1 Get Started on the Culminating Project

Overview and Connection to the Culminating Project

In the Culminating Project, students will work in teams to create a tour of a specific location in their community. During the unit, the teams will represent ratios, convert units of measurement, and work with unit rate to determine distances to the location in terms of stride length, walking rate, and the time it takes to walk the entire tour. The teams will present their tours to another class, other teachers, parents, community members, and so on.

NOTE

This unit presumes that students have some prior understanding and experience with decimal place value, multiplying and dividing decimals, and finding the averages of numbers.

Learning Objectives

Students will be able to

- Use ratios to describe connections between two quantities.
- Collaborate with peers.
- Discuss assets and resources in the community and their locations using academic language.

Driving Questions

- What assets, resources, and history are in the community?
- How can ratios help us create maps and tours of our communities?

Assessment

Check for Understanding • Write Ratios

Timeline

Lesson 1 • Choose Location

Lesson 2 • Show and Tell and Sort

Check for Understanding • Write Ratios

Materials, Supplies, and Technology

- Examples of community maps and tours
- Examples of video tours and virtual tours (see a list in Lesson 1 Project Activity)
- Computers with internet access for research
- Example artifact collections pre-organized so they can be sorted into ratios. These can be classroom artifacts such as pencils, markers, or paper clips, or artifacts that are more representative of the larger community in which your school is located. Make sure to include some multicultural artifacts.
- Copies of Check for Understanding • Write Ratios (see Handouts and Assessments)

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LESSON 1

CHOOSE LOCATION

WARM-UP

First Three Things

- Ask students to write down the first three things that they think of when they hear the word "[insert name of community they live in]"

> Write down the first three things you think of when you consider the community you live in.
>
> STUDENT EDITION

- Then create a word web by drawing the name of the community location on the board and surrounding it with the words that students thought of.
- As a class, discuss:
  - Are there any common themes in the word web?
  - How does where you live (or work or go to school) affect who you are?
  - What words would you want other people to think of when they hear the name of your community?
- Explain that in this unit, students will be using math to create maps and tours that show what they would like others to know about their community. Show the examples of community maps and tours.

PROJECT ACTIVITY

Choose Your Community Tour Location

- Review the expectations for the Culminating Project with students. Describe the overall end goal of this unit—creating a community map and tour and presenting their work to another class, other teachers, parents, community members, and so on.
- To "launch" or introduce the unit, you may want to use one of the following web resources to help you describe to students what a tour is. If possible, take students on a field trip where they would be led on a tour (e.g., museum, park, or historical site).

Examples of community maps and tours:

Morgan Hill/San Martin, California: https://www.youtube.com/watch?v=eveiLi_ytcc

Campbell, California: https://www.youtube.com/watch?v=RifBj54s6XI

Some examples of virtual tours:

Metropolitan Museum of Art (New York City):
http://www.marchphoto.com/MetTour/index2.html

White House: http://www.whitehouse.gov/about/inside-white-house/interactive-tour

Ellis Island (New York): http://teacher.scholastic.com/activities/immigration/tour/index.htm

Places all over the world: http://www.airpano.com/List-Aerial-Panoramas.php

- Have teams choose a tour location and use the internet to begin collecting information about those places, using the tables and questions in their Student Edition as a guide.
- In the next lesson, students will play a game using ratios to describe community artifacts.

NOTE

For the last question in the Student Edition, make sure that students choose a map that has a scale.

You and your classmates are going to create a community tour of a specific location. You will create a Tour Guide (brochure, website, etc.) and give a presentation to another class, other teachers, parents, community members, and so on.

1. In your team, decide on one tour location. Some ideas are listed below:
   - Neighborhood where you live
   - School
   - Home
   - Religious institution (church, temple, synagogue)
   - Sports facility
   - Library
   - Grocery store/shopping area
   - Park/playground
   - Bookstore
   - Clubs (Boys and Girls Clubs of America, Big Brothers Big Sisters)

   Our tour location:
   Answers will vary.

2. Choose four to eight important places or points of interest (one to two places per team member) to highlight inside or around your chosen tour location.

1. *Answers will vary.*	5.
2.	6.
3.	7.
4.	8.

STUDENT EDITION

3. Research some details and information about the important places you listed in the previous step. These are things you would tell someone who was taking your tour.

Important Place	Details (and Links)
1. *Answers will vary.*	
2.	
3.	
4.	
5.	
6.	
7.	
8.	

4. Decide on the target audience, or who the tour is for (parents? teachers? sixth graders? someone else?).

   Target Audience:

   Answers will vary.

5. Try to find an online map of your chosen tour location. Consult with your teacher for guidance. Community maps may help illustrate the boundaries of the community, as well as show the locations of historic events, landmarks, and resources,.

   Put a link to your map here:

   Answers will vary.

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CLOSING/HOMEWORK

- Remind students of the discussion during the warm-up activity about how a place can be connected to a person's identity. Ask them to think about how a thing or "artifact" might also connect to their identity. Show some examples of artifacts that you have pre-organized into groups of 10–15 items. These can be classroom artifacts such as pencils, markers, or paper clips, or artifacts that are more representative of the larger community in which your school is located. Make sure to include some multicultural artifacts.
- Ask students to bring in their own collection of 10–15 artifacts for the "Show and Tell and Sort" activity in the next lesson. This collection of artifacts can be connected to the community they are mapping and/or their individual identities. Some examples of artifacts might be a handful of pebbles from the school parking lot, a stack of cards, toys, and so on.

