| The Partially Proficient student | The Proficient student |
| :--- | :--- | Ratios and Proportional Relationship

Understand the concept of a ratio as comparing two quantities
The Highly Proficient student
multiplicatively or joining/composing the two quantities in a way that preserves a multiplicative relationship. Use ratio language to describe a ratio relationship between two quantities. For example, "There were $2 / 3$ as many men as women at the concert."
Understand the concept of a unit rate $\mathrm{a} / \mathrm{b}$ associated with a ratio $a: b$ with $b \neq 0$, and use rate language (e.g., for every, for each, for each 1 , per) in the context of a ratio relationship. (Complex fraction notation is not an expectation for unit rates in this grade level.)

Use ratio and rate reasoning to solve mathematical problems and problems in real-world context (e.g., by reasoning about data collected from measurements, tables of equivalent ratios, tape diagrams, double number line diagrams, or equations).

Understand the concept of a ratio as comparing two quantities multiplicatively. Use ratio language to describe a ratio relationship between two quantities using a limited variety of representations.
about data collected from measurements, tables of equivalent ratios, tape diagrams, double number line diagrams, or equations)
a. Use tables of equivalent ratios relating quantities with whole-number measurements, identify missing values in the tables, and identify the pairs of values plotted on the coordinate plane. Use tables to compare ratios.
b. Identify the unit rate for unit rate problems including those involving unit pricing and constant speed.
c. Identify a percent of a quantity as a rate per 100 (e.g., $30 \%$ of a quantity means 30/100 times the quantity). Identify solutions to percent problems when the percent is the unknown.
d. Use ratio reasoning to match measurement units; transform units appropriately when multiplying quantities.
Understand the concept of a ratio as comparing two quantities. Use ratio language to identify a ratio relationship between two quantities
dentify a unit rate associated with a ratio describe it

Use ratio and rate reasoning to solve mathematical problems and problems in real-world context (e.g., by reasoning

Use ratio and rate reasoning to solve mathematical problems and problems in real-world context (e.g., by reasoning about data collected from measurements, tables of equivalent ratios, tape diagrams, double number line diagrams, or equations).
a. Use tables of equivalent ratios relating quantities with whole-number
measurements, determine missing values in the tables, and plot the pairs of values on the coordinate plane. Use tables to compare ratios.
b. Define unit rate for unit rate problems including those involving unit pricing and constant speed.
c. Identify a percent of a quantity as a rate per 100 (e.g., $30 \%$ of a quantity means 30/100 times the quantity). Identify solutions to percent problems when the percent or the part is the unknown.
d. Use ratio reasoning to identify measurement units; transform units appropriately when multiplying or dividing quantities.
a. 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.
b. Solve unit rate problems including those involving unit pricing and constant speed
c. Find a percent of a quantity as a rate per 100 (e.g., $30 \%$ of quantity means $30 / 100$ times the quantity). Solve percent problems with the unknown in all positions of the equation.
d. Use ratio reasoning to convert measurement units; manipulate and transform units appropriately when multiplying or dividing quantities.

Explain the concept of a ratio as comparing two quantities multiplicatively or joining/composing the two quantities in a way that preserves a multiplicative relationship. Use ratio language to describe a ratio relationship between two quantities.

Explain 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.

Use ratio and rate reasoning to solve
mathematical problems and problems in realworld context (e.g., by reasoning about data collected from measurements, tables of equivalent ratios, tape diagrams, double number ine diagrams, or equations).
a. Explain the pattern in tables of equivalent ratios relating quantities with whole-number measurements, explain how to find missing values in the tables, and how to plot the pairs of values on the coordinate plane. Use tables to compare ratios.
b. Solve unit rate problems involving more than one unit rate.
c. Explain why a percent of a quantity is a rate per 100. Create and solve percent problems with the unknown in all positions of the equation.
d. Use ratio reasoning to convert measurement units when more than one conversion is required manipulate and transform units appropriately when multiplying or dividing quantities

