

# MATH EXTENSION—PROBLEM OF THE WEEK

## Investigation 1: The Sun

A girl made a Sun tracker and measured the shadows on a day in late December. The table shows the data she collected.

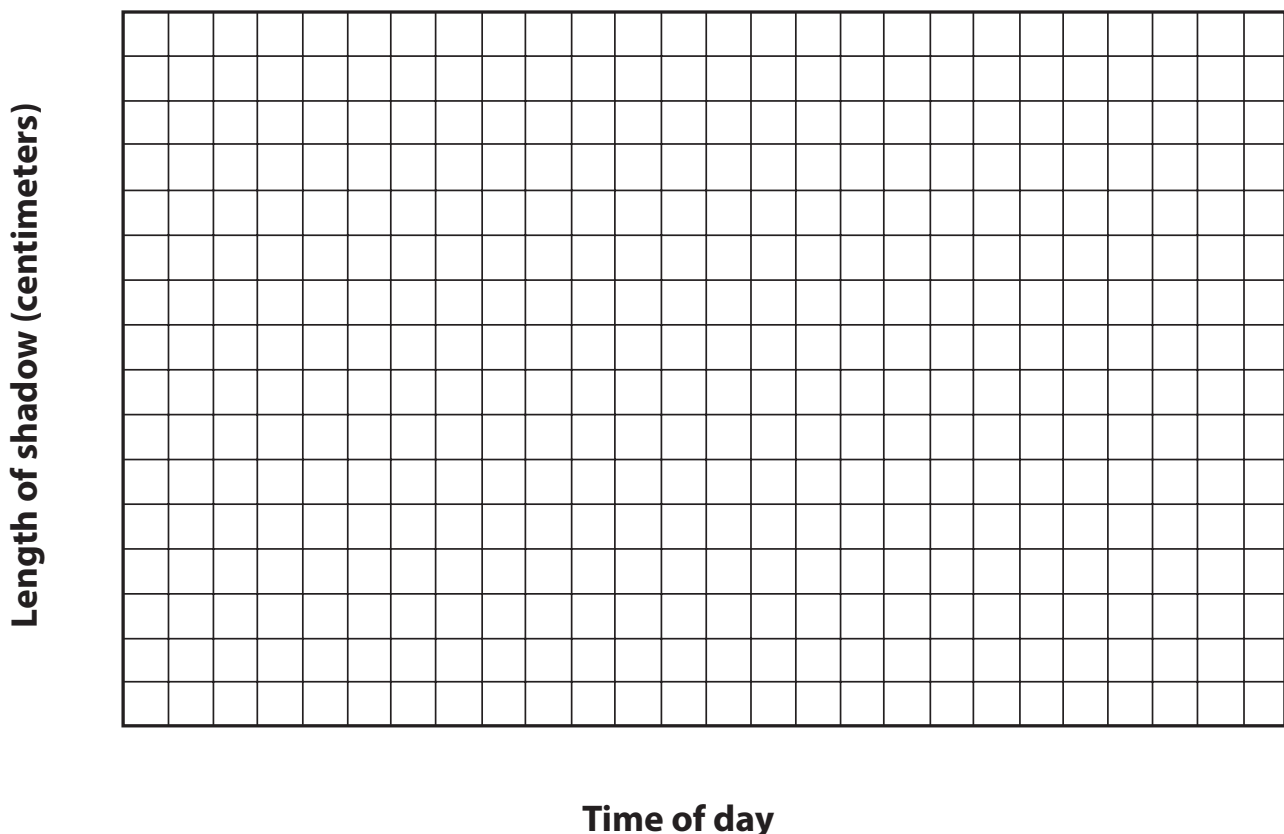
Time	Shadow length (cm)
9:30 a.m.	13.0
11:45 a.m.	8.0
12:30 p.m.	7.5
1:00 p.m.	8.2
1:45 p.m.	10.0
2:15 p.m.	12.0
3:30 p.m.	14.4

Create a graph, using her shadow measurements.

Use your graph to answer the questions below. Use the back of this sheet for your answers.

1. If the girl measured the shadow at 10:00 a.m., what would its length have been? How do you know?
2. If she measured the shadow at 4:00 p.m., what would its length have been? How do you know?
3. What problems, if any, do you see with her measurements?
4. A boy also set up a Sun tracker on the same day and measured a shadow 10 centimeters (cm) long at 12:00 noon. Could his measurement be correct? Why or why not?

