

# 5: I'll Meet You in the Middle

## Based on the Utah quarter reverse



### OBJECTIVES

Students will demonstrate understanding of cause and effect. Students will understand customary units of measurement to find length. Students will calculate perimeter.



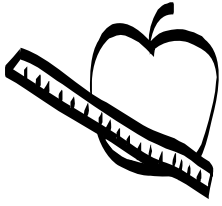
### MATERIALS

- 1 overhead projector
- 1 overhead transparency (or photocopy) of the “Utah Quarter Reverse” page
- 1 overhead transparency of the “How Does it Measure Up?” worksheet
- 1 class map of the United States
- 1 class map of the World
- Locate a copy of a text that provides basic information about the Transcontinental Railroad, such as:
  - *The Transcontinental Railroad: A Primary Source History of America’s First Coast-To-Coast Railroad* by Gillian Houghton
  - *The Transcontinental Railroad* by Linda Thompson
  - *The Transcontinental Railroad* by James P. Burger
  - *The Transcontinental Railroad 1862–69* by Frank B. Latham
  - *The Transcontinental Railroad In American History* by R. Conrad Stein
- Copies of the following:
  - “Cause and Effect” worksheet
  - “How Does it Measure Up?” worksheet
  - “All the Way Around and Down the Middle” worksheet
- Chart paper
- Markers
- Pencils
- Rulers
- Yard sticks



### PREPARATIONS

- Make copies of the following:
  - “Cause and Effect” worksheet (1 per student)
  - “How Does it Measure Up?” worksheet (1 per student)
  - “All the Way Around and Down the Middle” worksheet (1 per student)



# I'll Meet You in the Middle

- Make an overhead transparency of the following:
  - “Utah Quarter Reverse” page
  - “How Does it Measure Up?” worksheet
- Locate texts that relate to basic historical information about the Transcontinental Railroad (see examples under “Materials”).
- Gather yardsticks for the activity in Session 3 (1 per student).
- Place a piece of masking tape on the floor the length of your classroom for Session 3.
- Measure the perimeter and distance down the center of your classroom in yards for accuracy of responses in Session 3.



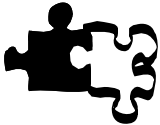
## GROUPINGS

- Whole group
- Pairs
- Individual work



## CLASS TIME

Three 30- to 45-minute sessions



## CONNECTIONS

- Mathematics
- Social Studies



## TERMS AND CONCEPTS

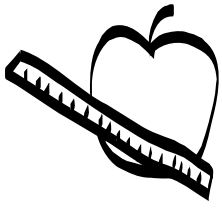
- Obverse (front)
- Reverse (back)
- Transcontinental Railroad
- Yards



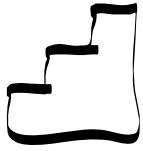
## BACKGROUND KNOWLEDGE

Students should have a basic knowledge of:

- Transportation
- Measurement
- Measuring to the nearest inch
- Inches
- Feet
- Length
- Cause and effect
- Perimeter
- Rectangle



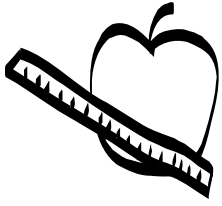
# I'll Meet You in the Middle



## STEPS

### Session 1

1. Introduce students to the selected text about the Transcontinental Railroad. As a group, preview the text and illustrations to generate observations about what is occurring at different points in the book. Read the selected text to the class and attend to any unfamiliar vocabulary.
2. Ask the students to give key facts about the Transcontinental Railroad. Record the student responses on chart paper. Responses should include that there were two companies that built the railroads and connected the tracks, it was a very dangerous project, and it took many workers and a lot of time to complete.
3. Describe the 50 State Quarters® Program for background information, if necessary, using the example of your own state, if available. Display the “Utah Quarter Reverse” overhead transparency. Locate Utah on a classroom map. Note its position in relation to your school’s location.
4. With the students, examine the design on this coin’s reverse. Tell the students that the back of the coin is also called the reverse, and “obverse” is another name for the front of a coin. Have the students identify the images included in this coin design, including the trains and the golden spike.
5. Read the coin inscription to the students. Show them the date at the top of the coin and tell them that is the date Utah became a state. Discuss the “Crossroads of the West” phrasing on the coin. Tell them that crossroads are where two roads cross or intersect. Ask the students to think of examples of crossroads in the hallways of the school or on roads near the school.
6. Ask the students why they think the image on the coin might be important to Utah, and accept all responses. Lead a class discussion regarding the images and tell the students that the image of the trains and the words “Crossroads of the West” are part of a special event that took place in Utah on May 10, 1869. At Promontory Point, Utah, two sets of railroads tracks met to make the first railroad to cross the United States from the East Coast to the West. The large spike shown on the coin is the “golden spike” which is a symbol of the final spike to be struck into the tracks.
7. As a class, have the students brainstorm reasons why people in the past may have wanted and needed the Transcontinental Railroad. Record the students’ responses on a new piece of chart paper. Tell the students they will look at the list again in another session.
8. Write the words “cause” and “effect” in two columns on the board or on a piece of chart paper. Tell the students “cause” is why something happens and “effect” is what happens. Add the definitions to the chart paper. Provide the students with an example of cause and effect such as “it is raining during recess time so they can’t go outside.” Ask the students to identify the cause and the effect in the example. Record raining under the “cause” column and staying inside or no recess under the “effect” column.



