STEAM CHALLENGE

Spring Break EDITION

Grow a Rainbow

Objective: To explore chromatography and capillary action by creating a colorful rainbow using washable markers on paper towels

Materials:

Washable markers
Paper towels
Water
Small cups or containers

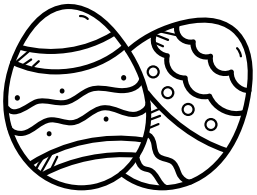
Instructions:

1. Fold over a piece of paper towel (so you have 2 pieces on top of each other). Trim the length to be 7.5 inches (any longer and the rainbow may not connect fully).
2. Draw rectangles of the rainbow colors on each end.
3. Place 2 cups with water filled 3/4 full. You only want the bottom of the paper towel in so leave some space from the top of the cup.
4. Then place the paper towel into the cups, with one end in each cup. The washable marker dye with slowly make it's way up with the water to meet the other side in the center of the paper towel. TIP: Do not place the ends too deep in the water or the dye may dissolve into the water instead of moving up the paper towel.
5. Leave the paper towel for 10-15 minutes and it will eventually connect the colors together.

Capillary action makes the marker dye move up the paper towel. The water moves upward through the paper towel, lifting the washable dye molecules with it. Because the washable markers are water based, they disperse in water.

Stacking Plastic Eggs Engineering Challenge

Objective: To design and build a structure using plastic eggs that can withstand a vertical load, promoting engineering and problem-solving skills.



Materials:

- Plastic eggs (various sizes and colors)
- Tape (masking or transparent)
- Craft supplies (optional, e.g., popsicle sticks, straws, rubber bands)
- Small weights or objects for testing

Challenge:

Can you make a structure out of plastic eggs that holds weight? The eggs have a curved shape that helps them stay strong. Learn how weight works, what materials are good for connecting the eggs, and how forces like pushing and pulling affect our towers. Try different designs and make changes to make your towers even better!

Brenham Children's Museum

To learn more about our goal of creating a children's museum in Brenham, please visit our website.
www.brenhamchildrensmuseum.com

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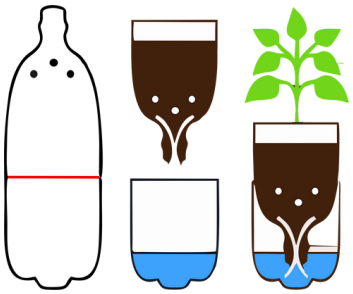
Garden Planter from Recycled Soda Bottle Engineering Project

Objective: To create a garden planter using a recycled soda bottle cut in half, encouraging sustainable practices and fostering creativity in repurposing materials.



Materials:

- Empty soda bottle
- Craft knife or scissors
- Potting soil
- Seeds or small plants

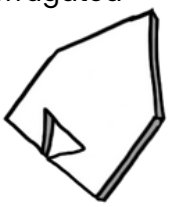
Instructions:

1. Choose a clean, empty soda bottle and carefully cut it in half horizontally using a craft knife or scissors. Ensure a smooth and even cut.
2. Make small drainage holes near the bottom of the bottle half to prevent waterlogging.
3. Insert an upside-down plastic bottle lid into the bottom half of the bottle. This inverted lid will serve as a wicking system, helping to distribute water evenly to the soil.
4. Fill the bottom half of the bottle, including the area around the upside-down lid, with potting soil. Leave some space at the top for planting seeds or placing small plants.
5. Plant your choice of seeds or insert small seedlings into the soil, following the recommended planting depth for the specific plant.
6. Water the soil, allowing the upside-down lid to act as a wick, drawing water from the bottom and distributing it evenly to the soil. Place the planter in a suitable location with adequate sunlight.

Soap-Powered Boat

Materials:

- Foam tray (like the kind meat comes in) or non-corrugated cardboard
- Tray or bowl
- Liquid dish soap
- Toothpick or Q Tip



Instructions:

1. Cut the foam tray or cardboard into a boat shape, resembling the shape above, approximately 2 inches long.
2. Dip the toothpick into the liquid dish soap and use it to apply soap onto the sides of the notch at the back of the boat. Ensure a thin, even coating.
3. Carefully place the soap-powered boat onto the surface of the water, allowing it to float freely. Observe as it begins to scoot across the water for several seconds.

Soap acts as a surfactant, breaking down the surface tension of water. Surface tension is the cohesive force that causes the water molecules at the surface to stick together. When soap is applied to the back of the boat, it disrupts the surface tension, creating a force that propels the boat forward. The boat moves until the soap disperses, and surface tension is restored.

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Easter Egg Sink or Float

Objective: Let's have some Easter fun with a cool experiment to see if things will float or sink in our plastic eggs! We're going to learn about how heavy or light stuff inside the eggs makes them do different things in water.

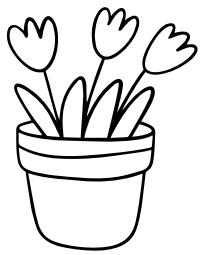
Materials:

- Plastic eggs (with or without little holes; use tape if needed)
- A bowl of water
- Lots of cool things to put inside the eggs like jelly beans, feathers, Easter Peeps, rocks, magnetic letters, sand, play dough, Legos, and more!

Instructions:

1. Look at an empty plastic egg and guess if it will float or sink. If your egg has little holes, cover them with tape so no water sneaks inside. Now, let's put it in the water and see if it floats. Wow, it's floating!
2. Put different things inside the eggs and see what happens. Fill them up with jelly beans, feathers, Easter Peeps, rocks, and all the other cool things we have. Choose different things and guess what will happen.
3. Dip each egg in the water and see what happens! Did your predictions come true? This is like being a scientist discovering cool things!

