Lesson 4: Metric Conversion and Division by Powers of Ten

- Let's convert units.

Warm-up: True or False: Divide by a Hundred and a Thousand

Decide if each statement is true or false. Be prepared to explain your reasoning.

- $5 \div 1{,}000 = 0.05$

- $36 \div 100 = 0.36$

- $1{,}328 \div 1{,}000 = 1.328$

4.1: Long Jump, Javelin Throw, and Shot Put

athlete	long jump	javelin throw	shot put
Jackie Joyner-Kersee, USA	727 cm	4,566 cm	1,580 cm
Sabine John, Germany	671 cm	4,256 cm	1,623 cm
Anke Behmer, Germany	678 cm	4,454 cm	1,420 cm

1. Below are some results Jackie Joyner-Kersee recorded in different events in 1988. Complete the table.

event	centimeters	meters
long jump	727	
javelin throw	4,566	
shot put	1,580	

2. Which unit of measure is most helpful when you picture each distance, centimeters or meters? Explain or show your reasoning.

3. Why do you think that the distances are measured to the nearest centimeter?
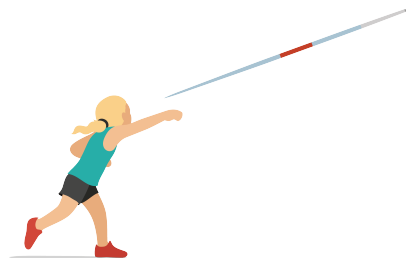
4.2: Hurdles

1. The table shows how many meters some students ran during a week. Complete the table to show how many kilometers each student ran.

student	distance (meters)	distance (kilometers)
Diego	9,513	
Clare	11,018	
Priya	8,210	
Andre	10,000	

2. What patterns do you notice in the table?

3. Below is Tyler's strategy to divide a whole number by 10, 100, or 1,000.

I find the quotient by shifting the digits to the right — once when I divide by 10, twice when I divide by 100, 3 times when I divide by 1,000.

$$5,632 / 10 = 563.2$$
$$5,632 / 100 = 56.32$$
$$5,632 / 1,000 = 5.632$$

Describe to your partner what Tyler means.

(Pause for teacher direction.)

4. Why does Tyler's strategy work? Will Tyler's strategy always work? Explain or show your reasoning.