

Compacted Year 1 Learning Targets

Math 7 & partial Math 8

2017-2018

This document is the product of a team of PPS teachers experienced in writing learning targets and using them in instruction. While it represents our best work, we know this document will act as a working draft, to be revisited and revised as we continue to hone our instruction around Compacted Year 1 instruction.

The intended audience of this document is teachers of mathematics. While this document will be especially helpful for teachers who are using proficiency-based grading, it should also be useful to all teachers of Math 7 as a summary of the new content students are expected to master due to Oregon's adoption of the Common Core State Standards for Mathematics. The learning targets are written in student-friendly language. We chose to further call out aspects of the learning target being assessed for teachers in the "procedural" and "conceptual" columns.

Every student should be expected to show mastery of ALL of the learning targets at the proficient (PR) level. A higher grade reflects a higher level of mastery. Our desire when adding the grading rubric below each Learning Target is that there is some consistency of expectations amongst and within buildings for students in PPS.

Proficiency based grading can be a complex and difficult process. If you plan to use these domains and learning targets to track student progress, one way to make tracking more manageable is to test at the domain level, in which case students would need to pass all learning targets at a proficient (PR) level in order to pass the domain. Individual learning targets could still be assessed formatively and in cases of retesting.

We modeled our work after Robert J. Marzano's Measurement Topics (Formative Assessment & Standards-Based Grading, 2010). The following PPS Learning Target classification names are used in Synergy and may encompass one or more Common Core State Standards. The structure is as follows:

The 7 stands for Grade 7

Example Domain: Expressions & Equations

7.[Abbr]:[Domain] ~ [Book title and/or Supplement]

[CCSS covered under this learning target]

Learning Target	All of these items are to be covered under this learning target	
	Procedural <i>(I can solve problems with...)</i>	Conceptual <i>(I can apply my knowledge to...)</i>
7[abbr.]#. Learning target text	This detail goes deeper into more algorithmic types of problems students should be able to complete in order to demonstrate proficiency on the stated learning target.	This detail goes deeper into types of problem solving skills and conceptual understanding a student should be able to complete to demonstrate proficiency on this learning target.
8[abbr.]#. Learning target text		

PR <i>students can do....</i>	These questions are examples of the minimum level of knowledge of a standard(s) students need to demonstrate by the end of the course in order demonstrate understanding for this learning target. It is meant to help teachers calibrate their own assessments and student expectations.
HP <i>students can do...</i>	These questions are examples of a high level of mastery of standard(s) students demonstrate by the end of course. Often these questions require students to put multiple parts of learning together to solve a task or may reflect something that was never directly taught in the classroom. It is meant to help teachers calibrate their own assessments and student expectations.

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Math 8 Contents

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7.RP: Ratios & Proportional Relationships ~ Stretching & Shrinking; CC7 Inv. 1

7.RP.A.1-2

Learning Target	All of these items are to be covered under this learning target	
	Procedural <i>(I can solve problems with...)</i>	Conceptual <i>(I can apply my knowledge to...)</i>
7.RP.1 – I can solve problems with and compare unit rates from multiple representations.	- Unit rates with fractions in like or different units. - Compute the unit rate in tables, graphs, equations, diagrams and descriptions - Identify the constant of proportionality (unit rate) in tables, graphs, equations, diagrams, and verbal descriptions of proportional relationships	- Use proportional relationships to solve multistep problems (including ratio and rate) - Determine if two quantities are proportional from a table of values or a graph

PR <i>students can do....</i>	A person walks a $\frac{1}{2}$ mile in a $\frac{1}{4}$ of an hour. How far would they go in 1 hour? Describe how the unit rate shows up in each of the following representations: Table Graph Equation
HP <i>students can do...</i>	Angel and Jayden were at track practice. The track is $\frac{2}{5}$ kilometers around. - Angel ran 1 lap in 2 minutes. - Jayden ran 3 laps in 5 minutes. a. How many minutes does it take Angel to run one kilometer? What about Jayden? b. How far does Angel run in one minute? What about Jayden? c. Who is running faster? Explain your reasoning.

7.RP: Ratios & Proportional Relationships ~ Stretching & Shrinking

7.RP.A.3

Learning Target	All of these items are to be covered under this learning target	
	Procedural (<i>I can solve problems with...</i>)	Conceptual (<i>I can apply my knowledge to...</i>)
7.RP.2 – I can solve multi-step ratio and percent problems.	- Write an equation to represent a proportion. - Identify the constant of proportionality (unit rate) in tables, graphs, equations, diagrams, and verbal descriptions of proportional relationships	- Add % as conceptual here instead of next LT to cover standard but not make too procedural? - Use proportional relationships to solve multi-step problems (including ratio, percent, & rate)

PR <i>students can do....</i>	After eating at your favorite restaurant, you know that the bill before tax is \$52.60 and that the sales tax rate is 8%. You decide to leave a 20% tip for the waiter based on the pre-tax amount. How much should you leave for the waiter? How much will the total bill be, including tax and tip? Show work to support your answers.
HP <i>students can do...</i>	Historically, different people have defined a year in different ways. For example, an Egyptian year is 365 days long, a Julian year is $365\frac{1}{4}$ days long, and a Gregorian year is 365.2425 days long. a. What is the difference, in seconds, between a Gregorian year and a Julian year? b. What is the percent decrease, to the nearest thousandth of a percent, from a Julian year to a Gregorian year? c. How many fewer days are there in 400 years of the Gregorian calendar than there are in 400 years of the Julian calendar?

