



*Diocese of Fresno*  
**Office of Catholic Education**

*In Partnership with*



*Present*

**MATHEMATICS POWER STANDARDS 2021-2022**

**SIXTH GRADE**

## **Introduction**

In June 2021, a committee comprised of teachers and administrators led by Dr. Bill Sternberg from Creative Leadership Solutions worked over a period of three days to identify math Power Standards in Kindergarten through 8<sup>th</sup> Grade (and Algebra). This work, grounded in research from Doug Reeves, Larry Ainsworth, Dylan Wiliam and others offered the opportunity to collaboratively identify those standards that would be consistently focused upon throughout the year for maximum learning impact in math. The following three criteria were used in the identification of these standards:

***Leverage:*** *Does this indicator apply to other subjects?*

***Endurance:*** *Will this indicator be taught over multiple years of instruction?*

***Essentiality:*** *Is this indicator an essential skill students need to know and be able to do as soon as they enter their next level of instruction?*

Over the course of three days, our committee met in grade level teams to first identify those indicators that possessed leverage. From this list, grade level teams then identified indicators that also possessed endurance, effectively reducing the number of indicators from the original list. Lastly, grade level teams were paired with their vertical counterparts (e.g., Kindergarten was paired with First Grade) to identify indicators that possessed essentiality. Thus, from a list of 30 (or more) grade level math indicators, teams were able to identify 8-12 (depending upon grade level) indicators that would become Power Standards for their specific grade level.

As explained during this process, the intent is to focus consistently on these Power Standards through multiple units of instruction. In reviewing grade level math indicators, there are some that do not require an equal amount of focus as others: In other words, there are supporting standards that may only need to be taught for a smaller time period (e.g., 4-6 weeks) in order for a student to demonstrate mastery of that specific indicator. However, Power Standards identified in this process are those that will require a much more concerted focus throughout the academic year to better prepare students in their learning journey.

Under each Power Standard identified, you'll note graphic organizers that identify the *Concepts* (nouns or noun phrases) of each Power Standard along with *Skills* (what we want students to know and be able to do). As well, there is a section labeled "*Topics*" which allows other content area teachers to identify units of instruction where these specific Power Standards can be inserted as a means of building cross-curricular connections. The "*Topics*" section is one that should continually be added to over time as there will undoubtedly be multiple opportunities for insertion of these Power Standards in other content areas.

The last piece you'll note under each identified Power Standard is a table listing "*Big Ideas*" and "*Essential Questions*". The "*Big Ideas*" are those critical understandings of the purpose and meaning behind learning the Power Standard that we want students to possess in *their own words*. In essence, students should know the *why* of what they are learning, not just the *what*. The "*Essential Questions*" are those questions teachers use during instruction encompassing these Power Standards as a means to build interest and understanding from their students. We would expect student replies to these "*Essential Questions*" to resemble the "*Big Ideas*" within this table.

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**Power Standard #10:**

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6.SP.5 Summarize numerical data sets in relation to their context, such as by:

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c. Giving quantitative measures of center (median and/or mean) and variability (interquartile range and/or mean absolute deviation), as well as describing any overall pattern and any striking deviations from the overall pattern with reference to the context in which the data were gathered.

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**Power Standard #1:**

6 RP.2 Understand the concept of a unit rate  $a/b$  associated with a ratio  $a:b$  with  $b \neq 0$ , and use rate language in the context of a ratio relationship.

<p style="text-align: center;"><u>Concepts</u></p> <ul style="list-style-type: none"> <li>● unit rate <math>a/b</math></li> <li>● ratio</li> <li>● rate</li> <li>● ratio relationship</li> </ul>	<p style="text-align: center;"><u>Skills</u></p> <ul style="list-style-type: none"> <li>● Understand the concept of a unit rate <math>a/b</math> associated with a ratio</li> <li>● use rate language in the context of a ratio relationship.</li> </ul>
<p><u>Topics</u></p> <ul style="list-style-type: none"> <li>● ELA: compare and contrast, analyzing text, understanding analogies</li> <li>● Science: using formulas</li> <li>● Social Studies: scales on maps to be able to figure out (know) the actual distances</li> </ul>	

