



7th Grade Math Curriculum Map

Unit/Topic:

Analyze proportional relationships and use them to solve real-world and mathematical problems.

Standards and Evidence of Learning (Learning Targets/I Can Statements)

Compute unit rates associated with ratios of fractions, including ratios of lengths, areas and other quantities measured in like or different units. (7.RP.1)

1. I can compute a unit rate by multiplying and dividing both quantities by the same factor.

Time Frame/Pacing:

7 Days First Quarter

Instructional Resources

- CPM Textbook, labs, and online activities
- Chapter 1 lesson 2 and Inquiry lab pg. 7

Unit/Topic:

Analyze proportional relationships and use them to solve real-world and mathematical problems.

Time Frame/Pacing:

22 Days First Quarter

Standards and Evidence of Learning (Learning Targets/I Can Statements)

Recognize and represent proportional relationships between quantities. (7.RP.2)

- a. Decide whether two quantities are in a proportional relationship, e.g., by testing for equivalent ratios in a table or graphing on a coordinate plane and observing whether the graph is a straight line through the origin.
- b. Identify the constant of proportionality (unit rate) in tables, graphs, equations, diagrams, and verbal descriptions of proportional relationships.
- c. Represent proportional relationships by equations. For 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 $t = pn$.
- d. 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.

1. I can decide whether two quantities are in a proportional relations.
2. I can test for equivalent ratios in a table or graphing on a coordinate plane and observing whether the graph is a straight line through the origin.
3. I can identify the constant of proportionality (unit rate) in tables, graphs, equations, diagrams and verbal descriptions of proportional relationships.

Instructional Resources

- CPM Textbook, labs, and online activities
 - Chapter 1 lessons 1, 3, 4, 5, 6, 7, 8, 9, Inquiry lab pg. 7, Problem-solving investigation pg. 41, Inquiry lab pg. 53, Inquiry lab pg. 63
 - Chapter 2 lesson 4

4. I can represent proportional relationships by equations.
5. I can 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/Topic:

Analyze proportional relationships and use them to solve real-world and mathematical problems.

Standards and Evidence of Learning (Learning Targets/I Can Statements)

Use proportional relationships to solve multistep ratio and percent problems. Examples: simple interest, tax, markups and markdowns, gratuities and commissions, fees, percent increase and decrease, percent error. (7.RP.3)

1. I can use proportional relationships to solve multistep ratio and percent problems.

Time Frame/Pacing:

25 Days Quarter 1

Instructional Resources

- CPM Textbook, labs, and online activities
 - Chapter 1 lessons 3, 6
 - Chapter 2 lesson 1, 2, 3, 4, 5, 6, 7, 8, -Problem-solving investigation pg. 41
 - Chapter 4 lesson 7

Unit/Topic:

Apply and extend previous understandings of operations with fractions to add, subtract, multiply and divide rational numbers.

Time Frame/Pacing:

15 Days First & Second Quarter

Standards and Evidence of Learning (Learning Targets/I Can Statements)

Apply and extend previous understandings of addition and subtraction to add and subtract rational numbers; represent addition and subtraction on a horizontal or vertical number line diagram. (7.NS.1)

- a. Describe situations in which opposite quantities combine to make 0. For example, a hydrogen atom has 0 charge because its two constituents are oppositely charged.
- b. Understand $p + q$ as the number located a distance $|q|$ from p , in the positive or negative direction depending on whether q is positive or negative. Show that a number and its opposite have a sum of 0 (are additive inverses). Interpret sums of rational numbers by describing real-world contexts.
- c. Understand subtraction of rational numbers as adding the additive inverse, $p - q = p + (-q)$. Show that the distance between two rational numbers on the number line is the absolute value of their difference, and apply this principle in real-world contexts.
- d. Apply properties of operations as strategies to add and subtract rational numbers.
 1. I can describe real-world situations and use a number line to show that opposite quantities have a sum of zero.
 2. I can use a number line to show addition as a specific distance from a particular number in one direction or the other, depending on the sign of the value being added.
 3. I can interpret and describe the addition and subtraction

Instructional Resources

- CPM Textbook, labs, and online activities
 - Chapter 1 lesson 2
 - Chapter 3 lessons 2, 3
 - Chapter 4 lessons 3, 4, 5

of integers by relating the values to real-world situations.

