

LAVA LAMP EXPERIMENT CAN LIQUIDS FLOAT?



Explore & Learn with Ada Twist, Scientist!

Lava Lamp Experiment Instructions

An adult should conduct the experiment while children predict, observe, and record the results.

Observation: We see that some solid objects float on water!

Question or the Why File: Can water float? Do other liquids float?

Research: We have seen that some solid objects float, and some don't. So, our hypothesis for this experiment is that some liquids float and some don't.

Testing time!

Materials Needed

- Clean, empty plastic bottle (with an opening wide enough to fit an antacid tablet) or mason jar with lid
- Food coloring
- Cooking oil (If time permits, try mixing other liquids with water, such as corn syrup, dish soap, or milk)
- Water
- Alka Seltzer or generic antacid tablets
- Tray to put the bottle/mason jar on, paper towels for spills
- Copies of the Lava Lamp Experiment Lab Sheet

Steps

1. Fill the bottle or jar 2/3 of the way with oil.
2. Fill up the rest of the bottle or jar with water, leaving some room at the top to avoid spills. Wait for the liquids to settle. What happens to the two liquids?
3. Does the oil float? Or does it sink?
4. Next, we're going to make bubbles.
5. First, add a few drops of food coloring into the bottle or jar. Then, drop in one antacid tablet (or two small tablets if using a larger bottle). A gas called carbon dioxide is created, and that makes bubbles. It looks like a lava lamp!
6. After the bubbles fade, does the oil float?

7. Repeat steps 1-3 mixing other liquids with water to see if the liquids float, sink, or mix.

Conclusion: Some liquids float on water, and some don't! Our hypothesis was correct!

The Science Says: Liquids have different densities. Many liquids are denser than water, but oil is not, so it floats on water! You can even stack liquids. Try carefully and slowly adding the following liquids to a plastic bottle or mason jar in this order: Honey, corn syrup, clear liquid dish soap, water, oil, and rubbing alcohol. Color the liquids ahead of time with food coloring to make a rainbow. Note: The oil won't color as food-coloring is water-based and as we just found out, the two don't mix!

LAVA LAMP LAB SHEET

Question: Can water float? Do other liquids float?

Hypothesis: Some liquids float and some don't.

Part 1: Let's experiment! What do you think will happen when we mix cooking oil and water? Put an X under the bottle that shows what you think will happen.



They don't mix.



They don't mix.



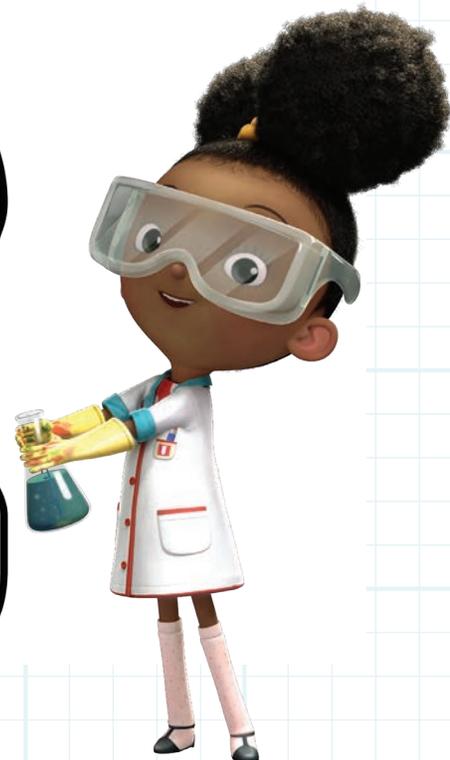
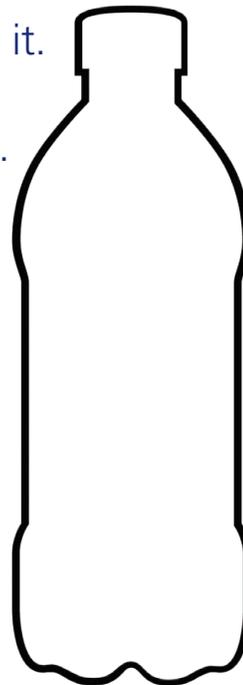
They mix.

Part 2: Let's watch! What happened? Circle it.

Part 3: Now, let's add color and a fizzy tablet.

Watch the bubbles go.

Draw and color what you see.



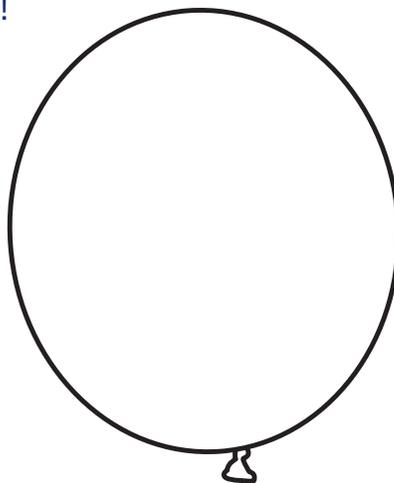
BALLOON BLOW-UP LAB SHEET

Question: Is there a way to blow up a balloon without blowing air into it?

Hypothesis: We can make carbon dioxide gas (like what we breathe out) and use it to blow up a balloon!

Part 1: Let's experiment!

Circle what you think will happen to the balloon.



Part 2: Let's watch! What happened?
Draw a picture of the balloon onto the bottle.