<p style="text-align: center;"><b><u>Big Ideas</u></b></p> <ul style="list-style-type: none"> <li>● Understanding the concept of unit rate is a mathematical skill that will be applicable in my math journey [i.e., finding slope, sports (w/l)]</li> <li>● Understanding the concept of unit rate will help me find consistent patterns in financial decisions</li> <li>● Understanding the concept of the ratio relationship will help me see the consistency of creation, which</li> </ul>	<p style="text-align: center;"><b><u>Essential Questions</u></b></p> <ul style="list-style-type: none"> <li>● <u>In what situations can unit rate help me make connections to solve problems and understand information?</u></li> </ul>
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will lead me to the Creator (i.e., our bodies have ratios)	
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Bloom's Taxonomy Level: Apply
Depth of Knowledge Level: 1

**Assessment Item:**

The distance traveled is 20 miles in 2 hours and 30 miles in 3 hours. Write these ratios in different forms and find the unit rate.

**Three-Column Rubric**

EXPECTATION	STUDENT SELF-ASSESSMENT	TEACHER ASSESSMENT
I wrote a ratio in three different forms		
I found a unit rate from a given ratio		
I used rate language in the context of a ratio relationship		

**Point Value Three-Column Rubric**

EXPECTATION	STUDENT SELF-ASSESSMENT			TEACHER ASSESSMENT
	3	2	1	
	3	2	1	

	<b>3</b>	<b>2</b>	<b>1</b>	

\*If using point values, create explicit expectations for student performance under each point value for each specific standard expectation.

<b>EXPECTATION</b>	<b>3</b>	<b>2</b>	<b>1</b>

### Power Standard #2:

6.RP.3a Make tables of equivalent ratios relating quantities with whole number measurements, find missing values in the tables, and plot the pairs of values on the coordinate plane. Use tables to compare ratios.

<p style="text-align: center;"><u>Concepts</u></p> <ul style="list-style-type: none"> <li>● tables of equivalent ratios</li> <li>● whole number measurements</li> <li>● coordinate plane</li> <li>● ratios</li> </ul>	<p style="text-align: center;"><u>Skills</u></p> <ul style="list-style-type: none"> <li>● Make tables of equivalent ratios relating quantities with whole number measurements</li> <li>● find missing values in the tables</li> <li>● plot the pairs of values on the coordinate plane</li> <li>● Use tables to compare ratios</li> </ul>
<p style="text-align: center;"><u>Topics</u></p> <ul style="list-style-type: none"> <li>● Social Studies: mapping and understanding maps; geography: latitude &amp; longitude</li> <li>● ELA: essay structure (missing information, parts), interpreting data from tables presented in the text</li> <li>● Science: finding patterns in data, graphing data of relationships</li> </ul>	

<p style="text-align: center;"><b><u>Big Ideas</u></b></p> <ul style="list-style-type: none"> <li>● The ability to find equivalent ratios will assist me in analyzing data to apply the pattern in different life situations (mpg, scales on a map)</li> </ul>	<p style="text-align: center;"><b><u>Essential Questions</u></b></p> <ul style="list-style-type: none"> <li>● <u>How can a table be used to help me find missing values and show their relationship?</u></li> </ul>
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Bloom's Taxonomy Level: Analyze
Depth of Knowledge Level: 2

**Assessment Item:**

Mary can read 3 pages every 2 minutes. Create a table of equivalent ratios and write ordered pairs (number of minutes, number of pages read) for Mary reading 0, 2, 4, and 6 minutes. Plot the ordered pairs on a coordinate plane.

**Three-Column Rubric**

EXPECTATION	STUDENT SELF-ASSESSMENT	TEACHER ASSESSMENT
I made tables of equivalent ratios relating quantities		
I found missing numbers in tables		
I plotted ordered pairs on a coordinate plane		

**Point Value Three-Column Rubric**

EXPECTATION	STUDENT SELF-ASSESSMENT			TEACHER ASSESSMENT
	3	2	1	
	3	2	1	
	3	2	1	

\*If using point values, create explicit expectations for student performance under each point value for each specific standard expectation.