## Math Grade 6

Performance Level Descriptors (PLDs)

| The Number System |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: |
| 6.NS.A. 1 | Compute quotients of fractions to solve mathematical problems using visual fraction models to represent the problem. | Compute quotients of fractions to solve mathematical problems using visual fraction models and equations to represent the problem. | Interpret and compute quotients of fractions to solve mathematical problems and problems in real-world context involving division of fractions by fractions using visual fraction models and equations to represent the problem. For example, create a story context for $2 / 3 \div 3 / 4$ and use a visual fraction model to show the quotient; use the relationship between multiplication and division to explain that $2 / 3 \div 3 / 4=8 / 9$ because $3 / 4$ of $8 / 9$ is $2 / 3$. In general, $a / b \div c / d=a d / b c$. | Compute quotients of fractions to solve mathematical problems and problems in realworld context involving mixed numbers using visual fraction models and equations to represent the problem. Interpret the solution in the context of the problem. |
| 6.NS.B. 2 | Fluently divide three-digit numbers by two digit numbers using a standard algorithm. | Fluently divide four-digit numbers by twodigit numbers using a standard algorithm. | Fluently divide multi-digit numbers using a standard algorithm. | Fluently divide multi-digit numbers to solve realworld problems, not including multi-digit decimals, using a standard algorithm and assess the reasonableness of the result. |
| 6.NS.B. 3 | Fluently add, subtract, and multiply multidigit decimals, where decimals are limited to the hundredths, using a standard algorithm for each operation. | Fluently add, subtract, multiply, and divide multi-digit decimals, where the divisor is a whole number, using a standard algorithm for each operation. | Fluently add, subtract, multiply, and divide multi-digit decimals using a standard algorithm for each operation. | Fluently add, subtract, multiply, and divide multidigit decimals to solve real world problems, using a standard algorithm for each operation, and assess the reasonableness of the result.. |
| 6.NS.B. 4 | Use previous understanding of factors to find the greatest common factor and the least common multiple. <br> a. Select the greatest common factor of two whole numbers less than or equal to 100 using visual models. <br> b. Select the least common multiple of two whole numbers less than or equal to 12 using visual models. <br> c. Identify the distributive property to express a sum of two whole numbers 1 to 100 with a common factor as a multiple of a sum of two whole numbers. For example, express $16+8$ as $2(8+4)$.using visual models. | Use previous understanding of factors to find the greatest common factor and the least common multiple. <br> a. Identify the greatest common factor of two whole numbers less than or equal to 100. <br> b. Identify the least common multiple of two whole numbers less than or equal to 12. <br> c. Identify the distributive property to express a sum of two whole numbers 1 to 100 with a common factor as a multiple of a sum of two whole numbers with no common factor. For example, express $16+$ 8 as $8(2+1)$. | Use previous understanding of factors to find the greatest common factor and the least common multiple. <br> a. Find the greatest common factor of two whole numbers less than or equal to 100. <br> b. Find the least common multiple of two whole numbers less than or equal to 12. <br> c. Use the distributive property to express a sum of two whole numbers 1 to 100 with a common factor as a multiple of a sum of two whole numbers with no common factor. For example, express $36+8$ as $4(9+2)$. | Use previous understanding of factors to find the greatest common factor and the least common multiple. <br> a. Find two whole numbers when given their greatest common factor. <br> b. Find two whole numbers when given their least common multiple. <br> c. Use the greatest common factor and the distributive property to express a sum of two whole numbers greater than 100 with a common factor as a multiple of a sum of two whole numbers with no common factor. For example, express $336+270$ as $6(56+45)$. |

Math Grade 6
Performance Level Descriptors (PLDs)

