

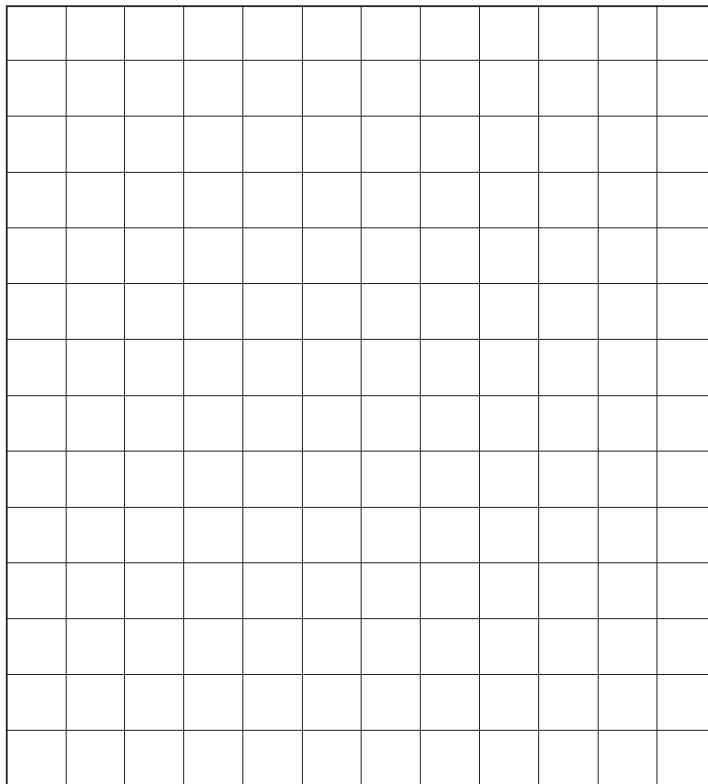
# MATH EXTENSION—PROBLEM OF THE WEEK

## Investigation 1: What Is Weather?

Find the high and low temperatures for two cities for 5 consecutive days. Make a table of the data. One of those can be your own city and the second should be another city in North America.

Graph the data for the low and high temperatures for the two cities. Describe what the graph shows.

City	Temperature °C			
	High	Low	High	Low
<b>Day 1</b>				
<b>Day 2</b>				
<b>Day 3</b>				
<b>Day 4</b>				
<b>Day 5</b>				




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**MATH EXTENSION—PROBLEM OF THE WEEK** .....

## Investigation 2: Heating Earth

**Solar System Statistics**

<b>Planet</b>	<b>Average temperature (°C)</b>	<b>Average distance from Sun (kilometers)</b>
Mercury	167	57,910,000
Venus	464	108,200,000
Earth	15	149,600,000
Mars	- 65	227,940,000
Jupiter	- 110	778,330,000
Saturn	- 140	1,429,400,000
Uranus	- 195	2,870,990,000
Neptune	- 200	4,504,300,000

How does distance from the Sun affect a planet's temperature? The eight planets in our solar system all receive energy from the Sun. Do they all receive and absorb the same amount of energy? The information in the table above might help you answer this question.

One way to analyze the data in the table is to record it on a graph. You need to decide what type of graph will work best and whether you need to draw one or two graphs to see the relationship. Use the graph paper your teacher supplies.

After you complete your graph(s), answer the following questions. Use the back of this sheet for your answers.

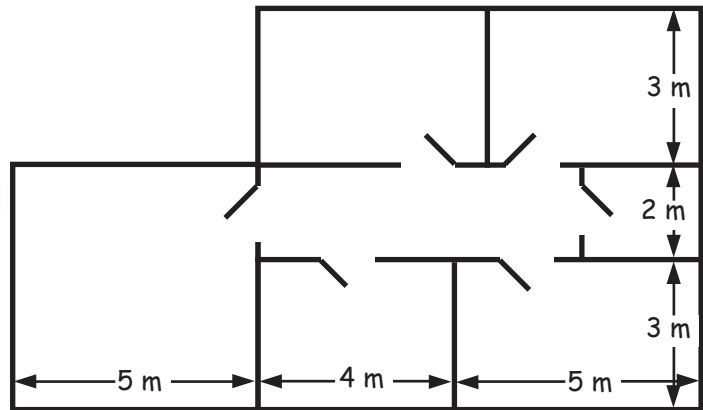
1. Describe the relationship you see between temperature and distance from the Sun.
2. Which planets, if any, don't fit the relationship? Why do you think they don't fit? You might need to do some further research to fully answer this question.



# MATH EXTENSION—PROBLEM OF THE WEEK

## Investigation 4: Weather and Climate

A family is building the house shown in the plan. They are going to insulate all the outside walls to keep the house warm in the winter and cool in the summer. They need to figure out how much insulating material to buy.



Floor plan



Side view

1. How many square meters of insulating material will the family need to insulate the walls of the house?
2. The insulating material comes in bats (sheets) that are 1 meter (m) wide and 6 m long. How many bats will they need?
3. How many more bats will they need if they decide to insulate the ceiling, too?
4. **Extra Credit.** The insulating material is 10 centimeters (cm) thick. What is the total volume (cubic meters) of insulation that will be used in this project?