Activity 2 - Mountain Building Simulation

In this activity, students will simulate the process of mountain formation using simple materials like sand or clay. They will replicate how tectonic plates collide and force the land upward to form mountains.

- **Objective:** Demonstrate how mountains are formed at convergent boundaries and how erosion gradually wears them down over time.
- **Instructions:**
  - Place a layer of sand or clay on a flat surface.
  - Have students push two sections of the sand/clay together to mimic tectonic plate collision, observing how the material "folds" and rises to form a mountain range.
  - After the mountain has been formed, simulate erosion by using water or blowing gently on the mountain to show how natural forces wear down mountains over time.
- Discuss how real mountains are formed through similar processes and how erosion shapes the landscape.

Mountain Building Simulation - Printable Template

Instructions: Use this template to guide your simulation of mountain formation. Follow each step carefully and observe how natural forces shape Earth's landscape.

Step 1: Prepare the Materials

- Gather **sand or clay** and place it on a flat surface.
- Divide the material into two sections to represent **tectonic plates**.

Step 2: Simulating Plate Collision

- Using your hands, **push the two sections of sand/clay together**.
- Observe how the material **folds and rises**, forming a mountain range.
- Label: **"Tectonic Plates Colliding → Mountain Formation"**.
- Suggested colors: **Brown, Gray, Earthy Tones**.

Step 3: Simulating Erosion

- Gently **pour water or blow air** over the mountain.

- Observe how the peaks start to wear down.
- Label: **"Erosion (Wind & Water Breaking Down Mountains)"**.
- Suggested colors: **Light Blue (Water), White (Snow Erosion)**.

Step 4: Understanding Real-World Mountain Formation

- Discuss how **real mountains form at convergent boundaries**.
- Identify famous mountain ranges, such as the **Himalayas or Andes**.
- Label: **"Mountains Continue to Rise & Erode Over Time"**.

Final Touches:

- Add **diagrams and labels** to explain the process.
- Use **bold colors and arrows** to highlight movement and changes.
- Discuss **how mountains evolve over millions of years**.

Now, complete your simulation and review how tectonic forces shape the Earth!

1. **Volcano Model Eruption:** Students will create a model volcano using simple household materials and simulate an eruption to understand how pressure builds up beneath the Earth's surface and forces magma to the surface.
    - **Objective:** Help students visualize the process of volcanic eruption and understand the role of pressure in driving eruptions.
    - **Materials:** Baking soda, vinegar, clay or playdough (to model the volcano), dish soap, and food coloring (optional).
    - **Instructions:**
        - Students will shape the clay into a volcano with a hollow center.
        - Pour baking soda into the hollow, followed by a few drops of dish soap.
        - Pour vinegar into the volcano to simulate an eruption, watching the "lava" (baking soda and vinegar reaction) flow from the volcano.
    - **Discussion:** After the experiment, discuss how different types of magma affect eruption styles and why some volcanoes are more explosive than others.