FL **6.EE.1.1**

Write and evaluate numerical expressions involving whole-number exponents.

Key Vocabulary

exponent *(exponente)* The number that indicates how many times the base is used as a factor.

order of operations *(orden de las operaciones)* A rule for evaluating expressions: first perform the operations in parentheses, then compute powers and roots, then perform all multiplication and division from left to right, and then perform all addition and subtraction from left to right.

What It Means to You

You will simplify numerical expressions using the order of operations.

UNPACKING EXAMPLE 6.EE.1.1

Ellen is playing a video game in which she captures frogs. There were 3 frogs onscreen, but the number of frogs doubled every minute when she went to get a snack. She returned after 4 minutes and captured 7 frogs. Write an expression for the number of frogs remaining. Simplify the expression.

3×2	number of frogs after 1 minute
$3 \times 2 \times 2$	number of frogs after 2 minutes
$3 \times 2 \times 2 \times 2$	number of frogs after 3 minutes
$3 \times 2 \times 2 \times 2 \times 2$	number of frogs after 4 minutes

Since 3 and 2 are prime numbers, $3 \times 2 \times 2 \times 2 \times 2$ is the prime factorization of the number of frogs remaining.

$3 \times 2 \times 2 \times 2 \times 2$ can be written with exponents as 3×2^4.

The expression $3 \times 2^4 - 7$ is the number of frogs remaining after Ellen captured the 7 frogs.

Use the order of operations to simplify $3 \times 2^4 - 7$.

$$\begin{aligned} 3 \times 2^4 - 7 &= 3 \times 16 - 7 \\ &= 48 - 7 \\ &= 41 \end{aligned}$$

41 frogs remain.

FL 6.EE.1.2

Write, read, and evaluate expressions in which letters stand for numbers.

Key Vocabulary

expression *(expresión)*
A mathematical phrase that contains operations, numbers, and/or variables.

What It Means to You

You will use models to compare expressions.

UNPACKING EXAMPLE 6.EE.1.2

On a math quiz, Tina scored 3 points more than Yolanda. Juan scored 2 points more than Yolanda and earned 2 points as extra credit.

Write expressions for the numbers of points that Juan and Tina scored. Use y to represent the number of points that Yolanda scored.

Tina's points: $y + 3$
Juan's points: $y + 2 + 2$

Suppose Yolanda scored 82 points. Use the expressions to find the number of points Tina and Juan scored.

Tina's points: $y + 3 = 82 + 3 = 85$ points
Juan's points: $y + 2 + 2 = 82 + 2 + 2 = 86$ points

FL 6.EE.1.2a

Write expressions that record operations with numbers and with letters standing for numbers.

Key Vocabulary

expression *(expresión)*
A mathematical phrase that contains operations, numbers, and/or variables.

What It Means to You

You will write algebraic expressions containing variables to stand for numbers.

UNPACKING EXAMPLE 6.EE.1.2a

Let c represent the number of items a student gets correct on a math test. For each correct answer, the student receives 5 points.

Write an expression for the total number of points received.

To represent "*for each correct answer c, the student receives 5 points*," multiply 5 times c.

$$5c$$

The student received $5c$ points on the test.

FL **6.EE.1.2b**

Identify parts of an expression using mathematical terms (sum, term, product, factor, quotient, coefficient); view one or more parts of an expression as a single entity.

Key Vocabulary

expression *(expresión)*
A mathematical phrase that contains operations, numbers, and/or variables.

coefficient *(coeficiente)*
The number that is multiplied by the variable in an algebraic expression.

term (in an expression) *(término (en una expresión))*
The parts of an expression that are added or subtracted.

factor *(factor)*
A number that is multiplied by another number to get a product.

product *(producto)*
The result when two or more numbers are multiplied.

quotient *(cociente)*
The result when one number is divided by another.

sum *(suma)*
The result when two or more numbers are added.

What It Means to You

You will identify parts of an expression using mathematical terms.

UNPACKING EXAMPLE 6.EE.1.2b

Use mathematical terms to describe the parts of the expression:

A. $3 + a$

The expression is the sum of 3 and a.
This expression has 2 terms: 3 and a.

B. $3a$

The expression is the product of 3 and a.
This expression has only 1 term: $3a$.
3 and a are both factors of the product.
3 is the coefficient in this expression.

C. $5 \div a$

The expression is the quotient of 5 and a.
This expression has only 1 term: $5 \div a$, or $\frac{5}{a}$.

D. $5(n + 3)$

In the expression $5(n + 3)$, you can name the parts of the *whole* expression. You can also name the parts of *just one factor* in the expression.

The expression $5(n + 3)$ is the product of 5 and $(n + 3)$.
5 and $(n + 3)$ are both factors of the product.
5 is the coefficient in this expression.
The expression $n + 3$ is the sum of n and 3.
The expression $n + 3$ has 2 terms: n and 3.

FL 6.EE.1.2c

Evaluate expressions at specific values of their variables. Include expressions that arise from formulas used in real-world problems. 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).

Key Vocabulary

expression *(expresión)*
A mathematical phrase that contains operations, numbers, and/or variables.

formula *(fórmula)*
A rule showing relationships among quantities.

order of operations *(orden de las operaciones)*
A rule for evaluating expressions: first perform the operations in parentheses, then compute powers and roots, then perform all multiplication and division from left to right, and then perform all addition and subtraction from left to right.

What It Means to You

You will evaluate expressions, including expressions that represent real-world problems.

UNPACKING EXAMPLE 6.EE.1.2c

A. Each song download costs \$0.99, and Nina pays $0.99d$ to download d songs. Evaluate the expression $0.99d$ to find how much she pays for 12 downloads.

$0.99d = 0.99(12)$ Substitute 12 for d.

$= 11.88$ Multiply.

Nina pays \$11.88 for 12 downloads.

B. Alex paints a wall that has an area of 110 square feet. The wall has 2 square windows in it. Each of the windows measures 3 feet on a side. Simplify $110 - 2 \times 3^2$ to find the area that Alex paints.

$110 - 2 \times 3^2$

$= 110 - 2 \times 9$ Square 3.

$= 110 - 18$ Multiply 2 and 9.

$= 92$ Subtract 18 from 110.

Alex paints an area of 92 square feet.

C. Regina bought 5 carved wooden beads for \$3 each and 8 glass beads for \$2 each. Simplify $5 \times 3 + 8 \times 2$ to find the amount Regina spent for beads.

$5 \times 3 + 8 \times 2$

$= 15 + 16$ Multiply 5 by 3 and 8 by 2.

$= 31$ Add 15 and 16.

Regina spent \$31 for beads.

