Today's Materials

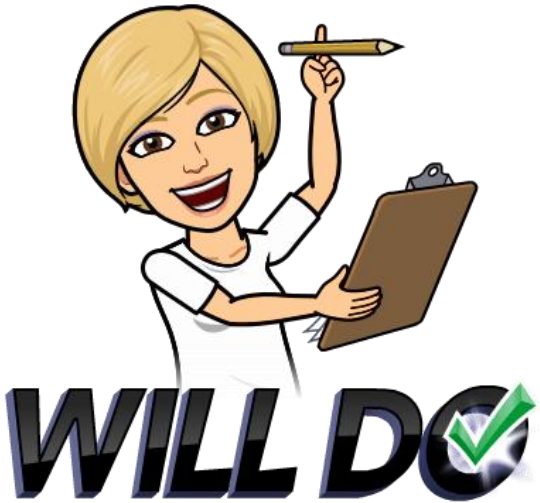
- calculator
- pencil
- notebook
- glue
- highlighter

More about **Constant of Proportionality**

Lesson 3

Let’s solve more problems involving proportional relationships using tables!

Today's Goals



- I can find missing information in a proportional relationship using a table.
- I can find the constant of proportionality from the information given in a table.

Equal Measures

Warm Up

- Discussion Supports

I will give you a long list of numbers and units.

- Record as many equivalent measurements as you can!
- You can reuse numbers and units more than once.

Example: 30 minutes is ½ hour

Share your equations with your partner.

★ **Star the ones that are the same.**

Which equations did you have in common with your partner?

Who had something different?

If you could include 2 more numbers/labels to this list, what would they be? Why?

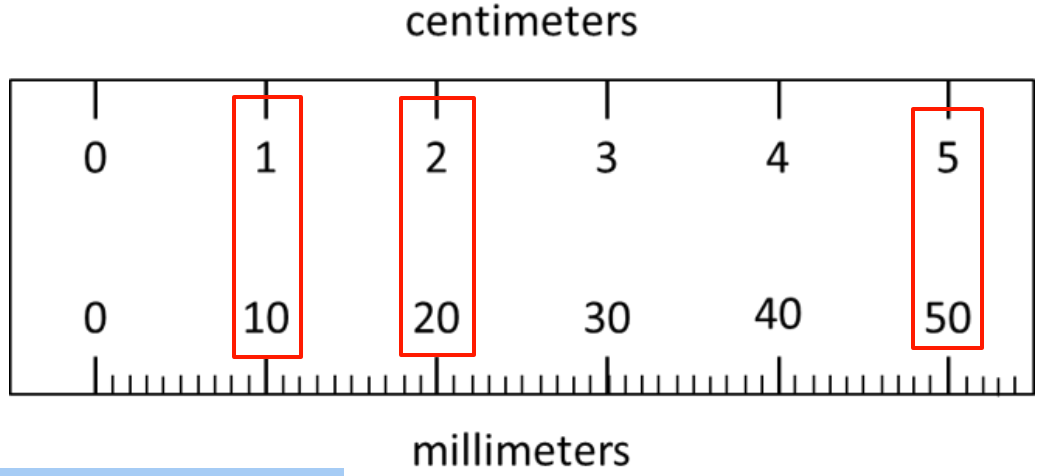
Centimeters (cm) & Millimeters (mm)

Activity 3.2

Collect and Display

Let’s look at how centimeters and millimeters are related and how it is related to what we have been doing recently.

There is a proportional relationship between any length measured in centimeters and the same length measured in millimeters.



Multiply by 10 to get mm from cm, and divide by 10 to get cm from mm

Begin working on your own. (3 min.)
Let's work in teams!

What is the constant of proportionality?

length (cm)	length (mm)
9	90 mm
12.5	125 mm
50	500 mm
88.49	884.9 mm
x	y

$k = \frac{y}{x} = 10$

$y = kx$

What is the constant of proportionality?

length (mm)	length (cm)
70	7 cm
245	24.5 cm
4	0.4 cm
699.1	69.91 cm

$k = \frac{y}{x} \quad \frac{7}{70} =$

$= 0.1$

How are these two constants of proportionality related to each other?

To convert from centimeters to millimeters, you can multiply by 10 .

The two constant of proportionality are related to each other because we can interchange the operations.

To convert from millimeters to centimeters, you can divide by 10 or multiply by 1/10 .

“Are you ready for more?”

1. How many square millimeters are there in a square centimeter? 0.1 sq mm
2. How do you convert square centimeters to square millimeters?
   How do you convert the other way?

Pittsburgh to Phoenix

Activity 3.3

- Three Reads
- Discussion Supports

Someone walks at a constant speed of 4 miles per hour.

How much time does it take them to walk...