| 6.NS.C. 5 | Understand that positive and negative numbers are used together to describe quantities having opposite directions or values. Identify positive and negative numbers that represent quantities in realworld context, identifying the meaning of 0 in each situation. | Understand that positive and negative numbers are used together to describe quantities having opposite directions or values. Identify real-world context that can be represented with positive and negative numbers, defining the meaning of 0 in each situation. | Understand that positive and negative numbers are used together to describe quantities having opposite directions or values. Use positive and negative numbers to represent quantities in real-world context, explaining the meaning of 0 in each situation. | Understand that positive and negative numbers are used together to describe quantities having opposite directions or values. Use positive and negative numbers to represent quantities in realworld context, explaining the meaning of 0 in each situation. Interpret and represent changes in positive and negative numbers representing quantities in real-world situations in terms of the context. |
| :---: | :---: | :---: | :---: | :---: |
| 6.NS.C. 6 | Understand a rational number can be represented as a point on the number line. Extend number line diagrams and coordinate axes familiar from previous grades to represent points on the line and in the plane with negative number coordinates. <br> a. Identify the opposite of a number. <br> b. Understand signs of numbers in ordered pairs as indicating locations in quadrants of the coordinate plane; recognize a negative coordinate indicates left or down while a positive coordinate indicates up or right. <br> c. Find and position integers and other rational numbers on a horizontal or vertical number line diagram. | Understand a rational number can be represented as a point on the number line. Extend number line diagrams and coordinate axes familiar from previous grades to represent points on the line and in the plane with negative number coordinates. <br> a. Recognize opposite signs of numbers as indicating locations on opposite sides of 0 on the number line and that 0 is its own opposite. <br> b. Understand signs of numbers in ordered pairs as indicating locations in quadrants of the coordinate plane; indicate the quadrant a point lies in based on the sign of the coordinates. <br> c. Find and position integers and other rational numbers on a horizontal or vertical number line diagram; find and position pairs of integers and on a coordinate plane. | Understand a rational number can be represented as a point on the number line. Extend number line diagrams and coordinate axes familiar from previous grades to represent points on the line and in the plane with negative number coordinates. <br> a. Recognize opposite signs of numbers as indicating locations on opposite sides of 0 on the number line; recognize that the opposite of the opposite of a number is the number itself and that 0 is its own opposite. <br> b. Understand signs of numbers in ordered pairs as indicating locations in quadrants of the coordinate plane; recognize that when two ordered pairs differ only by signs, the locations of the points are related by reflections across one or both axes. <br> c. Find and position integers and other rational numbers on a horizontal or vertical number line diagram; find and position pairs of integers and other rational numbers on a coordinate plane. | Understand a rational number can be represented as a point on the number line. Extend number line diagrams and coordinate axes familiar from previous grades to represent points on the line and in the plane with negative number coordinates. <br> a. Recognize opposite signs of numbers as indicating locations on opposite sides of 0 on the number line; recognize that the opposite of the opposite of a number is the number itself and that 0 is its own opposite. Indicate whether a number will be to the left or right of 0 on the number line, given the number of negative symbols it has. <br> b. Understand signs of numbers in ordered pairs as indicating locations in quadrants of the coordinate plane; explain why it is that when two ordered pairs differ only by signs, the locations of the points are related by reflections across one or both axes. <br> c. Create real world problems that are solved by given rational numbers on a number line diagram; create real world problems that are solved by given pairs of integers and other rational numbers on a coordinate plane. |

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| 6.NS.C. 7 | Understand ordering and absolute value of rational numbers. <br> a. Identify a statement of inequality given the position of the two numbers on a number line. <br> b. Identify correct statements of order for rational numbers in real-world context. <br> c. Understand the absolute value of a rational number is always positive. <br> d. Compare the absolute value of two positive numbers in mathematical problems and problems in real-world context. | Understand ordering and absolute value of rational numbers. <br> a. Create a statement of inequality given the position of the two numbers on a number line. <br> b. Write statements of order for rational numbers in real-world context. <br> c. Understand the absolute value of a rational number as its distance from 0 on the number line. <br> d. Compare the absolute value of two numbers in mathematical problems and problems in real-world context. | Understand ordering and absolute value of rational numbers. <br> a. Interpret statements of inequality as statements about the relative position of two numbers on a number line. <br> b. Write, interpret, and explain statements of order for rational numbers in real-world context. <br> c. Understand the absolute value of a rational number as its distance from 0 on the number line; interpret absolute value as magnitude for a positive or negative quantity in real-world context. <br> d. Distinguish comparisons of absolute value from statements about order in mathematical problems and problems in realworld context. | Understand ordering and absolute value of rational numbers. <br> a. Justify the relative position of multiple numbers on a number line given statements of inequality about their relative positions. <br> b. Create scenarios in real-world context that fit statements of order for rational numbers. <br> c. Solve problems involving understanding the absolute value of a rational number as its distance from 0 on the number line; interpret absolute value as magnitude for a positive or negative quantity in real-world context. <br> d. Explain comparisons of absolute value from statements about order in mathematical problems and problems in real-world context. |
| :---: | :---: | :---: | :---: | :---: |
| 6.NS.C. 8 | Solve mathematical problems by graphing points in all one quadrant of the coordinate plane. Count spaces between coordinates to find whole number distances between points with the same first coordinate or the same second coordinate. | Solve mathematical problems by graphing points in all four quadrants of the coordinate plane. Include use of coordinates to find whole number distances between points with the same first coordinate or the same second coordinate. | Solve mathematical problems and problems in real-world context 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. | Justify solutions to mathematical problems and problems in real-world context solved 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. |