FL **6.EE.1.3**

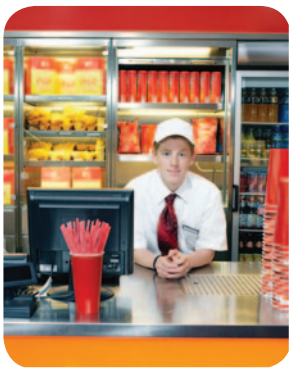
Apply the properties of operations to generate equivalent expressions.

Key Vocabulary

equivalent expressions
(expresión equivalente)
Expressions that have the same value for all values of the variables.

What It Means to You

You will use the properties of operations to find an equivalent expression.



UNPACKING EXAMPLE 6.EE.1.3

William earns \$13 an hour working at a movie theater. He worked h hours in concessions and three times as many hours at the ticket counter. Write and simplify an expression for the amount of money William earned.

\$13 · hours at concessions + \$13 · hours at ticket counter

$13h + 13(3h)$	
$13h + 39h$	Multiply $13 \cdot 3h$.
$h(13 + 39)$	Distributive Property
$52h$	Simplify.

FL **6.EE.1.4**

Identify when two expressions are equivalent (i.e., when the two expressions name the same number regardless of which value is substituted into them).

Key Vocabulary

equivalent expressions
(expresión equivalente)
Equivalent expressions have the same value for all values of the variables.

What It Means to You

You will identify equivalent expressions that name the same value.

UNPACKING EXAMPLE 6.EE.1.4

Are the following expressions equivalent? How do you know?

$$4m + 8$$
$$3m + 8 + m$$
$$4(m + 2)$$
$$2 + 2m + 6 + 2m$$

One way to identify expressions that name the same value is to substitute a number (such as 5) for the variable (m).

$$4(5) + 8 = 28$$
$$3(5) + 8 + 5 = 28$$
$$4(5 + 2) = 28$$
$$2 + 2(5) + 6 + 2(5) = 28$$

Another way to identify equivalent expressions is to simplify them.

Expression	Simplifying	Notes
$4m + 8$	$4m + 8$	already in simplest form
$3m + 8 + m$	$3m + m + 8$ $4m + 8$	combine like terms
$4(m + 2)$	$4m + 4(2)$ $4m + 8$	Distributive Property
$2 + 2m + 6 + 2m$	$2m + 2m + 2 + 6$ $4m + 8$	combine like terms

Both methods show that all four of the expressions are equivalent.

FL 6.EE.2.5

Understand solving an equation or inequality as a process of answering a question: which values from a specified set, if any, make the equation or inequality true? Use substitution to determine whether a given number in a specified set makes an equation or inequality true.

Key Vocabulary

inequality *(desigualdad)*
A mathematical sentence that shows the relationship between quantities that are not equal.

What It Means to You

You can substitute a given value for the variable in an equation or inequality to check if that value makes the equation or inequality true.

UNPACKING EXAMPLE 6.EE.2.5

Melanie has to buy 6 tickets to a play. She will pay at least $156 depending on the price of the tickets. Write an inequality for this situation. Decide if $20, $26, and $30 are possible ticket prices.

Number of tickets bought	·	Price per ticket	$\geq$	Total cost
6	·	p	$\geq$	156

Substitute 20 and 30 for p to see if the inequality is true.

$6p \geq 156$	$6p \geq 156$	$6p \geq 156$
$6 \cdot 20 \overset{?}{\geq} 156$	$6 \cdot 26 \overset{?}{\geq} 156$	$6 \cdot 30 \overset{?}{\geq} 156$
$120 \overset{?}{\geq} 156$ ✗	$156 \overset{?}{\geq} 156$ ✓	$180 \overset{?}{\geq} 156$ ✓

The price per ticket could be $26 or $30 but not $20.

FL 6.EE.2.6

Use variables to represent numbers and write expressions when solving a real-world or mathematical problem; understand that a variable can represent an unknown number, or, depending on the purpose at hand, any number in a specified set.

Key Vocabulary

expression *(expresión)*
A mathematical phrase that contains operations, numbers, and/or variables.

variable *(variable)*
A symbol used to represent a quantity that can change.

What It Means to You

You will use a variable to represent a number in an expression.

UNPACKING EXAMPLE 6.EE.2.6

A. Sofia has three more than twice as many pencils as Caroline. Write an expression to represent the number of pencils that Sofia has.

c represents the number of pencils that Caroline has.

$2c + 3$ represents the number of pencils that Sofia has.

B. An amusement park charges $15 to enter and $0.25 per ticket. Write an expression to represent the total cost.

t represents the number of tickets bought.

$15 + 0.25t$ represents the total cost.

FL 6.EE.2.7

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.

Key Vocabulary

equation *(ecuación)*
A mathematical sentence that shows that two expressions are equivalent.

What It Means to You

You will learn to write and solve equations to represent and solve problems.

UNPACKING EXAMPLE 6.EE.2.7

The Falcons won their football game with a score of 30 to 19. Kevin scored 12 points for the Falcons. Write an equation to determine how many points Kevin's teammates scored.

Kevin's points	+	Teammates' points	=	Total points
12	+	t	=	30

Solve the equation to find how many points Kevin's teammates scored.

$$12 + t = 30 \quad \text{Notice that 12 is added to } t.$$

$$-12 \qquad -12 \quad \text{Subtract 12 from both sides.}$$

$$t = 18 \quad \text{Simplify.}$$

Kevin's teammates scored 18 points.

FL 6.EE.2.8

Write an inequality of the form $x > c$ or $x < c$ to represent a constraint or condition in a real-world or mathematical problem. Recognize that inequalities of the form $x > c$ or $x < c$ have infinitely many solutions; represent solutions of such inequalities on number line diagrams.

Key Vocabulary

inequality *(desigualdad)*
A mathematical sentence that shows the relationship between quantities that are not equal.

What It Means to You

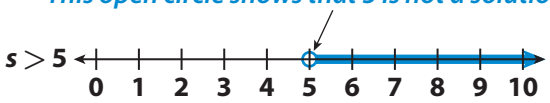
You will understand that an inequality has many solutions. You will graph these solutions on a number line and write inequalities to represent real-world situations.

UNPACKING EXAMPLE 6.EE.2.8

Write and graph an inequality for each situation.

Josephine always walks more than 5 miles on a hike.

This open circle shows that 5 is not a solution.



The temperature did not get above 3°F.

This closed circle shows that 3 is not a solution.

FL **6.EE.3.9**

Use variables to represent two quantities in a real-world problem that change in relationship to one another; write an equation to express one quantity, thought of as the dependent variable, in terms of the other quantity, thought of as the independent variable. ...

Key Vocabulary

equation *(ecuación)*
A mathematical sentence that shows that two expressions are equivalent.

What It Means to You

You will learn to write an equation that represents the relationship in a table.