7.NS: The Number System ~ Accentuate the Negative; Long Division Suppl.

7.NS.A.1-3

Learning Target	All of these are to be covered under this learning target	
	Procedural (I can solve problems with...)	Conceptual (I can apply my knowledge to...)
7.NS.1 - I can add, subtract, multiply and divide rational numbers.	- Find the distance between two rational numbers as the absolute value of their difference o ie: $-1 + 1 = 0$ - Using the properties of operations - The distributive property - Complex fractions - Multiply rational numbers - Divide rational numbers	- Demonstrate and explain how the sum and difference between two numbers can be modeled on a number line - Describe and model real life situations for multiplying and dividing rational numbers - Explain why integers can be divided, except when the divisor is zero - Describe why the quotient is always rational, and why $-(p/q) = (-p)/q = p/(-q)$

PR students can do....	The list below gives monthly average low temperatures (in degrees Fahrenheit) for International Falls, Minnesota from November through March) <table><tr><td>Nov.</td><td>Dec.</td><td>Jan</td><td>Feb.</td><td>March</td></tr><tr><td>9</td><td>0</td><td>-17</td><td>-11</td><td>4</td></tr></table>	Nov.	Dec.	Jan	Feb.	March	9	0	-17	-11	4
Nov.	Dec.	Jan	Feb.	March							
9	0	-17	-11	4							
HP students can do...	What is the mean of the low temps? Show your work. What is the difference between highest and lowest? Aakash, Bao Ying, Chris and Donna all live on the same street as their school, which runs from east to west. Aakash lives $5\frac{1}{2}$ blocks to the west.Bao Ying lives $4\frac{1}{4}$ blocks to the east.Chris lives $2\frac{3}{4}$ blocks to the west.Donna lives $6\frac{1}{2}$ blocks to the east. a) Draw a picture that represents the positions of their houses along the street. b) Find how far each house is from Bao Ying’s. c) Represent the relative position of the houses on a number line, with the school at zero, points to the west represented by negative numbers, and points to the east represented by positive numbers. How can you see the answers to part (b) on the number line? Using the numbers (some of which are positive and some negative) that label the positions of the houses on the number line, represent these distances using sums or differences.										

7.EE: Expressions and Equations ~ Accentuate the Negative; CC7 Inv. 2

7.EE.A.1-2

Learning Target	All of these are to be covered under this learning target	
	Procedural (<i>I can solve problems with...</i>)	Conceptual (<i>I can apply my knowledge to...</i>)
7.EE.1 – I can simplify, expand and create equivalent expressions.	- Rewriting an expression in an equivalent form - Combining like terms with rational coefficients - Distributive property	- Rewrite expressions in different forms to shed light on a problem and how quantities are related - Solve multi-step real-life and mathematical problems posed with +/- rational numbers - Convert between forms when necessary

PR <i>students can do....</i>	Show which expressions are equivalent to $4x + 2y - 2a$. a. $2(2x + y - a)$ b. $4xya$ c. $x + x + 0.5x + x + y + y - a - a$ d. $-(-2y + 2a) + 4x$ e. $(8x + 4y - 4a)/2$
HP <i>students can do...</i>	Jamie and Ted both get paid an equal hourly wage of \$9 per hour. This week, Ted made an additional \$27 dollars in overtime. Write an expression that represents the weekly wages of both if J = the number of hours that Jamie worked this week and T = the number of hours Ted worked this week? Can you write the expression in another way? Enter the value of p so the expression $5/6 - (1/3)n$ is equivalent to $p(5-2n)$.

7.EE: Expressions and Equations ~ CC7 Inv. 3

7.EE.B.4

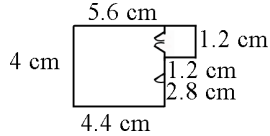
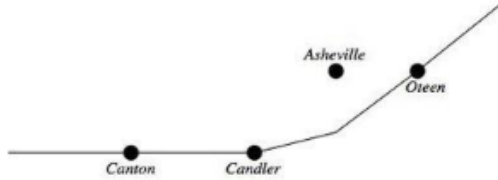
Learning Target	All of these are to be covered under this learning target	
	Procedural (<i>I can solve problems with...</i>)	Conceptual (<i>I can apply my knowledge to...</i>)
7.EE.3 – I can write & solve one-variable inequalities.	- Solve and graph an inequality's solution set - Solve and interpret the solution of a word problem leading to inequalities of the form $px + q > r$ and $px + q < r$ given p, q, and r are specific rational numbers	- Solve multi-step real-life problems posed with positive and negative rational numbers in any form - Graph the solution and interpret it in the context of the problem