### Graph of the Shadow Data

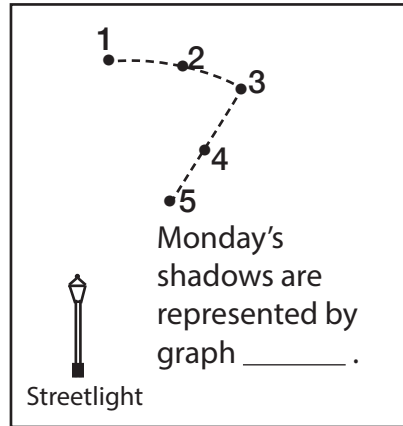


# MATH EXTENSION

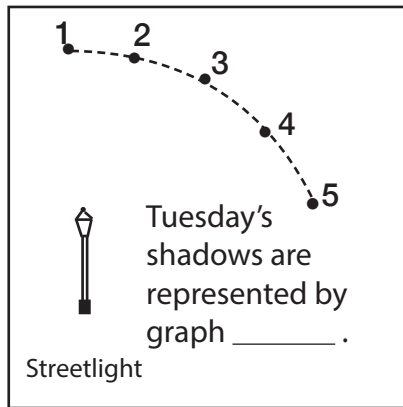
## Shadow Graphs

Read the three stories and look at the pictures. Figure out which graph (X, Y, Z) goes with each story. Write the letter of the graph on the line in the picture.

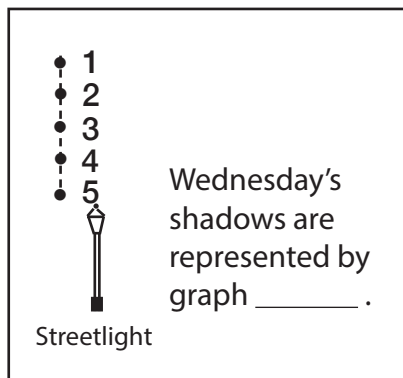
**1. Monday** night you are standing near a streetlight at position 1. Your friend measures the length of your shadow. It is 4 meters (m) long. You then walk to positions 2, 3, 4, and 5. At each position, your friend measures the length of your shadow.



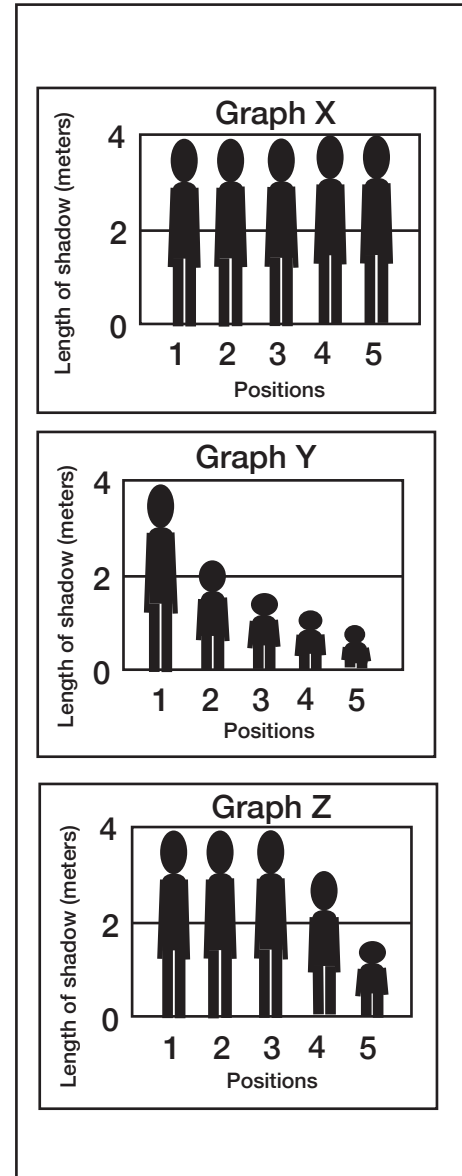
**2. Tuesday** night you begin from the same place near the streetlight and walk a different path. Your friend measures the length of your shadow at each of the five positions.



**3. Wednesday** night you start from the same spot but walk in another direction. Again, your friend records the length of your shadow at five positions.



Your friend makes a bar graph of the shadow lengths for each night's walk. Those graphs are shown here on the far right. Match each graph with the path walked each day. Explain your answers on a separate page in your notebook.



[Fold this sheet in half to fit into your science notebook.]