UNPACKING EXAMPLE 6.EE.3.9

Emily has a dog-walking service. She charges a daily fee of $7 to walk a dog twice a day. Create a table that shows how much Emily earns for walking 1, 6, 10, and 15 dogs. Write an equation that represents the situation.

Dogs walked	1	6	10	15
Earnings ($)	7	42	70	105

Earnings is 7 times the number of dogs walked. Let the variable e represent earnings and the variable d represent the number of dogs walked.

$$e = 7 \times d$$

FL **6.EE.3.9**

...Analyze the relationship between the dependent and independent variables using graphs and tables, and relate these to the equation.

Key Vocabulary

coordinate plane
(plano cartesiano)
A plane formed by the intersection of a horizontal number line called the x-axis and a vertical number line called the y-axis.

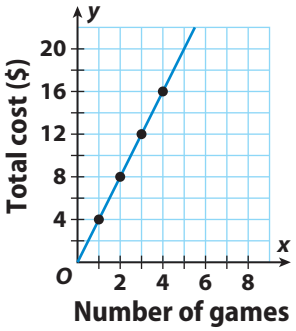
What It Means to You

You can use words, a table, a graph, or an equation to model the same mathematical relationship.

UNPACKING EXAMPLE 6.EE.3.9

The equation $y = 4x$ represents the total cost y for x games of miniature golf. Make a table of values and a graph for this situation.

Number of games, x	1	2	3	4
Total cost ($), y	4	8	12	16



FL 6.G.1.1

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.

What It Means to You

You will use the formula for the area of a figure to write an equation that can be used to solve a problem.

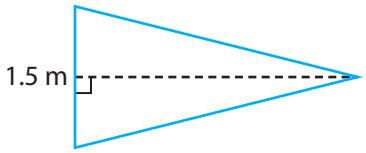
UNPACKING EXAMPLE 6.G.1.1

The Hudson Middle School wrestling team won the state tournament and was awarded a triangular pennant to display in the school gymnasium. The pennant has an area of 2.25 square meters. The base of the pennant is 1.5 meters long. Write an equation to find the height of the pennant.

$A = \frac{1}{2}bh$

$2.25 = \frac{1}{2}(1.5)h$

$2.25 = 0.75h$



An equation to find the height of the pennant is $2.25 = 0.75h$.

FL 6.G.1.1

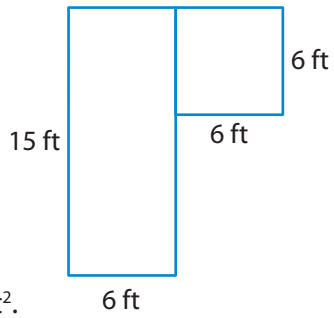
Find the area of right triangles, other triangles, special quadrilaterals, and polygons by composing into rectangles or decomposing into triangles and other shapes; apply these techniques in the context of solving real-world and mathematical problems.

What It Means to You

You will use formulas to find the area of irregular polygons.

UNPACKING EXAMPLE 6.G.1.1

John is measuring his room for new carpet. Find the area of the room.



Find the area of the rectangle.

$A = bh = 15 \times 6 = 90 \text{ ft}^2$

Find the area of the square.

$A = s^2 = 6^2 = 36 \text{ ft}^2$

The total area is $90 \text{ ft}^2 + 36 \text{ ft}^2 = 126 \text{ ft}^2$.

FL 6.G.1.2

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 $V = lwh$ and $V = bh$ to find volumes of right rectangular prisms with fractional edge lengths in the context of solving real-world and mathematical problems.

What It Means to You

You will use the formula for the volume of a rectangular prism.

UNPACKING EXAMPLE 6.G.1.2

Jala has an aquarium in the shape of a rectangular prism. The dimensions of the base of the aquarium are $1\frac{1}{4}$ feet by $\frac{1}{2}$ foot, and the height is $\frac{3}{4}$ foot. Find the volume of the aquarium.

$$\begin{aligned} V &= l \cdot w \cdot h \\ &= 1\frac{1}{4} \cdot \frac{1}{2} \cdot \frac{3}{4} \\ &= \frac{5}{4} \cdot \frac{1}{2} \cdot \frac{3}{4} \\ &= \frac{15}{32} \end{aligned}$$

The volume of the aquarium is $\frac{15}{32}$ cubic foot.

FL 6.G.1.3

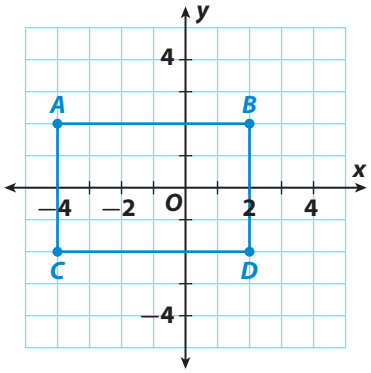
Draw polygons in the coordinate plane given coordinates for the vertices; use coordinates to find the length of a side joining points with the same first coordinate or the same second coordinate. Apply these techniques in the context of solving real-world and mathematical problems.

What It Means to You

You can draw polygons on a coordinate plane by plotting the vertices and connecting them.

UNPACKING EXAMPLE 6.G.1.3

What type of polygon can you make by plotting these points? What are its dimensions?



Point A $(-4, 2)$

Point B $(2, 2)$

Point C $(-4, -2)$

Point D $(2, -2)$

Connect each point.

The points make a rectangle.

$AB = CD = 2 - (-4) = 6$

$AC = BD = 2 - (-2) = 4$

The dimensions of the rectangle are 6 units by 4 units.

FL 6.G.1.4

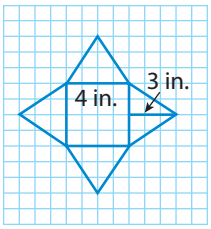
Represent three-dimensional figures using nets made up of rectangles and triangles, and use the nets to find the surface area of these figures. Apply these techniques in the context of solving real-world and mathematical problems.

What It Means to You

You will use a net to find the surface area of a square pyramid.

UNPACKING EXAMPLE 6.G.1.4

Meg drew a net to find the surface area of a paperweight shaped like a square pyramid.



Square face: $A = b \times h = 16$ square inches

Triangular face: $A = \frac{1}{2}\, b \times h = 6$ square inches

Total of the areas:
$16 + (4 \times 6) = 40$ square inches

The surface area is 40 square inches.

FL 6.NS.1.1

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.

Key Vocabulary

quotient *(cociente)*
The result when one number is divided by another.

fraction *(fracción)*
A number in the form $\frac{a}{b}$, where $b \neq 0$.

What It Means to You

You will learn how to divide two fractions. You will also understand the relationship between multiplication and division.