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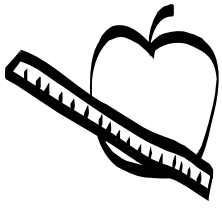
# I'll Meet You in the Middle

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9. Provide three other examples to the class and write the cause and effect of each example under the appropriate column.
10. Distribute a "Cause and Effect" worksheet to each student. Review the directions and have the students work in pairs to complete the worksheet.
11. Allow students sufficient time to complete the worksheet. As a class, review the answers and add examples of cause and effect from the worksheet to the chart.
12. Collect the students' worksheets.

## Session 2

1. Review the material covered in the previous session. Ask the students to think about the cause and effect of the Transcontinental Railroad.
2. Add Transcontinental Railroad to the "Cause" column of the chart. Discuss what effects of completing the Transcontinental Railroad were and add them to the "Effects" column on the chart. Possible answers would include a faster route and more people traveling to and living in the west.
3. Discuss modes of transportation with the students. Brainstorm ways we travel today and discuss how efficient and time saving it is for us. Remind the students that 1869 was a long time ago and many things we have today were not available then. Discuss modes of transportation of that time period with the students. Examples should include boats and wagons for carrying people and supplies.
4. Use a map of the world as a visual aid and explain to the students that the boats and wagons took a long time and people were looking for a faster way to get across the country. The idea was that a train going across the entire country would be faster and connect the East and West Coasts.
5. Display the "How Does it Measure Up?" overhead transparency. Discuss the directions and information with the students. Review with the students the definition of length (the measurement of the longest side of an object). List the customary units of length on chart paper. (1 foot = 12 inches, 1 yard = 36 inches, 1 mile = 1,760 yards or 5,280 feet.) Discuss when it is appropriate to use each unit of length (mile vs. inch).
6. Distribute the "How Does it Measure Up?" worksheet to each student. Explain to the students that they will use a ruler to measure objects in the classroom. Review measuring objects to the nearest inch with the students. Divide the class into pairs and distribute a ruler to each student. Give the students a list of objects to measure in the classroom.
7. Allow a sufficient amount of time for the students to measure the objects and record their findings on the worksheet.
8. As a class, review the answers and collect the students' worksheets.



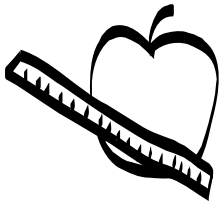
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# I'll Meet You in the Middle

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## Session 3

1. Review the content from the previous sessions.
2. Tell the students that they will be completing another measurement activity in this session. Slowly walk around the perimeter of the classroom. Ask the students what the measure of the outside of an area is called. If necessary, tell them “perimeter.” On the board, write the formula for the perimeter of a rectangle and explain to them it’s the measure of the length plus the length plus the width plus the width. On a piece of chart paper, write the term “perimeter,” the definition and the formula.
3. Walk on the straight line through the center of your classroom. Remind the students this is the length of the room. Ask the students what unit of length would be best to measure the perimeter and length of the classroom. Students should respond “yard.”
4. Have the students predict which distance is the longest. Have the students predict which one would take longer to walk.
5. Divide the students into pairs. Distribute a yard stick to each student. Discuss the yard stick with the students, reminding them that a yard is equal to 36 inches. Demonstrate how to use the yard stick and measure to the nearest yard by measuring an object in the classroom and recording the results on the chart paper.
6. Distribute an “All the Way Around and Down the Middle” worksheet to each student. Review the directions and tell them this is their recording sheet. Tell the students they will be working with their partner to measure the perimeter and length of the classroom to the nearest yard.
7. Divide the class in half. Half of the students begin this activity in each of the four corners of the room and the other half measures the room down the middle.
8. Allow the students a sufficient amount of time to complete the activity.
9. Review the data the students gathered. Record the findings on the chart paper and, using the formula, find the perimeter as a class. Compare the two pieces of data.
10. Choose two students and tell the class that one student will walk the perimeter and the other will walk down the center. Have the class explain which student will complete their walk faster and why. Have one walk the perimeter of the room while the other walks through the center. Discuss the results.
11. Collect the student’s worksheets.
12. Display the chart paper from Session 1 and revisit the students’ ideas about the reasons people in the past may have wanted a Transcontinental Railroad. Discuss with the students how the perimeter activity relates to the creation of the Transcontinental Railroad.



# I'll Meet You in the Middle



## ASSESSMENT

- Take anecdotal notes about the students' participation in class discussions.
- Review the students' worksheets to evaluate whether they have met the lesson's objectives.



