

# Make sense of problems and persevere in solving them. MP.1

I can choose strategies for solving a problem and checking my answers.

**To get started I...**

How many flowers did they pick?

**Describe the problem in my own words.**

**Decide what information I need.**

Flowers	Friends
Lisa	8
Imani	8
Carla	8
	↓
	24

**Select a strategy.**

**While I'm working I...**

**Follow my plan to solve the problem.**

Lisa Imani Carla  
+8 +8 +8

0 8 16 24

**Try another strategy if I get stuck.**

+8 +8 +8

0 8 16 24

$8 + 8 + 8 = 24$  Flowers

**Keep working until I find an answer.**

**When I have an answer I...**

Does  $8 + 8 + 8$  equal 24?

**Ask if it makes sense.**


$3 \times 8 = 24$   
 $8 \times 3 = 24$   
 $24 \div 8 = 3$   
 $24 \div 3 = 8$

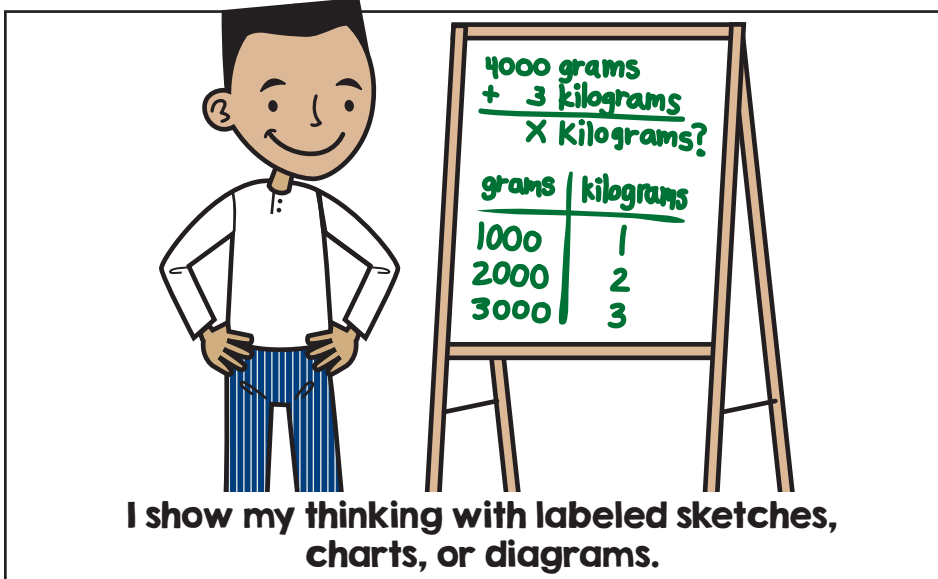
**Check my work using another strategy.**

**Check with a partner. If our answers differ, I figure out why.**

# Reason abstractly and quantitatively.

MP.2

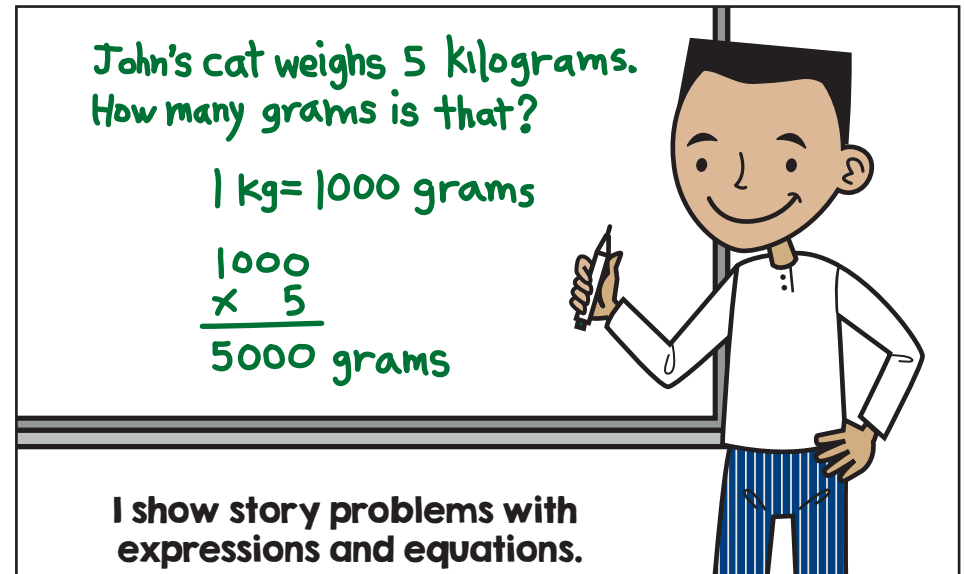
I can represent math problems in a variety of ways and think about what the problems mean.