EXPECTATION	3	2	1

**Power Standard #3:**

6.NS.1 Interpret and compute quotients of fractions, and solve word problems involving division of fractions by fractions, e.g., by using visual fraction models and equations to represent the problem

<p style="text-align: center;"><u>Concepts</u></p> <ul style="list-style-type: none"> <li>• quotients of fractions</li> <li>• word problems</li> <li>• division of fractions by fractions</li> <li>• visual fraction models</li> <li>• equations</li> </ul>	<p style="text-align: center;"><u>Skills</u></p> <ul style="list-style-type: none"> <li>• Interpret quotients of fractions</li> <li>• compute quotients of fractions</li> <li>• solve word problems involving division of fractions by fractions</li> <li>• <i>optional (as needed per individual cases):</i>using visual fraction models and equations to represent the problem</li> </ul>
<p><u>Topics</u></p> <ul style="list-style-type: none"> <li>• ELA: analyzing the text (parts to a whole), text structure</li> <li>• Science: speed (unit rate comparisons)</li> <li>• Social Studies:</li> </ul>	

<p style="text-align: center;"><b><u>Big Ideas</u></b></p> <ul style="list-style-type: none"> <li>• The ability to interpret and compute quotients of fractions will assist me in complex calculations to apply to real life (i.e., fair shares)</li> </ul>	<p style="text-align: center;"><b><u>Essential Questions</u></b></p> <ul style="list-style-type: none"> <li>• <u>In what situations is fraction division important?</u></li> </ul>
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Bloom's Taxonomy Level: Understand
Depth of Knowledge Level: 2

**Assessment Item:**

Johnny has  $\frac{1}{2}$  pounds of bird seed. He needs to distribute this amount equally among 4 different bird feeders. How many pounds of bird seed will each bird feeder receive?

**Three-Column Rubric**

<b>EXPECTATION</b>	<b>STUDENT SELF-ASSESSMENT</b>	<b>TEACHER ASSESSMENT</b>
I properly interpreted the fraction given.		
I correctly analyzed the word problem.		
I properly computed the quotient as a fraction.		

**Point Value Three-Column Rubric**

<b>EXPECTATION</b>	<b>STUDENT SELF-ASSESSMENT</b>			<b>TEACHER ASSESSMENT</b>
	<b>3</b>	<b>2</b>	<b>1</b>	
	<b>3</b>	<b>2</b>	<b>1</b>	
	<b>3</b>	<b>2</b>	<b>1</b>	

\*If using point values, create explicit expectations for student performance under each point value for each specific standard expectation.

<b>EXPECTATION</b>	<b>3</b>	<b>2</b>	<b>1</b>

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**Power Standard #4:**

6.NS.3 Fluently add, subtract, multiply, and divide multi-digit decimals using the standard algorithm for each operation.

<p style="text-align: center;"><u>Concepts</u></p> <ul style="list-style-type: none"> <li>● multi-digit decimals</li> <li>● standard algorithm</li> <li>● operation</li> </ul>	<p style="text-align: center;"><u>Skills</u></p> <ul style="list-style-type: none"> <li>● Fluently add multi-digit decimals using the standard algorithm</li> <li>● Fluently subtract multi-digit decimals using the standard algorithm</li> <li>● Fluently multiply multi-digit decimals using the standard algorithm</li> <li>● Fluently divide multi-digit decimals using the standard algorithm</li> </ul>
<p><u>Topics</u></p> <ul style="list-style-type: none"> <li>● Social Studies: using percentages (population)</li> <li>● Science: formulas (distance, speed, velocity, etc.)</li> <li>● ELA: sentence structure, critical thinking</li> </ul>	

<p style="text-align: center;"><b>Big Ideas</b></p> <ul style="list-style-type: none"> <li>● The ability to add, subtract, multiply, and divide multi-digit decimals is necessary to solve everyday problems and advance in my math classes.</li> </ul>	<p style="text-align: center;"><b>Essential Questions</b></p> <ul style="list-style-type: none"> <li>● <u>Why is it important to be able to do decimal operations in real life?</u></li> </ul>
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Bloom's Taxonomy Level: Apply
Depth of Knowledge Level: 1

**Assessment Item:**  
 Your meal at the school cafeteria costs \$3.45. Your friend's meal costs \$3.90. You pay for both meals with a \$10 bill. How much change do you receive?

**Three-Column Rubric**

<b>EXPECTATION</b>	<b>STUDENT SELF-ASSESSMENT</b>	<b>TEACHER ASSESSMENT</b>
I used the proper operation.		
I used the correct algorithm to solve the problem.		
I fluently solved the multiple-digit decimal operation.		