4. I can rewrite a subtraction problem as an addition problem by adding the additive inverse.

Unit/Topic:

Apply and extend previous understandings of operations with fractions to add, subtract, multiply and divide rational numbers.

Standards and Evidence of Learning (Learning Targets/I Can Statements)

Apply and extend previous understandings of multiplication and division and of fractions to multiply and divide rational numbers. (7.NS.2)

- a. Understand that multiplication is extended from fractions to rational numbers by requiring that operations continue to satisfy the properties of operations, particularly the distributive property, leading to products such as $(-1)(-1) = 1$ and the rules for multiplying signed numbers. Interpret products of rational numbers by describing real-world contexts.
- b. Understand that integers can be divided, provided that the divisor is not zero, and every quotient of integers (with non-zero divisor) is a rational number. If p and q are integers, then $-(p/q) = (-p)/q = p/(-q)$. Interpret quotients of rational numbers by describing real-world contexts.
- c. Apply properties of operations as strategies to multiply and divide

Time Frame/Pacing:

15 Days Second Quarter

Instructional Resources

- CPM Textbook, labs, and online activities
 - Chapter 3 lessons 4, 5
 - Chapter 4 lessons 1, 2, 6, 7, 8

rational numbers.

d. Convert a rational number to a decimal using long division; know that the decimal form of a rational number terminates in 0s or eventually repeats.

1. I can explain that if p and q are integers, then $-(p/q) = (-p)/q = p/(-q)$ I can interpret the quotient in relation to the original problem.
2. I can generalize the procedures for multiplying and dividing integers to all rational numbers. I can use long division to convert a rational number to a decimal.
3. I can verify that a number is rational based on its decimal equivalent.

Unit/Topic:

Apply and extend previous understandings of operations with fractions to add, subtract, multiply and divide rational numbers.

Standards and Evidence of Learning (Learning Targets/I Can Statements)

Solve real-world and mathematical problems involving the four operations with rational numbers. Computations with rational numbers extend the rules for manipulating fractions to complex fractions. (7.NS.3)

1. I can describe real-world situations represented by the multiplication and division of rational numbers (including

Time Frame/Pacing:

22 Days First & Second Quarter

Instructional Resources

- CPM Textbook, labs, and online activities
 - Chapter 3 lessons 1, 2, 3, 4, 5 and Problem-solving investigation pg. 225
 - Chapter 4 lessons 3, 4, 5, 6, 7, 8, Problem-solving investigation pg. 307
 - Chapter 5 Problem-solving investigation pg. 383
 - College Preparatory Math

integers and fractions)

2. I can solve real-world problems that involve addition, subtraction, multiplication, and/or division of rational numbers.

Unit/Topic:

Use properties of operations to generate equivalent expressions.

Standards and Evidence of Learning (Learning Targets/I Can Statements)

Apply properties of operations as strategies to add, subtract, factor and expand linear expressions with rational coefficients. (7.EE.1)

1. I can use properties of operations to generate equivalent expressions.

Time Frame/Pacing:

17 Days Second Quarter

Instructional Resources

- CPM Textbook, labs, and online activities
-Chapter 5 lessons 1, 2, 3, 4, 5, 6, 7, 8

Unit/Topic:

Use properties of operations to generate equivalent expressions.

Standards and Evidence of Learning (Learning Targets/I Can Statements)

In a problem context, understand that rewriting an expression in an equivalent form can reveal and explain properties of the quantities

Time Frame/Pacing:

23 Days Quarter 1 & 2

Instructional Resources

- CPM Textbook, labs, and online activities
-Chapter 2 lesson 6
-Chapter 5 lessons 1, 2, 3, 4, 5, 6, 7, 8

represented by the expression and can reveal how those quantities are related. (7.EE.2)

1. I can, in a problem context, understand that rewriting an expression in an equivalent form can reveal and explain properties of the quantities represented by the expression.
2. I can reveal how those quantities are related.

Unit/Topic:

Solve real-life and mathematical problems using numerical and algebraic expressions and equations.

Standards and Evidence of Learning (Learning Targets/I Can Statements)

Solve multi-step real-life and mathematical problems posed with positive and negative rational numbers in any form (whole numbers, fractions, and decimals), using tools strategically. Apply properties of operations to calculate with numbers in any form; convert between forms as appropriate; and assess the reasonableness of answers using mental computation and estimation strategies. (7.EE.3)

1. I can solve multi-step real-life and mathematical problems posed with positive and negative rational numbers in any form (whole numbers, fractions & decimals) using tools strategically. I can apply properties of operations to calculate numbers in any form.

