

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

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.

8

3

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

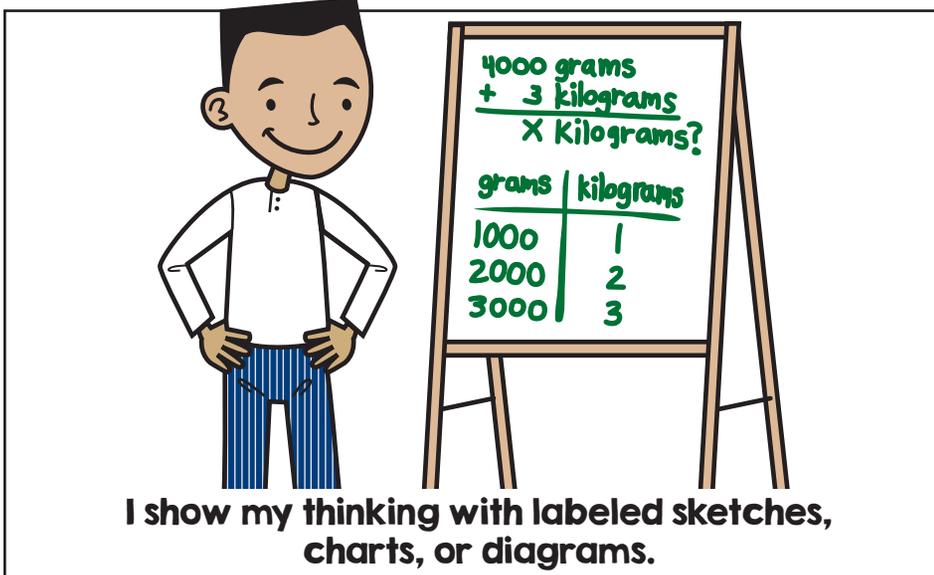
Check my work using another strategy.

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

Reason abstractly and quantitatively.

MP.2

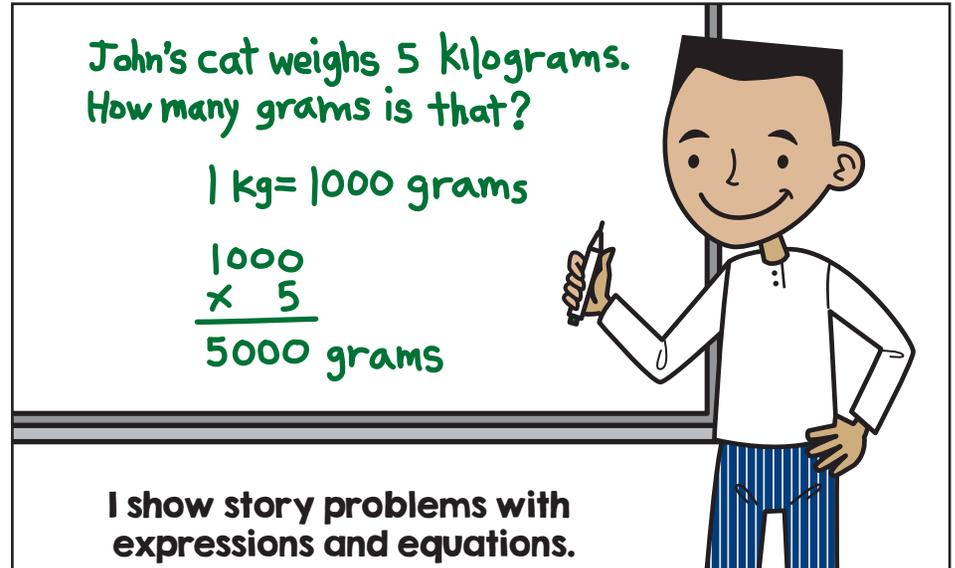
I can represent math problems in a variety of ways and think about what the problems mean.