UNPACKING EXAMPLE 6.NS.1.1

Zachary is making vegetable soup. The recipe makes $6\frac{3}{4}$ cups of soup. How many $1\frac{1}{2}$-cup servings will the recipe make?

$$6\tfrac{3}{4} \div 1\tfrac{1}{2}$$
$$= \frac{27}{4} \div \frac{3}{2}$$
$$= \frac{27}{4} \times \frac{2}{3}$$
$$= \frac{9}{2}$$
$$= 4\tfrac{1}{2}$$

The recipe will make $4\frac{1}{2}$ servings.

FL 6.NS.2.2

Fluently divide multi-digit numbers using the standard algorithm.

Key Vocabulary

quotient *(cociente)*
The result when one number is divided by another.

What It Means to You

You will use your prior knowledge of division of whole numbers to perform division with decimals.

UNPACKING EXAMPLE 6.NS.2.2

Eugenia and her friends bought frozen yogurt for 45 cents per ounce. Their total was $11.25. How many ounces did they buy?

Divide 11.25 by 0.45.

```
          25
0.45 ) 11.25
        90
        225
        225
          0
```

They bought 25 ounces of frozen yogurt.

FL 6.NS.2.3

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

Key Vocabulary

algorithm *(algoritmo)*
A set of rules or a procedure for solving a mathematical problem in a finite number of steps.

What It Means to You

You will use your prior knowledge of operations with whole numbers to perform operations with decimals.

UNPACKING EXAMPLE 6.NS.2.3

Estimate and find the exact answer.

A. 3.25×4.8

$3 \times 5 = 15$

```
  3.25
× 4.8
  2600
 13000
15.600
```

B. $132.5 - 18.9$

$133 - 19 = 114$

```
  132.5
− 18.9
  113.6
```

FL 6.NS.2.4

Find the **greatest common factor** of two whole numbers less than or equal to 100 and the least common multiple of two whole numbers less than or equal to 12. Use the Distributive Property to express a sum of two whole numbers 1–100 with a common factor as a multiple of a sum of two whole numbers with no common factor.

Key Vocabulary

greatest common factor (GCF)
(máximo común divisor (MCD))
The largest common factor of two or more given numbers.

What It Means to You

You will determine the greatest common factor of two numbers and solve real-world problems involving the greatest common factor.

UNPACKING EXAMPLE 6.NS.2.4

There are 12 boys and 18 girls in Ms. Ruiz's science class. Each lab group must have the same number of boys and the same number of girls. What is the greatest number of groups Ms. Ruiz can make if every student must be in a group?

Factors of 12: 1, 2, 3, 4, 6, 12

Factors of 18: 1, 2, 3, 6, 9, 18

The GCF of 12 and 18 is 6. The greatest number of groups Ms. Ruiz can make is 6.

FL 6.NS.2.4

Find the greatest common factor of two whole numbers less than or equal to 100 and the **least common multiple** of two whole numbers less than or equal to 12. …

Key Vocabulary

least common multiple (LCM)
(mínimo común múltiplo (m.c.m.))
The smallest number, other than zero, that is a multiple of two or more given numbers.

What It Means to You

You will determine the least common multiple of two numbers and solve real-world problems involving the least common multiple.

UNPACKING EXAMPLE 6.NS.2.4

Lydia's family will provide juice boxes and granola bars for 24 players. Juice comes in packs of 6, and granola bars in packs of 8. What is the least number of packs of each needed so that every player has a drink and a granola bar and there are none left over?

Multiples of 6: 6, 12, 18, 24, 30, …

Multiples of 8: 8, 16, 24, 32, …

The LCM of 6 and 8 is 24. Lydia's family should buy $24 \div 6 = 4$ packs of juice and $24 \div 8 = 3$ packs of granola bars.

FL 6.NS.2.4

Find the greatest common factor of two whole numbers less than or equal to 100 and the least common multiple of two whole numbers less than or equal to 12. Use the Distributive Property to express a sum of two whole numbers 1–100 with a common factor as a multiple of a sum of two whole numbers with no common factor.

What It Means to You

You can use greatest common factors and least common multiples to simplify answers when you calculate with fractions. You can also use the Distributive Property to rewrite the sum of two or more numbers as a product of their GCF and a sum of numbers with no common factor.

UNPACKING EXAMPLE 6.NS.2.4

a. Add. Write the answer in simplest form.

$\frac{1}{3} + \frac{1}{6} = \frac{2}{6} + \frac{1}{6}$ *Use the LCM of 3 and 6 as a common denominator.*

$= \frac{2+1}{6}$ *Add the numerators.*

$= \frac{3}{6}$

$= \frac{3 \div 3}{6 \div 3}$ *Simplify by dividing by the GCF. The GCF of 3 and 6 is 3.*

$= \frac{1}{2}$ *Write the answer in simplest form.*

b. Write the sum of the numbers as the product of their GCF and another sum.

$18 + 45 = 9 \times 2 + 9 \times 5 = 9(2 + 5)$

FL 6.NS.3.5

Understand that positive and negative numbers are used together to describe quantities having opposite directions or values (e.g., temperature above/below zero, elevation above/below sea level, credits/debts, positive/negative electric charge); use positive and negative numbers to represent quantities in real-world contexts, explaining the meaning of 0 in each situation.

Key Vocabulary

negative number
(número negativo)
A number less than zero.

positive number
(número positivo)
A number greater than zero.

What It Means to You

You will use positive and negative numbers to represent real-world quantities.

UNPACKING EXAMPLE 6.NS.3.5

Write a positive number, negative number, or zero, to represent each quantity described.

30 degrees above zero	+30
5 degrees below zero	−5
20 feet below sea level	−20
20 feet above sea level	+20
sea level	0
$7.50 earned each hour	+7.5
a debt of $4	−4
a number neither positive nor negative	0

FL 6.NS.3.6

Understand a rational number 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 the plane with negative number coordinates.

Key Vocabulary

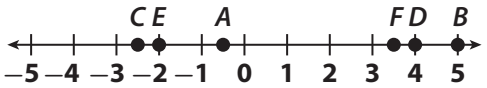
rational number *(número racional)*
A number that can be written in the form $\frac{a}{b}$ where a and b are integers and $b \neq 0$.

What It Means to You

You will represent positive and negative rational numbers with points on a number line.

UNPACKING EXAMPLE 6.NS.3.6

Match each point on the number line with a description of the quantity it could represent.



a debt of \$2.50	*C*
5 degrees above zero	*B*
a gain of $3\frac{1}{2}$ pounds	*F*
ion with an electrical charge of negative 2	*E*
opposite of $\frac{1}{2}$	*A*
4 feet above sea level	*D*

FL 6.NS.3.6a

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, e.g., $-(-3) = 3$, and that 0 is its own opposite.

Key Vocabulary

integers *(enteros)*
The set of all whole numbers and their opposites.

