**Erosion Model Landscapes Lab\*\***

**Materials** (per groups of 4 students)

* 1 big lab tray to hold supplies
* 1 smaller foil tray
* 1 spray bottle filled with water
* 1 cup of gravel
* 2 cup of soil

**Engage**

Look at the landscape photos posted by your teacher. Consider the forces that shaped the landscapes and what could have happened before and after the photos were taken. List at least three potential forces of nature that you see evidence of in the photos.

1. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
2. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
3. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

**Explore**

Now it is your turn to create a landscape model with your group using the supplies provided. First, consider landscapes around your house or places that you would like to visit. Then build an original landscape that you are interested in exploring. Note: Do not attempt to erode your landscape yet; that will come later!

1. Build a landscape with your group members in your foil tray. You may use all or some of the sediments provided.
2. Make a labeled sketch of your landscape that shows the sediment types used, the scale, and what you want your landscape to represent.
3. Next, attempt to change your landscape by simulating the forces you listed above. Some examples are included below. You may choose to use one or more forces:
   1. Rain: Spray your landscape with water
   2. Wind: Blow on your landscape (with approximately the force you use to blow out birthday candles).
   3. Gravity: Gently tilt your landscape (keeping it inside the second tray.
   4. Earthquake: Shake your landscape from side to side, being careful to keep the sediment in the lab tray.
4. In three to five sentences, record what you did and what happened as a result of that force.
5. Make a labeled sketch of your landscape after the changes.

**Explain**

Based on your model landscape and the class discussion, what makes a landscape easy and difficult to change? Fill in the chart below with at least two factors in each column, and then complete the chart after class discussion:

|  |  |
| --- | --- |
| Increased erosion | Resisted erosion |
|  |  |
|  |  |
|  |  |
|  |  |

**Elaborate**

Re-create your “before” landscape as carefully as you can, using your sketch as a guide. Then discuss with your group a plan to help your landscape resist change. You may ask your teacher for the following protection features, though there are limits on what you will receive based on the costs of various supplies:

* Paper clips
* Index cards
* Lager rocks
* Sticks and vegetation

Explain what each of your supplies represents in real life (paper clips and index cards) and explain why you think your new design plan will resist changes with these features.

**Evaluate**

Using the information from step 4 of the Explore section, change your landscape in the same way as you did during the last class. Consider whether your protection features worked and answer the following questions:

1. What makes a landscape easy to erode?
2. How did you limit erosion in your model?
3. What caused some protection to fail?
4. Is this activity realistic? Why or why not?
5. What are real-world ways of limiting erosion?

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