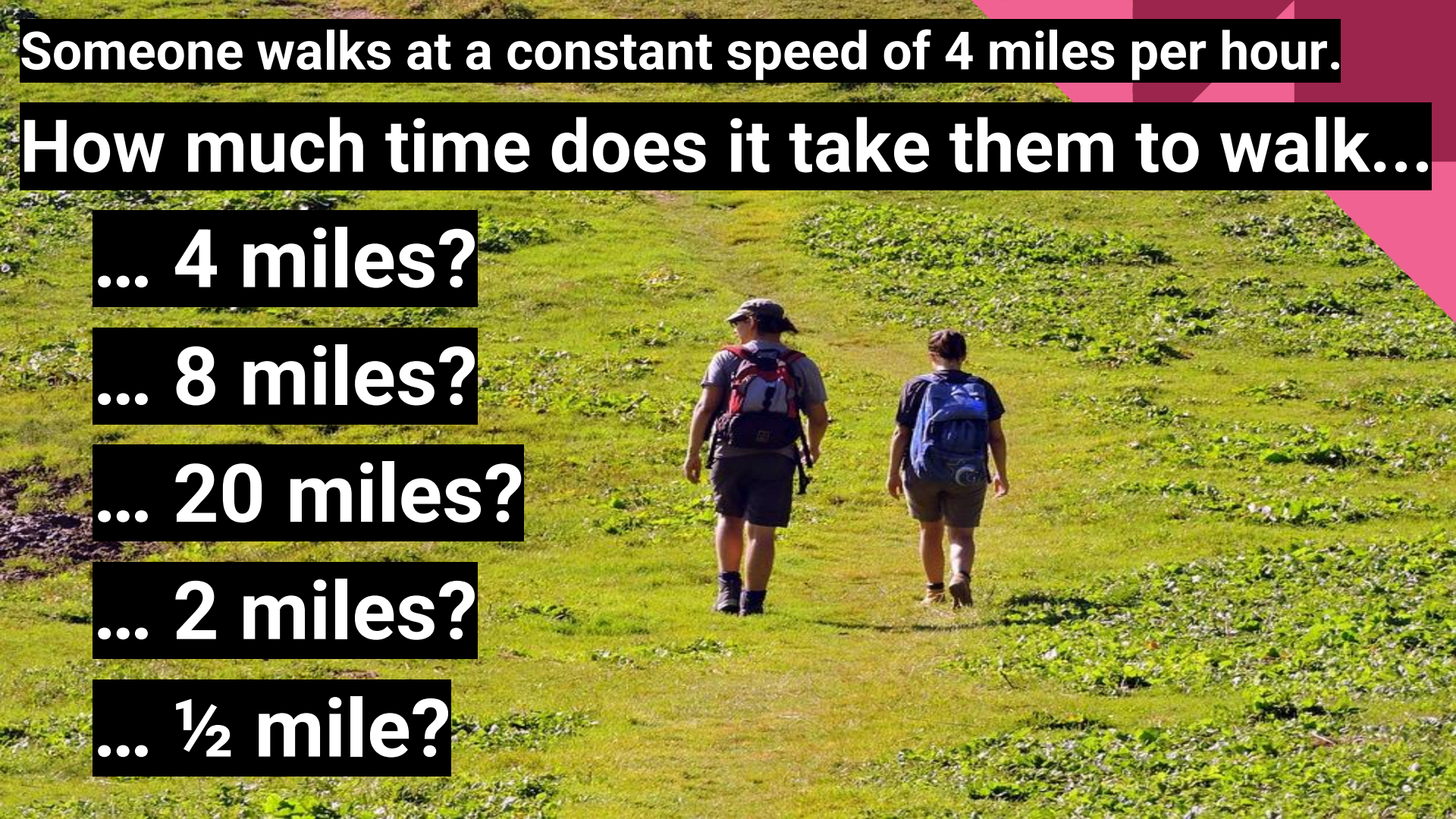
... 4 miles?