4000 grams  
+ 3 kilograms  
X Kilograms?

grams	kilograms
1000	1
2000	2
3000	3

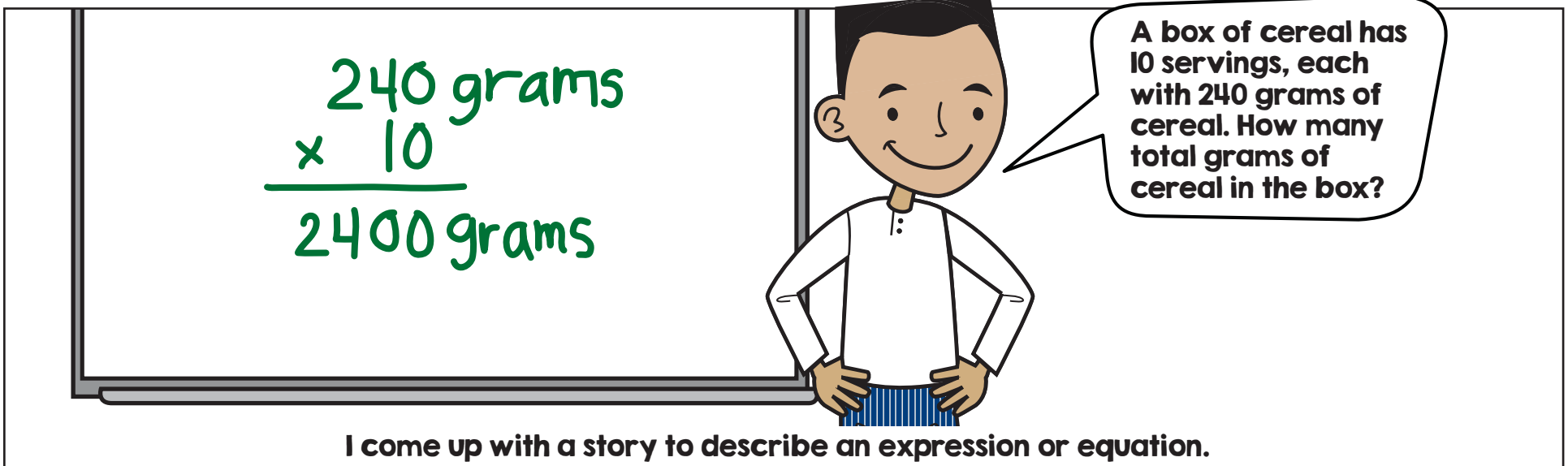
I show my thinking with labeled sketches, charts, or diagrams.



John's cat weighs 5 kilograms.  
How many grams is that?

$$1 \text{ kg} = 1000 \text{ grams}$$
$$\begin{array}{r} 1000 \\ \times 5 \\ \hline 5000 \text{ grams} \end{array}$$

I show story problems with expressions and equations.


$$\begin{array}{r} 240 \text{ grams} \\ \times 10 \\ \hline 2400 \text{ grams} \end{array}$$

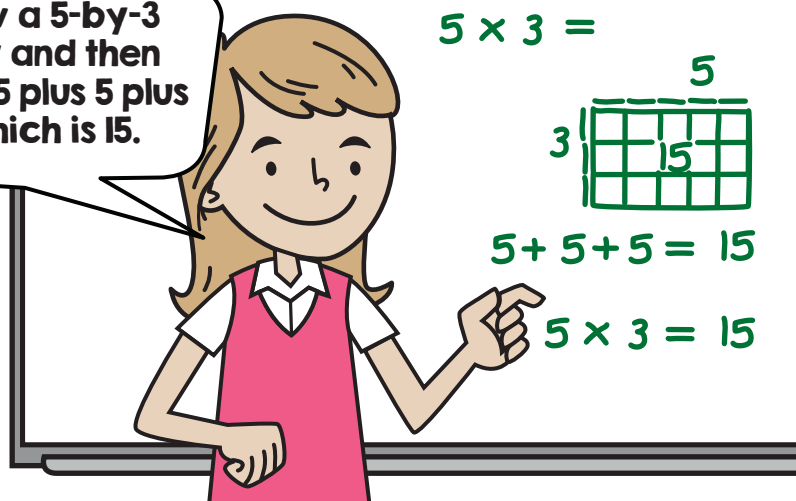
A box of cereal has 10 servings, each with 240 grams of cereal. How many total grams of cereal in the box?

I come up with a story to describe an expression or equation.

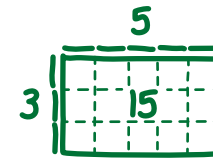
# Construct viable arguments and critique the reasoning of others. MP.3

I share ideas, explain my thinking, and analyze others' ideas.

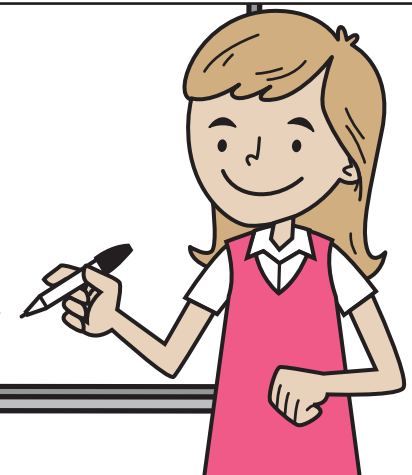
I drew a 5-by-3 array and then added 5 plus 5 plus 5, which is 15.



I explain how I got the answer.