Time Frame/Pacing:

32 Days Quarters 1, 2 & 3

Instructional Resources

- CPM Textbook, labs, and online activities
 - Chapter 2 lessons 1, 2, 4, 5, 6, 7, 8 and Problem-solving investigation pg. 41
 - Chapter 3 lessons 2, 4, Problem-solving investigation pg. 225
 - Chapter 4 lessons 1, 2, 3, 4, 5, 6, Problem-solving investigation pg. 307
 - Chapter 6 Problem-solving investigation pg. 489

2. I can convert between forms as appropriate.
3. I can assess the reasonableness of answers using mental computation and estimation strategies.

Unit/Topic:

Solve real-life and mathematical problems using numerical and algebraic expressions and equations.

Standards and Evidence of Learning (Learning Targets/I Can Statements)

**Use variables to represent quantities in a real-world or mathematical problem, and construct simple equations and inequalities to solve problems by reasoning about the quantities.
(7.EE.4)**

1. I can use variables to represent quantities in a real-world or mathematical problem and construct simple equations and inequalities to solve problems by reasoning with quantities.
2. I can solve word problems leading to equations of the form $px + q = p(x + q) = r$, where p , q , & r are specific rational numbers.
3. I can compare an algebraic solution to an arithmetic solution, identifying the sequence of the operations used in each approach.
4. I can 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.
5. I can graph the solution set of the inequality and interpret it in the context of the problem.

Time Frame/Pacing:

13 Days Quarter 3

Instructional Resources

- CPM Textbook, labs, and online activities
-Chapter 6 lessons 1, 2, 3, 4, 5, 6, 7, 8

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Unit/Topic:
Draw, construct and describe geometrical figures and describe the relationships between them.
Standards and Evidence of Learning (Learning Targets/I Can Statements)
Solve problems involving similar figures with right triangles, other triangles, and special quadrilaterals . Compute actual lengths and areas from a scale drawing and reproduce a scale drawing at a different scale. Represent proportional relationships within and between similar figures. (7.G.1) 1. I can use a scale drawing to determine the actual dimensions and area of a geometric figure. 2. I can use a different scale to reproduce a similar scale drawing. 3. I can draw a geometric shape with specific conditions.

Time Frame/Pacing:
4 Days Quarter 3
Instructional Resources
• CPM Textbook, labs, and online activities -Chapter 7 lesson 4, Problem-solving investigation pg. 567

Unit/Topic:
Draw, construct and describe geometrical figures and describe the relationships between them.
Standards and Evidence of Learning (Learning Targets/I Can Statements)

Time Frame/Pacing:
3 Days Quarter 3
Instructional Resources

Draw (freehand, with ruler and protractor, and with technology) geometric figures with given conditions. Focus on constructing triangles from three measures of angles or sides, noticing when the conditions determine a unique triangle, more than one triangle, or no triangle. Focus on constructing quadrilaterals with given conditions noticing types and properties of resulting quadrilaterals; and whether it is possible to construct different quadrilaterals using the same conditions. (7.G.2)

1. I can construct a triangle when given three measurements: 3 side lengths, 3 angle measurements, or a combination of side and angle measurements.
2. I can determine when three specific measurements will result in one unique triangle, more than one possible triangle, or no possible triangles.

- CPM Textbook, labs, and online activities
-Chapter 7 lesson 3

Unit/Topic:

Draw, construct and describe geometrical figures and describe the relationships between them.

Standards and Evidence of Learning (Learning Targets/I Can Statements)

Describe the two-dimensional figures that result from slicing three-dimensional figures, as in plane sections of right rectangular prisms and right rectangular pyramids. (7.G.3)

Time Frame/Pacing:

5 Days Quarter 3

Instructional Resources

- CPM Textbook, labs, and online activities
-Chapter 7 lesson 5 & 6

1. I can name the two-dimensional figure that represents a particular cross section of a three-dimensional figure.

Unit/Topic:

Solve real-life and mathematical problems involving angle measure, area, surface area, and volume.