Why did some eggs float, and others sank? It's all about the cool science of density! Density is like how heavy or light something is compared to how much space it takes up. If something is denser (has more stuff packed into it), it will sink. If it's less dense (has less stuff or spreads out more), it will float. So, when we put things in water, we can predict if they will stay on the surface or go down based on their density.



Spring Symmetry Pages:

Engage your child in artistic exploration with our Spring symmetry pages. They not only get to draw the missing half of a provided picture but also bring it to life with their unique colors. These pages engage children to help enhance coordination as they visually analyze one side to replicate the other. They also help develop an eye for finer details, encouraging meticulousness in their artwork. This sparks creativity, ignites imagination, and adds a personal touch to the pages – perhaps creating fun Spring decorations!

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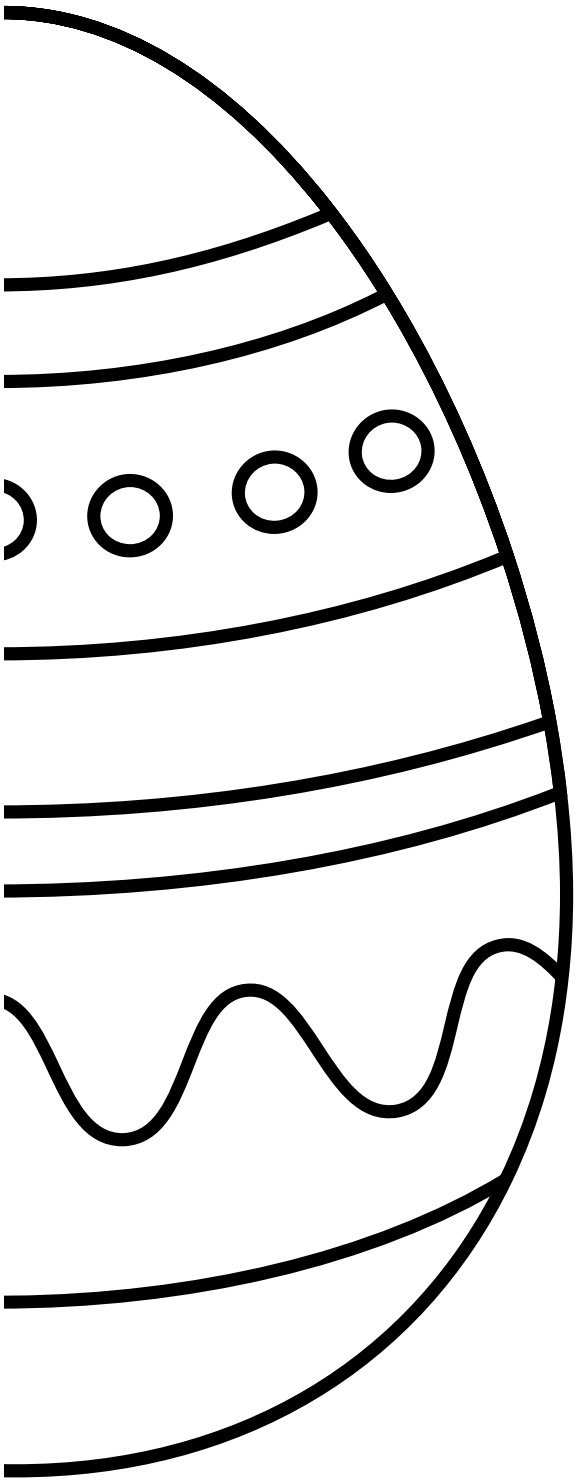

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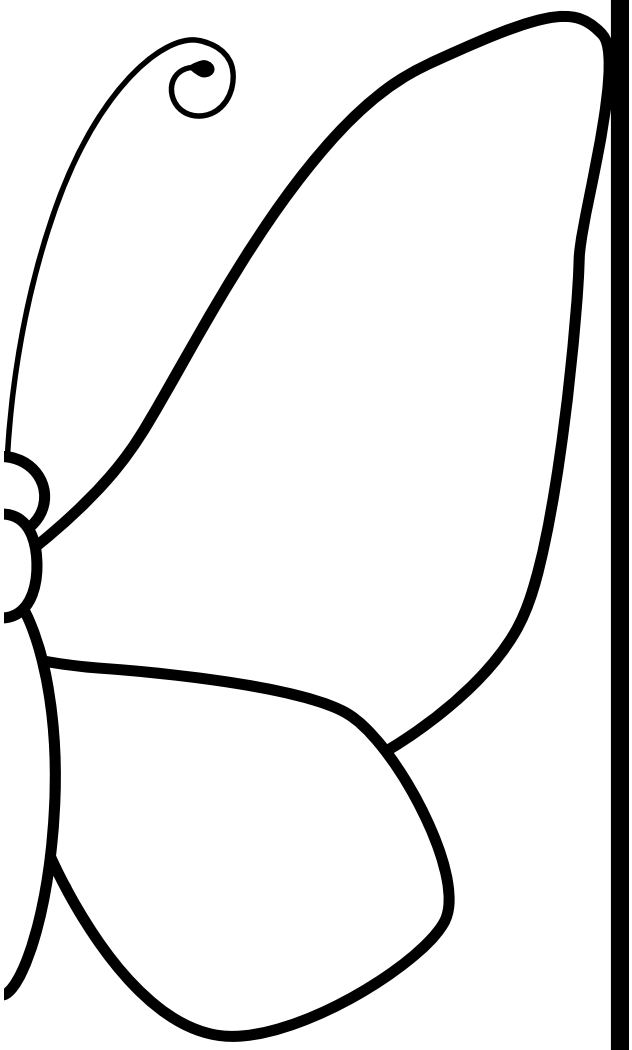

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