Erosion

Here Today, Gone Tomorrow

Pre-Lab Questions

1. What is erosion? How is it different from weathering?
2. How does deposition relate to erosion and weathering?

PART 1: Determining the Effect of Plants

Low Incline with No Treatment

3. What impact did increasing the water have on the soil erosion?
4. What was the erosion difference between the low water and high water?
5. How do you think adding plants will impact the amount of soil erosion?

Low Incline Erosion with Plants

6. Comparing this graph to Part 1, what impact did the plants have on erosion? Can you quantify this impact?
7. What effect do plants have on the amount of erosion? What application might this serve in the real world?

PART 2: Comparing Two Variables

Comparing Two Variables (Water and Incline) with No Soil Treatment

8. What impact do you think changing the incline will have on the amount of soil erosion? How might this change how landscapers and architects build on a slope?
9. What variable do you think has the biggest impact, water or incline? Explain.
10. Why did we change only one variable for each test run?

Comparing Two Variables with Plants

11. Which 3 test runs have the same amount of runoff?
12. Why do you believe that the amount of runoff is the same for those 3 test runs?

Bonus Section (Changing the Type of Soil)

13. What do you think would happen if we could also adjust the soil type to sand or silt? Which soil type more accurately matches most of Florida's?
14. What was the dependent variable in all of the scenarios? How do you know? What were the two independent variables that were tested in this activity?
15. What are some of the benefits of modeling erosion in the simulation and analyzing it with coding? What were some of the limitations?

CODING INSTRUCTIONS

PART 1: Determining the Effect of Plants

Input the values that the simulation gives you into the highlighted section of code. Be sure to follow the correct order that is commented above it.

```
objects2 = ('Low Water', 'Medium Water', 'High Water')
y_pos = np.arange(len(objects2))

#Insert your data below.  Make sure that the data is entered in the correct order.
#All the data is preset to 1 Litre. Order:
# Low Water
# Medium Water
# High Water

planterosion = [1,1,1]
```

Part 2: Comparing Two Variables (Water and Incline)

Input the values that the simulation gives you into the highlighted section of code. Be sure to follow the correct order that is commented above it.

```
# Low Water - Low Incline
# Low Water - Medium Incline
# Low Water - Steep Incline
# Medium Water - Low Incline
# Medium Water - Medium Incline
# Medium Water - Steep Incline
# High Water - Low Incline
# High Water - Medium Incline
# High Water - Steep Incline

planterosion2 = [1,1,1,1,1,1,1,1,1]
```

Bonus Section

Input the values that the simulation gives you into the highlighted section of code. Be sure to follow the correct order that is commented above it.

```
# Medium Water - Low Incline - Sand
# Medium Water - Low Incline - Silt
# Medium Water - Low Incline - Sand/Silt Mix
# Medium Water - Medium Incline - Sand
# Medium Water - Medium Incline - Silt
# Medium Water - Medium Incline - Sand/Silt Mix
# Medium Water - Steep Incline - Sand
# Medium Water - Steep Incline - Silt
# Medium Water - Steep Incline - Sand/Silt Mix

level2 = [1,1,1,1,1,1,1,1,1]
```