## ENRICHMENT/EXTENSIONS

- Have students create a map highlighting the path and key cities along the Transcontinental Railroad.
- Have students research and write a report about one of the railroad lines involved in the Transcontinental Railroad.
- Have student "time" three students, one walking the perimeter, and the other two walking from the wall to the center of the room where they'll meet like the railroads did. Have the students compare the time difference.
- Have students look at a compass rose and label the room with the primary and intermediate directions.



## DIFFERENTIATED LEARNING OPTIONS

- Allow students to work in small groups for the measurement portion of the lesson.
- Provide one set of measurements for students for the "All the Way Around and Down the Middle" worksheet.



## CONNECTION TO WWW.USMINT.GOV/KIDS

- Have the students read more about other types of transportation in history by visiting the March 2004 Coin of the Month page and viewing the Florida quarter at <http://www.usmint.gov/kids/index.cfm?fileContents=coinNews/cotm/2004/03>
- Have the students read more about other types of transportation in history by visiting the September 2004 Coin of the Month page and viewing the 2004 Keelboat Nickel at <http://www.usmint.gov/kids/index.cfm?fileContents=coinNews/cotm/2004/09.cfm>.
- Have the students read more about other types of transportation in history by visiting the October 2003 Coin of the Month page and viewing the Missouri quarter at <http://www.usmint.gov/kids/index.cfm?fileContents=coinNews/cotm/2003/10.cfm>.
- Have the students read more about other types of transportation in history by visiting the May 2006 Coin of the Month page and viewing the Nebraska quarter at <http://www.usmint.gov/kids/index.cfm?fileContents=coinNews/cotm/2006/05.cfm>.



Name \_\_\_\_\_

# Cause or Effect?

**Directions:** Write a possible effect for each cause and a possible cause for each effect given in the chart below. Write your own example on the lines at the bottom.

## DEFINITIONS

Cause: an action that makes something else happen

Effect: what happens as a result of the cause



CAUSE	EFFECT
I forgot to set my alarm clock before I went to bed, so	
I left a full container of ice cream on the counter for an hour, so	
I have a stomach ache, so	
	I got more money for my allowance.
	I had to stay inside.
	the window broke.

## MY EXAMPLE

\_\_\_\_\_, so \_\_\_\_\_.  
(Cause) (Effect)



Name \_\_\_\_\_

# How Does it Measure Up?

## DEFINITION

**Length** is the measurement of the longest side of an object.

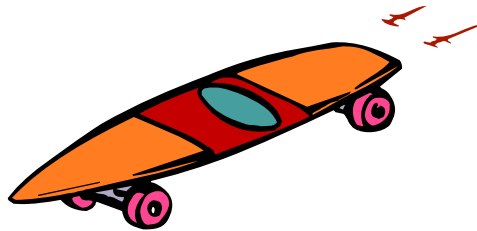
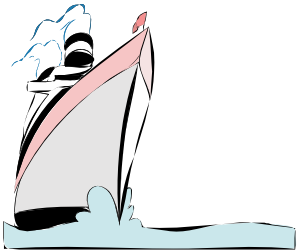
## TABLE OF MEASUREMENTS

1 foot = 12 inches

1 yard = 36 inches or 3 feet

1 mile = 1,760 yards or 5,280 feet

Which unit of measurement would you use for each (inches, feet, yards, or miles)?



\_\_\_\_\_

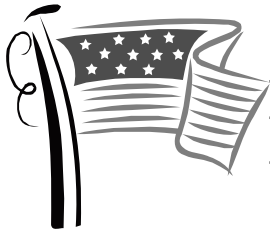
**Directions:** Using a ruler, measure the objects listed below to the nearest inch.

1. A paper clip \_\_\_\_\_
2. A large eraser \_\_\_\_\_
3. The spine of your math textbook \_\_\_\_\_
4. Your shoe \_\_\_\_\_
5. Your partner's shoe \_\_\_\_\_
6. Your partner's thumb \_\_\_\_\_
7. The length of a piece of writing paper \_\_\_\_\_
8. The length of the top of your desk \_\_\_\_\_

Now measure two other objects in the classroom. Be sure to record the name of the object and its length on the lines below.

\_\_\_\_\_  
\_\_\_\_\_





Name \_\_\_\_\_

# Around and Down the Middle

Partner's Name \_\_\_\_\_

## DEFINITION

**Perimeter** is the measure of the outside of an area.

**Formula** (rectangle): Length + length + width + width

**Directions:** Using a yardstick, measure the perimeter and length of the classroom to the nearest yard. Record your results below.

## OUR CLASSROOM

Width: \_\_\_\_\_ yards

Length: \_\_\_\_\_ yards

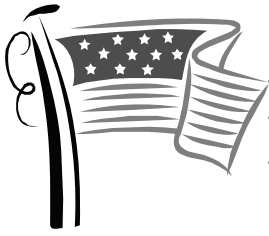
Width: \_\_\_\_\_ yards

Length: \_\_\_\_\_ yards

Perimeter: \_\_\_\_\_ yards

Length down the center of the room: \_\_\_\_\_ yards





# Utah Quarter Reverse