**Standards and Evidence of Learning
(Learning Targets/I Can Statements)**

Work with circles. Explore and understand the relationships among the circumference, diameter, area, and radius of a circle. Know the formulas for the area and circumference of a circle and use them to solve real - world and mathematical problems. (7.G.4)

1. I can state and use the formulas for calculating the area and circumference of a circle. I can determine the diameter or radius of a circle when the circumference is given.
2. I can use ratio and algebraic reasoning to compare the area and circumference of a circle.

Time Frame/Pacing:

6 Days Quarter 3

Instructional Resources

- CPM Textbook, labs, and online activities
-Chapter 8 lessons 1, 2, 3, Problem-solving investigation pg. 647

Unit/Topic:**Time Frame/Pacing:**

Solve real-life and mathematical problems involving angle measure, area, surface area, and volume.

**Standards and Evidence of Learning
(Learning Targets/I Can Statements)**

Use facts about supplementary, complementary, vertical, and adjacent angles in a multi-step problem to write and use them to solve simple equations for an unknown angle in a figure. (7.G.5)

1. I can use angle relationships to write algebraic equations for unknown angles.

5 Days Quarter 3

Instructional Resources

- CPM Textbook, labs, and online activities
-Chapter 7 lesson 1 & 2

Unit/Topic:

Solve real-life and mathematical problems involving angle measure, area, surface area, and volume.

**Standards and Evidence of Learning
(Learning Targets/I Can Statements)**

Solve real-world and mathematical problems involving area, volume, and surface area of two- and three-dimensional objects composed of triangles, quadrilaterals, polygons, quadrilaterals, polygons, cubes, and right prisms. (7.G.6)

1. I can determine the area of two-dimensional figures.
2. I can determine the surface area and volume of three-dimensional figures.

Time Frame/Pacing:

9 Days Quarter 3

Instructional Resources

- CPM Textbook, labs, and online activities
-Chapter 8 lessons 4, 5, 6, 7, 8, Problem-solving investigation pg. 647

3. I can solve real-world problems involving area, surface area, and volume.

Unit/Topic:

Use random sampling to draw inferences about a population.

**Standards and Evidence of Learning
(Learning Targets/I Can Statements)**

Understand that statistics can be used to gain information about a population by examining a sample of the population. Differentiate between a sample and a population. Understand that conclusions and generalizations about a population from a sample are valid only if the sample is representative of that population. Develop an informal understanding of bias. (7.SP.1)

1. I can explain that inferences about a population can be made by examining a sample.
2. I can explain why the validity of a sample depends on whether the sample is representative of the population.
3. I can explain that random sampling tends to produce representative samples.

Time Frame/Pacing:

7 Days Quarter 4

Instructional Resources

- CPM Textbook, labs, and online activities
-Chapter 10 lessons 1, 2, 3, 5

Unit/Topic:

Draw informal comparative inferences about two populations.

Time Frame/Pacing:

5 Days Quarter 4

Standards and Evidence of Learning (Learning Targets/I Can Statements)

Broaden statistical reasoning by using the 4-step GAISE Model: Formulate questions, collect data, analyze data, and interpret results. Use data from a random sample to draw inferences about a population with an unknown characteristic of interest. Generate multiple samples (or simulated samples) of the same size to gauge the variation in estimates or predictions. (7.SP.2)

1. I can draw inferences about a population based on data generated by a random sample.
2. I can generate multiple samples from the same population and analyze the estimates or predictions based on the variation of each sample.

Instructional Resources

- CPM Textbook, labs, and online activities
-Chapter 10 lessons 1, 2

Unit/Topic:

Draw informal comparative inferences about two populations.

Standards and Evidence of Learning (Learning Targets/I Can Statements)

Describe and analyze distributions. Summarize quantitative data sets in relation to their content by using mean absolute deviation (MAD), and interpreting mean as a balance point. Informally assess the degree of visual overlap of two numerical data distributions with similar variabilities, measuring the difference between the centers by expressing it as a multiple of a measure of variability. (7.SP.3)

Time Frame/Pacing:

3 Days Quarter 4

Instructional Resources

- CPM Textbook, labs, and online activities
-Inquiry Labs (pg. 825 & 837)

1. I can find and describe the significance of the difference in the mean or median of two different data sets.

Unit/Topic:

Draw informal comparative inferences about two populations.