PR <i>students can do....</i>	Solve and graph the solution set of : $5 - 3x < 13 + x$
HP <i>students can do...</i>	Write and solve an inequality for the following situation: Sam and Alex play in the same soccer team. Last Saturday Alex scored 3 more goals than Sam, but together they scored less than 9 goals. What are the possible number of goals Alex scored?
	You can spend \$45 to buy supplies for your lemonade stand. You find that that the \$45 will give you 120 cups of non-organic, or \$45 will give you 80 cups of organic lemonade. Using inequalities, justify the price per cup for each, and which you would want to sell that will give you profit of at least \$150.

7.G – Geometry ~ Stretching & Shrinking

7.G.A.1

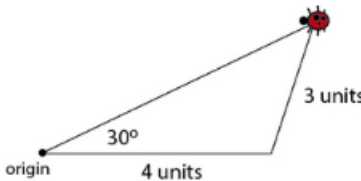
Learning Target	All of these are to be covered under this learning target	
	Procedural (<i>I can solve problems with...</i>)	Conceptual (<i>I can apply my knowledge to...</i>)
7.G.1 - I can compute actual lengths and areas from a scale drawing and create scale drawings.	Proportions	Solve problems involving scale drawing using scale factors and proportional relationships

PR <i>students can do....</i>	Julie showed you the scale drawing of her room. If each 2 cm on the scale drawing equals 5 ft, what are the actual dimensions of Julie's room? Reproduce the drawing at 3 times its current size. 
HP <i>students can do...</i>	On the map below, $\frac{1}{4}$ inch represents one mile. Candler, Canton, and Oteen are three cities on the map.  a. If the distance between the real towns of Candler and Canton is 9 miles, how far apart are Candler and Canton on the map? b. If Candler and Oteen are $3\frac{1}{2}$ inches apart on the map, what is the actual distance between Candler and Oteen in miles?

7.G: Geometry ~ Shapes & Designs; CC7 Inv. 4; Stretching & Shrinking

7.G.A.2

Learning Target	All of these are to be covered under this learning target	
	Procedural (<i>I can solve problems with...</i>)	Conceptual (<i>I can apply my knowledge to...</i>)
7.G.2 – I can construct and describe triangles from three measures of angles or sides.	- How to construct triangles given: 3 angle measures, 3 side measures.	- Draw geometric shapes with given conditions using rulers, protractors, technology, or freehand - Determine when triangle conditions mean that there is one, more than one, or no triangles

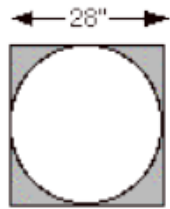
PR <i>students can do....</i>	Will three sides of any length create a triangle? Explain how you know which will work. Possibilities to examine are: 13 cm, 5 cm, and 6 cm 3 cm, 3cm, and 3 cm 2 cm, 7 cm, 6 cm
HP <i>students can do...</i>	The diagram shows one possibility for the ladybug's final location. Find a different final location that is also consistent with the given information, and draw the ladybug there. 

7.G: Geometry ~ CC7 Inv. 4

7.G.B.4, 8.G.C.9

***This standard is not covered in the 8th grade calendar and therefore is required in the 7th grade.*

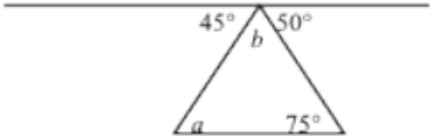
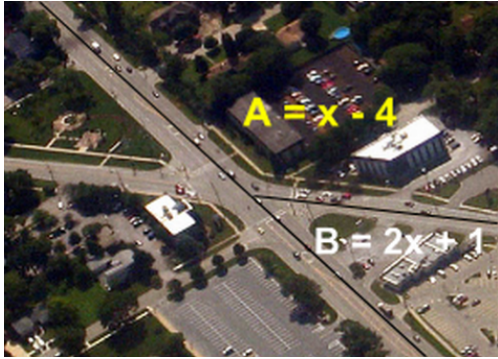
Learning Target	All of these are to be covered under this learning target	
	Procedural (<i>I can solve problems with...</i>)	Conceptual (<i>I can apply my knowledge to...</i>)
7.G.3 - I can describe the relationships between parts of a circle and apply them to find area and circumference.	- Area of a circle - Circumference of a circle	Use area and circumference to solve real world problems

PR <i>students can do....</i>	If a circle is cut from a square piece of plywood, how much plywood would be left over? 
HP <i>students can do...</i>	The seventh grade class is building a mini-golf game for the school carnival. The end of the putting green will be a circle. If the circle is 10 feet in diameter, how many square feet of grass carpet will they need to buy to cover the circle? How might someone communicate this information to the salesperson to make sure they receive a piece of carpet that is the correct size? Use 3.14 for π.