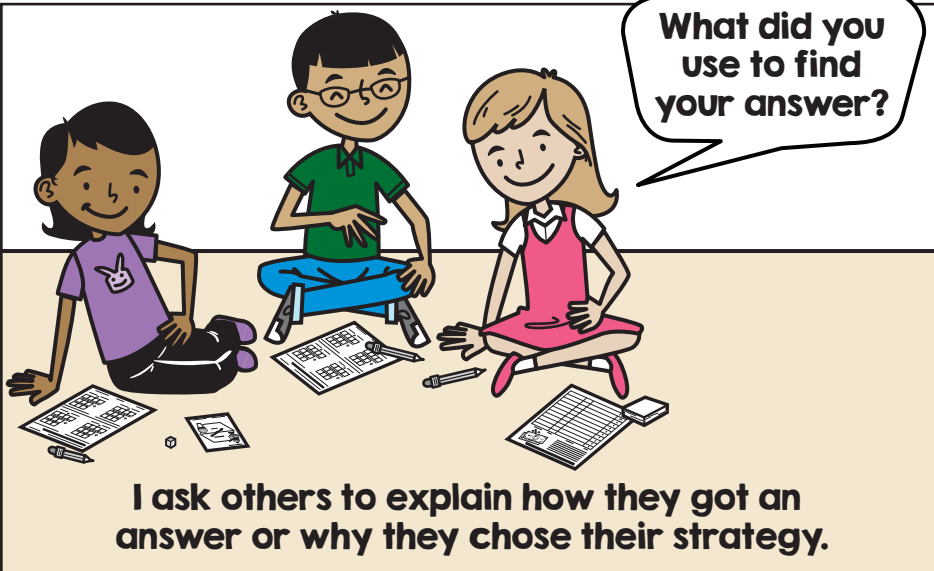


$$5 \times 3 = 15 \text{ sq. units}$$

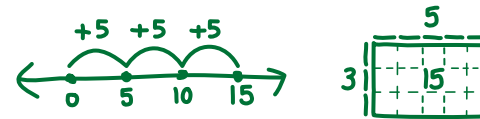


I show connections between ideas, like how the area of a rectangle is related to multiplication.

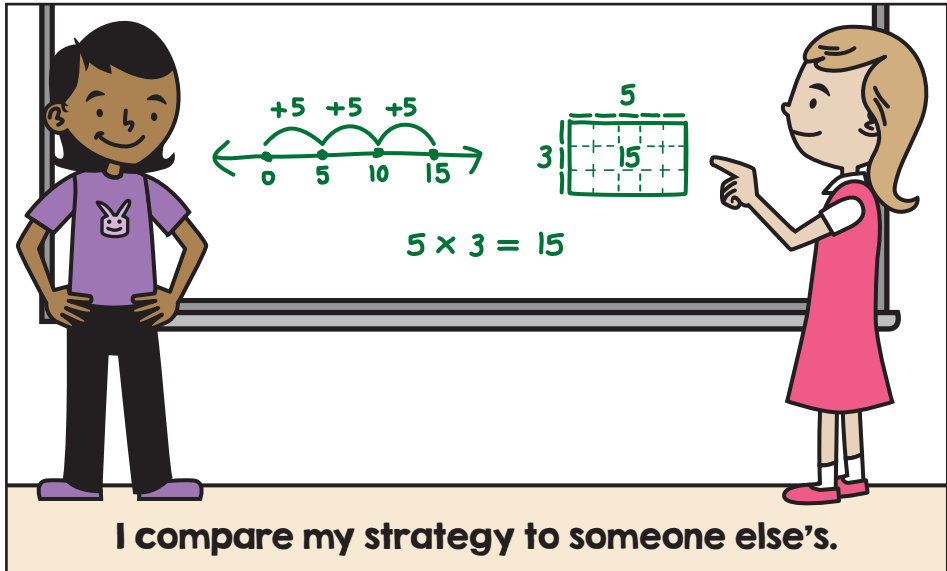
What did you use to find your answer?



I ask others to explain how they got an answer or why they chose their strategy.



$$5 \times 3 = 15$$

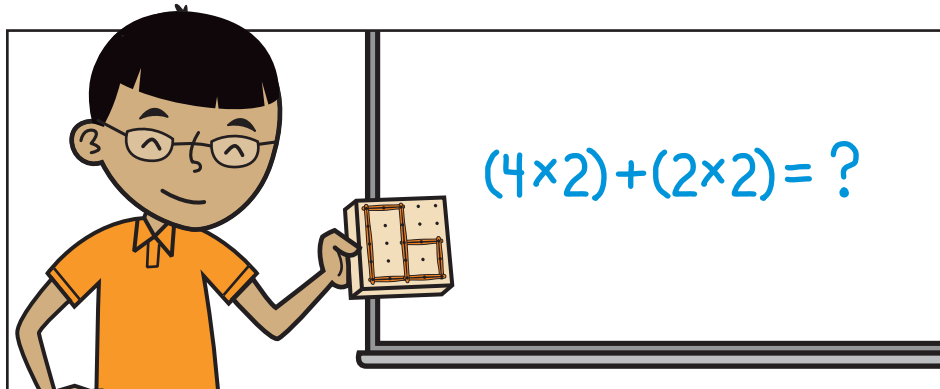


I compare my strategy to someone else's.

