**Weathering Lab**

**Background**:

Although the surface of the earth appears to be constant, it is always changing. Change occurs at interfaces, places where two things touch (such as rock against rock or water against rock). The process of breaking hard surfaces such as rocks or statues and buildings is called weathering. Physical weathering, breaking down of rocks into small pieces without any chemical change, can be caused by a variety of ways such as air, sun, water, or living things. Water is the most common physical weathering agent. The second most common is wind. Chemical weathering occurs when the material being broken down is changed into a new substance. An example of this would be the rusting of metal that is left in the rain. Temperature has an effect on the rate of weathering rocks. In a hot, moist climate chemical weathering occurs rapidly while in a cool, moist climate physical weathering occurs faster.

**Directions:**

*Part A:* Materials: balance, cups, Skittles

What do you think will happen to the structure of Skittles after shaking them in a cup?

Prediction:

1. Put your cup on the balance and press zero.
2. Put your 5 Skittles on the index card and take the mass.
3. Record this mass in grams in the data table.
4. Sketch a drawing of what you observe.
5. Place the Skittles in the jar.
6. Shake the jar 20 times.
7. Put your index card on the balance and press zero.
8. Pour the contents of your jar out on your index card carefully and take the mass
9. Record this mass in grams in the data table.
10. Sketch a drawing of what you observe.

|  |  |
| --- | --- |
| Mass Before Shaking | Sketch |
|  |  |
| Mass After Shaking |  |
|  |  |

**Weathering Lab**

**Background**:

Although the surface of the earth appears to be constant, it is always changing. Change occurs at interfaces, places where two things touch (such as rock against rock or water against rock). The process of breaking hard surfaces such as rocks or statues and buildings is called weathering. Physical weathering, breaking down of rocks into small pieces without any chemical change, can be caused by a variety of ways such as air, sun, water, or living things. Water is the most common physical weathering agent. The second most common is wind. Chemical weathering occurs when the material being broken down is changed into a new substance. An example of this would be the rusting of metal that is left in the rain. Temperature has an effect on the rate of weathering rocks. In a hot, moist climate chemical weathering occurs rapidly while in a cool, moist climate physical weathering occurs faster.

**Directions:**

*Part A:* Materials: balance, cups, Skittles

What do you think will happen to the structure of Skittles after shaking them in a cup?

Prediction:

1. Put your cup on the balance and press zero.
2. Put your 5 Skittles on the index card and take the mass.
3. Record this mass in grams in the data table.
4. Sketch a drawing of what you observe.
5. Place the Skittles in the jar.
6. Shake the jar 20 times.
7. Put your index card on the balance and press zero.
8. Pour the contents of your jar out on your index card carefully and take the mass
9. Record this mass in grams in the data table.
10. Sketch a drawing of what you observe.

|  |  |
| --- | --- |
| Mass Before Shaking | Sketch |
|  |  |
| Mass After Shaking |  |
|  |  |

*Part B:*

Materials: pipette, beaker, water, paper towel, colored pencils, Skittles

What do you think will happen to the structure of Skittles when you drop water on them?

1. Place 5 Skittles on a paper towel.
2. Record your observations in written and visual format (describe in words draw what it looks like in the box below using colored pencils or crayons).
3. Fill the beaker with a small amount of water.
4. Use the pipette (water dropper) to squeeze 20 drops of water onto each Skittle from a distance of roughly 6 inches.
5. Record your observations in written and visual format (describe in words draw what it looks like in the box below using colored pencils or crayons).
6. Repeat for 40 drops.

|  |  |  |
| --- | --- | --- |
| Before Water Drops | After 20 Water Drops | After 40 Water Drops |
|  |  |  |

**Analysis and Conclusion**

1. What were some signs that weathering was occurring in Part A? Part B?
2. In which part of the lab (A or B) did you observe physical weathering? Explain.
3. In which part of the lab (A or B) did you observe physical weathering? Explain.
4. What are the two common agents of physical weathering?
5. How does heat affect the rate of weathering? What does this lab imply about weathering in the tropics compared to polar regions?

**Extension**

Watch the following video and answer the questions: <https://www.youtube.com/watch?v=HE6Y0iEuXMQ>

What is acid rain? What are some things that make acid rain? What are some problems that acid rain can cause? Explain what type of weathering acid rain causes.

*Part B:*

Materials: pipette, beaker, water, paper towel, colored pencils, Skittles

What do you think will happen to the structure of Skittles when you drop water on them?

1. Place 5 Skittles on a paper towel.
2. Record your observations in written and visual format (describe in words draw what it looks like in the box below using colored pencils or crayons).
3. Fill the beaker with a small amount of water.
4. Use the pipette (water dropper) to squeeze 20 drops of water onto each Skittle from a distance of roughly 6 inches.
5. Record your observations in written and visual format (describe in words draw what it looks like in the box below using colored pencils or crayons).
6. Repeat for 40 drops.

|  |  |  |
| --- | --- | --- |
| Before Water Drops | After 20 Water Drops | After 40 Water Drops |
|  |  |  |

**Analysis and Conclusion**

1. What were some signs that weathering was occurring in Part A? Part B?
2. In which part of the lab (A or B) did you observe physical weathering? Explain.
3. In which part of the lab (A or B) did you observe physical weathering? Explain.
4. What are the two common agents of physical weathering?
5. How does heat affect the rate of weathering? What does this lab imply about weathering in the tropics compared to polar regions?

**Extension**

Watch the following video and answer the questions: <https://www.youtube.com/watch?v=HE6Y0iEuXMQ>

What is acid rain? What are some things that make acid rain? What are some problems that acid rain can cause? Explain what type of weathering acid rain causes.