Ready, Steady, Launch

Fun with Fizzy Rockets

Background

Students explore the concepts of rates of chemical reactions, pressure and forces.

You will need...

- ✓ 3 × Alka Seltzer© tablets of the same mass
- ✓ 1 × wash bottle containing water (equal volume added to each canister)
- ✓ 3 × identical plastic 'film' canisters with lids
- ✓ 3 × glasses

Follow these steps

1. Give each student safety glasses, a film canister, lid and a glass.
2. Start filling each of the film canisters with water from the wash bottle.
3. Next, take one of the Aka Seltzer tablets and give it to the first student.
4. For the second student, take the tablet and break it in half.
5. For the third, crush the tablet into small pieces.
6. This step happens quickly so explain the instructions to the students in advance so that they all begin at the exact same time. It helps to quickly demonstrate a 'mock' trial procedure for them. Each pupil should add the tablet to the water in the film canister, quickly place the lid on until it 'clicks', then turn it upside down in the glass and then finally stand back quickly! The audience will help to count down from 5,4,3,2,1 before lift off!

So what happened?

The Alka Seltzer tablets release carbon dioxide gas when added to water. Because the gas is enclosed within the plastic film canister, pressure builds up inside. Once it becomes too high, the lid is blown off the canister and it is launched into the air.

What next?

Ask the students to observe the sequence in which the rockets lifted. The student who had the powdered tablet will launch first. This is because it reacts the fastest as it has the smallest particle size and thus the greatest surface area. The next to launch is the tablet that was broken in half. Finally, the 'whole' tablet reacts the slowest and launches last as it has the smallest surface area and largest particle size.

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