Name _____

Date _____ Per. _____

Modeling and Investigating Watersheds

Background

Much of the water that falls on an area as rain or snow ends up in a body of water such as a river, lake, or ocean. All the water that flows into any body of water comes from a specific area called its watershed. The watershed is all that land that provides runoff water that feeds a specific body of water. Streams or rivers that flow into other water bodies are called tributaries. The watershed of larger bodies includes the watersheds of all its tributaries. Some large lakes and rivers have watersheds that are larger than the size of several states combined. In this activity, you will examine the factors that determine where water bodies form and what determines the boundaries of a watershed.

Modeling and Investigating Watersheds

Materials: watershed relief map model, pipette, beaker w/colored water, red and blue colored pencils

Procedure:

1. Examine the relief map of your watershed and find the highest point. Use Figure 1 (on the back of this sheet) to make a labeled sketch showing the location of the major mountains, hills, ridges, and valleys.
2. If you were to gently empty a pipette full of water over the center of the relief map, where do you think most (or all) of the water would go? Use the blue pencil to draw your predicted path of water flow on Figure 1. Use the space below to explain the reasoning behind your prediction.

   _____

   _____

   _____

   _____

3. Fill the pipette with colored water and position it about 2 cm above the center of the relief map. *Gently* release all the water from the pipette. Describe how your observations of the water flow do or do not agree with your prediction.

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4. Now, imagine that a heavy rain calls over the entire area of the relief map. Use the blue pencil to draw on Figure 1 where you think any river(s), lake(s), or other bodies of water would be located.
5. Gently release several pipettefuls of water over the entire area of the relief map until you think you understand where water flows after it falls onto all parts of the map.
6. Use the blue pencil to draw on Figure 2 (on the back of this sheet) where you actually observed bodies of water, such as rivers and lakes, forming. Use blue arrows to indicate the direction of water flow.
7. Look carefully at the relief map and blue bodies of water you drew on Figure 2. Use the red pencil to draw in the boundaries of the watershed for each body of water you drew on Figure 2.
8. Answer the questions in the *Results & Analysis* section.

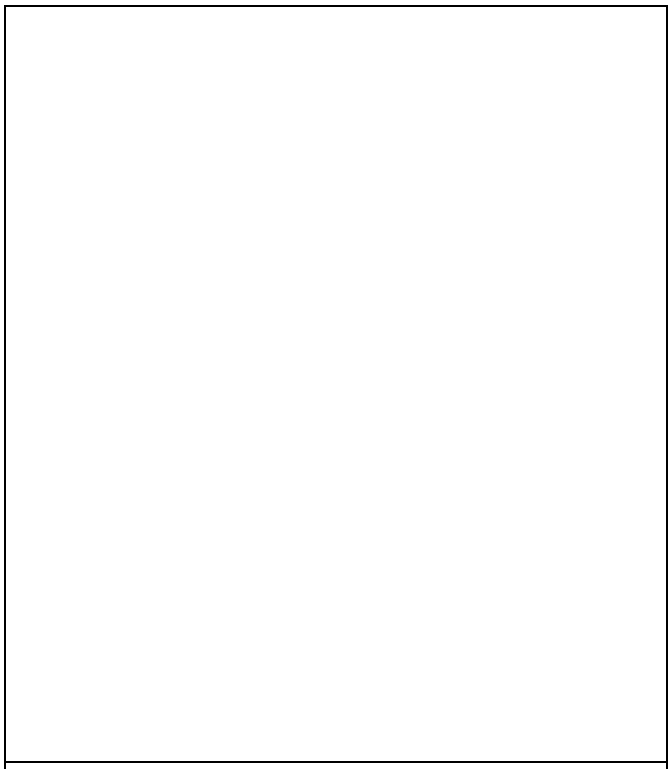

Figure 1: Predicted Water Flow within the Model

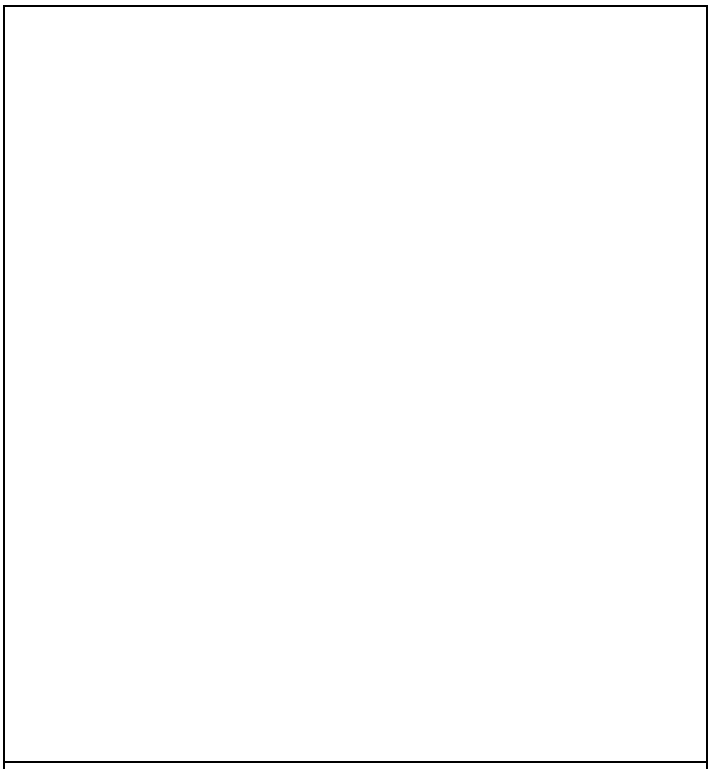

Figure 2: Map of the Water Flow within the Model

Results & Analysis

On a separate sheet of paper, answer the following questions thoroughly using complete sentences. You may complete your work on the computer. Staple your work to the back of this packet.

1. How many major rivers did you observe?
2. How many tributaries does the longest river have?
3. What determines the boundary between two watersheds?
4. Is the entire area of the relief map part of the same watershed? Explain why or why not.
5. A town to the north of the mapped area uses the river as its water source. Describe two threats to the quality of the town's water supply that could occur somewhere in the watershed. At least one threat must be related to human activity.
6. If the town wanted to build a dam to produce electricity and/or water storage in a reservoir, where would you recommend that it be built? Explain why you chose this location.
7. Some rivers have more curves and bends than others. Use evidence from this activity to describe what you think helps determine whether a river does or does not have many curves and bends.