LESSON 2
SHOW AND TELL AND SORT

WARM-UP

Team Builder: Favorites

- Have students work on the warm-up activity in their teams.

As a team, decide on one answer for each of the following questions.

1. What is our favorite movie?
   Answers will vary.

2. What is our favorite food?
   Answers will vary.

3. Who is our favorite celebrity (movie star, singer, etc.)?
   Answers will vary.

STUDENT EDITION

Debrief Questions

- Ask students the following questions.
  [This is an activity about compromise and teamwork, but don't tell your students this!]
  - What was challenging in this activity?
  - How did you come to your final decision? (Did someone give in? Get stuck on their idea? Compromise?)
  - What made it easier?
  - Were there any negotiations?

- Have teams create and agree on a list of norms they will use for this unit. Then, have them do the warm-up activity again using the norms. A set of norms could include:
  - pay attention to what other team members need;
  - no one is done until everyone is done;
  - play your role in the team;
  - help others do things for themselves;
  - listen and pay attention to what is being said;
  - explain by telling how;
  - be concise;
  - rephrase and build on others' ideas;
  - and everyone contributes or everybody helps.

PROJECT ACTIVITY

Show and Tell and Sort

Preparation:

- Organize the artifacts from the last lesson into sets ahead of time to use as examples for Part A or to lend to any group who forgot to bring in their own. Make sure to organize artifact sets with reasonably obvious categories and with quantities that can be grouped in different ways (color, size, shape, etc.).
- Explain to students the significance of your artifacts as related to the community they represent.

You have been looking at how places in your community can be a part of who you are. Artifacts can also show important parts of a community. Take a look at the example collection of artifacts your teacher has provided.

Part A

1. Why are these artifacts important? What do they have to do with your community?

   Answers will vary.

2. What are some different categories you could use to sort the artifacts? How many artifacts are in each category?

Categories	*Answers will vary.*		
Number of Artifacts	*Answers will vary.*		

3. Ratios are relationships between two quantities or amounts. You can use them to compare how many times larger or smaller one quantity is than the other. Use these sentence starters to compare connections between some of the categories.

   There are _number_ of _category_ for every _number_ of _category_.

   Answers will vary.

   The ratio of _category_ to _category_ is _number_ to _number_.

   The ratio of _category_ to _category_ is _number_ : _number_.

   The ratio of _category_ to _category_ is _number_ /_number_.

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Part B

Use one of the artifact collections that you or your teammates brought.

1. Why are these artifacts important? What do they have to do with your community?
   Answers will vary.

2. Think about some categories you could use to group this collection of artifacts, but don't say them out loud. Then, fill out **only the number spaces** in the table below. Leave the category spaces blank.
   Answers will vary.

Player 1	Player 2
The ratio of _category_ to _category_ is _number_ to _number_.	The ratio of _category_ to _category_ is _number_ to _number_
The ratio of _category_ : _category_ is _number_ : _number_.	The ratio of _category_ : _category_ is _number_ : _number_.
The ratio of _category_ / _category_ is _number_ / _number_.	The ratio of _category_ / _category_ is _number_ / _number_.
The ratio of _category_ to _category_ is _number_ to _number_.	The ratio of _category_ to _category_ is _number_ to _number_
The ratio of _category_ : _category_ is _number_ : _number_.	The ratio of _category_ : _category_ is _number_ : _number_.
The ratio of _category_ / _category_ is _number_ / _number_.	The ratio of _category_ / _category_ is _number_ / _number_.

3. Work with a partner. Player 1 will figure out what categories Player 2 was thinking of. Player 2 will figure out what categories Player 1 was thinking of. When both players have agreed on the categories, they can start a new round.

STUDENT EDITION

CLOSING/HOMEWORK

- At the end of class, remind students of what ratios are by posting this definition: "Ratios are relationships between two quantities or amounts. You can use them to compare how many times larger or smaller one quantity is than the other."
- Have students share and compare how they used ratios to describe connections between artifacts in this activity. Have them share how they used those connections to find missing numbers or categories in Part B. What are some other ways that ratios might be used?

Math Curricular Connections and Mini-Lessons

Mathsnacks: Bad Date (ratios video)

Mathsnacks: Ratio Rumble game

Brain Pop: Lure of the Labyrinth: Employee Cafeteria game

Engage NY: Representing and Reasoning About Ratios

Engage NY: Ratios

Khan Academy: Intro to ratios

Learnzillion: Reason with ratios

CHECK FOR UNDERSTANDING

Write Ratios

- Distribute the Learning Task 1 assessment—Check for Understanding • Write Ratios.

A sixth grade teacher has 20 blue markers, 30 black markers, and some red markers. Half of all the markers are black.

1. Write a ratio to represent the blue markers to the red markers.

   If half of the markers are black, there are 60 markers. Therefore, 10 markers are red.
   blue : red = 20 : 10 or 2 : 1

2. What are all the ways you can show that your ratio is correct?

   20 blue + 30 black + 10 red markers = 60 markers
   30 is half of 60
   20 blue to 10 red is 20 : 10 or 2 : 1

HANDOUTS AND ASSESSMENTS