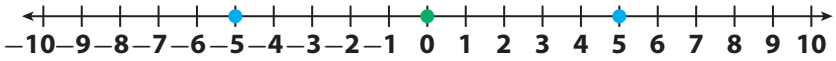
opposites *(opuestos)*
Two numbers that are equal distance from zero on a number line.

What It Means to You

You will learn that opposites are the same distance from 0 on a number line but in different directions.

UNPACKING EXAMPLE 6.NS.3.6a

Use the number line to determine the opposites.



$-(5) = -5$	*The opposite of 5 is −5.*
$-(-5) = 5$	*The opposite of −5 is 5.*
$-(0) = 0$	*The opposite of 0 is 0.*

FL **6.NS.3.6b**

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.

Key Vocabulary

coordinate plane *(plano cartesiano)*
A plane formed by the intersection of a horizontal number line called the *x*-axis and a vertical number line called the *y*-axis.

axes *(ejes)*
The two perpendicular lines of a coordinate plane that intersect at the origin. singular: axis

quadrant *(cuadrante)*
The *x*- and *y*-axes divide the coordinate plane into four regions. Each region is called a quadrant.

reflection *(reflexión)*
A transformation of a figure that flips the figure across a line.

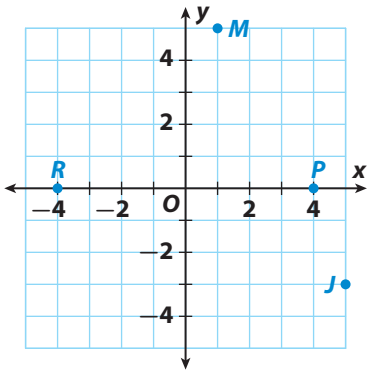
What It Means to You

You will learn to graph ordered pairs of positive and negative numbers on the coordinate plane and identify the quadrant in which a point is located.

UNPACKING EXAMPLE 6.NS.3.6b

Graph each point. Name the quadrant in which each point is located.

$M(1, 5)$ $J(5, -3)$ $P(4, 0)$ $R(-4, 0)$



$M(1, 5)$	Quadrant I
$J(5, -3)$	Quadrant IV
$P(4, 0)$	*y*-axis, no quadrant
$R(-4, 0)$	*x*-axis, no quadrant

Points *P* and *R* differ only by the sign of their first coordinate. They are reflections of one another across the *y*-axis.

FL 6.NS.3.6c

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.

Key Vocabulary

integer *(entero)*
A member of the set of whole numbers and their opposites.

rational number *(número racional)*
A number that can be written in the form $\frac{a}{b}$ where a and b are integers and $b \neq 0$.

coordinate plane *(plano cartesiano)*
A plane formed by the intersection of a horizontal number line called the x-axis and a vertical number line called the y-axis.

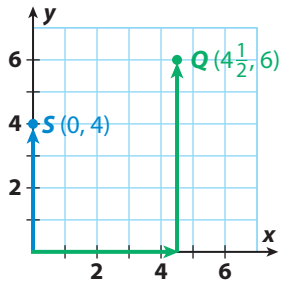
What It Means to You

You will graph an ordered pair of rational numbers on a coordinate plane.

UNPACKING EXAMPLE 6.NS.3.6c

Graph and label each point on a coordinate plane.

$Q\left(4\frac{1}{2}, 6\right)$ $S(0, 4)$



FL 6.NS.3.7

Understand ordering and absolute value of rational numbers.

Key Vocabulary

absolute value *(valor absoluto)*
A number's distance from 0 on the number line.

rational number *(número racional)*
Any number that can be expressed as a ratio of two integers.

What It Means to You

You can use a number line to order rational numbers.

UNPACKING EXAMPLE 6.NS.3.7

At a golf tournament, David scored +6, Celia scored −16, and Xavier scored −4. One of these three players was the winner of the tournament. Who won the tournament?

The winner will be the player with the lowest score. Draw a number line and graph each player's score.

Celia's score, −16, is the farthest to the left, so it is the lowest score. Celia won the tournament.

FL 6.NS.3.7a

Interpret statements of inequality as statements about the relative position of two numbers on a number line diagram.

Key Vocabulary

inequality *(desigualdad)*
A mathematical sentence that shows the relationship between quantities that are not equal.

What It Means to You

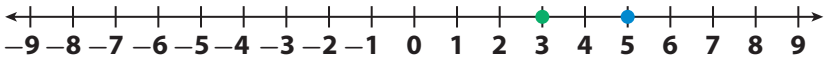
You will interpret an inequality by showing the position of the two numbers on a number line.

UNPACKING EXAMPLE 6.NS.3.7a

Compare each pair of numbers by locating the numbers on a number line. Then write an inequality statement with symbols and with words.

1. 3 and 5 **2.** 3 and −3 **3.** −3 and −5

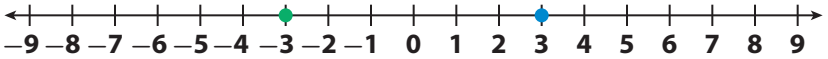
Case 1: Two positive numbers



$5 > 3$

5 is greater than 3

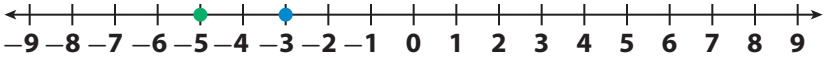
Case 2: One positive and one negative number



$3 > -3$

positive 3 is greater than negative 3
negative 3 is less than positive 3

Case 3: Two negative numbers



$-3 > -5$

negative 3 is greater than negative 5
negative 5 is less than negative 3

FL 6.NS.3.7b

Write, interpret, and explain statements of order for rational numbers in real-world contexts.

Key Vocabulary

rational number
(número racional)
Any number that can be expressed as a ratio of two integers.

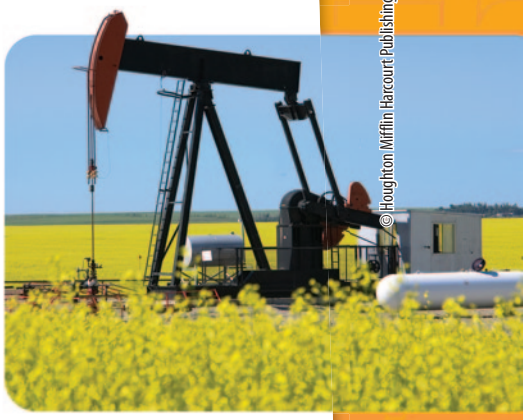
What It Means to You

You can order rational numbers to understand relationships between values in the real world.

UNPACKING EXAMPLE 6.NS.3.7b

The fraction of crude oil produced in the United States by four states in 2011 is shown.

CA	$\frac{1}{100}$	TX	$\frac{9}{50}$
ND	$\frac{3}{50}$	AL	$\frac{3}{25}$



Which state produced the least oil?