# Model with mathematics.

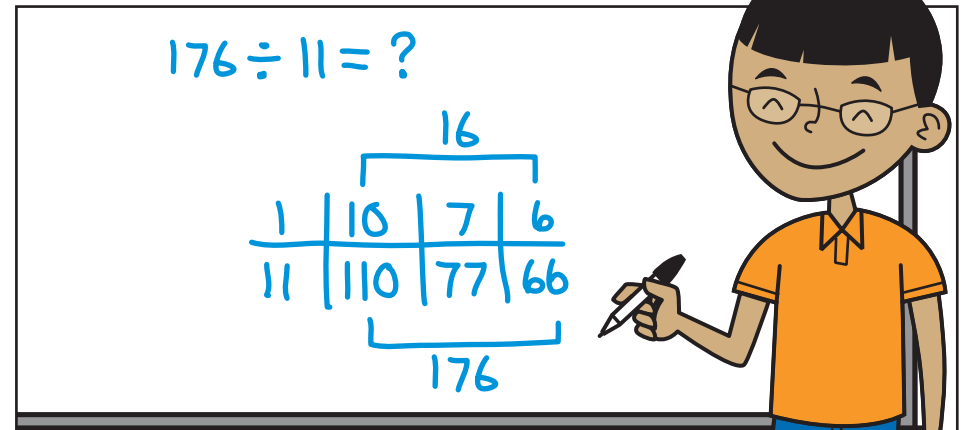
MP. 4

I solve math problems using models, labeled sketches, expressions, and equations.



$(4 \times 2) + (2 \times 2) = ?$

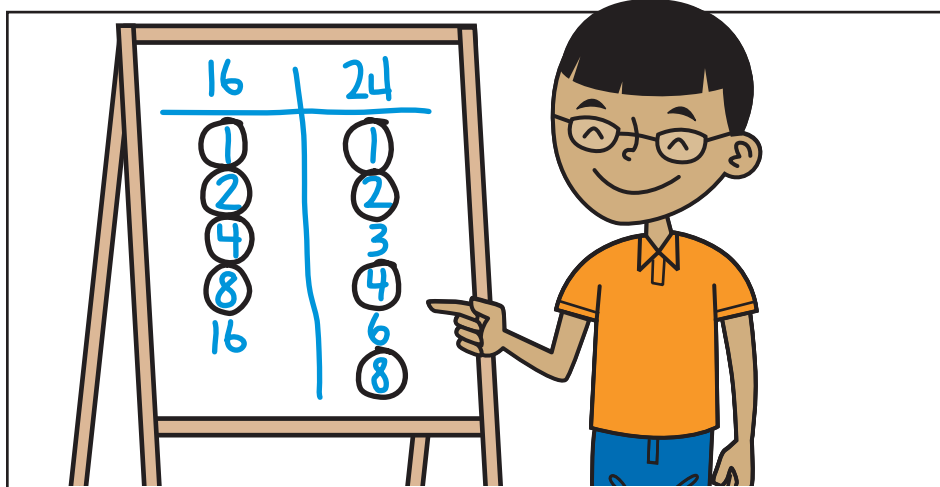
I use base ten pieces, geoboards, and other tools.



$176 \div 11 = ?$

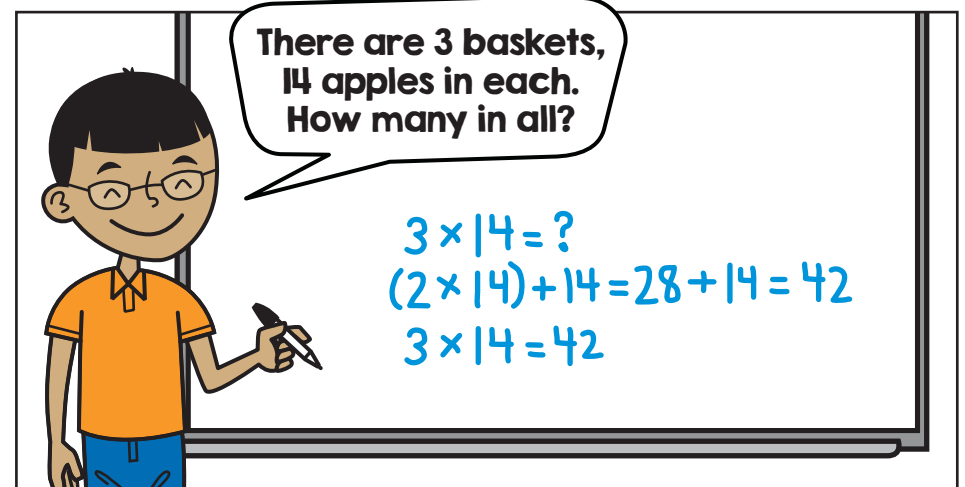
	16		
1	10	7	6
11	110	77	66
	176		

I work with diagrams like arrays and ratio tables to help.



16	24
①	①
②	②
④	③
⑧	④
16	⑥
	⑧

I make charts, lists, and graphs to show and think about relationships.



There are 3 baskets, 14 apples in each. How many in all?

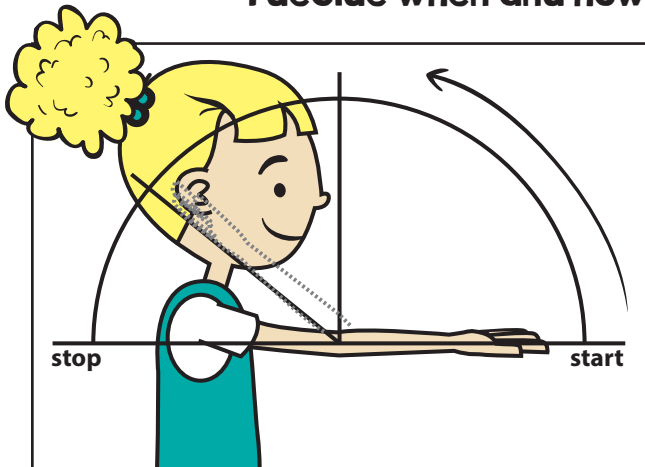
$3 \times 14 = ?$   
 $(2 \times 14) + 14 = 28 + 14 = 42$   
 $3 \times 14 = 42$

I represent my work with expressions and equations.