**Point Value Three-Column Rubric**

<b>EXPECTATION</b>	<b>STUDENT SELF-ASSESSMENT</b>			<b>TEACHER ASSESSMENT</b>
	<b>3</b>	<b>2</b>	<b>1</b>	
	<b>3</b>	<b>2</b>	<b>1</b>	
	<b>3</b>	<b>2</b>	<b>1</b>	

\*If using point values, create explicit expectations for student performance under each point value for each specific standard expectation.

<b>EXPECTATION</b>	<b>3</b>	<b>2</b>	<b>1</b>

**Power Standard #5:**

6.NS.8 Solve real-world and mathematical problems by graphing points in all four quadrants of the coordinate plane. Include use of coordinates and absolute value to find distances between points with the same first coordinate or the same second coordinate.

<p style="text-align: center;"><u>Concepts</u></p> <ul style="list-style-type: none"> <li>● real-world problems</li> <li>● mathematical problems</li> <li>● points</li> <li>● four quadrants</li> <li>● coordinate plane</li> <li>● absolute value</li> <li>● distances</li> <li>● coordinate</li> </ul>	<p style="text-align: center;"><u>Skills</u></p> <ul style="list-style-type: none"> <li>● Solve real-world problems</li> <li>● Solve mathematical problem</li> <li>● graphing points in all four quadrants of the coordinate plane</li> <li>● use of coordinates and absolute value to find distances between points with the same first coordinate or the same second coordinate</li> </ul>
<p><u>Topics</u></p> <ul style="list-style-type: none"> <li>● ELA: critical thinking (inferences, purposes)</li> <li>● Social Studies: maps</li> <li>● Science: finding changes (absolute value), finding relationship of items such as the distance between them (velocity)</li> </ul>	

<p style="text-align: center;"><b><u>Big Ideas</u></b></p> <ul style="list-style-type: none"> <li>● The ability to understand the coordinate plane and interpret the graph will help me have a better understanding of spatial awareness on maps and digital platforms.</li> </ul>	<p style="text-align: center;"><b><u>Essential Questions</u></b></p> <ul style="list-style-type: none"> <li>● <u>What situations would it be helpful to know how to graph and compare locations on a coordinate plane?</u></li> </ul>
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Bloom's Taxonomy Level: Analyze
Depth of Knowledge Level: 2

**Assessment Item:**

A blizzard hits a town at midnight. The table shows the hourly temperatures from midnight to 8:00 A.M. Hours after Midnight,

Hours after Midnight (x)	0	1	2	3	4	5	6	7	8
Temperature (y)	7°F	5°F	3°F	0°F	-1°F	-4°F	-5°F	-2°F	2°F

- a. Display the data in a line graph.
- b. Make Three observations from the graph.

### Three-Column Rubric

EXPECTATION	STUDENT SELF-ASSESSMENT	TEACHER ASSESSMENT
Properly graphed the given data table in the coordinate plane.		
Properly used the coordinate plane to draw a conclusion about the absolute value of the given data.		

### Point Value Three-Column Rubric

EXPECTATION	STUDENT SELF-ASSESSMENT			TEACHER ASSESSMENT
	3	2	1	
	3	2	1	

	<b>3</b>	<b>2</b>	<b>1</b>	

\*If using point values, create explicit expectations for student performance under each point value for each specific standard expectation.

<b>EXPECTATION</b>	<b>3</b>	<b>2</b>	<b>1</b>

**Power Standard #6:**

6.EE.3 Apply the properties of operations to generate equivalent expressions. For example, apply the distributive property to the expression  $3(2 + x)$  to produce the equivalent expression  $6 + 3x$ ; apply the distributive property to the expression  $24x + 18y$  to produce the equivalent expression  $6(4x + 3y)$ ; apply properties of operations to  $y + y + y$  to produce the equivalent expression  $3y$ .

<p style="text-align: center;"><u>Concepts</u></p> <ul style="list-style-type: none"> <li>● properties of operations</li> <li>● equivalent expressions</li> <li>● distributive property</li> <li>● expression</li> </ul>	<p style="text-align: center;"><u>Skills</u></p> <ul style="list-style-type: none"> <li>● Apply the properties of operations to generate equivalent expressions</li> <li>● apply the distributive property</li> <li>● produce equivalent expressions</li> </ul>
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Topics

- ELA: sentence structures (compound & complex: sentences using subordinate conjunctions)
- Science: formulas

**Big Ideas**

- The ability of knowing and applying the properties of operation can assist me in creatively finding patterns while maintaining equivalency.

