SEDIMENTARY ROCKS—EROSION

This lab is a continuation of the sedimentary rocks activity; it should be done after the weathering and erosion lab. The purpose of this lab is to review sedimentary rock formation and to discuss the process of erosion. Students will replicate the movement of sediment (caused by wind and water).

Materials:
Sand
Pebbles (you can get bags of sand and pebbles at any gardening center)
Water
Large tray with hole in one side to let water out (you can actually just do this activity on the ground if the school doesn’t mind a bunch of dirt left somewhere)

Review:
1. Last week we talked about how sand, pebbles and boulders are formed. Can anyone tell me what we said? Where does sand come from?
2. What is the process of breaking down rocks called? Weathering
3. And when you break rocks down into pieces (clay, sand, pebbles, boulders) what are these pieces called? Sediments
4. Think about what you did to the chalk? What were some ways you could weather rock? Physical—wind, water, ice. Chemical—dissolving with acid

Split the class into two groups: one outside and one inside.

Assessment:

Inside Group:
Write a story about the birth of a sand grain, from the sand grain’s perspective. It should be at least four sentences long and use at least two of the new words we learned: Weather, sediment, physical weathering, and chemical weathering (you can say weathered or weathering, sediments, etc). Share stories and save them.

Outside group:
You can start the invitation inside or go ahead and take group outside depending on weather.

Invitation:
1. How many of you have ever gone fishing or swimming in the rivers in FL?
2. What kind of sediments did you see in and around the river?
3. Have you ever seen a sand bar in one of the rivers?

4. How did that sand get there?

5. What do you think happens to these sediments that are formed by the weathering of rocks? Do they just sit there?

6. How do these pieces of rock- sand- get to the beach in FL? What brings them there? 
   *Wind and water*

**Exploration:**

We are going to move these sediments today using wind and water. This process is called erosion.

1. What are some observations you can make about these sediments?

2. Are all the sediments in the mountain the same size? What sizes do you have? Sand and pebbles

3. Do you think one size will be easier to erode that another? Which will be easier to erode?

Ok, let’s test that. I need someone to be the wind. *Blow on the sand.*

4. What did you observe? Did the sand move? Did the pebbles move? Why? *Pebbles are heavier, more difficult to pick up and move.*

5. Where did the sediments go? *Everywhere, downhill (any answer ok)*

Now I need someone to erode the sediment using water. *Pour water slowly.*

6. Do you think the sand will be easier to move again? Why or why not?

7. What did you observe this time? Did the sediments move? Where did they go? *Downhill*

8. Which sediments moved most easily?

9. What would happen if the wind or water moved faster? Would it affect the size of sediment that was carried?

*Pour water faster.*

1. What happened? Were larger, heavier sediments carried?

2. So can wind or water that is moving faster carry heavier things?
3. Has anyone ever seen a tornado? Do you think it could carry faster things than a gentle breeze?

**Concept Introduction:**

1. Ok, so we said that the water moved the sediment downhill, from a higher place to a lower place in a process called erosion. Does everyone agree with that? Why? What makes water move downhill? *Gravity*

2. Do rivers usually flow uphill? Do they usually carry sediment uphill?

3. So do you think the sand in FL is eroded down from the mountains, or do you think the sand is carried from the beach up to the mountains? *Make sure this misconception is corrected. Sand is always carried down from mountains, not up from beach. The rivers, and the sediments they carry, move downhill. The sand in FL was weathered from the Appalachian Mountains, eroded by wind and water, and transported by rivers to FL.*

GO INSIDE or do a quick review.

1. What is it called when you break pieces of rock off to form sediments? *Weathering*
2. And what is it called when you carry them away? *Erosion*
3. How did we erode sediments today? *Wind and water*
4. Does water carry sediments uphill or downhill? *Downhill*

**Application:**

So our sand in FL comes from the Appalachian Mts.

1. Do we have any boulders in our rivers? *No.*


4. Do we have more sand or pebbles in our rivers?

5. Would this look the same as a mountain stream? *No*

6. How would a mountain stream be different? *More pebbles*

7. Why? *Faster water can carry heavier things. As water slows it drops heavy sediments. Water flowing down higher slopes travels faster due to gravity. Florida has smaller slopes that the mountains, so the water travels slower and can’t carry the larger sediments any longer.*
Extended Assessment:

Inside:

If they have time whole class can add two sentences about how their sand grain was eroded and carried away.

Save these stories for later.