$CA = \frac{1}{100}$ $TX = \frac{9}{50} = \frac{18}{100}$

$ND = \frac{3}{50} = \frac{6}{100}$ $AL = \frac{3}{25} = \frac{12}{100}$

California (CA) produced the least crude oil in 2011.

FL 6.NS.3.7c

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 a real-world situation.

Key Vocabulary

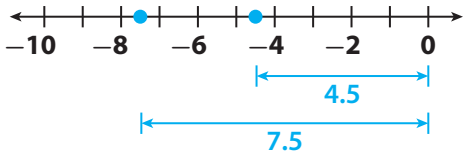
absolute value *(valor absoluto)*
A number's distance from 0 on the number line.

What It Means to You

You can use absolute value to describe a number's distance from 0 on a number line and compare quantities in real-world situations.

UNPACKING EXAMPLE 6.NS.3.7c

Use the number line to determine the absolute values of $-4.5°F$ and $-7.5°F$ and to compare the temperatures.



$|-4.5| = 4.5$ The absolute value of -4.5 is 4.5.

$|-7.5| = 7.5$ The absolute value of -7.5 is 7.5.

-7.5 is farther to the left of 0 than -4.5, so $-7.5 < -4.5$ and $-7.5°F$ is colder than $-4.5°F$.

FL 6.NS.3.7d

Distinguish comparisons of absolute value from statements about order.

Key Vocabulary

absolute value *(valor absoluto)*
The distance of a number from zero on a number line; shown by $|\ |$.

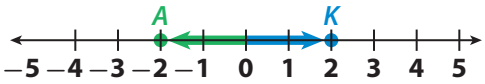
What It Means to You

You will learn to compare two numbers and also to compare their absolute values.

UNPACKING EXAMPLE 6.NS.3.7d

Kyle and Arturo both walk 2 miles from their tent. Kyle walks due east and Arturo walks due west.

With their tent as the origin (0), graph the endpoints for the two walks on a number line.



Represent Kyle's walk as $+2$ and Arturo's walk as -2.

Compare Kyle's walk to Arturo's walk.

Did they walk equal distances?

Yes, because $|+2| = |-2|$.

Compare the numbers that represent their walks.

Is $+2$ equal to -2?

No, $+2 > -2$, even though the absolute values of the numbers are equal.

FL 6.NS.3.8

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.

What It Means to You

You will find the distance between two points on a coordinate plane.

UNPACKING EXAMPLE 6.NS.3.8

Find the distance between points *A* and *B*.

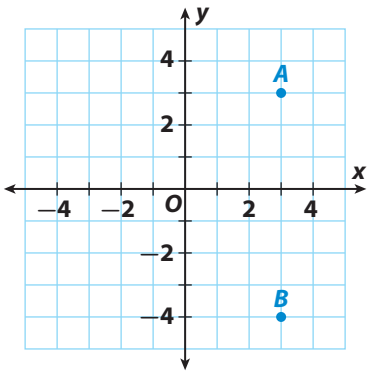
Add the absolute values of the *y*-coordinates.

$= |3| + |-4|$

$= 3 + 4$

$= 7$

The distance between points *A* and *B* is 7 units.



FL 6.RP.1.1

Understand the concept of a ratio and use ratio language to describe a ratio relationship between two quantities.

Key Vocabulary

ratio *(razón)*
A comparison of two quantities by division.

What It Means to You

You will understand the concept of a ratio and learn how to use ratio language to describe a ratio relationship between two quantities.

UNPACKING EXAMPLE 6.RP.1.1

Jenn makes a light green paint by mixing 2 cups of blue paint with 3 cups of yellow paint. Write the ratio of blue paint to yellow paint.

The ratio is 2 cups of blue paint to 3 cups of yellow paint.

You can write the ratio in three different ways.

2 to 3 2:3 $\frac{2}{3}$

FL 6.RP.1.2

Understand the concept of a unit rate $\frac{a}{b}$ associated with a ratio a:b with $b \neq 0$, and use rate language in the context of a ratio relationship.

Key Vocabulary

unit rate *(tasa unitaria)*
A rate in which the second quantity in the comparison is one unit.

What It Means to You

You will understand the concept of a unit rate.

UNPACKING EXAMPLE 6.RP.1.2

A 2-liter bottle of sparkling water costs \$2.16. Find the unit cost of the water.

$\frac{\$2.16}{2 \text{ liters}}$ *Set up a ratio of cost to liters.*

$\frac{\$2.16 \div 2}{2 \text{ liters} \div 2}$ *Divide to find the unit rate.*

$\frac{\$1.08}{1 \text{ liter}}$

The unit cost is \$1.08 per liter of water.

FL 6.RP.1.3

Use ratio and rate reasoning to solve real-world and mathematical problems, e.g., by reasoning about tables of equivalent ratios, tape diagrams, double number line diagrams, or equations.

Key Vocabulary

ratio *(razón)*
A comparison of two quantities by division.

rate *(tasa)*
A ratio that compares two quantities measured in different units.

equivalent ratios *(razones equivalentes)*
Ratios that name the same comparison.

What It Means to You

You will use equivalent ratios to solve real-world problems involving ratios and rates.

UNPACKING EXAMPLE 6.RP.1.3

A group of 10 friends is in line to see a movie. The table shows how much different groups will pay in all. Predict how much the group of 10 will pay.

Number in group	3	5	6	12
Amount paid (\$)	15	25	30	60

The ratios are all the same.

$\frac{3}{15} = \frac{1}{5}$ $\quad \frac{6}{30} = \frac{1}{5}$ $\quad \frac{5}{25} = \frac{1}{5}$ $\quad \frac{12}{60} = \frac{1}{5}$

Find the denominator that gives a ratio equivalent to $\frac{1}{5}$ for a group of 10.

$\frac{10}{?} = \frac{1}{5} \rightarrow \frac{10 \div 10}{50 \div 10} = \frac{1}{5} \rightarrow \frac{10}{50} = \frac{1}{5}$

A group of 10 will pay \$50.

FL 6.RP.1.3

Use ratio and rate reasoning to solve real-world and mathematical problems, e.g., by reasoning about tables of equivalent ratios, tape diagrams, double number line diagrams, or equations.

Key Vocabulary

ratio *(razón)*
A comparison of two quantities by division.

rate *(tasa)*
A ratio that compares two quantities measured in different units.

What It Means to You

You will use ratios and rates to solve real-world problems such as those involving proportions.

