

Student Guide

Using a Coordinate Map (SG pp. 272–273)
Questions 1–5

- 1.* Answers will vary. See Figure 2 in the lesson for a sample table.
- 2.* Answers will vary. See Figure 3 in the lesson for a sample map.
- 3.* Answers will vary.
4. A.* Answers will vary.
B.* Answers will vary.
C.* Answers will vary.
5. A. 5 cm; $5 \times 300 = 1500$ cm
B. 1 cm; $1 \times 300 = 300$ cm
C. 3 cm; $3 \times 300 = 900$ cm

Instead of using directions like left and right, mathematicians and scientists use positive and negative numbers. When Shannon translated her work into scientific language, she said that the x-coordinate of the teacher's desk was -200 centimeters and the y-coordinate was -150 centimeters. This is because mathematicians and scientists have agreed that on the x-axis, right is positive and left is negative. On the y-axis front (or forward) is positive and back is negative. By using positive and negative numbers we know the distance and the direction.

Use Coordinates to Make a Map

- You and your classmates will use Mr. Origin to help make a map of your classroom or your playground. First, place Mr. Origin somewhere in the area to be mapped. Your teacher may have placed Mr. Origin for you.
- The class or your teacher will choose some objects in the classroom to be mapped. Each object should be labeled with a letter of the alphabet.

1. Work with your class to find the coordinates of the objects. Measure to the center of each object you are assigned. Record the distances on the *Objects in Room* page from the *Student Activity Book*. Measure to the nearest centimeter.

2. Make a coordinate grid to map the location of each object. Use *Centimeter Grid Paper*.
- Look at your data points. Decide where you need to draw and how to scale the coordinate axes so that all the points will fit.
- Label the x-axis and y-axis.
- Plot and label a point on the map for each object.

Object in Room _____

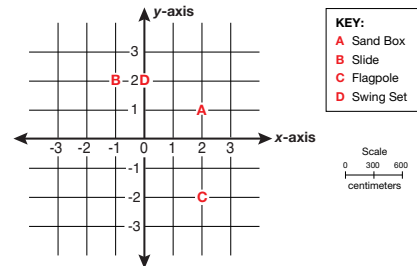
Object	x-coordinate in cm	y-coordinate in cm
A.		
B.		
C.		
D.		
E.		
F.		

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3. A. Use the map, a ruler, and the scale to estimate the distance between object A and object B. Show or tell how you found your estimate.
B. Measure the actual distance between object A and object B.
C. Find the difference between the estimated distance and the actual distance. This is called error.
D. Was your estimate close?
4. A. Estimate the distance between two objects on the map of the classroom. Show how you found your estimate.
B. Measure the actual distance between the two objects.
C. Find the difference between the estimated distance and the actual distance.
D. Was your estimate close?
5. Here is a map of a playground:



- A. Measure to estimate the distance between the flagpole and the slide.
- B. Measure to estimate the distance between the slide and the swingset.
- C. Measure to estimate the distance between the sandbox and the slide.

Use the *Professor Peabody's Trip to the Country* pages in the *Student Activity Book* to practice finding distances on a coordinate map using a scale.

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* Answers and/or discussion are included in the lesson.