LOS ANGELES CONSERVANCY
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Curating the City: Wilshire Blvd.

Lesson 1: Mapping Wilshire

What You Need to Know:

- Grade Level: Elementary 2-5
- Curriculum Connections: Mathematics, History—Social Science
- Kids' Guide Correlation: Use this lesson in conjunction with pages 1-3 of the Guide. As you introduce your unit on Wilshire Boulevard, invite students to consider how they can use math to understand the size and scope of the boulevard. Consider modifying this activity to explore other city streets.

Focus Questions:

- How long is Wilshire Boulevard?
- How can we use math to better understand the size and scope of the street?

Expected Learning Outcomes:

- Students will be able to use scale to find the length of Wilshire Boulevard.
- Students will be able to describe how long it would take to drive or walk the full length of Wilshire Boulevard.
- Students will be able to generate original word problems related to the size and scope of Wilshire Boulevard.

Assessment:

Generate and solve original math problems related to Wilshire Boulevard.

Essential Vocabulary:

- Length
- Time
- Distance

Materials:

- Lesson 1 worksheet
- Yarn
- Scissors
- Rulers
- Pencils
- Scratch paper
- Road map of Los Angeles that includes length of Wilshire Boulevard

Procedure

Motivation:

Distribute the Lesson 1 worksheet. Invite students to look closely at the map of Wilshire Boulevard at the top of the page. Challenge them to use the scale on the map to estimate the length of the boulevard. Ask students to volunteer their estimates of how long it might take to walk or drive the length of the boulevard. Ask students to explain how they came upwith their estimates, and invite them to guess what math tools they might use to find more accurate answers. Tell students that they will be using math to learn more about Wilshire Boulevard.

Making Connections:

Ask students to share their own experiences of walking and driving. How long does it take to get to school? Do they walk or drive? What other factors (traffic, etc.) cause the trip's time to vary from day to day? What kinds of trips are better suited to walking? When is it easier to drive or to ride the bus?

Guided Instruction:

1. Lead students through the step-by-step directions for how to use the yarn, the ruler, the map, and the scale to find the approximate length of Wilshire Boulevard (depending on the map, it will come out to almost 8 cm, or almost 16 miles). If you have other maps available in the classroom, invite volunteers to identify the scales on the maps and identify the ways in which the scales on the different maps are similar and different.
2. Help students to generate strategies for finding how long it would take to walk the length of Wilshire. Students should understand that they can find the solution by multiplying 20 X 16, for a total of 320 minutes, or 5 hours, 20 minutes. Some students may benefit from seeing the information represented in chart form, as shown below. Encourage them to look for patterns that will help them to find the next number in the series.

1 mile	2 miles	3 miles	4 miles	5 miles
20 minutes	40 minutes	60 minutes	80 minutes	100 minutes

3. Show students how to use division to find how long it would take to drive down Wilshire Boulevard. Students should see that they can divide 16 by 32 to find .5 hours, or 30 minutes. Consider extending this portion of the activity by asking students how long it would take to travel the following distances if a car were going 32 mph:

   32 miles 64 miles 128 miles

4. Challenge students to use addition to find the total cost of all three drinks and to use subtraction to find the change from $20. Consider extending this money-based activity by using take-out menus from restaurants on Wilshire Boulevard. Divide the class into groups of two and give each group an imaginary budget of $50. Then challenge each group to order a meal and calculate the total cost and change.

Assessment:

Have students generate their own Wilshire-related math problems. Consider collecting students' problems and using them to create an enrichment worksheet for early finishers.

Reflection/Critical Thinking:

1. How does math help us to understand Wilshire Boulevard?
2. How can math help you plan a trip?
3. How can math help you plan the way you spend your money?

Worksheet Answers:

1. Answers vary slightly depending upon map used; approximately 8 cm or 16 miles
2. Answers vary depending upon the scale of the map used
3. 20 minutes X 16 miles = 320 minutes, or 5 hours, 20 minutes
4. 16 ÷ 32 = .5 hours, or 30 minutes

Bonus: 1.75 + 2.50 + 1.85 = $6.10; change from $20 is 20.00 – 6.10 = $13.90

You Try! Answers will vary.