4000 grams
+ 3 kilograms
X Kilograms?

grams	kilograms
1000	1
2000	2
3000	3

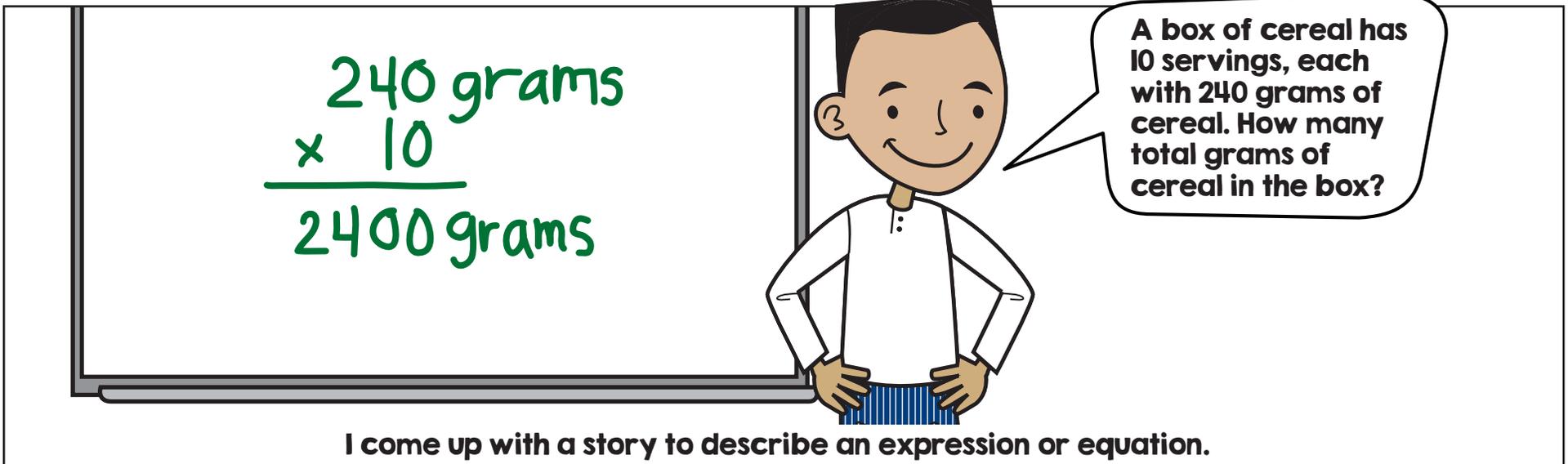
I show my thinking with labeled sketches, charts, or diagrams.



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.


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

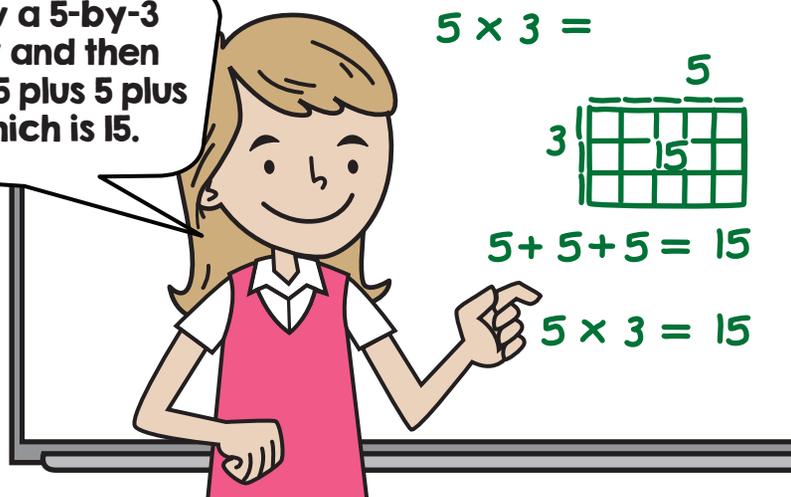
A box of cereal has 10 servings, each with 240 grams of cereal. How many total grams of cereal in the box?

