13 (24 Days)

- Compute unit rates including ratios with fractions
- Identify constant of proportionality (unit rate) from a table, graph, equation, or verbal description
- Determine proportional relationships using a table, graph, or equation.
- Write and use an equation for a given proportional relationship
- Given a point on a graph of a proportional relationship explain what the values (x,y) mean.

- **Eligible Content-M07.A-R.1.1.1** Compute unit rates associated with ratios of fractions, including ratios of lengths, areas, and other quantities measured in like or different units. Example: If a person walks 1/2 mile in each 1/4 hour, compute the unit rate as the complex fraction 1/2 / 1/4 miles per hour, equivalently 2 miles per hour.
- **Eligible Content- M07.A-R.1.1.2** Determine whether two quantities are proportionally related (e.g., by testing for equivalent ratios in a table, graphing on a coordinate plane and observing whether the graph is a straight line through the origin).
- **Eligible Content- M07.A-R.1.1.3** Identify the constant of proportionality (unit rate) in tables, graphs, equations, diagrams, and verbal descriptions of proportional relationships.
- **Eligible Content- M07.A-R.1.1.4** Represent proportional relationships by equations. Example: If total cost t is proportional to the number n of items purchased at a constant price p, the relationship between the total cost and the number of items can be expressed as t = pn.
- **Eligible Content- M07.A-R.1.1.5** Explain what a point (x, y) on the graph of a proportional relationship means in terms of the situation, with special attention to the points (0, 0) and (1, r), where r is the unit rate.

Unit: Application of Percent – 2 EC – A-R
10/16 – 11/2 (14 Days)

- Multi-step ratio and percent problems
- Tax
- Markup and markdown
- Gratuities/Tip
- Commission
- Simple Interest (I=prt)
- Percent of change (increase or decrease)

- **Eligible Content- M07.A-R.1.1.6** Use proportional relationships to solve multi-step ratio and percent problems. Examples: simple interest, tax, markups and markdowns, gratuities and commissions, fees, percent increase and decrease.

- **Eligible Content- M07.B-E.2.1.1** Apply properties of operations to calculate with numbers in any form; convert between forms as appropriate. Example: If a woman making $25 an hour gets a 10% raise, she will make an additional 1/10 of her salary an hour, or $2.50, for a new salary of $27.50 an hour (or 1.1 × $25 = $27.50).

Unit: Probability – 5 EC – D-S
11/3 – 11/16 (9 Days)

- Determine whether an event is impossible, unlikely, equally likely, likely, certain
- Determine the probability of a simple event occurring or not occurring (theoretically probability) and express as a ratio, a decimal, and a percent
- Determine the probability of a chance event given relative frequency (experimental probability) and express as a ratio, a decimal, and a percent
- Make predictions using probability
- Determine the probability of independent compound events using organized lists, tables, tree diagrams, and simulation.
- Determine probabilities for compound events and express as a fraction, decimal, and a percent.

- **Eligible Content- A1.2.3.3.1** Find probabilities for compound events (e.g., find probability of red and blue, find probability of red or blue) and represent as a fraction, decimal, or percent.
- **Eligible Content-M07.D-S.3.1.1** Predict or determine whether some outcomes are certain, more likely, less likely, equally likely, or impossible (i.e., a probability near 0 indicates an unlikely event, a probability around 1/2 indicates an event that is neither unlikely nor likely, and a probability near 1 indicates a likely event).
- **Eligible Content- M07.D-S.3.2.1** Determine the probability of a chance event given relative frequency. Predict the approximate relative frequency given the probability. Example: When rolling a number cube 600 times, predict that a 3 or 6 would be rolled roughly 200 times but probably not exactly 200 times.
- **Eligible Content- M07.D-S.3.2.2** Find the probability of a simple event, including the probability of a simple event not occurring. Example: What is the probability of not rolling a 1 on a number cube?
- **Eligible Content- M07.D-S.3.2.3** Find probabilities of independent compound events using organized lists, tables, tree diagrams, and simulation.

Unit: Rational Numbers – 4 EC (including 1 low priority) – A-N
11/17 – 12/1 (9 Days including 3 Half Days)

- Represent addition and subtraction on a horizontal or vertical number line.
- Use properties of operations to add and subtract rational numbers (integers, fractions, and decimals), including real-world problems.

- Use properties of operations to multiply and divide rational numbers (integers, fractions, and decimals), including real-world problems.

- **Eligible Content- M07.A-N.1.1.1** Apply properties of operations to add and subtract rational numbers, including real-world contexts.
- **Eligible Content- M07.A-N.1.1.2** Represent addition and subtraction on a horizontal or vertical number line.
- **Eligible Content- M07.A-N.1.1.3** Apply properties of operations to multiply and divide rational numbers, including real-world contexts; demonstrate that the decimal form of a rational number terminates or eventually repeats.
- **Eligible Content - A1.1.1.4.1** Use estimation to solve problems.

Unit: Expressions – 1 EC – B-E
12/4 – 12/15 (10 Days)

- Identify an expression versus an equation
- Apply properties of operations (communitive, associative, distributive, and identity) to add, subtract, factor, and expand linear expressions with rational coefficients.

- **Eligible Content-M07.B-E.1.1.1** Apply properties of operations to add, subtract, factor, and expand linear expressions with rational coefficients. Example 1: The expression 1/2 • (x + 6) is equivalent to 1/2 • x + 3. Example 2: The expression 5.3 – y + 4.2 is equivalent to 9.5 – y (or –y + 9.5). Example 3: The expression 4w – 10 is equivalent to 2(2w – 5).