**Essential Questions**

- How can I model expressions in different ways using properties of operations?

Bloom's Taxonomy Level: Apply

Depth of Knowledge Level: 1

**Assessment Item:**

Rewrite two equivalent expressions for the expression  $2(x+3)$  and identify which properties you used for each.

**Three-Column Rubric**

EXPECTATION	STUDENT SELF-ASSESSMENT	TEACHER ASSESSMENT
I wrote one expression equivalent to $2(x+3)$ .		
I identified which property I applied to rewrite my first equivalent expression.		
I wrote a second expression equivalent to $2(x+3)$ .		



I identified which property I applied to rewrite my second equivalent expression.		
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**Point Value Three-Column Rubric**

EXPECTATION	STUDENT SELF-ASSESSMENT			TEACHER ASSESSMENT
	3	2	1	
	3	2	1	
	3	2	1	
	3	2	1	

\*If using point values, create explicit expectations for student performance under each point value for each specific standard expectation.

EXPECTATION	3	2	1

**Power Standard #7:**

6.EE.7 Solve real-world and mathematical problems by writing and solving equations of the form  $x + p = q$  and  $px = q$  for cases in which  $p$ ,  $q$  and  $x$  are all nonnegative rational numbers.

<u>Concepts</u>	<u>Skills</u>
<ul style="list-style-type: none"> <li>● real-world mathematical problems</li> <li>● mathematical problems</li> <li>● equations of the form <math>x + p = q</math></li> <li>● equations of the form <math>px = q</math></li> <li>● nonnegative rational numbers</li> </ul>	<ul style="list-style-type: none"> <li>● Solve real-world and mathematical problems by writing equations of the form <math>x + p = q</math> and <math>px = q</math> for cases in which <math>p</math>, <math>q</math> and <math>x</math> are all nonnegative rational numbers.</li> <li>● Solve real-world and mathematical problems by solving equations of the form <math>x + p = q</math> and <math>px = q</math> for cases in</li> </ul>

	which $p$ , $q$ and $x$ are all nonnegative rational numbers.
<u>Topics</u>	
<ul style="list-style-type: none"> <li>● ELA: ability to formulate the problem by utilizing words in a statement/sentence.</li> <li>● Science: figuring out the value of a variable (in formulas)</li> </ul>	

<b><u>Big Ideas</u></b>	<b><u>Essential Questions</u></b>
<ul style="list-style-type: none"> <li>● Being able to utilize equations will help me play detective to solve problems efficiently.</li> </ul>	<ul style="list-style-type: none"> <li>● <u>How can I use math clues in equations to help me find the unknown?</u></li> </ul>

Bloom's Taxonomy Level: Create
Depth of Knowledge Level: 3

**Assessment Item:**

Kristin and Tim are reading the same book. Kristin reads 3 times as many pages of the book as Tim. Together they read 48 pages. Write and solve an equation to find the number of pages Tim reads.

**Three-Column Rubric**

EXPECTATION	STUDENT SELF-ASSESSMENT	TEACHER ASSESSMENT
I wrote an equation using the correct operation with a variable representing the number of pages Tim reads.		
I solved the equation I wrote to find how many pages Tim reads.		
I checked my answer for reasonableness.		

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**Point Value Three-Column Rubric**

EXPECTATION	STUDENT SELF-ASSESSMENT			TEACHER ASSESSMENT
	3	2	1	
	3	2	1	
	3	2	1	
	3	2	1	

\*If using point values, create explicit expectations for student performance under each point value for each specific standard expectation.

EXPECTATION	3	2	1

**Power Standard #8:**

6.G.1 Find the area of right triangles, other triangles, special quadrilaterals, and polygons by composing into rectangles or decomposing into triangles and other shapes; apply these techniques in the context of solving real-world and mathematical problems.