California Standards:

Mathematics (Measurement and Geometry):

2.1.0 Students understand that measurement is accomplished by identifying a unit of measure, iterating (repeating) that unit, and comparing it to the item to be measured.

2.1.1 Measure the length of objects by iterating (repeating) a nonstandard or standard unit.

2.1.3 Measure the length of an object to the nearest inch and/or centimeter.

Mathematics (Number Sense):

3.2.0 Students calculate and solve problems involving addition, subtraction, multiplication, and division.

4.3.1 Demonstrate an understanding of, and the ability to use, standard algorithms for the addition and subtraction of multi-digit numbers.

4.3.2 Demonstrate an understanding of, and the ability to use, standard algorithms for multiplying a multi-digit number by a two-digit number and for dividing a multidigit number by a one-digit number; use relationships between them to simplify computations and to check results.

Mathematics (Mathematical Reasoning):

2.2.0 Students solve problems and justify their reasoning.

2.2.1 Defend the reasoning used and justify the procedures selected.

2.2.2 Make precise calculations and check the validity of the results in the context of the problem.

3.2.0 Use strategies, skills, and concepts in finding solutions.

3.2.6 Make precise calculations and check the validity of the results from the context of the problem.

4.1.2 Determine when and how to break a problem into simpler parts.

4.2.1 Use estimation to verify the reasonableness of calculated results.

4.2.4 Express the solution clearly and logically by using the appropriate mathematical notation and terms and clear language; support solutions with evidence in both verbal and symbolic work.

5.1.0 Students make decisions about how to approach problems.

5.1.1 Analyze problems by identifying relationships, distinguishing relevant from irrelevant information, sequencing and prioritizing information, and observing patterns.

5.1.2 Determine when and how to break a problem into simpler parts.

5.2.0 Students use strategies, skills, and concepts in finding solutions.

5.2.4 Express the solution clearly and logically by using the appropriate mathematical notation and terms and clear language; support solutions with evidence in both verbal and symbolic work.

History—Social Science:

2.2.0 Students demonstrate map skills by describing the absolute and relative locations of people, places, and environments.

2.2.1 Compare and contrast basic land use in urban, suburban, and rural environments in California.

3.1.0 Students describe the physical and human geography and use maps, tables, graphs, photographs, and charts to organize information about people, places, and environments in a spatial context.

3.1.2 Trace the ways in which people have used the resources of the local region and modified the physical environment (e.g., a dam constructed upstream changed a river or coastline).

3.3.3 Trace why their community was established, how individuals and families contributed to its founding and development, and how the community has changed over time, drawing on maps, photographs, oral histories, letters, newspapers, and other primary sources.

4.1.5 Use maps, charts, and pictures to describe how communities in California vary in land use, vegetation, wildlife, climate, population density, architecture, services, and transportation.

Student Worksheet

Name _____

1. Open your map of Los Angeles to show Wilshire Boulevard. Measure the key with a ruler.
   Fill in this key: 1 mile = _____ cm

   Take a piece of yarn and lay it along the map of Wilshire Boulevard. Cut the yarn so its length is the same as what you see on the map.

   Now pull the piece of yarn so that it's straight. Measure it with your ruler. Round to the nearest centimeter. Record the measurement below.

   _____ cm

2. Look at the scale. Use the information you find to calculate the length of Wilshire Boulevard. Show your work.

   _____ miles

3. Did you know that it takes a person about 20 minutes to walk one mile? Use this information to find how long it would take to walk the whole length of Wilshire Boulevard. Show your work.

   _____ minutes, or _____ hours and _____ minutes

4. Now imagine that you're driving down Wilshire Boulevard at 32 miles per hour. About how long would it take to drive the whole distance without stopping? Show your work.

   _____ hours

Bonus

All that walking and driving will make you hot and thirsty! Imagine that you stop along the way for drinks.
Here's what you bought: horchata at MacArthur Park: $1.75
boba in Koreatown: $2.50
lemonade in Santa Monica: $1.85

How much did you spend all together? _____

If you started the day with $20 in your pocket, how much money do you have left? _____

You Try!

Think about other ways that you could make up your own math problems about Wilshire Boulevard. Write one below, and show the equation that you used to find the solution.

_____

_____

_____

_____

_____

Solution:

_____

_____

_____