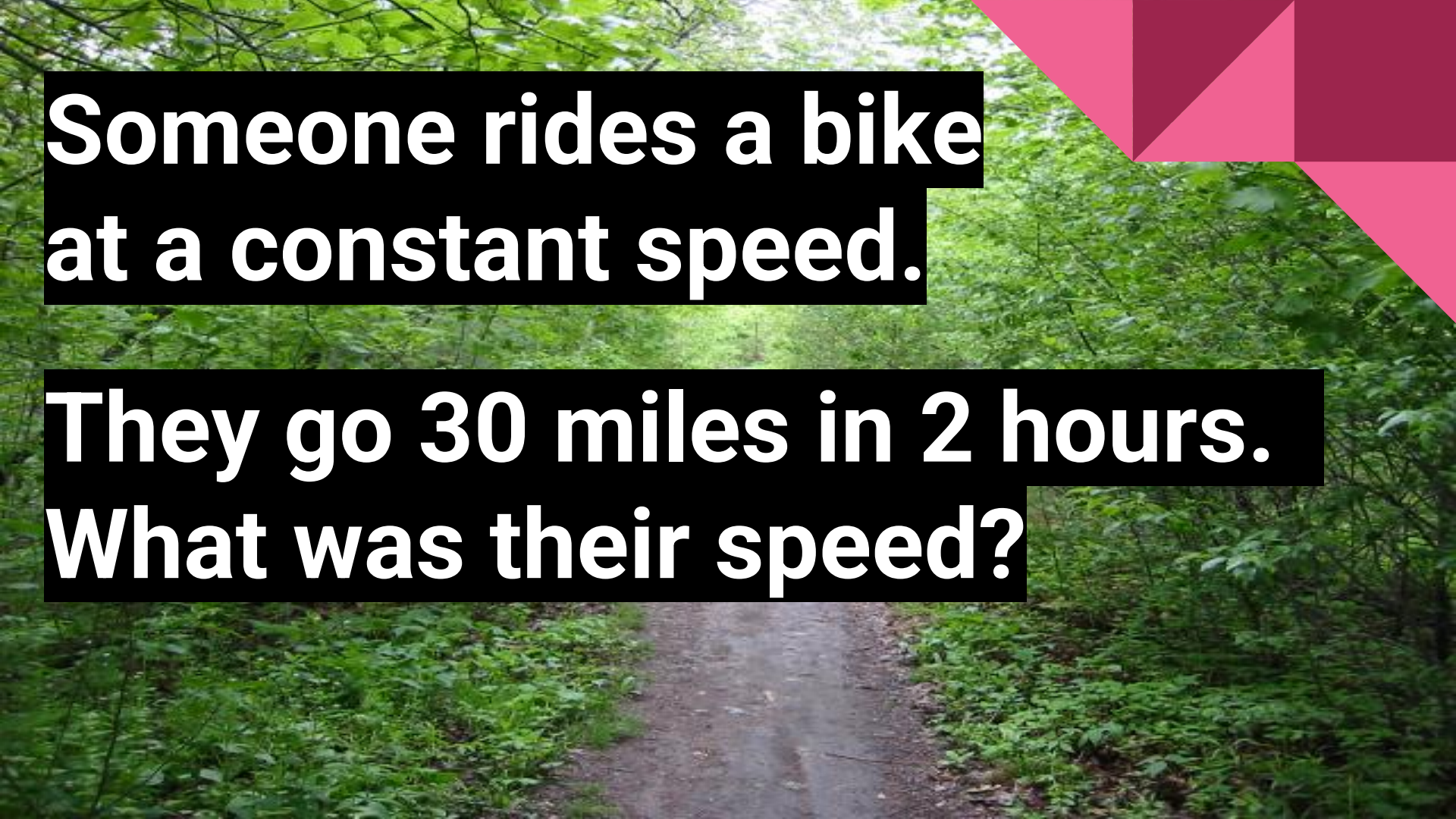
... 8 miles?

... 20 miles?

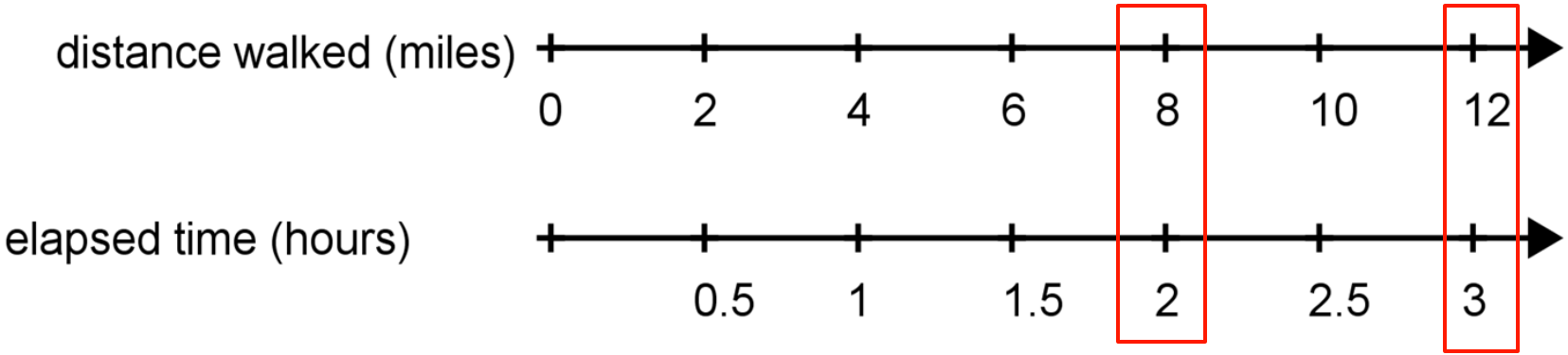
... 2 miles?