Math Grade 6
Performance Level Descriptors (PLDs)

| Expressions and Equations |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: |
| 6.EE.A. 1 | Write and evaluate numerical expressions involving a single number with a wholenumber exponent. | Write and evaluate numerical expressions involving a single term and whole-number exponents. | Write and evaluate numerical expressions involving wholenumber exponents. | Write and evaluate numerical expressions involving multiple terms and whole-number exponents. |
| 6.EE.A. 2 | Write, read, and evaluate algebraic expressions. <br> a. Write expressions that record a single operation with numbers and variables. <br> b. Match part of an expression to its mathematical term (sum, term, and product); view one part of an expression as a single entity. <br> c. Identify the value of an expression with one variable given the specific value of the variable. Include expressions that arise from formulas used to solve mathematical problems and problems in real-world context. Perform arithmetic operations in the conventional order when there are no parentheses to specify a particular order (Order of Operations). | Write, read, and evaluate algebraic expressions. <br> a. Write expressions that record two operations with numbers and variables. <br> b. Identify parts of an expression using mathematical terms (sum, term, and product); view one or more parts of an expression as a single entity. <br> c. Identify the value of an expression with two variables given specific values of their variables. Include expressions that arise from formulas used to solve mathematical problems and problems in real-world context. Perform arithmetic operations, including those involving whole-number exponents, in the conventional order when there are no parentheses to specify a particular order (Order of Operations). | Write, read, and evaluate algebraic expressions. <br> a. Write expressions that record operations with numbers and variables. <br> b. Identify parts of an expression using mathematical terms (sum, term, product, factor, quotient, and coefficient); view one or more parts of an expression as a single entity. <br> c. Evaluate expressions given specific values of their variables. Include expressions that arise from formulas used to solve mathematical problems and problems in real-world context. Perform arithmetic operations, including those involving wholenumber exponents, in the conventional order when there are no parentheses to specify a particular order (Order of Operations). | Write, read, and evaluate algebraic expressions. <br> a. Write expressions that record operations, including exponents, with numbers and variables. <br> b. Create expressions given mathematical terms (sum, term, product, factor, quotient, and coefficient); explain how one part of an expression relates to other parts of the expression. <br> c. Evaluate expressions with multiple variables and multiple operations given specific values of their variables. Include expressions that arise from formulas used to solve mathematical problems and problems in real-world context. Perform arithmetic operations, including those involving whole-number exponents, in the conventional order when there are no parentheses to specify a particular order (Order of Operations). |
| 6.EE.A. 3 | Apply the Associative and Commutative properties of operations to generate equivalent expressions involving wholenumbers. | Apply the properties of operations to generate equivalent expressions involving whole-numbers. | 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 $6+$ $3 x$. | Apply the properties of operations to generate equivalent expressions involving rational numbers and whole-number exponents in real-world contexts. |
| 6.EE.A. 4 | Identify when two expressions are equivalent in cases of repeated addition. | Identify when two expressions are equivalent in cases where the resulting expression only has one term. | Identify when two expressions are equivalent. For example, the expressions $y+y+y$ and $3 y$ are equivalent because they name the same number regardless of which number $y$ stands for. | Create equivalent expressions. |
| 6.EE.B. 5 | Understand solving an equation or inequality as a process of reasoning to find the value(s) of the variables that make that equation or inequality true. Use substitution to identify a whole number in a specified set that makes an equation or inequality true. | Understand solving an equation or inequality as a process of reasoning to find the value(s) of the variables that make that equation or inequality true. Use substitution to identify a number in a specified set that makes an equation or inequality true. | Understand solving an equation or inequality as a process of reasoning to find the value(s) of the variables that make that equation or inequality true. Use substitution to determine whether a given number in a specified set makes an equation or inequality true. | Explain how solving an equation or inequality is the process of reasoning to find the value(s) of the variables that make that equation or inequality true. |