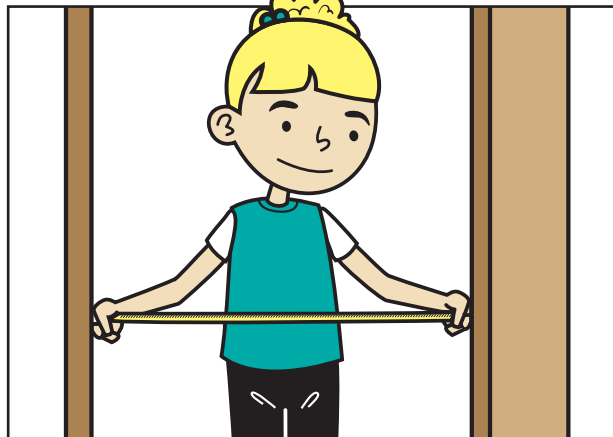
# Use appropriate tools strategically.

MP. 5

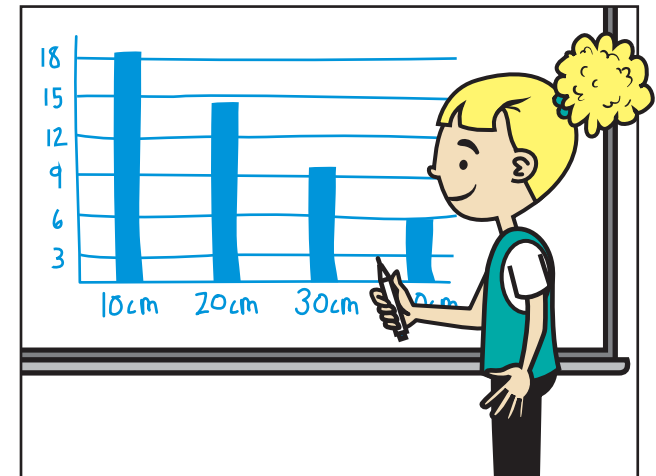
I decide when and how to use math tools, pictures, and models to help solve problems.



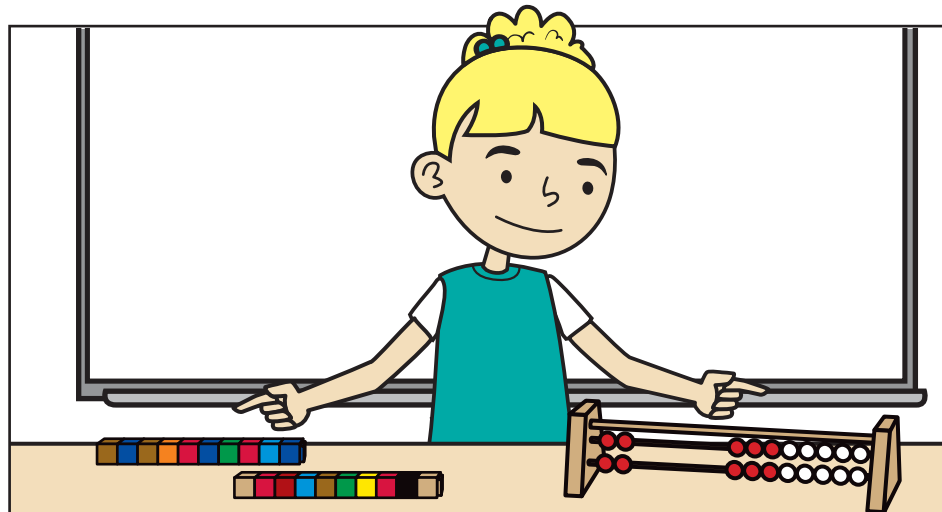
I know when I can estimate and when I need to find the exact answer.



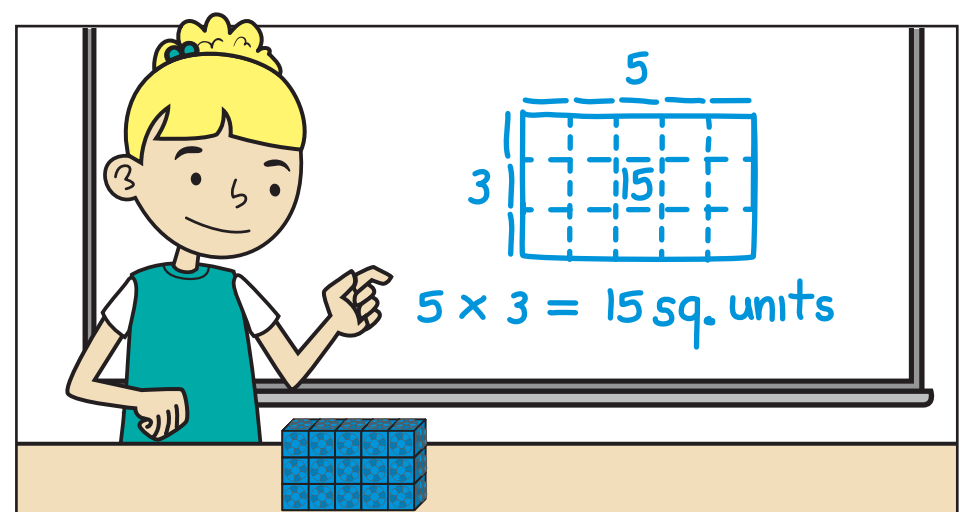
I use tools like rulers and meter sticks to compare units of measure.