<u>Concepts</u>	<u>Skills</u>
<ul style="list-style-type: none"> <li>● composing</li> <li>● decomposing</li> <li>● area</li> <li>● right triangles</li> <li>● triangles</li> <li>● special quadrilaterals</li> <li>● polygons</li> <li>● rectangles</li> <li>● shapes</li> <li>● techniques</li> <li>● real-world problems</li> </ul>	<ul style="list-style-type: none"> <li>● Find the area of right triangles by composing into rectangles or decomposing into triangles and other shapes</li> <li>● Find the area of other triangles by composing into rectangles or decomposing into triangles and other shapes</li> <li>● Find the area of special quadrilaterals by composing into rectangles or decomposing into triangles and other shapes</li> </ul>

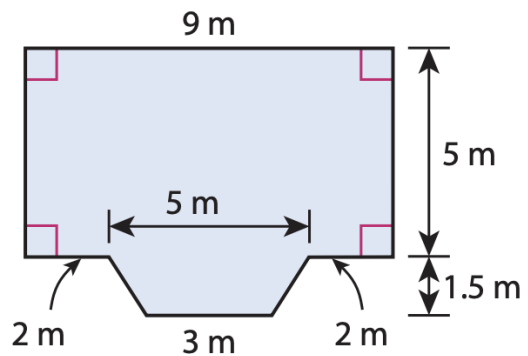
<ul style="list-style-type: none"> <li>mathematical problems</li> </ul>	<ul style="list-style-type: none"> <li>Find the area of polygons by composing into rectangles or decomposing into triangles and other shapes</li> <li>apply these techniques in the context of solving real-world problems</li> <li>apply these techniques in the context of solving mathematical problems</li> </ul>
<p><u>Topics</u></p> <ul style="list-style-type: none"> <li>ELA: text structure, analyzing and synthesizing, parts to whole and whole to parts</li> <li>Critical thinking strategy across the curriculum (all subject areas)</li> </ul>	

<p><b><u>Big Ideas</u></b></p> <ul style="list-style-type: none"> <li>Being able to find the area of shapes can help me determine the space and material necessary for the placement/creation of something .</li> </ul>	<p><b><u>Essential Questions</u></b></p> <ul style="list-style-type: none"> <li><u>Why is it important to know the area of a shape?</u></li> </ul>
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Bloom's Taxonomy Level: Apply
Depth of Knowledge Level: 4

**Assessment Item:**

You are part of the stage crew for your favorite band and need to make sure the stage at your next concert is big enough for all the equipment you need to set up. The stage is pictured to the right. Find the area of the stage. Show your work and describe what strategy you used to find the total area.



**Three-Column Rubric**

EXPECTATION	STUDENT SELF-ASSESSMENT	TEACHER ASSESSMENT
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I solved for the area of the stage pictured.		
I showed my work for solving for the area of the different shapes within the composite figure.		
I described the strategy I used to solve for the area of the stage.		

**Point Value Three-Column Rubric**

EXPECTATION	STUDENT SELF-ASSESSMENT			TEACHER ASSESSMENT
	3	2	1	
	3	2	1	
	3	2	1	
	3	2	1	

\*If using point values, create explicit expectations for student performance under each point value for each specific standard expectation.

EXPECTATION	3	2	1

**Power Standard #9:**

6.G.2 Find the volume of a right rectangular prism with fractional edge lengths by packing it with unit cubes of the appropriate unit fraction edge lengths, and show that the volume is the same as would be found by multiplying the edge lengths of the prism. Apply the formulas  $V = l w h$  and  $V = b h$  to find volumes of right rectangular prisms with fractional edge lengths in the context of solving real-world and mathematical problems.

<p style="text-align: center;"><u>Concepts</u></p> <ul style="list-style-type: none"> <li>● volume</li> <li>● right rectangular prism</li> <li>● fractional edge lengths</li> <li>● unit cubes</li> <li>● prism</li> <li>● formulas <math>V = l w h</math> and <math>V = b h</math></li> <li>● mathematical problems</li> </ul>	<p style="text-align: center;"><u>Skills</u></p> <ul style="list-style-type: none"> <li>● Find the volume of a right rectangular prism with fractional edge lengths by packing it with unit cubes of the appropriate unit fraction edge lengths</li> <li>● show that the volume is the same as would be found by multiplying the edge lengths of the prism</li> <li>● Apply the formulas <math>V = l w h</math> and <math>V = b h</math> to find volumes of right rectangular prisms with fractional edge lengths in the context of solving real-world problems.</li> <li>● Apply the formulas <math>V = l w h</math> and <math>V = b h</math> to find volumes of right rectangular prisms with fractional edge lengths in the context of solving mathematical problems.</li> </ul>
<p><u>Topics</u></p> <ul style="list-style-type: none"> <li>● Science: physical characteristics</li> </ul>	

<p style="text-align: center;"><b><u>Big Ideas</u></b></p> <ul style="list-style-type: none"> <li>● The ability to find volume can help me determine the capacity and material necessary for the placement/creation of something .</li> </ul>	<p style="text-align: center;"><b><u>Essential Questions</u></b></p> <ul style="list-style-type: none"> <li>● <u>Why is it important to know the volume?</u></li> </ul>
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Bloom's Taxonomy Level: Apply  
 Depth of Knowledge Level: 1

**Assessment Item:**

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Jennifer has three rectangular baking pans.

