

# Alka-Seltzer Fireworks

## Collect

- Alka-Seltzer tablets
- Film canisters
- Powdered tempera paint
- Water
- A large sheet of paper
- Adult supervision

## Get fizzy

**Heads up!** These fireworks can go off quickly. Read the steps below to avoid a splattered mess. Remember to never put your face over the canister once it is ready to launch!

1. Fill the film canister about halfway full with water.
2. Add one spoonful of powdered tempera paint and mix it with water by snapping the lid on the canister and shaking it up (for “white” fireworks, just add water!).
3. Open the canister again and break an Alka-Seltzer tablet into four pieces.
4. Quickly drop one small piece of the tablet into the water and snap the lid on tight.
5. Turn the canister lid-side down on a large sheet of paper.
6. Stand back and watch what happens! You may have to wait a little while for the pressure to build.

## What’s happening?

Alka-Seltzer contains two chemicals: citric acid and sodium bicarbonate. When you drop the tablet into the colored water, these two chemicals react and produce gas bubbles. By snapping the lid on the canister, the gas gets trapped inside and pressure starts to build until it explodes. The force of the air escaping pushed down against the ground and the canister blasts off!

## Take it further!

Experiment with the fizzing fireworks. Try using different temperatures of water. Does your firework explode fast with cooler water or warmer water? You can also try using different amounts of Alka-Seltzer. What happens when you break a tablet in half or crush a whole tablet into a powder? Can you make new colors by setting off two canisters side-by-side?

## Color in the Sky

The fireworks you saw during this activity get their color from the powdered tempera paint. Real fireworks contain chemicals that produce color when they are heated or burned. These chemicals are mostly compounds made of different elements. As these elements burn, they emit energy as different wavelengths of light.

Some common chemicals used during a fireworks show are strontium (red or pink) sodium (yellow), copper (blue), barium (green), or titanium (white). These chemicals get packed into spheres called stars, which can also contain other chemicals that create effects such as bursts of glitter. The stars go into a shell, along with the blasting charge which ignites the fuse and causes the shell to explode in the sky. Just like the film conister firework, shells can be packed with multiple stars to create bursts that contain lots of colors of different effects at once.