



SCIENCE TAKE-HOME KITS FACILITATOR'S GUIDE

ALKA-ROCKETS

- **Aim:** Launch a homemade rocket using a chemical reaction.
 - **Materials required:**
 - ✓ Empty film canister
 - ✓ Effervescent antacid tablet (Bayer Alka-Seltzer original/ gold tablet works well)
 - ✓ *Glass/bowl of water
 - ✓ *Safety Glasses
- *These materials are not provided in the kit. Gather these materials from home.

Note: Perform this experiment outside. Plenty of overhead space and a flat surface is also required for the experiment.

- **Watch the experiment video on the website at www.pta.org/stem/athome**
- **Questions to think before you start:**
 - ✓ What makes a rocket lift off? (Brainstorm and share your ideas)
 - ✓ What is the chemical reaction taking place in the experiment?
- **Instructions:** Make sure to perform the experiment as a team (parent and student). Please read the instructions out loud.

Step 1 - Parent and student: After you're outside, put on your safety glasses.

Step 2 - Student: Pour approximately ½ inch of water into the film canister. Make sure to fill the film canister one-half full with water and not more than that.

Step 3 - Team Work:

- ✓ 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.

Step 4 - Student: Shake the canister vigorously, turn it upside-down and place it on a flat surface or on the ground (on its lid).

Step 5 - Parent and student: Step back a few feet! Wait and watch the film canister rocket launch.

HELPFUL TIPS

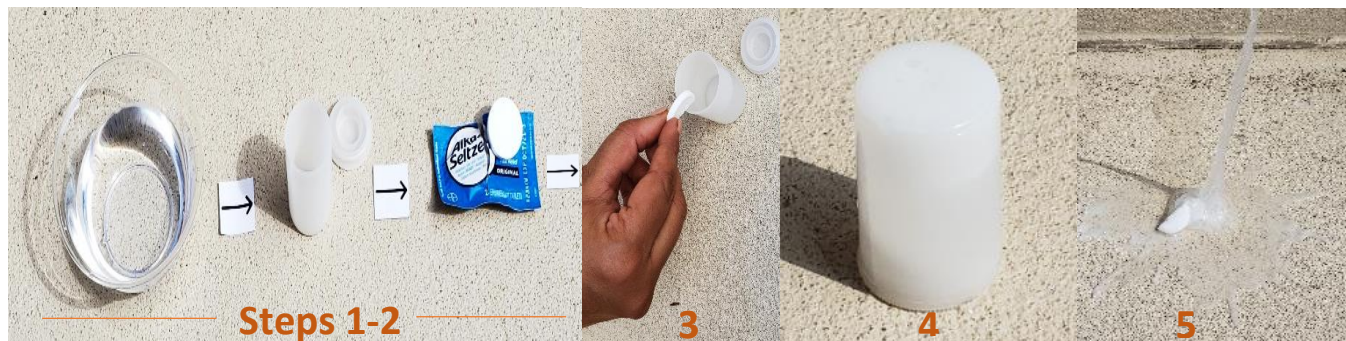
Supervise students with Alka-Seltzer tablets.

Before doing the experiment, let students practice, popping the lid on the canister.

Don't forget to quickly stand few feet back.

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- The science behind the fun:**
 Alka-Seltzer tablets are made up of citric acid and sodium bicarbonate that react to form carbon dioxide when dissolved in water. When Alka-Seltzer is added to the water in the film canister, carbon dioxide is released which builds pressure inside it. When the pressure builds high enough, it blows the canister apart from its lid. Thus, launching the rocket in the air.
- Real World Application:** Actual rocket uses the same concept. In an actual rocket engine, hot gas is produced by the burning of fuel. The gas is accelerated to the rear of the rocket. This produces a thrusting force, which makes the rocket “lift off.”
- Expand your knowledge:**
 - ✓ What happens if you change the size of the tablet?
 - ✓ Does it make any difference in how quickly and how high the rocket launches, if you change the amount of water?



Did you know?

- Citric acid is found in the juices of most citrus fruits like lemons and limes.
- Sodium bicarbonate is commonly known as baking soda.

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