7.G: Geometry ~ Shapes & Designs, CC7 Inv. 4

7.G.B.5

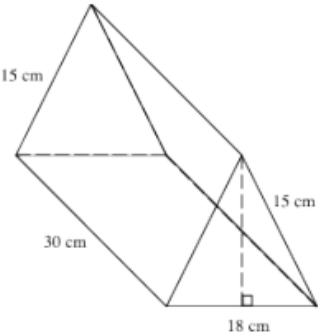
Learning Target	All of these are to be covered under this learning target	
	Procedural (I can solve problems with...)	Conceptual (I can apply my knowledge to...)
7.G.4 - I can solve simple equations involving angle measure.	• Supplementary • Complementary • Vertical • Adjacent angles • Angle sums and exterior angles of triangles. • Angles created when parallel lines are cut by a transversal. • Angle-angle similarity of triangles.	• Use angle measures to solve real world problems

PR <i>students can do....</i>	Find the measure of angle b. 
HP <i>students can do...</i>	An engineer is designing a new roadway in your hometown. If the roads are perfectly straight, what are the measures of angle A and angle B? 

7.G: Geometry ~ Filling & Wrapping

7.G.A.3, 7.G.B.6

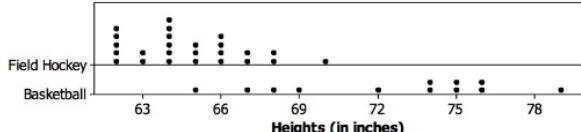
Learning Target	All of these are to be covered under this learning target	
	Procedural (I can solve problems with...)	Conceptual (I can apply my knowledge to...)
7.G.5 - I can solve real world problems involving area, volume and surface area of 2D and 3D objects.	- Volume of rectangular prisms, rectangular pyramid composed of triangles, quadrilaterals, polygons, right prisms - Area of triangles, circles, quadrilaterals, polygons - Surface area of prisms and pyramids composed of triangles, quadrilaterals, polygons	- Solve real-world and mathematical problems involving area, volume and SA of 2D and 3D objects - Describe two-dimensional figures that result from slicing right rectangular prisms and right rectangular pyramids - Analyze three-dimensional shapes by examining two-dimensional cross-sections

PR students can do....	Jennie purchased a box of crackers from the deli. The box is in the shape of a triangular prism (see diagram below). If the volume of the box is 3,240 cubic centimeters, what is the height of the triangular face of the box? How much packaging material was used to construct the cracker box? Explain how you got your answer. 
HP students can do...	The 7th graders at Sunview Middle School were helping to renovate a playground for the kindergartners at a nearby elementary school. City regulations require that the sand underneath the swings be at least 15 inches deep. The sand under both swing sets was only 12 inches deep when they started. The rectangular area under the small swing set measures 9 feet by 12 feet and required 40 bags of sand to increase the depth by 3 inches. How many bags of sand will the students need to cover the rectangular area under the large swing set if it is 1.5 times as long and 1.5 times as wide as the area under the small swing set?

7.SP: Statistics and Probability ~ CC7 Inv. 5; Samples & Populations; Data Distributions

7.SPA.1-2, 7.SP.B.3-4

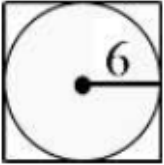
Learning Target	All of these are to be covered under this learning target	
	Procedural (I can solve problems with...)	Conceptual (I can apply my knowledge to...)
7.SP.1 - I can use random sampling to compare and draw inferences about populations.	- Calculate measures of Center - Mean - Median - Measures of Variability - Minimum/Maximum - Range - Mean Absolute Deviation - Interquartile Range	- Explain how random sampling tends to produce representative samples and support valid inferences - Analyze and interpret data from a random sample to draw inferences - Create multiple samples of equal size to determine the variation in estimates or predictions - Compare two data distributions on a graph and assess the overlap - Compare two populations using the measures of center and variability

PR <i>students can do....</i>	Given the following data sets: - Set 1: 3, 4, 5, 2, 1, 6, 4, 2, 9 Set 2: 3, 5, 1, 1, 0, 18, 4, 4, 7 - a.) Draw a box and whisker plot for both of these sets of data and compare the variability of the two. - b.) How can you add TWO numbers to the data set 1 to: - Change the mean to 5? _____ and _____ - Change the median to 3? _____ and _____ - Change the mode to 3? _____ and _____ - Change the range to 11? _____ and _____
HP <i>students can do...</i>	Data sets are here for this one:  Field Hockey Basketball Heights (in inches) - Based on visual inspection of the dotplots, which group appears to have the larger average height? Which group appears to have the greater variability in the heights? - Compute the mean and mean absolute deviation (MAD) for each group. Do these values support your answers in part (a)? - How many of the 12 basketball players are shorter than the tallest field hockey player?

