Endeavour Elementary PTSA
STEM + Families Science Festival Student Guide

What is STEM? What does STEM stand for?

What do you know about careers in STEM?

<table>
<tr><th colspan="2">Experiment: Alka Rockets</th></tr>
<tr><td colspan="2">Activating Question: What makes a rocket lift off?</td></tr>
<tr><td>Vocabulary

Chemical reaction:

Phase change:

Pressure:</td><td rowspan="2">Directions

Adult and student: After you’re outside, put on your safety glasses.

Student: Pour approximately ½ inch of water into the film canister. Make sure to fill the film canister half full of water and not more than that.

Adult and student:

● Break the effervescent antacid tablet in half.
● Put one half of the tablet into the film cannister.
● Quickly put the lid on the cannister, make sure the seal is tight.

Student: Shake the canister vigorously, turn it upside down and place it on a flat surface or on the ground (on its lid).

Adult and student: Step back a few feet! Wait and watch the film canister rocket launch.</td></tr>
<tr><td>Materials
● Empty film canister
● Glass of water
● Effervescent antacid tablet
● Safety glasses</td></tr>
</table>

Going Deeper

How does this work?

How is this connected to the real word?

What else did you learn?

Experiment: Sticky Icky	
View video if needed (link provided in parent/caretaker guide)	
Vocabulary **Polymer:** **Solution**:	**Directions** Adult: In your plastic cup, mix one tablespoon of plain warm tap water with one tablespoon of white glue. Student: Stir well with a popsicle stick. Tell your partner which color to use for the next step. Adult: Add a few drops of food coloring to the glue and water mix. Student: Stir well with a popsicle stick, keep stirring during the next step. Adult: Slowly pour two teaspoons of the Borax solution into the glue and water mixture. Student: Keep stirring until there is no liquid left.

Materials

- 1 TBSP White school glue
- Drops Food coloring (various colors)
- 2 teaspoons of Borax (found in the laundry aisle)
- Two pitchers: One labeled “Borax Solution,” one labeled “Water Only”
- Warm tap water
- Plastic Tablespoons (some for water, some for glue)
- Plastic Teaspoons (for Borax solution)
- Six-ounce plastic cups (one for each student-adult pair)
- Popsicle sticks (one for each student-adult pair)
- Safety glasses

Going Deeper

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<table>
<tr><th colspan="2">Experiment: Martian Jelly</th></tr>
<tr><td colspan="2">View video if needed (link provided in parent/caretaker guide)</td></tr>
<tr><td>Vocabulary

Basic:

Acidic:</td><td rowspan="2">Directions

Student: Fill your plastic cup halfway full of warm water. Dissolve one spoonful of grape jelly in the cup and note the color.

Adult: Add a pinch of baking soda and stir. Be careful! A fizzing reaction will occur, possibly causing it to overflow.

Both: When the fizzing dies down, what do you notice?

Adult: Slowly, add 2-3 spoonfuls of vinegar. Take care not to let any vinegar splash—it can sting your eyes!

Student: Stir until the color of the grape jelly solution changes again.</td></tr>
<tr><td>Materials
1 tablespoon grape jelly
1/8 teaspoon baking soda (not baking powder)
1 tablespoon vinegar
1/2 cup of warm water
Popsicle stick to stir solution</td></tr>
</table>

Going Deeper

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<table>
<tr><th colspan="2">Experiment: Bubbling Lava Lamp</th></tr>
<tr><td colspan="2">View video if needed (link provided in parent/caretaker guide)</td></tr>
<tr><td>Vocabulary

Intermolecular polarity:

Density:</td><td rowspan="2">Directions
Adult: Help your student draw a line ¼ of the way from the bottom of the bottle.

Student: Pour water into the bottle up to the ¼ line.

Student: Pour vegetable oil until the bottle is nearly full. Leave at least 1 inch of space at the top.

Student: Add about 10 drops of food coloring to the bottle. Choose whatever color you like or try mixing two colors!

Adult or student: Break an effervescent antacid tablet into several pieces and drop one into the bottle. Close the cap tightly and flip the bottle over. When the bubbling stops, flip it over and add another piece.</td></tr>
<tr><td>Materials
Water
A clear plastic bottle with cap
Vegetable oil
Food coloring
Effervescent antacid tablets</td></tr>
</table>

Going Deeper

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