

Science Experiment: Dollar Bills

Topic: CENTER OF GRAVITY

Materials: Dollar Bill, Wall

Step 1: Stand with your feet together and heels up against a wall.

Step 2: Have someone put the dollar bill on the floor 12 inches in front of your feet.

Step 3: Try to pick up the dollar bill without bending your knees or moving your feet.

Science Experiment: Ringing in my Ears

Topic: Sound Waves

Materials: A Fork, Spoon, 3 feet of string or thread

Step 1: Take the string and tie the fork to the center of the string/thread.

Step 2: Take one end of the string/thread and tie it around your right index finger (pointer), then tie the other end of the string/thread around your left index (pointer) finger.

Step 3: Place your fingers (index(pointer)) to your ears and let the fork dangle in front of you.

Step 4: Get someone to tap the fork with the spoon. You should hear loud ringing in your ears.

Science Experiment: Naked Egg

Topic: Chemical Changes

Materials: Egg, White Vinegar, A container to hold the egg with a lid, a spoon

Step 1: Place egg in the container.

Step 2: Add enough vinegar to cover the egg.

Step 3: Observe the egg. Notice that bubbles form on the egg.

Step 4: Cover the container. Let the eggs sit in the vinegar for 24 hours.

Step 5: Using the spoon, scoop the egg out of the vinegar. Be careful—the eggshell has been dissolving. The egg membrane, which is not as durable as the shell, maybe the only thing holding the egg together.

Step 6: Carefully dump out the vinegar. Put the egg back in the container and cover it with fresh vinegar. Leave the egg for another 24 hours.

Step 7: When complete, there will be an egg without a shell. It looks like an egg but is translucent.

Science Experiment: Alka seltzer rockets

Topics: Chemistry and Physics

Materials:

plastic container with lid (ex: film canister or similar)

Alka Seltzer tablets (you can also try with a fizzy multivitamin tablet or baking soda)

Step 1: Fill a container with 1 teaspoon of water and an effervescent tablet. Put the lid on quickly.

Step 2: Place the lid side down on a surface. Stand back! Best if done outside.

Step 3: Enjoy the mayhem!

Science Experiment: Invisible Ink

Topic: Acids

Materials: 2 tablespoons of lemon juice, cotton swabs, paper (alternate step 3 wax crayon and salt)

Step 1: Pour the lemon juice into a small dish.

Step 2: Soak the end of a cotton swab in the lemon juice. Use it to write a secret message or draw a picture on a piece of paper.

Step 3: To read or see your secret message, hold the paper near a warm light bulb, burner, or

Step 3:

toaster.

Alternate step 3: Put salt on the drying ink. After a minute, wipe off the salt. Color over the paper with a wax crayon to reveal your message.

Science Experiment: Dancing Popcorn

Topic: Chemical Reactions

Materials: Glass, bowl, water, vinegar, baking soda, un-popped popcorn

Step 1: Fill a glass half full of water. Place the glass in a bowl.

Step 2: Drop in a few kernels of un-popped popcorn. Observe what happens.

Step 3: Add $\frac{3}{4}$ cup of vinegar to glass.

Step 4: Add $\frac{1}{2}$ teaspoon of baking soda to glass. Stir if necessary.

Step 5: Watch the popcorn kernels rise and fall!

Variations: Try substituting club soda for the vinegar and baking soda. You can also try using other objects like buttons or pebbles.

Science Experiment: Inky Elevators

Topic: Chromatography

Materials: 3 white paper towel strips, sharpened pencil, Water-soluble markers of different colors, clear cup, water

Step 1: Use a pencil to draw a horizontal line $\frac{3}{4}$ inch above the bottom edge of a paper towel strip. Trace line with a black water-soluble marker.

Step 2: Hold the strip next to the clear cup so that the strip almost reaches the bottom of the cup. Push the point of a pencil through the top of the strip exactly even with the rim of the cup.

Step 3: Lift the pencil from the cup. Push the paper to the middle of the pencil.

Step 4: Pour $\frac{1}{4}$ inch of water into the cup. Set the pencil across the rim of the cup. The bottom of the paper should be in the water. The marker line should be above the water.

Step 5: When the water gets near the top of the strip, remove and lay on a paper towel to dry.

Step 6: Repeat with different colors.

Science Experiment: Vertically Challenged

Topic: Air Resistance vs Water Resistance

Materials: 10 pennies, Target in a dry area, Target submerged in a container of water

Step 1: Place some kind of target on the ground and another in a container of water.

Step 2: Try dropping pennies from different heights onto the dry target.

Step 3: Try dropping pennies from different heights onto the submerged target.

Challenge: Try dropping pennies at different angles onto the dry and submerged targets.

Science Experiment: Water Xylophone

Topic: Sound Waves

Materials: Glasses or jars, water, wooden stick or kitchen utensil, food coloring (optional)

Step 1: Fill glasses or jars with different levels of water.

Step 2: Hit sides of the glass with a wooden stick or utensil gently.

Science Experiment: Which way?

Topic: Light Refraction

Materials: Sticky note, Marker, transparent water bottle, water

Step 1: Draw two arrows on a sticky note. Stick it to a wall.

Step 2: Fill a clear water bottle with water.

Step 3: Look at the arrows through the water bottle. Move the water bottle right to the left.

matter for the sound to travel through, causing the vibrations to become larger and produce a sound with a lower pitch. To compare, think about a stringed instrument such as a bass or guitar: the thicker strings have more mass and create a lower sound than the thinner strings! The glass with the least amount of water had shorter vibrations and created a sound with a higher pitch.

Science Experiment: Saltwater Density

Topic: Density

Materials: 4 glasses, water, salt, sugar, baking soda, small, lightweight objects (grapes, plastic lids, etc)

Step 1: Fill 4 glasses $\frac{3}{4}$ full of water

Step 2: Add 1 tablespoon of salt to the first glass. Stir.

Step 3: Add 1 tablespoon of sugar to the second glass. Stir.

Step 4: Add 1 tablespoon of baking soda to the third glass. Stir.

Step 5: Do not add anything to the fourth glass.

Step 6: Try to float your objects in each glass. Compare results

Science Experiment: Sidewalk Constellations

Topic: Astronomy

Materials: Sidewalk chalk, diagrams of constellations, small stones

Step 1: Research and sketch out your favorite constellation.

Step 2: Gather materials and head outside.

Step 3: Use small stones to represent the stars and chalk to outline the patterns between the stars to create your constellation artwork.

Science Experiment: Solar Rays

Topic: Solar Energy, light rays

Materials: Ice Cubes, 6 squares of differently colored paper (must include black & white)

Step 1: Gather materials and find a sunny spot outside.

Step 2: Place six colored pieces of paper next to each other.

Step 3: Place an ice cube in the middle of each paper.

Step 4 Observe the rate that the ice cubes melt.

Tie-Dye Milk

Topic: Surface Tension

Materials: Shallow dish or bowl, milk (high-fat works best), food coloring, Dishsoap

Step 1: Partly fill a shallow dish with milk

Step 2: Add one drop of each food coloring color to different parts of the milk. (The food coloring will mostly stay where you placed it.)

Step 3: Carefully add one drop of dish soap to the middle of the milk. (This will cause the food coloring to stream through the milk and away from the dish soap.)