I represent and explain data with graphs.



I use one model to solve a problem and a different model to check my answer.

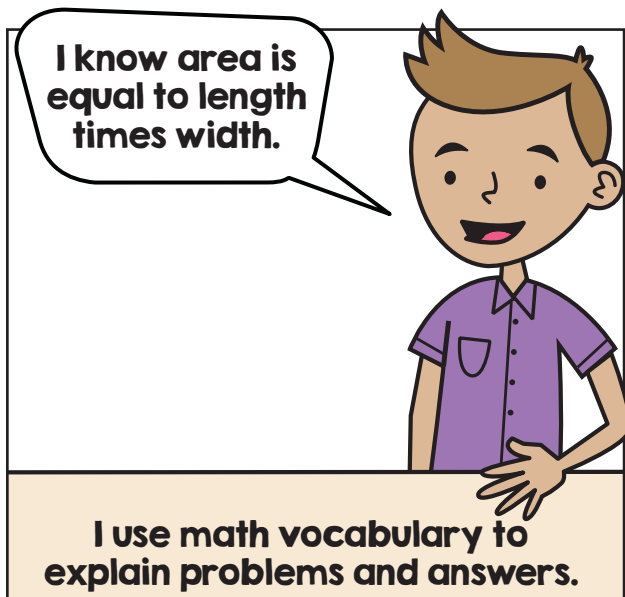


I determine whether the tool I selected makes sense.

# Attend to precision.

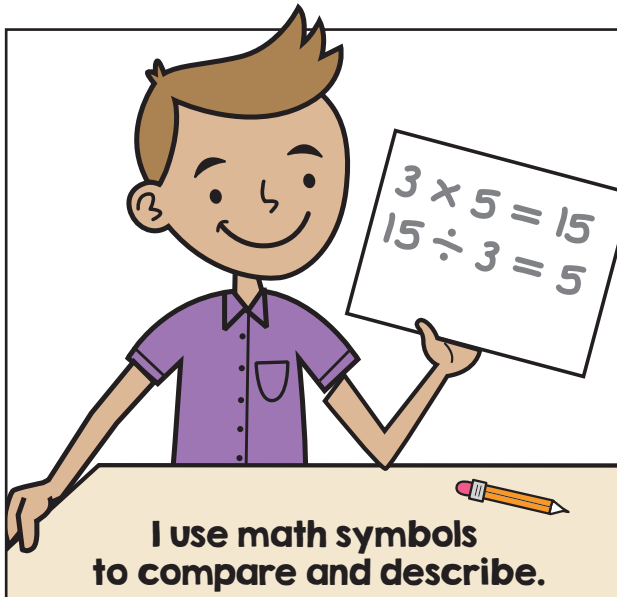
MP. 6

I can be mathematically precise and describe my ideas clearly.



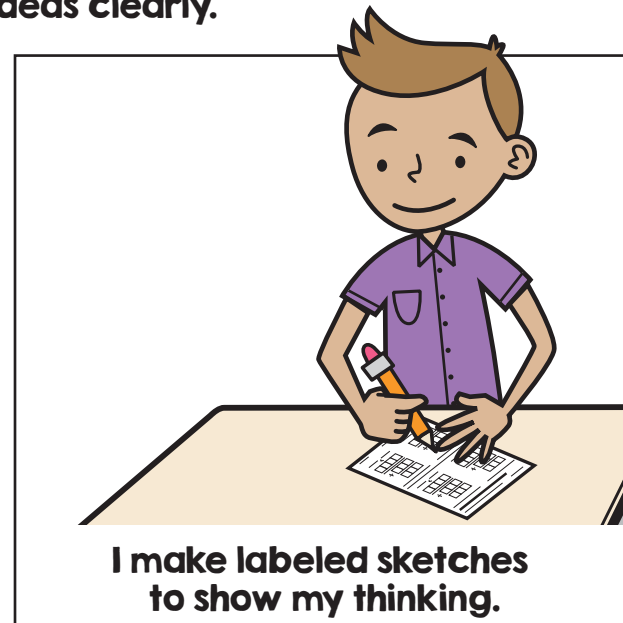
I know area is equal to length times width.

I use math vocabulary to explain problems and answers.

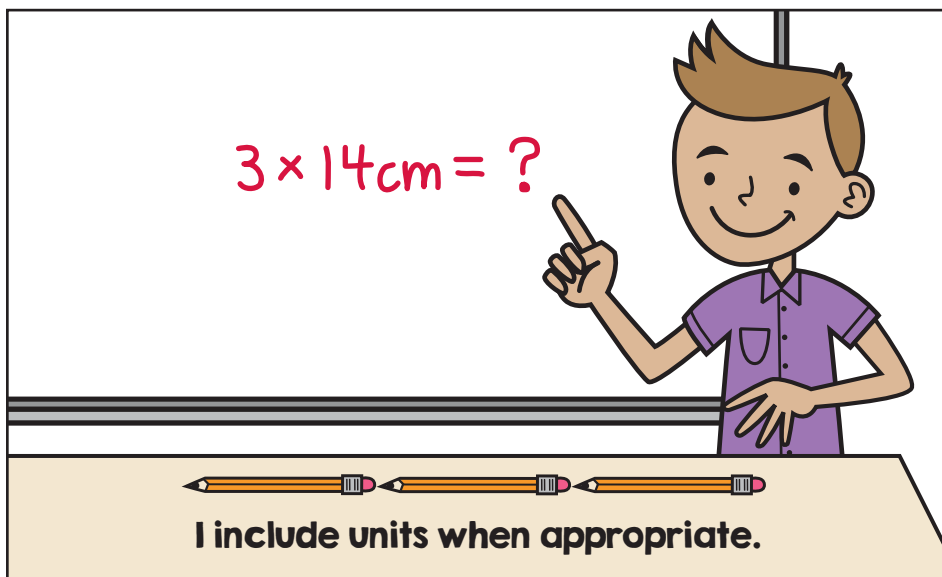


$3 \times 5 = 15$   
 $15 \div 3 = 5$

I use math symbols to compare and describe.

