

**SICK!**  
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# SUMMER SCIENCE SURVIVAL GUIDE

as seen on



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# A WORD ABOUT THIS ACTIVITY HANDBOOK

Great teachers never miss the opportunity to create a learning experience out of something that kids love – and that’s exactly what this experiment guide is all about; connecting some fun science with summer play. The activities all have that great “gee-whiz” factor, plus they introduce children to cool scientific principles in such a sneaky way that they won’t even know they’re learning! It’s important to read through the brief instructions that accompany each activity to get the “flavor” and story before you begin.

## SAFETY!

Everything in this handbook has been thoroughly tested and is not considered to be hazardous, if used with adult supervision. That’s right, the activities in this handbook require adult supervision. This handbook is not intended to be tossed at a kid with the instruction, “Have fun.” Instead, you might want to use this opportunity to interact with a few ankle-biters and learn a little science at the same time.

Remember that this is a science handbook and science can be messy. There are liquids, so you will get wet. Stuff falls on the floor, so you will need to clean it up. Don’t put chemicals in your eyes or ears and don’t eat your experiment. Trust us, they don’t taste good and it’s a bad thing to do. The bottom line is that this experiment handbook requires adult supervision and common sense – simple concepts to ensure a fun and safe experience.



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# FILM CANISTER EXPLOSIONS



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### WHAT YOU NEED

WATER  
FLAT FIZZERS OR ALKA-SELTZER  
FILM CANISTERS  
ADULT SUPERVISION

1



Fill a film canister approximately 1/4 full with water.

2



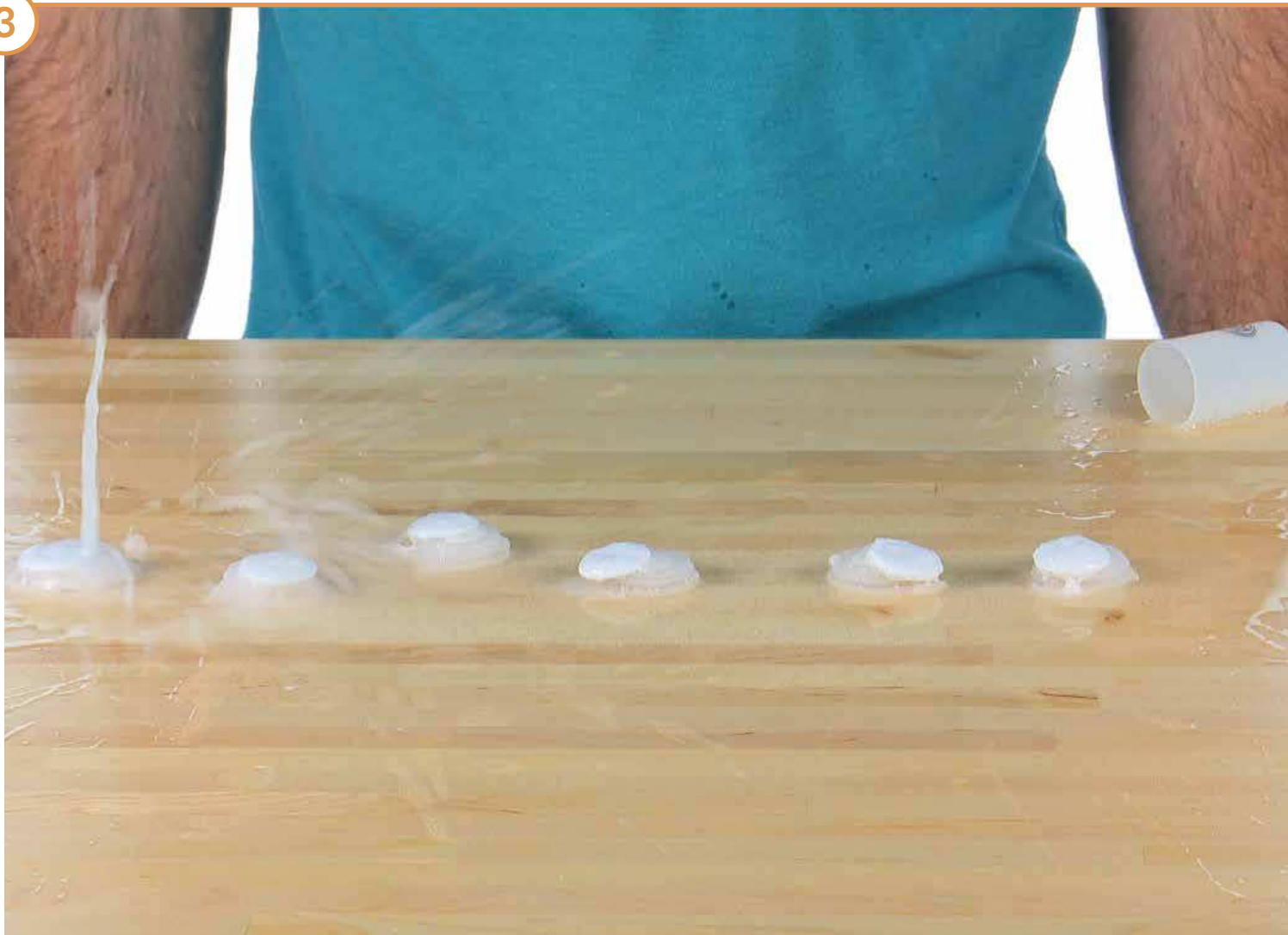
Add a Flat Fizzer to the film canister.

!



Put on the lid and flip the film canister over.

3



Try setting off multiple reactions with more film canisters.

## HOW DOES IT WORK?

$\text{CO}_2$  is produced as a result of a chemical reaction that occurs when Alka-Seltzer (Flat Fizzers) and water mix. This reaction builds up enough  $\text{CO}_2$  that the lid is forcibly removed, also known as a Film Canister EXPLOSION! This shows how a chemical reaction (water and Alka-Seltzer) can produce a physical one (lid popping off).

Look at the ingredients in Alka-Seltzer. You will find that it contains citric acid and sodium bicarbonate (baking soda). When you drop the tablet in water, the acid and the baking soda react to rapidly produce  $\text{CO}_2$  gas. The lid of the canister is the outlet of least resistance for the gas pressure inside.

We can thank Sir Isaac Newton for what happens next. When the build up of carbon dioxide gas is too great and the lid pops off, Newton's Third Law explains why the film canister flies across the room: for every action there is an equal and opposite reaction.

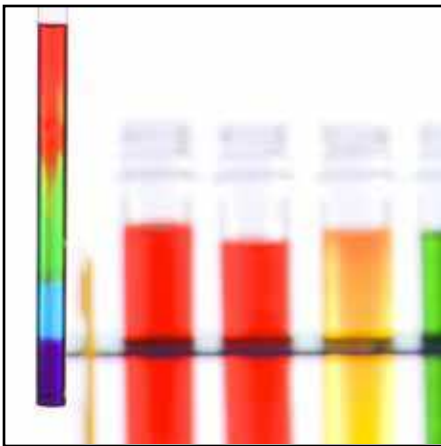
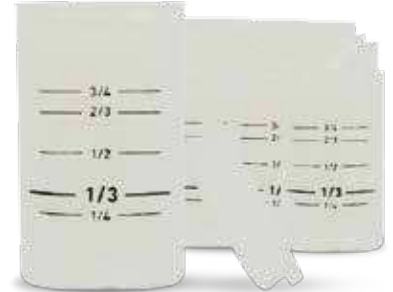
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