Pan A: 8 in. by 15 in. by 1 ½ in.

Pan B: 9 in. by 13 in. by 2 in.

Pan C: 8 ½ in by 8 in. by 2 ½ in.

If Jennifer fills each pan with batter, which pan, after baking, will contain the largest cake.

### Three-Column Rubric

EXPECTATION	STUDENT SELF-ASSESSMENT	TEACHER ASSESSMENT
I used the $V = l w h$ formula		
I solved a real life problem involving a rectangular prisms		
I multiplied fractions		

### Point Value Three-Column Rubric

EXPECTATION	STUDENT SELF-ASSESSMENT			TEACHER ASSESSMENT
	3	2	1	
	3	2	1	
	3	2	1	

\*If using point values, create explicit expectations for student performance under each point value for each specific standard expectation.

EXPECTATION	3	2	1

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**Power Standard #10:**

6.SP.5 Summarize numerical data sets in relation to their context, such as by:  
 c. Giving quantitative measures of center (median and/or mean) and variability (interquartile range and/or mean absolute deviation), as well as describing any overall pattern and any striking deviations from the overall pattern with reference to the context in which the data were gathered.

<p style="text-align: center;"><u>Concepts</u></p> <ul style="list-style-type: none"> <li>● numerical data</li> <li>● context</li> <li>● quantitative measures of center</li> <li>● median</li> <li>● mean</li> <li>● measures of variability</li> <li>● interquartile range</li> <li>● mean absolute deviation</li> <li>● pattern</li> <li>● deviations</li> <li>● reference</li> <li>● data</li> </ul>	<p style="text-align: center;"><u>Skills</u></p> <ul style="list-style-type: none"> <li>● Summarize numerical data sets in relation to their context</li> <li>● Summarize numerical data sets by giving quantitative measures of center (mean/median)</li> <li>● Summarize numerical data sets by giving quantitative measures of variability (IQR/MAD)</li> <li>● Summarize numerical data sets by describing any overall pattern and any striking deviations from the overall pattern with reference to the context in which the data were gathered</li> </ul>
<p><u>Topics</u></p> <ul style="list-style-type: none"> <li>● Social Studies: trends, deviations, patterns</li> <li>● Science: analyzing data</li> <li>● ELA: analyzing the text ( see the relationship), context clues</li> </ul>	

<p style="text-align: center;"><b><u>Big Ideas</u></b></p> <ul style="list-style-type: none"> <li>● The ability to summarize numerical data in relation to their context can help me make conclusions from data.</li> </ul>	<p style="text-align: center;"><b><u>Essential Questions</u></b></p> <ul style="list-style-type: none"> <li>● <u>Why is it important to analyze data to help you make an important decision?</u></li> </ul>
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Bloom's Taxonomy Level: Analyze
Depth of Knowledge Level: 3

**Assessment Item:**



Jacob scored a 94, 87, 98, 87, 60, 90, and a 93 on his math tests this quarter. Identify the median and interquartile range. Determine if there are any outliers in the data set. Explain why the median (compared to the mean) best represents the measure of center for this data? Also explain why the IQR is also a better measure of variability compared to the mean absolute deviation.

### Three-Column Rubric

EXPECTATION	STUDENT SELF-ASSESSMENT	TEACHER ASSESSMENT
I found the median		
I found the interquartile range		
I found the outlier		
I was able to determine the best measure of center for a data set		

### Point Value Three-Column Rubric

EXPECTATION	STUDENT SELF-ASSESSMENT			TEACHER ASSESSMENT
	3	2	1	
	3	2	1	
	3	2	1	

\*If using point values, create explicit expectations for student performance under each point value for each specific standard expectation.

EXPECTATION	3	2	1
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