Unit: Equations and Inequalities –2 EC(including 1 low priority) – B-E
12/18 – 12/22 (5 Days)

- Solve two-step equations using formal algorithm

- **Eligible Content- M07.B-E.2.2.1** Solve word problems leading to equations of the form px + q = r and p(x + q) = r, where p, q, and r are specific rational numbers. Example: The perimeter of a rectangle is 54 cm. Its length is 6 cm. What is its width?

Review Days and/or Continue with Equations and Inequalities (Return from Break)
1/2 – 1/5 (4 Days)

7th Grade Pacing Guide/ Scope & Sequence: Math

Unit: Equations and Inequalities – 2 EC (including 1 low priority) – B-E
1/8 -1/19 (9 Days)

- Given word problems, write and solve equations of the form $px + q = r$ and $p(x+q)=r$ where p, q, and r are rational numbers
- Given word problems, write and solve inequalities of the form $px + q > r$ and $p(x+q) > r$ where p, q, and r are rational numbers

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- **Eligible Content- M07.B-E.2.2.2** Solve word problems leading to inequalities of the form px + q > r or px + q < r, where p, q, and r are specific rational numbers, and graph the solution set of the inequality. Example: A salesperson is paid $50 per week plus $3 per sale. This week she wants her pay to be at least $100. Write an inequality for the number of sales the salesperson needs to make and describe the solutions.

Unit: Angle Relationships – 2 EC – C-G
1/22 – 2/2 (10 Days)

- Identify and use properties of supplementary, complementary and adjacent angles in a multistep problem to write and solve simple equations for an unknown angle in a figure.
- Identify and use properties of angles formed when two parallel lines are cut by a transversal (e.g. angles may include alternate interior, alternate exterior, vertical, corresponding).

- **Eligible Content- M07.C-G.2.1.1** Identify and use properties of supplementary, complementary, and adjacent angles in a multistep problem to write and solve simple equations for an unknown angle in a figure.
- **Eligible Content- M07.C-G.2.1.2** Identify and use properties of angles formed when two parallel lines are cut by a transversal (e.g., angles may include alternate interior, alternate exterior, vertical, corresponding).

Unit: Circles – 2 EC (including scale drawings) – C-G
2/5 – 2/13 (7 Days)

- Identify and use circle dimensions to find the area and circumference of a circle. (Formulas provided).
- Solve word problems involving area and circumference of circles.
- Use scale drawings to determine area and circumference of circles.

- **Eligible Content- M07.C-G.2.2.1** Find the area and circumference of a circle. Solve problems involving area and circumference of a circle(s). Formulas will be provided.

- **Eligible Content- M07.C-G.1.1.1** Solve problems involving scale drawings of geometric figures, including finding length and area.

Unit: Three-Dimensional Measurement –3 EC (including scale drawings) –C-G
2/14 – 3/7 (14 Days)

- Solve real world and mathematical problems involving area of two-dimensional objects composed of triangles, quadrilaterals, polygons.
- Solve real world and mathematical problems involving volume of three-dimensional objects composed of triangles, quadrilaterals, polygons, cubes, and right prisms.
- Solve real world and mathematical problems involving surface area of three-dimensional objects composed of triangles, quadrilaterals, polygons, cubes, and right prisms.
- Use scale drawings to determine volume and surface area of three-dimensional objects.
- Describe and identify the two-dimensional figures that result from slicing three-dimensional figures.

- **Eligible Content- M07.C-G.2.2.2** Solve real-world and mathematical problems involving area, volume, and surface area of two and three-dimensional objects composed of triangles, quadrilaterals, polygons, cubes, and right prisms. Formulas will be provided.
- **Eligible Content- M07.C-G.1.1.1** Solve problems involving scale drawings of geometric figures, including finding length and area.
- **Eligible Content- M07.C-G.1.1.4** Describe the two-dimensional figures that result from slicing three-dimensional figures. Example: Describe plane sections of right rectangular prisms and right rectangular pyramids.

Unit: Triangles – 2 EC – C-G
3/12 – 3/16 (5 Days)

- Identify the properties of all types of triangles based on angle and side measurements (acute, obtuse, right, scalene, isosceles, and equilateral).
- Use the properties of all types of triangles to find missing angle measures and/or side lengths.

- **Eligible Content- M07.C-G.1.1.2** Identify or describe the properties of all types of triangles based on angle and side measures.
- **Eligible Content- M07.C-G.1.1.3** Use and apply the triangle inequality theorem.

Random Sampling and Predictions – 3 EC – D-S
3/19 – 4/6 (9 Days) (Spring Break 3/26 – 4/2)

- Determine whether a sample is random given a real-world situation.
- Use data from a random sample to make predictions about a population or outcome.
- Compare two numerical data distributions using measures of center and variability (box-and-whisker plot) *(plus MAD)*

- **Eligible Content- M07.D-S.1.1.1** Determine whether a sample is a random sample given a real-world situation.
- **Eligible Content- M07.D-S.1.1.2** Use data from a random sample to draw inferences about a population with an unknown characteristic of interest. Example 1: Estimate the mean word length in a book by randomly sampling words from the book. Example 2: Predict the winner of a school election based on randomly sampled survey data.

NOTE: Within all units students should be able to use estimation to solve problems and determine the reasonableness of answers in the context of the problem.

PSSA Review Throughout and During ELA Testing Week

Math PSSA – Week of 4/16-4/20