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| 6.EE.B. 6 | Identify what the variables represent when solving mathematical problems and problems in real-world context; understand that a variable can represent an unknown number. | Identify what the expressions represent when solving mathematical problems and problems in real-world context; understand that a variable can represent an unknown number or any number in a specified set. | Use variables to represent numbers and write expressions when solving mathematical problems and problems in realworld context; understand that a variable can represent an unknown number or any number in a specified set. | Solve problems by writing an expression with a variable that represents several possible rational numbers within a mathematical or real-world context; understand that a variable can represent an unknown number or any number in a specified set. |
| :---: | :---: | :---: | :---: | :---: |
| 6.EE.B. 7 | Solve mathematical equations of the form $x+p=q, x-p=q$, and $p x=q$, for cases in which $p, q$ and $x$ are all non-negative whole numbers. | Solve mathematical problems and problems in real-world context by solving equations of the form $x+p=q, x-p=q$, $p x=q$, and $x / p=q$ for cases in which $p, q$ and $x$ are all non-negative whole numbers. | Solve mathematical problems and problems in real-world context by writing and solving equations of the form $x+p=q, x$ $-p=q, p x=q$, and $x / p=q$ for cases in which $p, q$ and $x$ are all non-negative rational numbers. | Create mathematical problems and problems in real-world context that can be solved using equations of the form $x+p=q, x-p=q, p x=q$, and $\mathrm{x} / \mathrm{p}=\mathrm{q}$ for cases in which $\mathrm{p}, \mathrm{q}$ and x are all non-negative rational numbers. |
| 6.EE.B. 8 | Recognize that inequalities of the form $\mathrm{x}>$ c, $x<c, x \geq c$, or $x \leq c$ have infinitely many solutions; identify solutions of such inequalities on number lines. | Recognize that inequalities of the form $x>$ c, $x<c, x \geq c$, or $x \leq c$ have infinitely many solutions; identify solutions of compound inequalities on number lines. | Write an inequality of the form $\mathrm{x}>\mathrm{c}, \mathrm{x}<\mathrm{c}, \mathrm{x} \geq \mathrm{c}$, or $\mathrm{x} \leq \mathrm{c}$ to represent a constraint or condition to solve mathematical problems and problems in real-world context. Recognize that inequalities have infinitely many solutions; represent solutions of such inequalities on number lines. | Given an inequality of the form $x>c, x<c, x \geq c$, or $\mathrm{x} \leq \mathrm{c}$ create mathematical problems and problems in real-world context that could be represented by the inequality. |
| 6.EE.C. 9 | Given a graph or table representing two quantities that change in relationship to one another, identify an equation that expresses one quantity in terms of the other quantity. | Given a graph or table representing two quantities that change in relationship to one another, identify the dependent and independent variables, and write an equation that expresses one quantity in terms of the other quantity. | Use variables to represent two quantities that change in relationship to one another to solve mathematical problems and problems in real-world context. Write an equation to express one quantity (the dependent variable) in terms of the other quantity (the independent variable). Analyze the relationship between the dependent and independent variables using graphs and tables, and relate these to the equation. | Given an equation where variables represent two quantities that change in relationship to one another, create a problem in real-world context that could be represented by the equation. Explain the relationship between the dependent and independent variables and relate these to the equation. |

## Math Grade 6

Performance Level Descriptors (PLDs)

|  |  |  | Geometry |  |
| :---: | :---: | :---: | :---: | :---: |
| 6.G.A. 1 | Find the area of right triangles and polygons decomposed into right triangles and rectangles, given all the measurements. | Find the area of triangles and polygons decomposed into right triangles and rectangles, given some of the measurements. | 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 to solve mathematical problems and problems in real-world context. | Find the area of triangles, special quadrilaterals, and polygons by composing into rectangles or decomposing into triangles and other shapes; apply these techniques to solve mathematical problems and problems in real-world context, including decimal and fractional measurements.. |
| 6.G.A. 2 | Use the formula $V=B \cdot h$, where in this case, $B$ is the area of the base ( $B=1 \times w)$ to find volumes of right rectangular prisms with whole number edge lengths in mathematical problems and problems in real-world context. | Use the formula $\mathrm{V}=\mathrm{B} \cdot \mathrm{h}$, where in this case, $B$ is the area of the base ( $B=1 \times w$ ) to find volumes of right rectangular prisms with one fractional edge length in mathematical problems and problems in real-world context. | 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. Understand and use the formula $\mathrm{V}=\mathrm{B} \cdot \mathrm{h}$, where in this case, $B$ is the area of the base ( $B=1 \times w$ ) to find volumes of right rectangular prisms with fractional edge lengths in mathematical problems and problems in real-world context. | Explain that the volume of a right rectangular prism with fractional edge lengths found by multiplying the edge lengths of the prism. Understand the formula $\mathrm{V}=\mathrm{B} \cdot \mathrm{h}$, where in this case, $B$ is the area of the base ( $B=1 \times w$ ). Given the volume, use the formula to find edge lengths of right rectangular prisms with fractional edge lengths in mathematical problems and problems in real-world context. |
| 6.G.A. 3 | Draw polygons in the coordinate plane given coordinates for the vertices. | Use coordinates to find the length of a side joining points with the same first coordinate or the same second coordinate. | Draw polygons in the coordinate plane given coordinates for the vertices; use coordinates to find the length of a side joining points with the same first coordinate or the same second coordinate. Apply these techniques to solve mathematical problems and problems in a real-world context. | Use coordinates to find the length of a side joining points with the same first coordinate or the same second coordinate. Apply these techniques to solve mathematical problems and problems in a real-world context. Finds a missing vertex of a polygon given other vertices. |
| 6.G.A. 4 | Represent three-dimensional figures using nets made up of rectangles and triangles. | Use the nets representing threedimensional figures to find the surface area of these figures. | Represent three-dimensional figures using nets made up of rectangles and triangles, and use the nets to find the surface area of these figures. Apply these techniques to solve mathematical problems and problems in real-world context. | Represent three-dimensional figures with fractional edges using nets made up of rectangles and triangles, and use the nets to find the surface area of these figures. Apply these techniques to solve mathematical problems and problems in real-world context. |