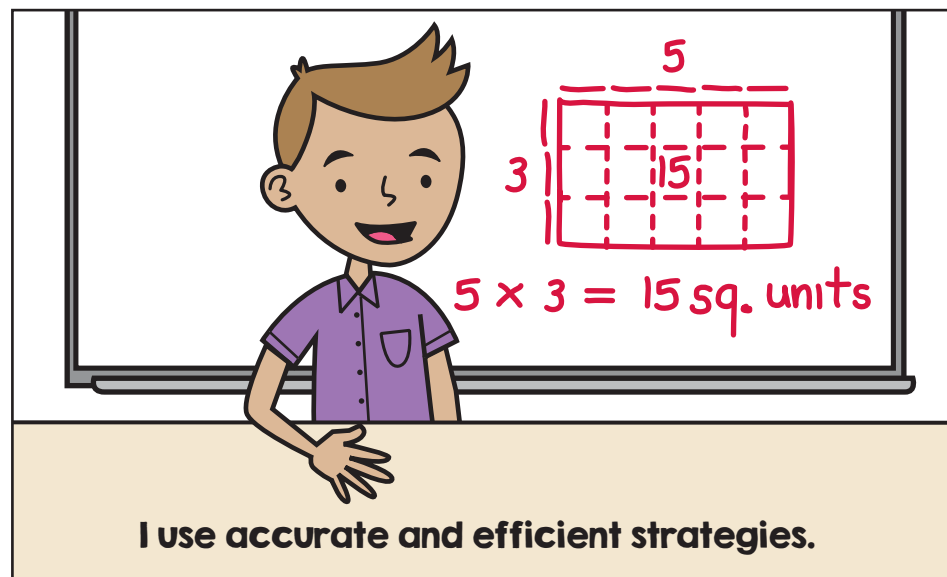


I make labeled sketches to show my thinking.



$3 \times 14\text{cm} = ?$

I include units when appropriate.



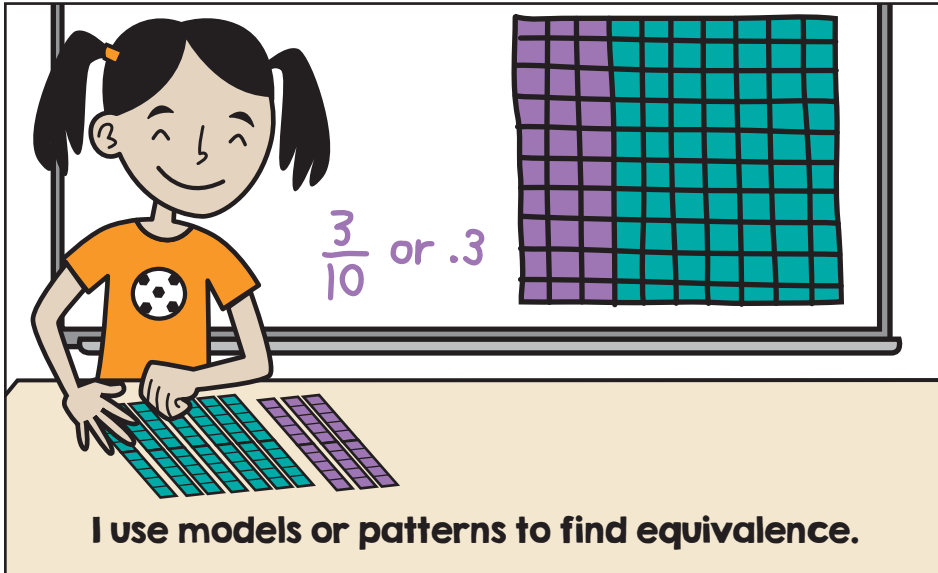
$5 \times 3 = 15 \text{ sq. units}$

I use accurate and efficient strategies.