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

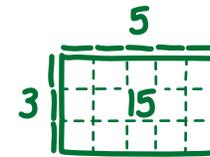
Construct viable arguments and critique the reasoning of others. MP.3

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.



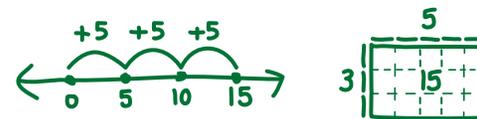
$$5 \times 3 = 15 \text{ sq. units}$$

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.



$$5 \times 3 = 15$$

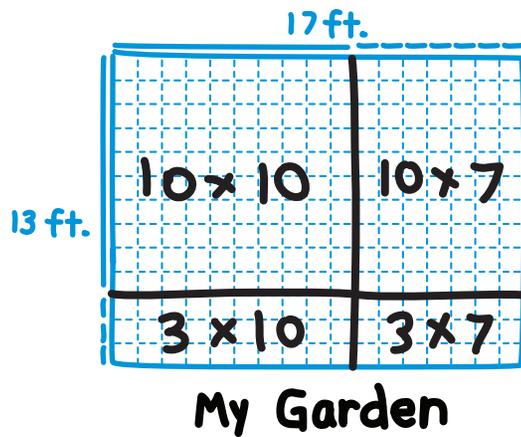
I compare my strategy to someone else's.

Model with mathematics.

MP. 4

I can see math in the world around me.
I can use math to answer questions and gain insight about situations and problems.

I can use the array I sketched to figure out the exact area. But I also can see right away that it's going to be a bit more than 200 square feet.



I use diagrams and numbers to represent situations mathematically. I think carefully about what those diagrams and numbers can tell me about the situation.

$$\begin{array}{c|c|c|c} 1 & 2 & 4 & 8 \\ \hline \frac{3}{4} & 1\frac{1}{2} & 3 & 6 \end{array}$$

$8 \frac{3}{4}$ -cups will make 6 cups of water.

I need 6 cups to make the juice. How can I use this $\frac{3}{4}$ -cup to measure out 6 cups of water?

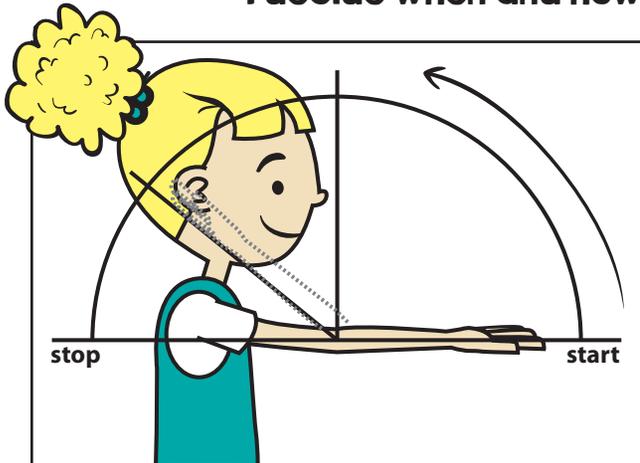


I represent situations with mathematics and use my representations to solve problems efficiently.

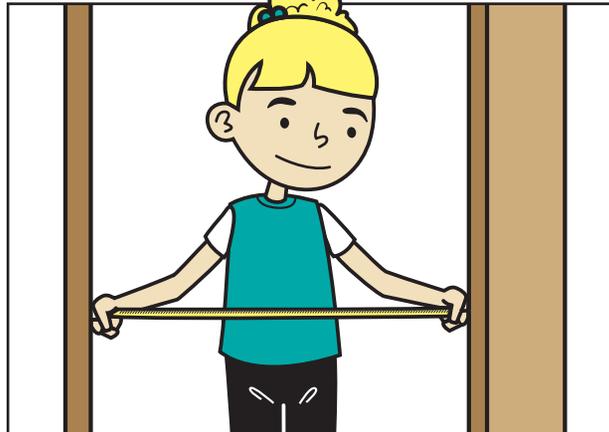
Use appropriate tools strategically.

