

Find Your Stride Length and Walking Rate

Objectives

You will be able to

- Use unit rates and other ratio reasoning to find missing information.
- Use ratios to convert units of measurement.
- Apply the use of ratios to find information about time, distance, and rate.
- Collaborate with peers.



How can ratios help us create maps and tours of our communities?

Evaluation and Feedback

To evaluate your work, you will

• Complete a check for understanding about unit rates.

Learning Task 3: Find Your Stride Length and Walking Rate

As a group:

- Find your stride length and walking rates.
- Determine the time it will take you to walk to your tour locations.

Vocabulary

- rate
- stride length
- walking rate
- unit rate

Connect to the Culminating Project

• Determine the time it will take you to walk between your tour locations.



LESSON 1

STRIDE LENGTH

WARM-UP

Frayer Model









Definition (use your own words)	Characteristics
ra	ate
Examples	Non-examples

Definition (use your own words)	Characteristics
	init
Examples	ate Non examples
	Non-examples



PROJECT ACTIVITY

Find Your Stride Length

Discuss and decide as a team how you will find your stride length. Stride length is how far you walk (in inches) in a single step. Use what you know about ratios to make a plan to find the connection between how many inches you travel and how many steps you take.

Describe Your Plan

Represent Your Work

1. Create a double number line to represent the ratio connection between how many **inches** you travel and how many **steps** you take.



2. Create a table to represent the ratio connection between how many **inches** you travel and how many **steps** you take.

3. Use one other method to represent the ratio connection between how many **inches** you travel and how many **steps** you take. (This can be a picture, words, double number line, or something else.)

4. Which way(s) of representing the ratio connection between **inches** and **steps** did you find to be most useful? Why?



5. Complete the table below to record the stride lengths for the members of your team. Write the stride lengths as **unit rates** with labels.

Student	Stride Length (written as a unit rate)	Student	Stride Length (written as a unit rate)

- 6. Which student on your team has the longest stride length?
- 7. Which student on your team would take the most steps to travel 10 feet?
- 8. Was your answer the same for both questions 6 and 7? Why or why not?

9. What other question could you ask about the data you collected? How might you find the answer to that question?



LESSON 2

WALKING RATE

WARM-UP

Word Problems

1. Paul says that 36 inches is equal to 432 feet because 36 times 12 equals 432. Do you agree with his reasoning? Why or why not?

2. Desiree can do 30 push-ups in 20 seconds. Lucio can do 50 push-ups in 40 seconds. Colette says that Lucio does push-ups at the same rate as Desiree because 50 minus 30 is 20, and 40 minus 20 is 20. Do you agree with Colette's reasoning? Why or why not?



LESSON 2 • WALKING RATE

PROJECT ACTIVITY

Find Your Walking Rate

Use the timer and tape measure to find the walking rate in feet per minute of each member of your team. Walking rate is how far you walk per minute. Determine the distance your team will walk. Time three trials of each team member walking that distance.

Student: ______

Distance Traveled: ______

Trial	Time
1	
2	
3	

- What is this student's average (mean) time?
- Using the average time, how many feet does this student walk in 1 minute?

Student: ______

Distance Traveled: ______

Trial	Time
1	
2	
3	

- What is this student's average (mean) time?
- Using the average time, how many feet does this student walk in 1 minute?



LESSON 2 • WALKING RATE

Student: ______

Distance Traveled: ______

Trial	Time
1	
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- What is this student's average (mean) time?
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Student: ______

Distance Traveled: ______

Trial	Time
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- What is this student's average (mean) time?
- Using the average time, how many feet does this student walk in 1 minute?



LESSON 3

DISTANCE, RATE, TIME, AND STEPS

WARM-UP

Price of Bananas

Nick wants to complete the table below.

Price	Number of Bananas
\$2.67	3
\$5.34	6
	15
\$18.69	21

He says that 15 bananas must cost \$10.68 because you multiply 5.34 times 2 to get the answer. Do you agree with his reasoning? Why or why not? If not, provide the correct answer in the table.



LESSON 3 • DISTANCE, RATE, TIME, AND STEPS

PROJECT ACTIVITY

Distance, Rate, Time, and Steps

- 1. Use your information from Learning Task 2 and Lessons 1 and 2 in this Learning Task to complete the tables below.
- 2. In the first table, write your walking rate and stride length as a unit rate.
- 3. In the second table, record the distances between three points of interest at your tour locations (you found this in the previous Learning Task). Then determine the number of steps and amount of time it would take you to walk the distances. You will use this information for your Community Tour Project.

Your Walking Rate (written as unit rate)	
Your Stride Length (written as unit rate)	

Starting Point	Stopping Point	Walking Distance (choose the best unit)	Number of Steps It Would Take You (using your stride length)	Amount of Time It Would Take You (walking at your rate)



LESSON 3 • DISTANCE, RATE, TIME, AND STEPS

4. Show how you found the number of steps it would take for you to walk one of these distances.

5. Show how you found the amount of time it would take for you to walk one of these distances.



CHECK FOR UNDERSTANDING

Test your knowledge of walking rate and stride length using the Check for Understanding • Unit Rates.



CULMINATING PROJECT

COMMUNITY TOUR

WARM-UP

Working with Scale

A scaled map is a special map in which the distances are in a fixed ratio to the distances in real life. For example, every square on a map's grid could represent 1 mile in real life. The ratio would be 1 square : 1 mile.

- 1. Record the real distances between the points of interest at your tour location. You found these during Learning Task 2.
- 2. Using a full sheet of graph paper, decide how many feet or meters each box will represent. Each team member should use a different ratio (for example, 1 box : 1 foot, or 1 box : 20 feet). Choose a ratio that will make your map of the three points of interest large enough to see clearly, but small enough to fit on your paper.
- 3. Draw the points of interest on your graph paper "to scale" (that is, using your scale).

Starting Point	Stopping Point	Real Distance	Map Distance

PROJECT ACTIVITY

Work on the Culminating Project

- Create a map and a tour guide for your chosen location. Your team will present in class to your classmates. Your audience might also include other teachers, outside guests, and other members of the community.
- Finish your work on the Culminating Project. Make sure you have completed all the items on the Community Tour Culminating Project checklist and assessed your project using the Community Tour Rubric (both the checklist and rubric are from Learning Task 1, Lesson 1).



CULMINATING PROJECT • COMMUNITY TOUR



GROUP PREVIEW

Work with your team to test your knowledge of ratios and rates.



INDIVIDUAL PERFORMANCE TASK

Test your knowledge of ratios and rates.