Name:

Date:

School:

Facilitator:

# **8.01 Soil Erosion Lab**

## Part One Directions: Visit [Glencoe Virtual Labs: Soil Erosion](http://www.glencoe.com/sites/common_assets/science/virtual_labs/ES08/ES08.html) to complete the virtual soil erosion lab.

## Before beginning the lab, read the information in the column on the left on the three different types of water erosion on the soil.

## After you have finished reading, you will conduct virtual experiments in order to determine which variable/factor has the greatest effect on soil erosion. But before beginning the experiments, complete #1 and #2 below stating two hypotheses based on what you have learned about erosion.

## Then, follow the procedures to complete the lab.

1. State your prediction about which one of the three variables/factors (slope gradient, presence of vegetation, and rain intensity) will have the greatest effect on soil erosion by water. [Your prediction needs to be written in a complete sentence.] Hypothesis:

2. State your hypothesis/prediction about which combination of the three variables will have the greatest effect on soil erosion by water. [Your prediction needs to be written in a complete sentence.] Hypothesis:

**Lab Procedure:**

1. Make sure that the slop arrow is set to 300 and the vegetation to “Yes” and rain intensity to “Low”.
2. Click the “Rain” button.
3. After the rain as stopped, drag the beaker to the runoff area in the picture.
4. Record the amount of sediment in the runoff in the “Sediment Level” in the chart below. [Low 1, Low 2, Low 3, Moderate 1, Moderate 2, Moderate 3, High 1, High 2] The 1, 2, 3 for each level is for the mark that the sediment amount came to in that level with 1 being the lowest mark in the level.
5. After you have recorded the sediment level, click the “Reset” button.
6. Repeat steps 1-5 for the other combinations in the chart below.

|  |  |  |  |
| --- | --- | --- | --- |
| **Slope Gradient (degrees)** | **Vegetation? (Yes or No)** | **Rain Intensity (High or Low)** | **Sediment Level** |
| 300 | Yes | Low |  |
| 300 | Yes | High |  |
| 300 | No | Low |  |
| 300 | No | High |  |
| 100 | Yes | Low |  |
| 100 | Yes | High |  |
| 100 | No | Low |  |
| 100 | No | High |  |

## Part Two Directions: Answer the following questions using the information you gathered from the lab.

1. Name two other agents besides water that can cause erosion.
2. What other variables/factors can affect the severity of soil erosion by water besides slope gradient, intensity, and vegetation?
3. Which combination of the variables that you tested caused the most soil erosion from water?
4. In the lab information that you read before beginning the lab, it mentioned 3 types of water erosion—rill, gulley, and sheet. What is another type of water erosion that you learned about in Lesson 8.01? Define it/explain how it causes erosion.
5. Looking at the data from your chart above, which factor/variable seems to have the greatest effect on soil erosion by water?
6. List and explain the 3 ways that wind can move soil particles and cause erosion.
7. Name the 2 types of glaciers that you learned about in Lesson 8.01. What causes glaciers to move across the land?
8. Using what you learned in lesson 8.01 and in this Soil Lab, explain how gravity can cause or increase the severity of soil erosion.
9. What is the permanent destruction of forests to make land available for other uses? What can this permanent destruction of forests lead to that causes areas to develop desert like conditions to develop in areas that are not desert climates? What negative impact can these two processes have on soil?