MP. 5

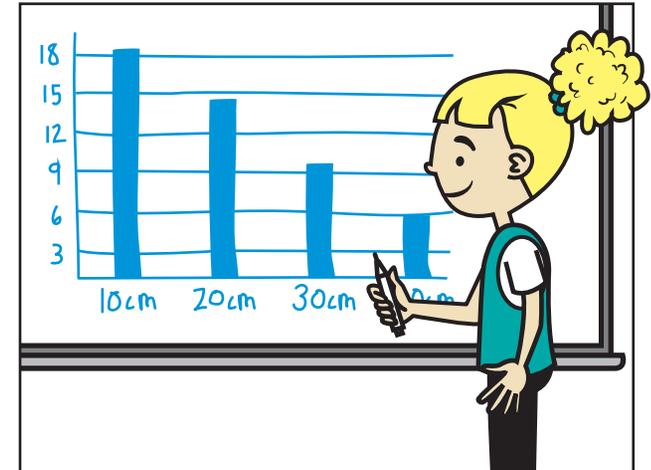
I decide when and how to use math tools, pictures, and models to help solve problems.



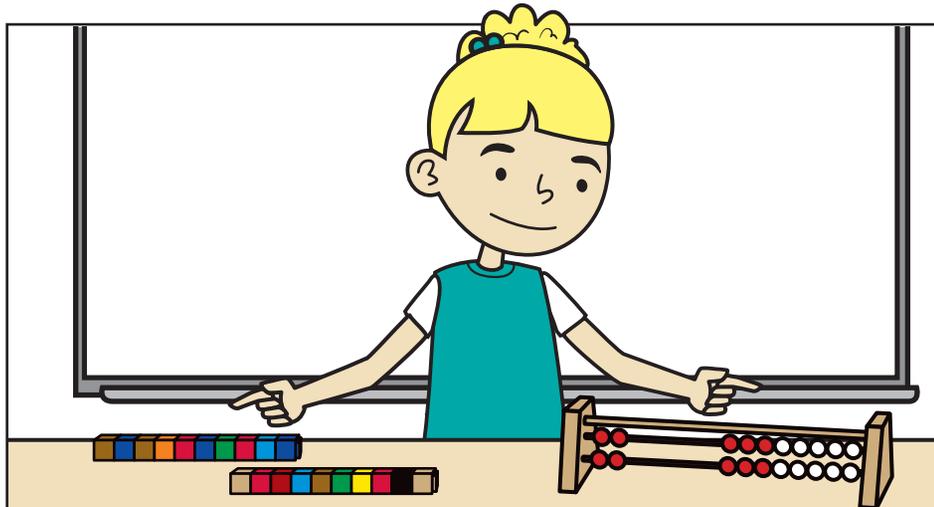
I know when I can estimate and when I need to find the exact answer.



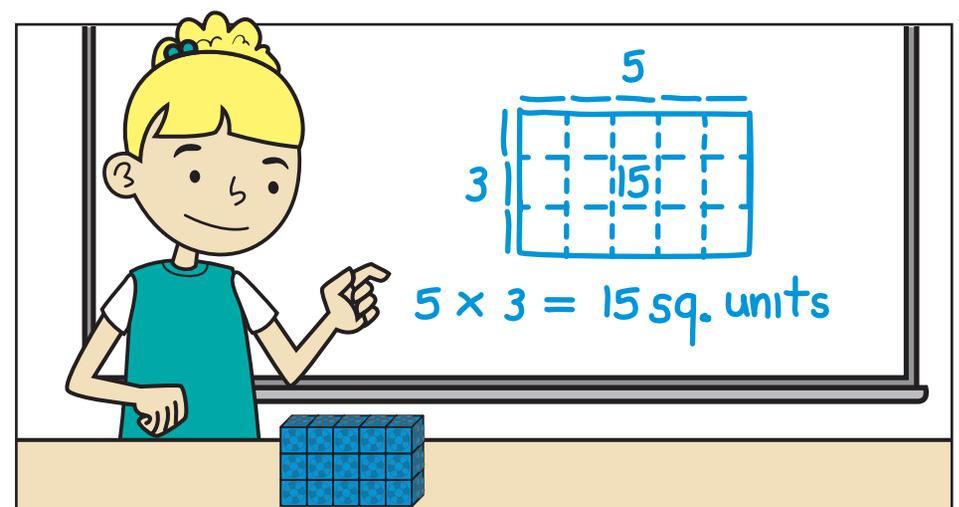
I use tools like rulers and meter sticks to compare units of measure.