7.SP: Statistics and Probability ~ What do you Expect?; How Likely is It?

7.SP.C.5-8

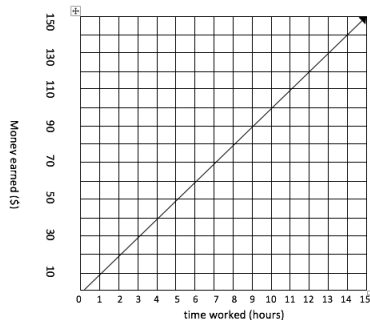
Learning Targets	All of these are to be covered under this learning target	
	Procedural (<i>I can solve problems with...</i>)	Conceptual (<i>I can apply my knowledge to...</i>)
7.SP.2 – I can analyze chance events with probability models.	- Probability of a chance event is a number between 0 and 1 - How to represent the sample space for compound events in: - Organized lists - Tables - Tree diagrams	- Find the experimental probability of an event and compare it to the theoretical probability - Predict the relative frequency of an event based on its theoretical probability - Develop a fair probability model and use it to find the probability of an event - Develop a probability model by observing data - Analyze a probability model and justify why it is fair or explain if it is not - Describe a compound event and identify the probability as a fraction - Find the probability of compound events using organized lists, tree diagrams, tables, etc. and analyze the outcomes - Design and use a simulation to generate frequencies for compound events

PR <i>students can do....</i>	- The container below contains 2 gray, 1 white, and 4 black marbles. Without looking, if you choose a marble from the container, will the probability be closer to 0 or to 1 that you will select a white marble? A gray marble? A black marble? - Justify each of your predictions. 
HP <i>students can do...</i>	 If you choose a point in the square, what is the probability that it is not in the circle?

8.EE: Expressions & Equations ~ CC8 Inv. 2

8.EE.B.5-6

Learning Target	All of these are to be covered under this learning target	
	Procedural (I can solve problems with...)	Conceptual (I can apply my knowledge to...)
8.EE.4 – I can compare proportional relationships by graphing, finding slope and writing an equation.	- Write the equation $y=mx$ for a line through the origin - Write the equation $y=mx+b$ for a line intercepting the y-axis at b	- Graph proportional relationships and recognize that the unit rate is the slope of the graph. - Compare two proportional relationships represented in different ways including tables, graphs, and equations - Use similar triangles with different dimensions to prove slope

PR students can do....	Mariko has a job mowing lawns that pays \$7 per hour. Isabella earned money represented by the equation $y = 8x + 10$. Kell works at an after-school program at an elementary school. The table below shows how much money he earned every day last week. Who would make more money for working 10 hours? Explain or show work. <table><tr><td>Kell</td><td>Monday</td><td>Wednesday</td><td>Friday</td></tr><tr><td>Time worked</td><td>1.5 hours</td><td>2.5 hours</td><td>4 hours</td></tr><tr><td>Money earned</td><td>\$12.60</td><td>\$21.00</td><td>\$33.60</td></tr></table> 	Kell	Monday	Wednesday	Friday	Time worked	1.5 hours	2.5 hours	4 hours	Money earned	\$12.60	\$21.00	\$33.60
Kell	Monday	Wednesday	Friday										
Time worked	1.5 hours	2.5 hours	4 hours										
Money earned	\$12.60	\$21.00	\$33.60										
HP students can do...	(Using data from problem above) - Draw a graph that represents the amount of money Kell would make assuming he made the same hourly rate he was making last week. - Using the same coordinate axes, draw a graph that represents the amount of money Mariko would make. - How can you see who makes more per hour just by looking at the graphs? Explain.												

Abdullah's salary from Subway is in the graph above.

8.EE: Expressions & Equations ~ AC Ch. 1-3

7.EE.B.3-4, 8.EE.C.7ab

Learning Target	All of these are to be covered under this learning target	
	Procedural (<i>I can solve problems with...</i>)	Conceptual (<i>I can apply my knowledge to...</i>)
8.EE.5 – I can solve linear equations.	- One-variable linear equations - Distributive property - Collecting like terms	Determine when an equation has a unique solution, infinite solutions, or no solutions

PR <i>students can do....</i>	Solve and identify how many solutions each problem has. 1) $5x + 8 = 5x + 3$ 2) $9x = 8 + 5x$ 3) $6x + 3 + 9 = 6x + 12$ Solve for x and record your steps. Check your result by evaluating the original equation. a. $-3x - 7 = x + 5$
HP <i>students can do...</i>	Two students' solutions to the equation $6(x + 4) = 3x - 2$ are shown. Both students made an error. Find the errors and give a correct solution. Student 1 $6(x + 4) = 3x - 2$ $x + 4 = 3x - 2 - 6$ $x + 4 = 3x - 8$ $x + 4 + 8 = 3x - 8 + 8$ $x + 12 = 3x$ $12 = 2x$ $x = 6$ Student 2 $6(x + 4) = 3x - 2$ $6x + 4 = 3x - 2$ $3x + 4 = -2$ $3x + 4 - 4 = -2 - 4$ $3x = -6$ $x = -2$

