Name:

Physical Weathering Lab

Objective: Physical weathering is the weathering of rocks by force. This force usually causes weathering through collisions. For example, in a sandstorm, millions of grains of sand collide with each slowly weathering anything the hit. Another example is in a river bed, where flowing river water tumbles rocks until they are smooth and worn. In this laboratory investigation, you will be examining the effects of abrasion on different kinds of rocks.

Vocabulary

1. Physical Weathering
2. Abrasion
3. Resistance
4. Composition
5. Pebble

Procedure:

1. Get a Tupperware container.
2. Get a small handful of rocks.
3. Get the starting mass of your rock sample and record it.
4. Shake the sample 150 times.
5. Place all the pebbles on the balance, blow off the dust, and get the new mass.
6. Repeat this until you have data for 10 sets of shakes.
7. Repeat the process with the different rock samples.

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| --- | --- | --- | --- |
| Total Shakes | Sample 1 | Sample 2 | Sample 3 |
| Start |   |   |   |
| 150 |   |   |   |
| 300 |   |   |   |
| 450 |   |   |   |
| 600 |   |   |   |
| 750 |   |   |   |
| 900 |   |   |   |
| 1050 |   |   |   |
| 1200 |   |   |   |
| 1350 |   |   |   |
| 1500 |   |   |   |

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Questions:

1. According to your data, what happens to the mass of the samples as they are subjected to abrasion?
2. If you had continued to shake each sample for 150 more shakes, predict what the new masses would be after the 11th set.

Sample 1

Sample 2

Sample 3

1. The slope of your graph indicates how strong the rock is. The steeper downward the slope, the weaker the rock. Compare the strengths of the three rocks.
2. “Resistance” is how difficult it is to weather a rock. Resistance is usually based on which minerals are in the rock. Rocks made of harder minerals are more resistant. Which of the three rock samples appeared the most resistant, based on your data?
3. What is the relationship between the amount of time the pebbles underwent abrasion and the mass of the pebbles?
4. If you were planning on building a countertop out of one of these rock types, which type of rock would you want to use to have the strongest countertop?