I represent and explain data with graphs.



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

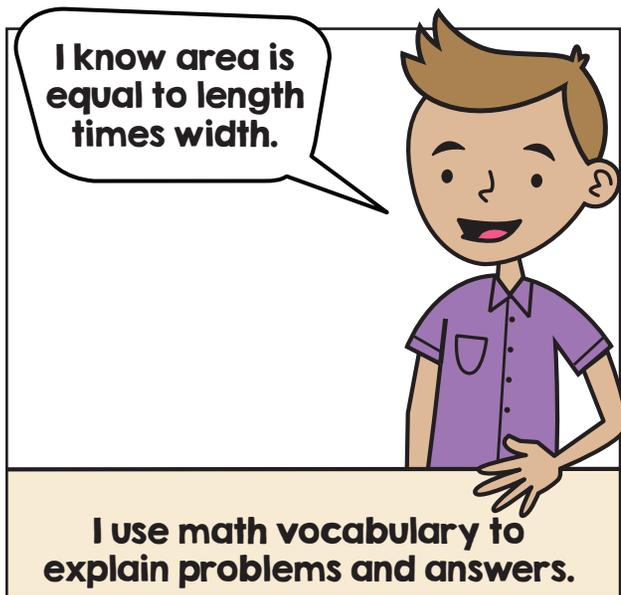


I determine whether the tool I selected makes sense.

Attend to precision.

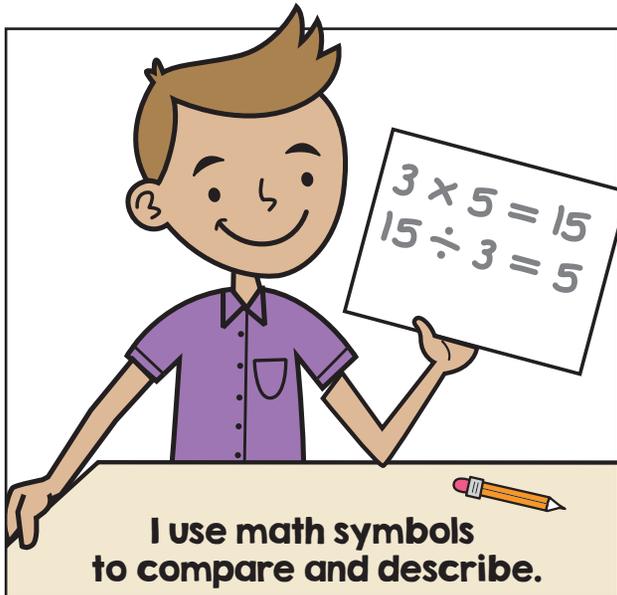
MP. 6

I can be mathematically precise and describe my ideas clearly.