8.EE: Expressions & Equations ~ AC Ch. 4

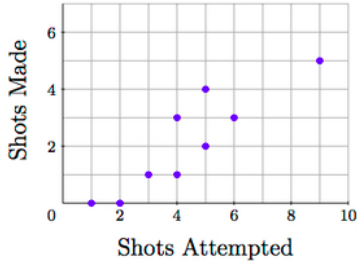
8.EE.C.8abc

Learning Target	All of these are to be covered under this learning target	
	Procedural (<i>I can solve problems with...</i>)	Conceptual (<i>I can apply my knowledge to...</i>)
8.EE.6 – I can solve a system graphically and algebraically.	- System of Equations (equal values method) graphically - System of Equations (equal values method) algebraically	- Show that the solution to a system of linear equations is the point of intersection on a graph because the values make both equations true - Solve real-world and mathematical problems leading to two linear equations in two variables

PR students can do....	Kimi and Jordan are each working during the summer to earn money in addition to their weekly allowance, and they are saving all their money. Kimi earns \$9 an hour at her job, and her allowance is \$8 per week. Jordan earns \$7.50 an hour, and his allowance is \$16 per week. a.)Complete the two tables shown below. <table><tr><td>Number of hours worked in a week</td><td>0</td><td>1</td><td>2</td><td>3</td><td>4</td><td>5</td><td>6</td><td>7</td></tr><tr><td>Kimi's weekly total savings</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr><tr><td>Number of hours worked in a week</td><td>0</td><td>1</td><td>2</td><td>3</td><td>4</td><td>5</td><td>6</td><td>7</td></tr><tr><td>Jordan's weekly total savings</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr></table> b.) Write an equation that can be used to calculate the total of Kimi's allowance and job earnings at the end of one week given the number of hours she works. c.) Write an equation that can be used to calculate the total of Jordan's allowance and job earnings at the end of one week given the number of hours worked. d.) Sketch the graphs of your two equations on one pair of axes. e.) Jordan wonders who will save more money in a week if they both work the same number of hours. Use the graph to explain an answer for him.	Number of hours worked in a week	0	1	2	3	4	5	6	7	Kimi's weekly total savings									Number of hours worked in a week	0	1	2	3	4	5	6	7	Jordan's weekly total savings								
Number of hours worked in a week	0	1	2	3	4	5	6	7																													
Kimi's weekly total savings																																					
Number of hours worked in a week	0	1	2	3	4	5	6	7																													
Jordan's weekly total savings																																					
HP students can do...	a.) Draw the two lines that intersect only at the point (1,4). One of the lines should pass through the point (0,−1). b.) Write the equation of each of the lines you created in part (a). c.) Describe a situation in context that would match your equations. d.) Use algebra to prove that the point of intersection is (1,4)																																				

8.F - Functions - CC8 Inv. 2; AC Ch. 4

8.FA.1-3, 8.FB.4-5

Learning Target	All of these are to be covered under this learning target	
	Procedural (<i>I can solve problems with...</i>)	Conceptual (<i>I can apply my knowledge to...</i>)
8.F.1 – I can identify, model and compare functions.	- Determine if a table, graph or rule is a function - Describe the properties of functions - Describe what the rate of change and initial value of a linear relationship means in the situation it models	- Compare two functions represented in different ways such as tables, graphs, equations, and descriptions - Distinguish between linear and non-linear equations - Sketch a graph from a description 

PR

students can do....

Investigate each function:

a. $-4x + y = 7$

b.

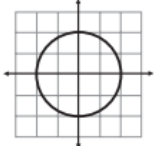
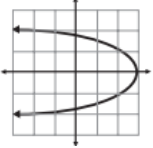
Y	4	1	0	1	4	9
X	-2	-1	0	1	2	3

Which set of ordered pairs is a function?

Ⓐ $\{(1, 2), (1, 3), (1, 4), (1, 5)\}$

Ⓑ $\{(1, 2), (2, 4), (3, 6), (4, 8)\}$

Are these functions? Explain why or why not:

	 
HP <i>students can do...</i>	Determine if the following are linear functions, and describe the properties that either make it a function or not: - Wanda is running to catch the bus. She starts out fairly slowly, but as she sees the bus pull in she sprints to catch it. - Jay is calculating how much interest his money in the bank is gaining. Every month he gains 5% of the original \$5,000. - Helina wants to track her mood throughout the day. She finds that she is very grumpy in the morning, then perks up when she has her coffee, and slowly improves her mood as lunch approaches. Then after lunch she gets more frustrated because she hasn't had her nap. after 4 she gets off work and feels better until she goes to bed.

