Lava Lamp

WHAT ARE WE INVESTIGATING?

How can you make a lava lamp in a water bottle?

MATERIALS:

- Empty water bottle
- Water
- Oil
- Food Coloring (optional)
- Alka-Seltzer
- Strive Academy's Engineering Design Process Handout (found at www.striveacademy.org)
- Pencil or Pen

EXTENSION:

* Try this variable - would the temperature of the water affect the reaction?

* Try this variable - does the size of the bottle affect how many blobs are produced?

* Try this variable - does the lava lamp still work if the cap is put on the bottle?

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DIRECTIONS:

1. Gather all your materials. Our materials are just suggestions - feel free to add other things too!

2. On your handout (found at www.striveacademy.org), fill in the title of your experiment (Lava Lamp).

3. On your handout, fill in your hypothesis. You want to answer the question: Does the size of the Alka-Seltzer pieces affect the number of blobs created?

4. On your handout, draw a sketch of what you think your lava lamp will look like once you add all of the ingredients. Draw what you think will happen!

5. Fill the empty water bottle about ¼-½ full of water.

6. Fill the rest of the water bottle up with vegetable oil (until you get to the neck of the bottle). The oil and water will not mix - wait a few minutes and let the layers settle.

7. Optional: Add 5-10 drops of food coloring. The drops will pass through the oil and then mix with the water at the bottom! DO NOT SHAKE OR MIX YOUR BOTTLE.

8. Under "Data Collection/Observation", draw a picture of what your lava lamp looks like now with all of the ingredients in it. Feel free to add color!

9. Break your Alka-Seltzer into pieces (it is easiest to do this BEFORE you open the pack). Decide on your first piece to add and under "Results", draw a picture of how big the piece is. Then drop it into your lava lamp and watch the magic happen! Try to count how many blobs you see. Next to your picture, record the number of blobs.

10. Repeat step 9 with different sizes of Alka-Seltzer pieces.

11. Answer the "Analysis" questions on your handout:
    - Did the size of the Alka-Seltzer tablet affect the number of blobs? How?
    - Did you notice a change in the size of the blobs when you added bigger pieces of Alka-Seltzer?
    - When the oil was added on top of the water, they didn't mix. Which is more dense: the oil that stayed on top or the water that was on the bottom?

** Try the extension activities on the first page for more fun! **