... ½ mile?



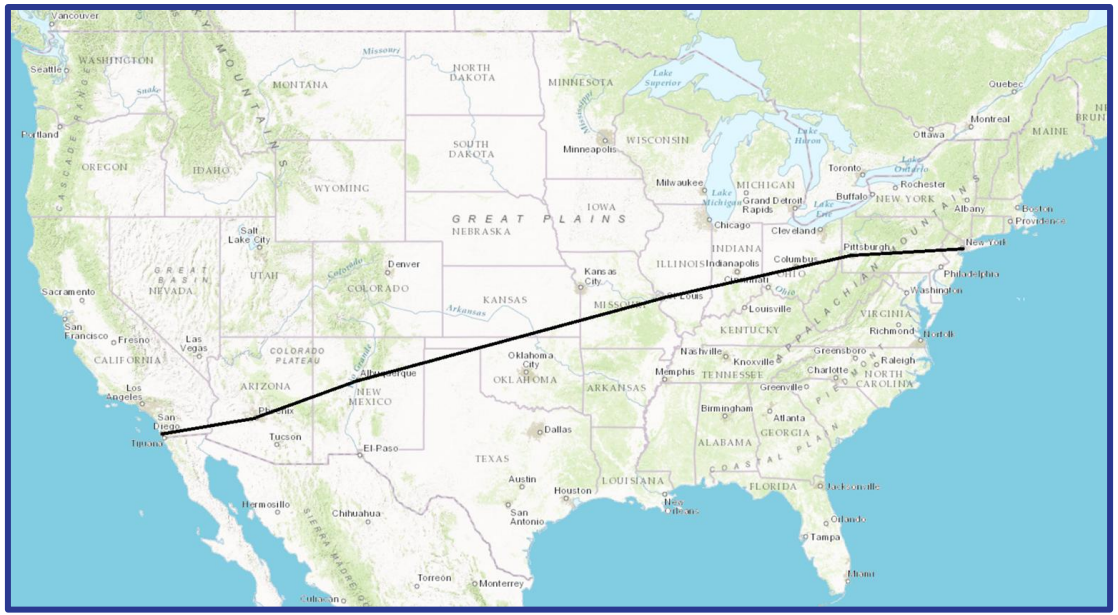

Someone rides a bike at a constant speed.
They go 30 miles in 2 hours. What was their speed?

Someone rides a bike at a constant speed. They go 30 miles in 2 hours. What was their speed?



On its way from New York to San Diego, a plane flew over Pittsburgh, Saint Louis, Albuquerque, and Phoenix traveling at a constant speed.

Complete the table as you answer the questions. Explain and show your reasoning as you work.



segment	time	distance	speed
Pittsburgh to Saint Louis	1 hour	550 miles	
Saint Louis to Albuquerque	1 hour 42 minutes		
Albuquerque to Phoenix		330 miles	

- Which quantities are in a proportional relationship? How do you know?
- What is the constant of proportionality in this case?

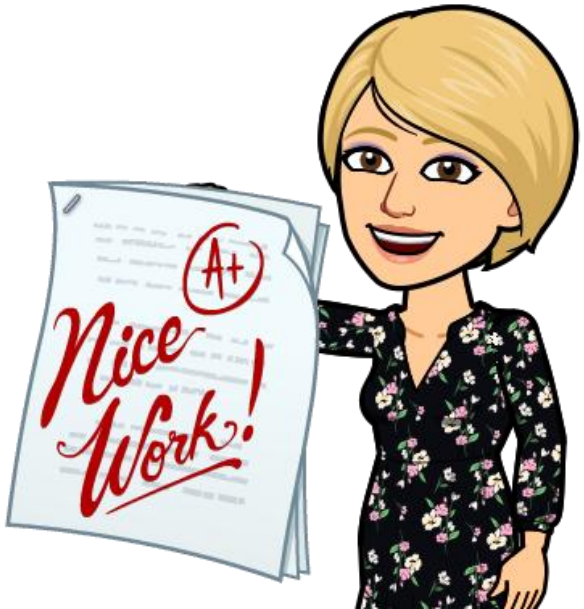
In the first activity, we examined the proportional relationship between millimeters and centimeters from two different perspectives and found two constants of proportionality.

- ➔What were they?
- ➔What is the relationship between the two constants of proportionality?

In the second activity, we examined a proportional relationship between the time a plane flies and the distance it travels.

- ➔ What was the constant of proportionality in this task?
- ➔ What does the constant of proportionality represent in terms of the context?

Today's Goals



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Fish Tank
Cool Down
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