8.G: Geometry ~ Kaleidoscopes, Hubcaps, & Mirrors

8.G.A.1-3

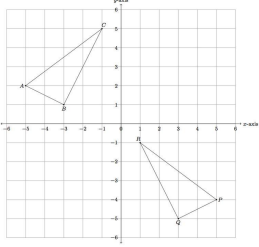
Learning Target	All of these are to be covered under this learning target	
	Procedural (I can solve problems with...)	Conceptual (I can apply my knowledge to...)
8.G.1 – I can rotate, reflect, translate, and dilate figures.	- How to perform rotations, reflections, translations, and dilations of: - Lines, line segments, angles, and parallel lines.	- Use coordinates to describe the effect of dilations, translations, rotations and reflections. - Write a coordinate rule for a given transformation.

PR <i>students can do....</i>	Describe the effect that a rotation of 90° around the origin would have on a polygon. A point at coordinates (0, 5) is rotated 90° counterclockwise around the origin and then translated 3 units to the right and 2 units up. What are the coordinates of the new point?
HP <i>students can do...</i>	Which series of transformations would change a square with points (-2, 2), (-2, -2), (2, 2), and (2, -2) to a square with points (0, 0), (6, 6), (0, 6), and (6, 0)?

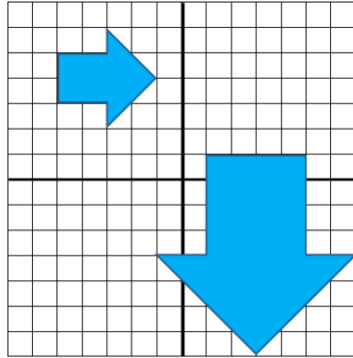
8.G: Geometry ~ Kaleidoscopes, Hubcaps, & Mirrors; CC8 Inv. 3

8.G.A.4

Learning Target	All of these are to be covered under this learning target	
	Procedural (I can solve problems with...)	Conceptual (I can apply my knowledge to...)
8.G.2 - I can describe how two figures are similar or congruent using transformations.	- That rotations, reflections and translations result in congruent figures. - Dilations result in similar figures	Describe a sequence of rotations, reflections, translations & dilations that demonstrates that two figures are similar and congruent

PR students can do....	Triangles ABC and PQR are shown below in the coordinate plane: a.) Show that ABC is congruent to PQR with a reflection followed by a translation. b.) If you reverse the order of your reflection and translation in part (a) does it still map ABC to PQR? Find a second way, different from your work in part (a), to map ABC to PQR using translations, rotations, and/or reflections. 
HP students can do...	

Determine, using rotations, translations, reflections, and/or dilations, whether the two polygons below are similar.



The intersection of the dark lines on the coordinate plane represents the origin (0,0) in the coordinate plane.

8.G: Geometry ~ CC8 Inv. 4

8.G.A.5

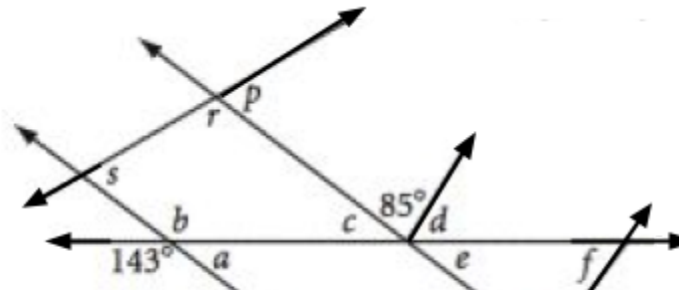
Learning Target	All of these are to be covered under this learning target	
	Procedural (I can solve problems with...)	Conceptual (I can apply my knowledge to...)
8.G.3 - I can solve problems involving angles.	- Angle sums & exterior angles of triangles - Angles created when parallel lines are cut by a transversal - Angle-angle similarity of triangles	

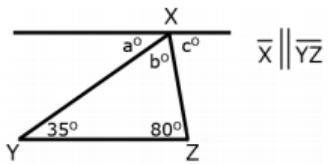
PR

*students
can do....*

Find the
following
angles:

$\angle a =$ _____
 $\angle b =$ _____
 $\angle c =$ _____
 $\angle d =$ _____
 $\angle e =$ _____

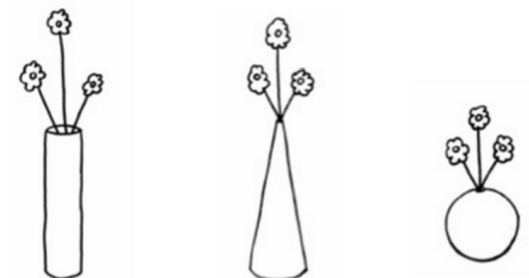


	$\angle f = \underline{\hspace{2cm}}$ $\angle p = \underline{\hspace{2cm}}$ $\angle r = \underline{120}$ $\angle s = \underline{\hspace{2cm}}$
HP <i>students can do...</i>	In the figure below Line X is parallel to Line $\overline{YZ}$. Prove that the sum of the angles of a triangle is 180°. 

