SCIENCE FESTIVAL FACILITATOR'S GUIDE

ALKA-ROCKETS

Make sure you have all the materials you need.

- Empty film canisters
- Effervescent antacid tablet (Bayer Alka-Seltzer original/ gold tablet works well)
- Pitchers of water
- Safety glasses for all participants

- **Note:** Plenty of overhead space we recommend you perform this experiment outside if possible. A flat surface is also required for the experiment.

Watch the experiment video on your smartphone:
https://youtu.be/Ur7QplGq4cw

Prepare your station

- Fill pitchers with water and place them where they can be easily shared.
- Distribute film canisters and safety glasses for each student-adult pair
- Have paper towels on hand to clean up any spills.

Questions to ask participants before they start:

- What makes a rocket lift off? (Brainstorm and share your ideas)

Instructions:

Please read the instructions out loud. Make sure you direct the correct person to complete each assigned task.

Both: Put on your safety glasses

Adult: Measure and mark a line no more than ½ inch on the film canister.

Student: Pour approximately ½ inch of water into the film canister.

Working Together: 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).

Both: Step back a few feet! Wait and watch the film canister rocket launch.

How it Works:

We are combining a solid (antacid) a liquid (water) and observing how those mix together and produce a gas (carbon dioxide). The gas pressure builds up in the film canister until the gas pressure builds up enough to blow the canister apart from the lid, this is how the rocket gets launched in the air. Antacid tablets like Alka-Seltzer are made up of citric acid and sodium bicarbonate that react to form carbon dioxide when dissolved in water.

Vocabulary:

Chemical reaction: What happens when two substances combine to make something new.

Phase change: When enough energy is added or taken away from an object that it moves from a solid, liquid, gas phase to another phase.

Pressure: The amount of force applied on an object**.**

Real World Application:

Real rockets use the same concept. In a real rocket engine, hot gas is produced by the burning of liquid fuel. The gas is accelerated to the rear of the rocket. This produces a thrusting force, which makes the rocket “lift off.” Understanding how different substances react with each other and change phase is very important for chemists, doctors and engineers.