Kitchen Science

Lacking in lab equipment? Here are easy recipes for science fun!

BY VANESSA GO

As an elementary school science teacher, I often design activities for my students that they can do at home with their parents using safe, inexpensive and easily available materials. Many times, everything they need for an interesting activity is found right in the kitchen. If your school doesn't have a science lab or is on a tight budget, don't despair. Ask parents and students to raid their own kitchens so you can perform these science experiments and explore everyday phenomena in your classroom.

Life Science: Seeds that we eat

You can plant popcorn, kidney beans and *munggo* beans, and then have children observe the changes in the seeds. Begin your "garden" in a clear plastic cup—no soil needed! Line the inner surface of your cup with black or dark colored construction paper that has been dampened. Partially fill the cup with damp newspaper that will keep your seeds hydrated and keep the construction paper sticking to the sides of the cup. Insert the seeds *in between the sides of the cup and the construction paper*—this way, your students will be able to easily observe the changes in the seeds. Cover the cup with aluminum foil. In a few days, you should see the seeds germinate (the sprouting of a seedling from a seed), showing the root and shoot structure. Transfer the young plants into garden soil after a week or so. Have the children measure the seedlings as they grow, observing the difference in the leaf structure of each plant.

Physical Science: Optics at the dinner table

Use an ordinary metal spoon to demonstrate reflection and to show children the difference between concave and convex mirrors. Have the children compare their images using the front and back of the spoon. The front works like a concave mirror (curving inwards) and the image reflected is inverted. The back of the spoon works like a convex mirror (curving outwards), and the image reflected is right side up.

Refraction, or the bending of light as it passes through different materials, causes an image to appear magnified or distorted. Have a pencil stand in a glass that's half filled with water. The pencil, when seen through the glass, will appear bent or broken because of refraction. Now pour about 2 cm of oil into the cup and observe how the image is further distorted by the oil. This is because light travels at different speeds through different materials, even seemingly transparent substances like water and oil.

Chemistry: Toothpaste with a twist

Nowadays, toothpaste is made with additional ingredients such as fluoride, baking soda, and a variety of flavorings. Have the children try their hand at making their own toothpaste by using easily available and familiar ingredients: baking soda (sodium bicarbonate), calcium tablets (calcium carbonate), food flavorings (such as mint, lemon, strawberry and orange) and water. The basic recipe is 1/2 tsp. calcium carbonate (crushed to a powder with a mortar and pestle) to 1/4 tsp. baking soda, with water added drop by drop until a smooth paste is formed. Students can add flavoring (like peppermint oil) to make the otherwise salty paste taste better. Baking soda toothpaste is actually dentist approved!

Did you know? The earliest known record of toothpaste use is from Egypt in the 4th century A.D. At that time, toothpaste was made by mixing powdered salt, pepper, mint leaves, and iris flowers.

Science and Engineering: Plastic bag parachutes

Use grocery bags or paper napkins to show children the principle of air resistance. First, demonstrate air resistance by holding up two identical pieces of paper. Crumple one of them and keep the other one flat. Ask your pupils which they would expect to fall to the ground first. The crumpled sheet should fall first because there is less surface area for air to hold the sheet up. This is the basic principle that the parachute operates upon. Construct parachutes with the children using a square (about 22 by 22cm.) cut out of a grocery bag or a standard sheet of tissue paper laid flat. Cut four pieces of string (about 18 cm. long) and attach to the four corners of your square with tape. Gather together the free ends and knot together (or use a piece of tape to fasten. Use paper clips, washers, or plastic figures as your "passengers". You can also vary the length of the string or size of the parachute to see how this changes the speed of descent.

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