UNPACKING EXAMPLE 6.RP.1.3

The distance from Austin to Dallas is about 200 miles. How far apart will these cities appear on a map with the scale of $\frac{1 \text{ in.}}{50 \text{ mi}}$?

$$\frac{1 \text{ inch}}{50 \text{ miles}} = \frac{\square \text{ inches}}{200 \text{ miles}}$$ *Write the scale as a unit rate.*

$$\frac{1 \text{ inch} \times 4}{50 \text{ miles} \times 4} = \frac{\square \text{ inches}}{200 \text{ miles}}$$ *200 is a common denominator.*

$$\square = 4$$

Austin and Dallas are 4 inches apart on the map.

FL 6.RP.1.3a

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.

Key Vocabulary

equivalent ratios
(razones equivalentes)
Ratios that name the same comparison.

What It Means to You

You will make a table of equivalent ratios and plot the pairs of values.

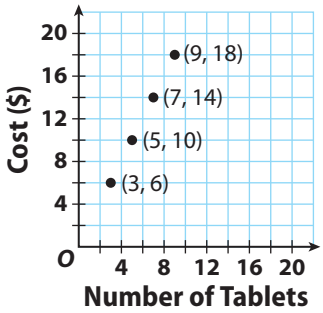
UNPACKING EXAMPLE 6.RP.1.3a

The following table shows the cost of buying drawing tablets that cost $2 each.

Number of tablets	3	5	7	9
Cost	$6	$10	$14	$18

The table shows the equivalent ratios for $\frac{\text{number of tablets}}{\text{cost}} = \frac{1}{2}$.

The pairs of values in the table can be plotted on the coordinate plane.



FL 6.RP.1.3b

Solve unit rate problems including those involving unit pricing and constant speed.

Key Vocabulary

unit rate *(tasa unitaria)*
A rate in which the second quantity in the comparison is one unit.

What It Means to You

You will solve problems involving unit rates by division.

UNPACKING EXAMPLE 6.RP.1.3b

A 2-liter bottle of spring water costs \$2.02. A 3-liter bottle of the same water costs \$2.79. Which is the better deal?

2-liter bottle	3-liter bottle
$\frac{\$2.02}{2 \text{ liters}}$	$\frac{\$2.79}{3 \text{ liters}}$
$\frac{\$2.02 \div 2}{2 \text{ liters} \div 2}$	$\frac{\$2.79 \div 3}{3 \text{ liters} \div 3}$
$\frac{\$1.01}{1 \text{ liter}}$	$\frac{\$0.93}{1 \text{ liter}}$

The 3-liter bottle is the better deal.

FL 6.RP.1.3c

Find a percent of a quantity as a rate per 100 (e.g., 30% of a quantity means $\frac{30}{100}$ times the quantity); solve problems involving finding the whole, given a part and the percent.

Key Vocabulary

percent *(porcentaje)*
A ratio comparing a number to 100.

What It Means to You

You will learn to write numbers in various forms, including fractions, decimals, and percents.

UNPACKING EXAMPLE 6.RP.1.3c

Little brown bats flap their wings about $\frac{3}{4}$ as fast as pipistrelle bats do. How fast does the little brown bat flap its wings as a percent of the pipistrelle bat's wing flap rate?

$\frac{3}{4} = 3 \div 4 = 0.75$ — *Divide the numerator by the denominator.*

$0.75 = 75\%$ — *Move the decimal point 2 places to the right.*

FL 6.RP.1.3d

Use ratio reasoning to convert measurement units; manipulate and transform units appropriately when multiplying or dividing quantities.

Key Vocabulary

unit rate *(tasa unitaria)*
A rate in which the second quantity in the comparison is one unit.

What It Means to You

You will use unit rates to convert measurement units.

UNPACKING EXAMPLE 6.RP.1.3d

The Washington Monument is about 185 yards tall. This height is almost equal to the length of two football fields. About how many feet is this?

$$185 \text{ yd} \cdot \frac{3 \text{ ft}}{1 \text{ yd}}$$
$$= \frac{185 \text{ yd}}{1} \cdot \frac{3 \text{ ft}}{1 \text{ yd}}$$
$$= 555 \text{ ft}$$

The Washington Monument is about 555 feet tall.

FL 6.RP.1.3e

Understand the concept of Pi as the ratio of the circumference of a circle to its diameter.

Key Vocabulary

pi *(π)* *(pi)*
The ratio of the circumference of a circle to the length of its diameter; $\pi \approx 3.14$ or $\frac{22}{7}$.

circumference *(circunferencia)*
The distance around a circle.

circle *(círculo)*
The set of all points in a plane that are the same distance from a given point called the center.

diameter *(diámetro)*
A line segment that passes through the center of a circle and has endpoints on the circle, or the length of that segment.

What It Means to You

You will learn the relationship between the circumference and diameter of a circle.

UNPACKING EXAMPLE 6.RP.1.3e

The table below shows the circumference and diameter of several circular objects measured to the nearest millimeter.

Object	Circumference	Diameter	$\frac{\text{Circumference}}{\text{Diameter}}$
bowl	92.7 cm	29.5 cm	3.142
candle	18.5 cm	5.9 cm	3.136
mug	29.5 cm	9.4 cm	3.138
plate	53.7 cm	17.1 cm	3.140

Notice that the ratio of the circumference to the diameter is about 3.14 for all the objects shown in the table. In fact, the ratio of the circumference of a circle to its diameter is the same for all circles. This ratio is called *pi*, and it is represented by the symbol π. You can approximate π by 3.14 or $\frac{22}{7}$.

FL 6.SP.1.1

Recognize a statistical question as one that anticipates variability in the data related to the question and accounts for it in the answers.

What It Means to You

You will learn about the difference between questions that yield data that is not variable, and statistical questions that yield data that is variable.

UNPACKING EXAMPLE 6.SP.1.1

These two questions have different kinds of answers.

How many books did you read this month?

How many books did the students in your class read this month?

The answer to the first question is a single number. This data is not variable. This month you read a certain fixed number of books. This is not a statistical question.

The answer to the second question will include several responses that vary. This data is variable. You can summarize these variable responses using different kinds of data displays and different numerical measurements. This is a statistical question.

FL 6.SP.1.2

Understand that a set of data collected to answer a statistical question has a distribution which can be described by its center, spread, and overall shape.

Key Vocabulary

statistical question
(pregunta estadística)
A question that has many different, or variable, answers.

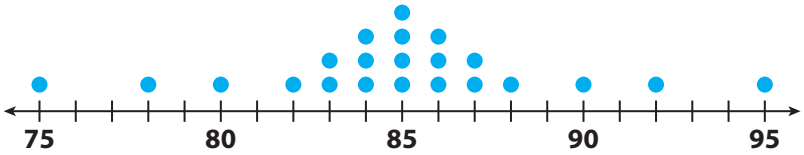
What It Means to You

You will display data in dot plots and describe how the data are distributed.

UNPACKING EXAMPLE 6.SP.1.2

The data set and dot plot display the test grades of Ms. Lee's students. Describe the shape of the data distribution.