# Look for and make use of structure.

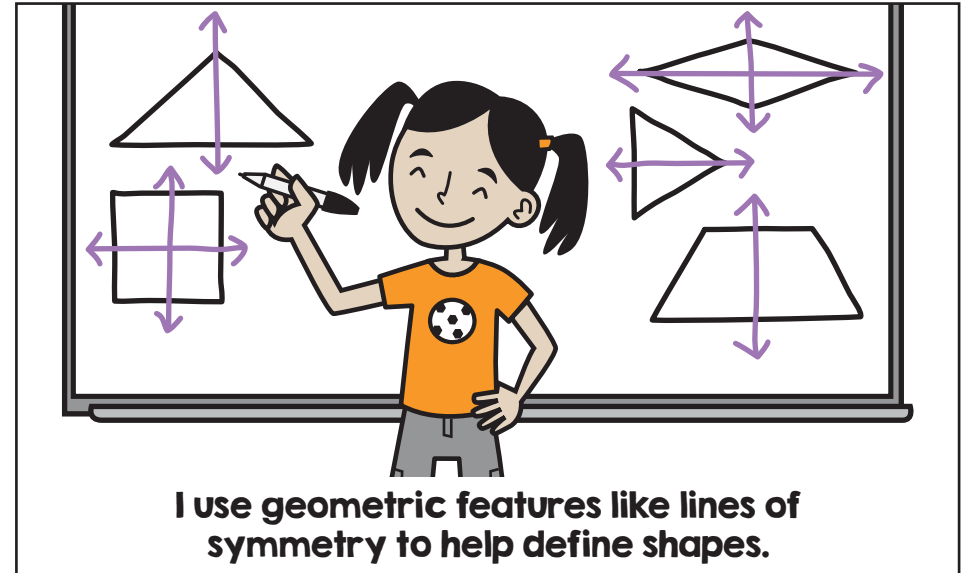
MP. 7

I use the structure of a number, shape, or model to solve problems and show my thinking.



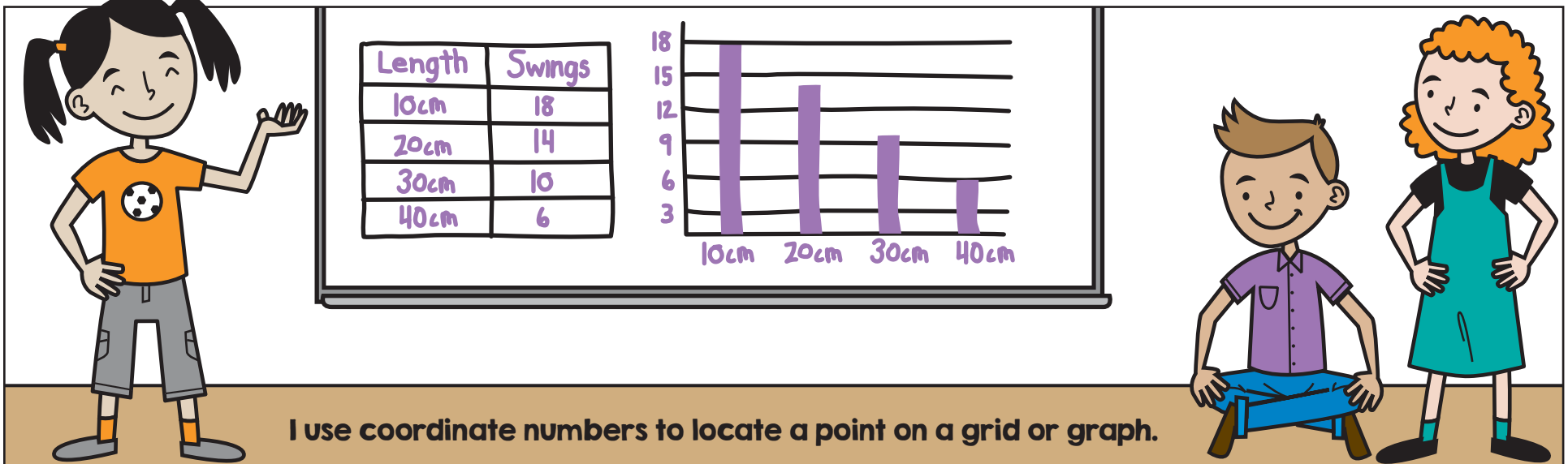
A girl with pigtails is standing at a desk with a grid. She has written  $\frac{3}{10}$  or .3 on the board. The grid shows 10 columns, with the first 3 columns shaded purple and the remaining 7 columns shaded teal.

I use models or patterns to find equivalence.



A girl is pointing at a whiteboard with several geometric shapes. Each shape has purple arrows indicating lines of symmetry: a triangle (1 vertical line), a square (2 vertical and 2 horizontal lines), a diamond (2 vertical and 2 horizontal lines), a trapezoid (1 vertical line), and a triangle pointing right (1 horizontal line).

I use geometric features like lines of symmetry to help define shapes.



A girl is pointing to a whiteboard. On the left is a table with two columns: 'Length' and 'Swings'. On the right is a bar graph with 'Length' on the x-axis and 'Swings' on the y-axis. The y-axis has markings at 3, 6, 9, 12, 15, and 18. The bars represent the number of swings for each length.

Length	Swings
10cm	18
20cm	14
30cm	10
40cm	6

I use coordinate numbers to locate a point on a grid or graph.



# Look for and express regularity in repeated reasoning.

MP. 8

I can make generalizations about numbers and facts, and come up with strategies to solve similar problems.

$\frac{1}{10}$  or  $.10$   
 $\frac{1}{100}$  or  $.01$   
 $.67$  or  $\frac{67}{100}$

**I break large numbers, fractions, and decimals into parts to make calculations easier.**

$6 + 6 + 6$   
 or  $3 \times 6$   
 $6 \times 3 = 18 \text{ sq. units}$

**I use strategies to make problems simpler instead of doing the same work over and over.**

1	2	4	8
\$0.52	\$1.04	\$2.08	\$4.16

**I look for shortcuts that work.**

$\frac{2}{6} = \frac{1}{3}$   
 $\frac{3}{6} = \frac{1}{2}$

**I generalize and apply big ideas to decide if my results make sense.**