

Make Your Own ALKA-SELTZER ROCKET

Part 1

Caution: Never point the film canister at someone once you have closed the lid. Keep your own face away from the lid. Wear goggles to protect your eyes. Also, Alka-Seltzer contains aspirin. Don't eat it and keep it away from small children and pets. Do this activity outside!

1 Fill the film canister about half full with warm water. You should have your goggles on. Add half an Alka-Seltzer tablet to the water with one hand. With the other, quickly snap on the canister lid.

2 Place the canister on a hard surface, outside, with the lid facing up. Stand back and count how long it takes for the lid to pop off.

3 Try this again and vary the amount of water and Alka-Seltzer or the temperature of the water. Remember to only change one thing at a time. What makes the best rocket?

Tips if you're having trouble:

If your lid is not exploding off, it is probably because the lid on the canister is not tight enough. Try using a film canister that has a lid that fits inside, not one that fits around the outside of the canister. You can also try using another container that has a lid that fits snugly but doesn't screw on, such as the lid on some antacid tablets.

+ Supplies

- eye goggles
- 3 or more film canisters with lids that snap inside, usually clear or white, available free anywhere that develops photos
- water
- several Alka-Seltzer tablets, original formula, from the drugstore
- heavy paper or cardstock
- markers
- sturdy tape, such as masking tape

ACTIVITY!

Part 2

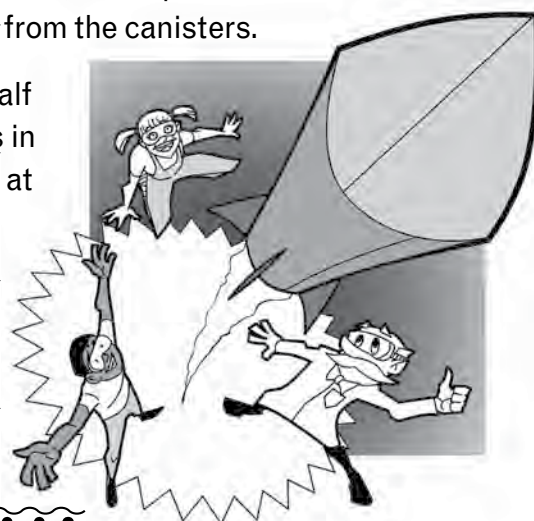
Once you get the hang of popping the lids, try making a rocket. It works best if you have at least one friend to help. And remember, everyone needs goggles.

1 Decorate the paper for the outside of your rocket. Tape the bottom parts of three film canisters together. Tape the long edge of the decorated paper to the film canisters so that the short edge of the paper is even with the openings of the canisters. Wrap the paper around the canisters and tape the other long edge so it overlaps the paper.

2 Cut a circle of paper about 3 inches (7.5 centimeters) in diameter. Make a cut to the center of the circle and overlap the edges to form a cone, and tape the cone closed. Tape the cone to the end of the paper cylinder away from the canisters.

3 Hold the rocket upside down and fill the canisters half full with warm water. Break the Alka-Seltzer tablets in half. With a friend, add half a tablet to each canister at the same time, then quickly snap on the lids.

4 Quickly put the rocket on the ground with the lid side down. Stand back! Do you remember how many seconds it took for the lid to pop off? Start your countdown!



What's Happening?

The Alka-Seltzer tablet is a mixture of baking soda, citric acid, and some other ingredients. In the presence of water, the baking soda and citric acid (the reactants) react to form new substances—carbon dioxide and sodium citrate (the products). That means the molecules in the tablet are breaking apart and forming new ones. Some of the atoms from each substance come together to form a new type of molecule.

One of the new types of molecules formed is carbon dioxide, which is a gas at room temperature. As more and more of the gas molecules are made, they build up pressure inside the canister. (You'll learn more about gas pressure in chapter 7.) It's like more and more people piling into a closet to hide—pretty soon, there will be too many and they'll burst out of the door. The carbon dioxide gas puts more and more pressure on all sides of the canister, and the lid pops off because it has less resistance than the sides of the canister.