82	95	84	87	85	92	85	78	87	84	83
86	80	86	85	75	83	90	86	84	88	85



The data are symmetrical about the center value 85.

Most of the data values fall between 82 and 88.

The difference between the highest and lowest data values is 30.

FL **6.SP.1.3**

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 describes how its values vary with a single number.

Key Vocabulary

measure of center
(medida central)
A measure used to describe the middle of a data set. Also called measure of central tendency.

variation variability
(variación (variabilidad))
The spread of values in a set of data.

What It Means to You

You will calculate a measure of center, the mean, and a measure of variation, mean absolute deviation, and use these to describe a typical value of a data set.

UNPACKING EXAMPLE 6.SP.1.3

Players on a volleyball team measured how high they could jump. What is the typical height that the volleyball team members could jump?

Heights of Vertical Jumps (in.)						
14	22	21	20	21	23	19

$$\frac{14 + 22 + 21 + 20 + 21 + 23 + 19}{7} = \frac{140}{7} = 20$$

The mean is 20. The mean represents a typical height that a volleyball team player can jump.

To find the mean absolute deviation, a measure of variation, find the distance between each data value and the mean of the data set. Then find the mean of the distances.

Height (in.)	14	22	21	20	21	23	19
Distance from mean (20)	6	2	1	0	1	3	1

$$\frac{6 + 2 + 1 + 0 + 1 + 3 + 1}{7} = \frac{14}{7} = 2$$

The mean absolute deviation is 2. The mean absolute deviation is a measure of variation for the data.

FL 6.SP.2.4

Display numerical data in plots on a number line, including dot plots, histograms, and box plots.

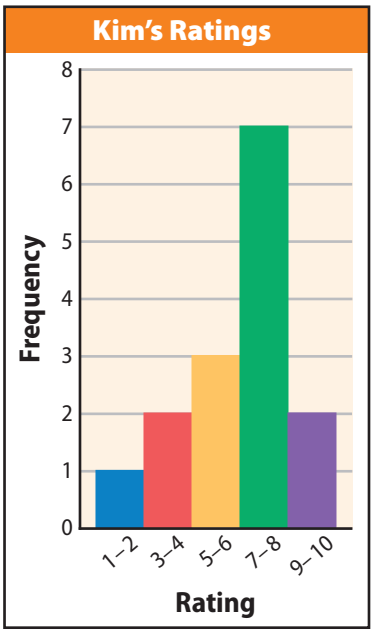
What It Means to You

You will interpret the data from a dot plot, histogram, or box plot.

UNPACKING EXAMPLE 6.SP.2.4

Kim has started rating each movie she sees using a scale of 1 to 10 on an online site. She made a histogram that shows how she rated the movies. What does the shape of the distribution tell you about the movies Kim has rated?

Of the 15 movies that Kim rated, she rated almost half a 7 or an 8 and did not generally give extreme ratings.



FL 6.SP.2.5a

Summarize numerical data sets in relation to their context, such as by: Reporting the number of observations.

Key Vocabulary

box plot *(gráfica de caja)*
A graph that shows how data are distributed by using the median, quartiles, least value, and greatest value; also called a box-and- whisker plot.

median *(mediana)*
The middle number or the mean (average) of the two middle numbers in an ordered set of data.

What It Means to You

You will summarize numerical data sets in relation to their context.

UNPACKING EXAMPLE 6.SP.2.5a

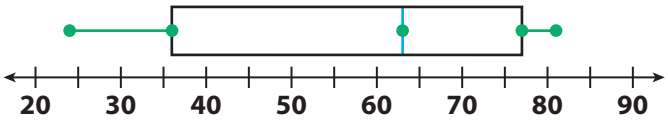
Sometimes it is easier to summarize and analyze a numerical data set when you picture that data in an organized way.

This list shows the scores on a spelling test made by 9 students

71, 79, 56, 24, 35, 37, 81, 63, 75

The teacher wants to determine how these scores are distributed. One way to do that is to use a number line and draw a box plot.

The line and dot inside the box show that the middle, or median, score was 63.



Half of all the scores are inside the box.

One fourth of the scores are below the median in the part of the box to the left of the median score. One fourth of the scores are above the median in the part of the box to the right of the median score.

The lines from the box, going left and right, end in the lowest and the highest scores.

FL 6.SP.2.5b

Summarize numerical data sets in relation to their context, such as by: Describing the nature of the attribute under investigation, including how it was measured and its units of measurement.

What It Means to You

You will describe what is being measured, how it is being measured, and the units being used when a set of data is collected in a real-world context.

UNPACKING EXAMPLE 6.SP.2.5b

Susan collected data about children playing at her neighborhood park and organized it into a table.

Ages of Children in the Sandbox					
14	25	35	20	18	22

Describe what information Susan was collecting, how many children she included, the likely unit of measurement, and how the data were probably collected.

- Susan was collecting data about the ages of children playing in the sandbox at a neighborhood park.
- The table shows that Susan collected data for 6 children.
- Since the children were playing in the sandbox in the park, the units Susan used for the ages are probably *months*, not years.
- Susan probably measured the ages by asking the adults with the children about the age, in months, of each child.

FL 6.SP.2.5c

Summarize numerical data sets in relation to their context, such as by 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.

What It Means to You

You will use measures of center to describe a data set.

UNPACKING EXAMPLE 6.SP.2.5c

Several students' scores on a history test are shown. Find the mean score and the median score. Which measure better describes the typical score for these students? Explain.

History Test Scores						
73	48	88	90	90	81	83

Mean: $\frac{73 + 48 + 88 + 90 + 90 + 81 + 83}{7} = \frac{553}{7} = 79$

To find the median, write the data values in order from least to greatest and find the middle value.
Median: 48 73 81 83 88 90 90

The median better describes the typical score.
The mean is affected by the low score of 48.

FL **6.SP.2.5d**

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

Key Vocabulary

measure of center
(medida central)
A measure used to describe the middle of a data set. Also called measure of central tendency.

What It Means to You

You will compare mean, median, and mode and use at least one of them to describe a typical value of a data set.

UNPACKING EXAMPLE 6.SP.2.5d

The Seawells are shopping for a DVD player.

They found ten DVD players with the following prices:

$175, $180, $130, $150, $180, $500, $160, $180, $150, $160

What are the mean, median, and mode of this data set?

Which one best describes the data set?

- The mean is $196.50. All but one of the DVD players cost less than $190, so the mean does not describe the data set best.
- The median is $167.50. The median best describes the data set because a majority of the data are clustered around the value $167.50.
- The mode is $180. The mode represents only 3 of the 10 values. The mode does not describe the entire data set.
- Because the median best represents the data set, the Seawells then conclude that the typical price for a DVD player is around $168.