Standards and Evidence of Learning (Learning Targets/I Can Statements)

Use measures of center and measures of variability for numerical data from random samples to draw informal comparative inferences about two populations. (7.SP.4)

1. I can draw inferences about the data sets by making a comparison of these differences relative to the mean absolute deviation or interquartile range of either set of data.
2. I can compare two populations by using the means and/or medians of data collected from random samples.
3. I can compare two populations by using the mean absolute deviations and/or interquartile ranges of data from random samples.

Time Frame/Pacing:

5 Days Quarter 4

Instructional Resources

- CPM Textbook, labs, and online activities
-Chapter 10 lesson 4

Unit/Topic:

Time Frame/Pacing:

Investigate chance processes and develop, use, and evaluate probability models.

Standards and Evidence of Learning (Learning Targets/I Can Statements)

Understand that the probability of a chance event is a number between 0 and 1 that expresses the likelihood of the event occurring. Larger numbers indicate greater likelihood. A probability near 0 indicates an unlikely event, a probability around $\frac{1}{2}$ indicates an event that is neither unlikely or likely, and a probability near 1 indicates a likely event. (7.SP.5)

1. I can recognize and explain that probabilities are expressed as a number between 0 to 1.
2. I can interpret a probability near 0 as unlikely to occur and a probability near 1 as likely to occur.
3. I can interpret a probability near $\frac{1}{2}$, as being as equally to occur as to not occur.

5 Days Quarter 4

Instructional Resources

- CPM Textbook, labs, and online activities
-Chapter 9 lessons 1, 5

Unit/Topic:

Investigate chance processes and develop, use, and evaluate probability models.

Standards and Evidence of Learning (Learning Targets/I Can Statements)

Time Frame/Pacing:

3 Days Quarter 4

Instructional Resources

Approximate the probability of a chance event by collecting data on the chance process that produces it and observing its long-run relative frequency, and predict the approximate relative frequency given the probability. (7.SP.6)

Investigate chance processes and develop, use, and evaluate probability models.

1. I can collect data on a chance process to approximate its probability.
2. I can use probability to predict the number of times a particular event will occur given a specific number of trials.
3. I can use variability to explain why the experimental probability will not always exactly equal the theoretical probability.

- CPM Textbook, labs, and online activities
-Inquiry Lab (pg 719)

Unit/Topic:

Investigate chance processes and develop, use, and evaluate probability models.

Standards and Evidence of Learning (Learning Targets/I Can Statements)

Develop a probability model and use it to find probabilities of events. Compare probabilities from a model to observed frequencies; if the agreement is not good, explain possible sources of the discrepancy. (7.SP.7)

- a. Develop a uniform probability model by assigning equal probability to all outcomes and use the model to determine probabilities of

Time Frame/Pacing:

4 Days Quarter 4

Instructional Resources

- CPM Textbook, labs, and online activities
-Chapter 9 lessons 1, 2

events.

- b. Develop a probability model (which may not be uniform) by observing frequencies in data generated from a chance process.

1. I can develop a simulation to model a situation in which all events are equally likely to occur.
2. I can utilize the simulation to determine the probability of specific events.
3. I can determine the probability of events that may not be equally likely to occur, by utilizing a simulation model.

Unit/Topic:

Investigate chance processes and develop, use, and evaluate probability models.

Standards and Evidence of Learning (Learning Targets/I Can Statements)

Find probabilities of compound events using organized lists, tables, tree diagrams, and simulation (7.SP.8)

- a. Understand that, just as with simple events, the probability of a compound event is the fraction of outcomes in the sample space for which the compound event occurs.
- b. Represent sample spaces for compound events using methods such as organized lists, tables, and tree diagrams.

Time Frame/Pacing:

8 Days Quarter 4

Instructional Resources

- CPM Textbook, labs, and online activities
-Chapter 9 lessons 3, 4, 5, 6, 7, Problem-solving investigation pg. 753

For an event described in everyday language (e.g. “rolling double sixes”), identify the outcomes in the sample space which compose the event.

- c. Design and use a simulation to generate frequencies for compound events.

- 1. I can create a sample space of all possible outcomes for a compound event by using an organized list, a table, or a tree diagram.
- 2. I can use the sample space to compare the number of favorable outcomes to the total number of outcomes and determine the probability of the compound event.
- 3. I can design and utilize a simulation to predict the probability of a compound event.