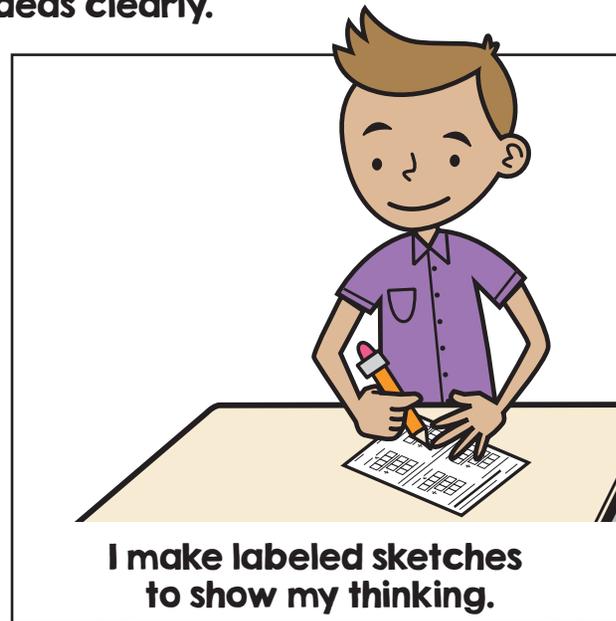
I know area is equal to length times width.

I use math vocabulary to explain problems and answers.

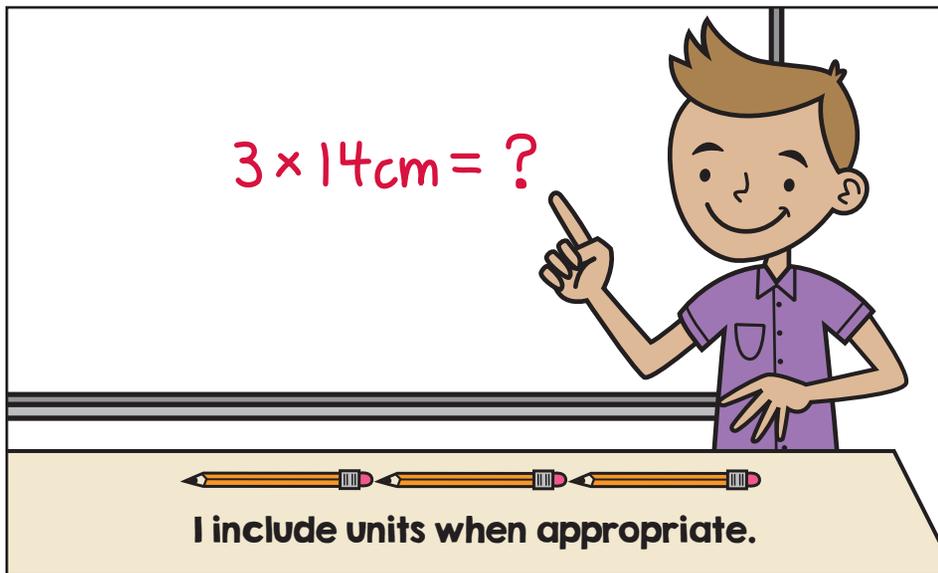


$3 \times 5 = 15$
 $15 \div 3 = 5$

I use math symbols to compare and describe.

