

# STEM PATHWAYS

COLOR  
BLOB



Engagement + Problem Solving = Learning

## Test Tube Challenge



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## Test Tube Challenge



## Color Blob Test Tube Challenge...

- With a helper, fill the test tube 3/4 full with vegetable oil.
- Add one cap full of water to the oil in the test tube.
- Observe what happens.
- Drop one or two drops of food coloring into the test tube. Observe what happens. **Do not seal the tube with a cap yet!**
- Divide an Alka-Seltzer tablet into quarters and drop one section into the tube.
- Observe what happens.
- After the color blobs have stopped bubbling, fill the rest of the tube with vegetable oil until it almost overflows.
- Cap the tube tightly.
- Tip the test tube back and forth and observe what happens.



### Water Quality Specialist

study how human and environmental activities and structures affect quality of water resources.

### Questions to Ponder:

- If you did not add the Alka-Seltzer tablet what do you think would happen?
- What implications might this science challenge have in helping water quality specialists deal with run-off, spills and other issues?

Adapted from Steve Spangler Bubbling Lava Lamp

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## OHIO STATE UNIVERSITY EXTENSION

### Facilitating Processing Questions:

## STEMPATHWAYS

### Why Do Water and Oil Not Mix?

Science•Technology•Engineering•Math

- Water is a polar molecule.
- Oil is a non polar molecule.

### Color Blob Test Tube Challenge

**What elements make up water?** two Hydrogen Atoms and one Oxygen Atom

**What is polarity?** It is when one end is positively charged and the other end is negatively charged. The electrons in the water molecule spends more time on the oxygen side giving it a negative charge and the hydrogen side a positive one. Only other polar molecules can dissolve in water. That is why the food coloring only mixes with the water not the oil.

**What function do you think the Alka-Seltzer serves in this experiment?** The Alka-Seltzer reacts to the water releasing carbon dioxide gas (the tiny bubbles). When the bubbles pop, the color blobs fall to the bottom of the test tube.

**What did you observe when the bubbling stopped ?** A wave of one big color blob forms.

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