OHIO STATE UNIVERSITY EXTENSION

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PATHWAYS

Engagement + Problem Solving = Learning

Test Tube Challenge



THE OHIO STATE UNIVERSITY COLLEGE OF FOOD, AGRICULTURAL AND ENVIRONMENTAL SCIENCES

STEM



CFAES provides research and related educational programs to clientele on a nondiscriminatory basis. For more information: go.osu.edu/cfaesdiversity

Test Tube Challenge



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COLLEGE OF FOOD, AGRICULTURAL AND ENVIRONMENTAL SCIENCES



COLOR

BLOB

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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.



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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Water Quality Specialist

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OHIO STATE UNIVERSITY EXTENSION

Facilitating Processing Questions:

Why Do Water and Oil Not Mix?

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

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.

OHIO STATE UNIVERSITY EXTENSION

Facilitating Processing Questions:

STEM PATHWAYS

STEM PATHWAYS

Science•Technology•Engineering•Math

Color Blob Test Tube Challenge

Why Do Water and Oil Not Mix?

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Color Blob Test Tube Challenge

Science•Technology•Engineering•Math

Oil is a non polar molecule.

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STEM PATHWAYS Science•Technology•Engineering•Math

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