## Math Grade 6

Performance Level Descriptors (PLDs)

| Statistics and Probability |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: |
| 6.SP.A. 1 | Identify a statistical question. | Change a non-statistical question into a statistical question. | Recognize a statistical question as one that anticipates variability in the data related to the question and accounts for variability in the answers. For example, "How old am I?" is not a statistical question, but "How old are the students in my school?" is a statistical question because one anticipates variability in students' ages. | Create a statistical question given a context. |
| 6.SP.A. 2 | Identify a set of data by its center, spread, and overall shape. | Describe a set of data by its center, spread, and overall shape. | Understand that a set of data collected to answer a statistical question has a distribution whose general characteristics can be described by its center, spread, and overall shape. | Create a set of data with a distribution whose general characteristics can be described by a given center, spread, and overall shape. |
| 6.SP.A. 3 | Recognize mean, median, and mode as measures of center and range as a measure of variation. | Calculate mean, median, and mode as measures of center and range as a measure of variation. | Recognize that a measure of center for a numerical data set summarizes all of its values with a single number, while a measure of variation uses a single number to describe the spread of the data set. | Recognize how a measure of center or a measure of variation would be impacted by outliers in a numerical data set. |
| 6.SP.B. 4 | Identify an appropriate display for numerical data including histograms, dot plots, and box plots. | Construct an appropriate display for numerical data including histograms, dot plots, and box plots. | Display and interpret numerical data by creating plots on a number line including histograms, dot plots, and box plots. | Display and interpret numerical data by creating plots on a number line including histograms, dot plots, and box plots, and explaining what the display indicates about the data. |
| 6.SP.B. 5 | Summarize numerical data sets in relation to their context by: <br> a. Reporting the number of observations in a dot plot. <br> b. For the attribute under investigation, identify its units of measurement. <br> c. Distinguish between measures of center (median and/or mean) and variability (interquartile range and/or mean absolute deviation). <br> d. Identify mean and mean absolute deviation as the best choice of measures of center and variability for a symmetric data distribution. | Summarize numerical data sets in relation to their context by: <br> a. Reporting the number of observations in a histogram. <br> b. For the attribute under investigation, identify how it was measured. <br> c. Calculate measures of center (median and/or mean) and variability (interquartile range and/or mean absolute deviation. <br> d. Identify median and interquartile range as the best choice of measures of center and variability for a skewed data distribution. | Summarize numerical data sets in relation to their context by: <br> a. Reporting the number of observations. <br> b. Describing the nature of the attribute under investigation including how it was measured and its units of measurement. <br> 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. <br> d. Relating the choice of measures of center and variability to the shape of the data distribution and the context in which the data were gathered. | Summarize numerical data sets in relation to their context by: <br> a. Reporting the number of observations given calculations for a measure of center or variability. <br> b. Describing the nature of the attribute under investigation including explaining why it was measured a particular way and why certain units of measurement were used. <br> c. Comparing data sets using 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. <br> d. Choose the appropriate measure of center and variability for data set and explains the reasoning for the choice. |