8.G: Geometry ~ CC8 Inv. 4

8.G.C.9

Learning Target	All of these are to be covered under this learning target	
	Procedural (<i>I can solve problems with...</i>)	Conceptual (<i>I can apply my knowledge to...</i>)
8.G.5 - I know and can use the formulas for the volumes of cones, cylinders, and spheres.	• Volume of cones • Volume of cylinders • Volume of spheres	• Solve real-world and mathematical problems using the volume of cones, cylinders and spheres

PR <i>students can do....</i>	My sister's birthday is in a few weeks and I would like to buy her a new vase to keep fresh flowers in her house. She often forgets to water her flowers and needs a vase that holds a lot of water. In a catalog there are three vases available and I want to purchase the one that holds the most water. The first vase is a cylinder with diameter 10 cm (radius of 5cm) and height 40 cm. The second vase is a cone with base diameter 16 cm (radius of 8cm) and height 45 cm. The third vase is a sphere with 
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	diameter 18 cm (radius of 9cm). Which vase should I purchase? *illustrative mathematics
HP <i>students can do...</i>	Manuel bought a balloon (that is a perfect sphere) with a radius of 2 cm. He wanted his balloon to be bigger, so he blew 2 big breaths of air into the balloon. Each big breath increased the balloon's radius by 1 cm. What is the ratio of the current volume of the balloon to the original volume of the balloon?

8.SP: Statistics & Probability ~ Samples & Populations; CC8 Inv. 5

8.SP. A.1-3

Learning Targets	All of these are to be covered under this learning target	
	Procedural (I can solve problems with...)	Conceptual (I can apply my knowledge to...)
8.SP.1 - I can construct a scatter plot and use it to interpret patterns in data.	- When a scatter plot suggests a relationship - How to describe data using the following language: ☐ Clustering ☐ Outliers ☐ Positive or negative association ☐ Linear or nonlinear	- Fit a straight line to a scatter plot that suggest a linear relationship and describe how closely the line represents the data - Find patterns of associations (such as clustering, outliers, positive, negative, linear and nonlinear) between two quantities using a scatter plot - Use the equation of a linear model to solve problems and interpret the meaning of the slope and intercept of the data - Given the data and an equation to a linear model that matches

PR

students
can do....

Data for 10 students' Math scores and the distance they live from school are provided in the table below.
Describe the association between the Math scores and the distance they live from school.

Student	1	2	3	4	5	6	7	8	9	10
Math	64	50	85	34	56	24	72	63	42	93
Distance from School (miles)	0.5	1.8	1	2.3	3.4	0.2	2.5	1.6	0.8	2.5

HP <i>students can do...</i>	Jerry forgot to plug in his laptop before he went to bed. He wants to take the laptop to his friend's house with a full battery. The pictures show screenshots of the battery charge indicator after he plugs in the computer at 9:11am. - The screenshots suggest an association between two variables. What are the two variables in this situation? - Make a scatterplot of this data. - Draw a line that fits the data and find the equation of that line. - When can Jerry expect to have a fully charged battery?	
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8.SP: Statistics & Probability ~ AC Ch. 1; Data Distributions; Samples & Populations

8.SPA.4

Learning Target	All of these are to be covered under this learning target	
	Procedural (<i>I can solve problems with...</i>)	Conceptual (<i>I can apply my knowledge to...</i>)
8.SP.2 - I can construct a two-way table to interpret its relative frequencies.	How to create a two-way table and calculate a relative frequency	Use relative frequencies in two-way tables to describe possible association between two categorical variables collected from the same subjects

PR <i>students can do....</i>	Twenty-five students were surveyed and asked if they received an allowance and if they did chores. The table below summarizes their responses. <table border="1" style="margin: 10px auto;"> <tr> <th></th><th>Receive Allowance</th><th>No Allowance</th></tr> <tr> <th>Do Chores</th><td>15</td><td>5</td></tr> <tr> <th>Do Not Do Chores</th><td>3</td><td>2</td></tr> </table> Of the students who do chores, what percent do not receive an allowance?		Receive Allowance	No Allowance	Do Chores	15	5	Do Not Do Chores	3	2
	Receive Allowance	No Allowance								
Do Chores	15	5								
Do Not Do Chores	3	2								

HP

*students
can do...*

All the students at a middle school were asked to identify their favorite academic subject and whether they were in 7th grade or 8th grade. Here are the results:

Favorite Subject by Grade

Grade	English	History	Math/Science	Other	Totals
7th Grade	38	36	28	14	116
8th Grade	47	45	72	18	182
Totals	85	81	100	32	298

Is there an association between favorite academic subject and grade for students at this school? Support your answer by calculating appropriate relative frequencies using the given data.