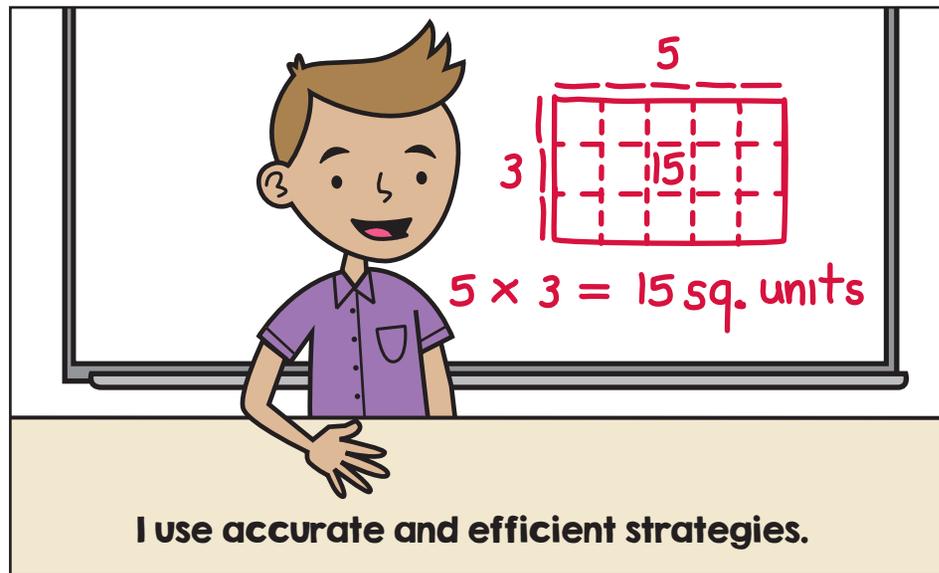


I make labeled sketches to show my thinking.



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

I include units when appropriate.



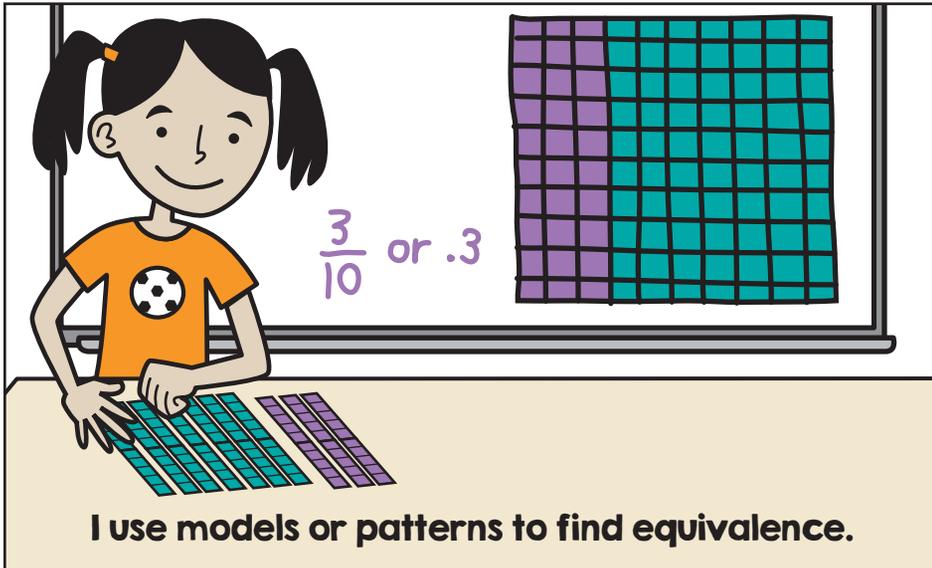
$5 \times 3 = 15 \text{ sq. units}$

I use accurate and efficient strategies.

Look for and make use of structure.

