American Association of Chemistry Teachers

At Home Physical Science and Chemistry Activities for K-8 Students
Elementary and Middle School Take Home Activities

- Will it Float
- Investigating Gas Density
- Fire Extinguisher
- The Growing Marshmallow
- Inflating A Balloon with Chemistry
- Simple Kinetics
- Giant Toothpaste
- Comparing Chemical Reactions
- My Pennies
- Analyzing a Lava Lamp
- To What Degree Does it Matter
- What is Temperature
Density

Will it Float?

- Introduce the concept of density with the **AACT Density Animation**
- Then use the activity, floating an egg in plain water and salt water.
- Why does the egg float in salt water and sink in plain water?
- Have students draw a particle diagram like those in the animation.
- Concepts: Density, Mass, Volume, Solutions, Observations
Investigating Gas Density

- Baking Soda and Vinegar react to form carbon dioxide, water, and salt.
- The carbon dioxide gas produced extinguishes the flame.
- Concepts: Gas Density, Chemical Change, Reactions, Observations

Video

- Comparing Gas Density  Video
Fire Extinguisher

- Baking Soda and Vinegar react to form carbon dioxide, water, and salt.
- The carbon dioxide gas produced extinguishes the flame.
- Concepts: Gas Density, Chemical Change, Reactions, Observations

Video
The Growing Marshmallow

- A marshmallow in a closed syringe allows students to “feel” pressure and see the effect on volume.
- Concepts: Gases and Gas Laws, Volume, Pressure

Video
Inflating a Balloon with Chemistry

- Baking Soda and Vinegar react to form carbon dioxide, water, and salt.
- The carbon dioxide gas fills the balloon.
- Concepts: Chemical Change, Evidence of a Reaction, Observations

Video
Reactions

To What Degree Does it Matter
- Alka-Seltzer and Water react to form carbon dioxide and a salt.
- Change the water temperature and observe the effect on reaction rate.
- Concepts: Chemical Reactions, Reaction Rate, Observations, Data Collection

Video
Giant Toothpaste

- Yeast acts as a catalyst to increase the decomposition of hydrogen peroxide into oxygen and water
- Concepts: Chemical Change and Reactions, Evidence of a Reaction, Energy, Exothermic, Endothermic

Video
Comparing Chemical Reactions

- Baking Soda and Vinegar react to form carbon dioxide, water, and salt.
- Alka-Seltzer and Water react to form carbon dioxide and a salt.
- Two reactions produce the same gas.
- Concepts: Chemical Reactions, Evidence of a Reactions, Endothermic, Exothermic, Observations

Video
My Pennies!

• A salt and vinegar solution is used to clean dirty pennies.
• The acid and salt react with the copper “oxide” coating and “cleans” the pennies
• Concepts: Reactions, Chemical Changes, Observations

Video
Mixtures

Analyzing a Lava Lamp

• Students mix together oil, water, and food coloring and then add Alka-Seltzer tablet, observing changes.

• Concepts: Chemical Change, Physical Change, Density, Mixtures, Miscibility, Observations

Video
What is Temperature

- Introduce particle motion by having students watch food dye mixing at different temperatures
- Concepts: Particle Motion, Temperature, Energy, Kinetic Energy

**Video**
Simple Kinetics

- Students observe that different colors of food dye react with bleach at different rates
- Reactions and Reaction Rates

Video
Conversions!

<table>
<thead>
<tr>
<th>Volume Conversions</th>
<th>Baking Soda Conversion</th>
</tr>
</thead>
<tbody>
<tr>
<td>60 mL</td>
<td>¼ cup = 4 tbs.</td>
</tr>
<tr>
<td></td>
<td>1 tsp.</td>
</tr>
<tr>
<td></td>
<td>≈ 5 grams</td>
</tr>
<tr>
<td>120 mL</td>
<td>½ cup = 8 tbs.</td>
</tr>
<tr>
<td></td>
<td>6 tsp.</td>
</tr>
<tr>
<td></td>
<td>30 grams</td>
</tr>
<tr>
<td>150 mL</td>
<td>10 tbs.</td>
</tr>
<tr>
<td></td>
<td>10 tsp.</td>
</tr>
<tr>
<td></td>
<td>50 grams</td>
</tr>
<tr>
<td>250 mL</td>
<td>1 cup</td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td>300 mL</td>
<td>1¼ cups</td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td>500 mL</td>
<td>2 cups</td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td>600 mL</td>
<td>2½ cups</td>
</tr>
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<td></td>
<td></td>
</tr>
</tbody>
</table>

Most of our elementary and middle school resources include these conversions!