Student Lab Sheet: Sugar Shake Weathering Lab

Objective: To model the effects of mechanical weathering by using sugar cubes to simulate rock breakdown due to physical forces.

Materials:

- 4 sugar cubes per group
- Small plastic container with a secure lid (or a resealable plastic bag)
- Timer or stopwatch
- Paper towel
- Data recording sheet

Procedure:

1. Before beginning, use the marker to draw a line on all edges of the sugar cubes. This will help to better observe any changes in the sugar cube.

2. **Observation:** Examine and describe the sugar cubes before starting the experiment. Record their shape, size, and texture.

3. **Shaking (Mechanical Weathering Simulation):**
   - Place 4 sugar cubes inside the plastic container.
   - Securely close the container.
   - Shake the container for **30 seconds**.
   - Carefully open the container and observe the sugar cubes, fragments, and sugar dust. Record observations in the data table.
   - Shake for another **30 seconds** (total: 1 minute). Record any changes in the data table.

4. **Repeat:** If time allows, continue shaking in **30-second intervals** up to **2 minutes**, recording changes after each interval.

Data Table:

Time Shaken	Shape Changes	Size Changes	Presence of Sugar Dust/Fragments
0 sec (Start)			
30 sec			
1 min			
1.5 min			
2 min			

Analysis Questions:

1. Identify the **independent variable** in this experiment.

2. Identify the **dependent variable** in this experiment.

3. Identify at least **two constants** in this experiment.

4. What changes did you observe in the sugar cubes as you shook the container?

5. What force does the shaking represent in nature?

6. What do the fragments and sugar dust represent in nature?

7. How does this experiment demonstrate mechanical weathering in real life? What did you learn about the breakdown of materials over time?

8. If you were to change the type of material inside the container (e.g., using small rocks instead of sugar cubes), how might the results differ?