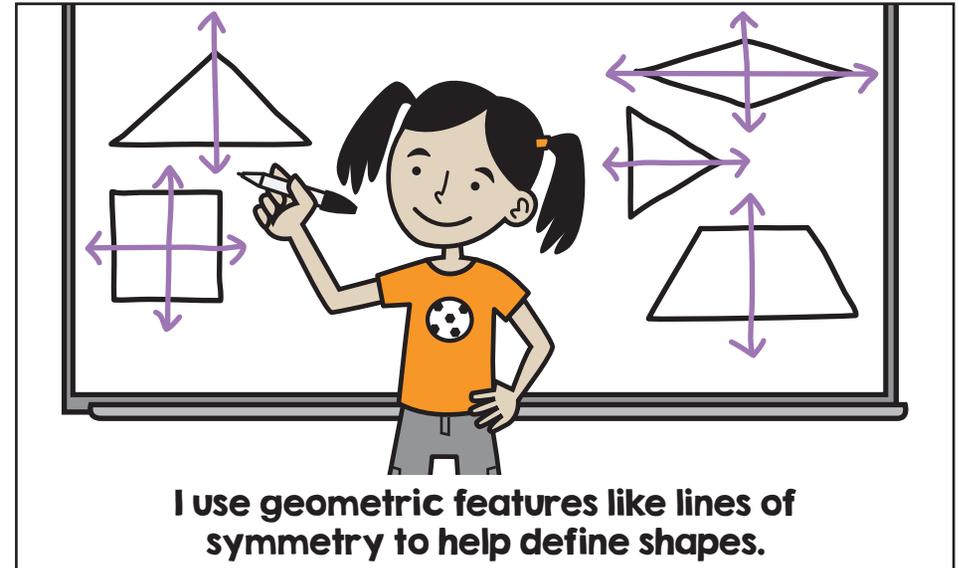
MP. 7

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



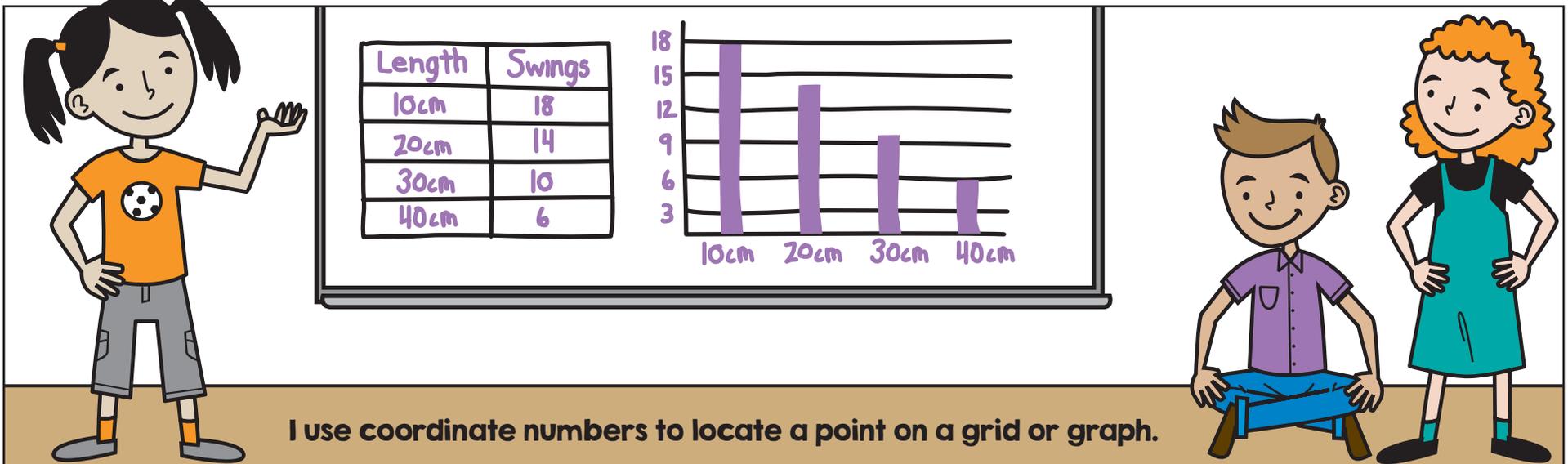
A girl with pigtails is standing at a desk with a grid. She has written $\frac{3}{10}$ or .3 on the board. The grid shows 10 columns and 10 rows, with 3 columns shaded purple and 3 rows shaded teal, representing 30 out of 100 squares.

I use models or patterns to find equivalence.



A girl is pointing to a whiteboard with several geometric shapes. Each shape has purple arrows indicating lines of symmetry: a triangle (1 line), a square (4 lines), a diamond (2 lines), a trapezoid (1 line), and a triangle pointing right (1 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 data is as follows:

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

The bar graph shows four bars of decreasing height corresponding to the lengths 10cm, 20cm, 30cm, and 40cm. The y-axis is labeled with 3, 6, 9, 12, 15, and 18.

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

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.