



Curiosity Guide #307

Rockets

Accompanies Curious Crew, Season 3, Episode 7 (#307)

Canister Pops

Investigation #1

Description

Ready for lift-off? Try a chemical reaction!

Materials

- Film canisters for 35-millimeter film, the white ones with the snap-in lid
- Antacid tablet. Alka Seltzer works well.
- Water
- Graduated cylinder or syringe
- Protective goggles

Procedure

- 1) Take the materials outside.
- 2) Put on protective goggles.
- 3) Carefully break the antacid tablet in half.
- 4) Remove the lid on the film canister.
- 5) Measure 5 milliliters of water in a small graduated cylinder or syringe. Pour the water in the canister.
- 6) Quickly drop one half of the tablet in the container, snap in the top and set the container upside down on the ground.
- 7) Then step back and wait!
- 8) What happened?
- 9) If nothing happens after 1 minute, inspect the container or take it apart, but don't lean over it.

- 10) What happens if you change the amount of water in the canister?
11) How could the flight be more stable?

My Results

Explanation

When the antacid tablet and water combine, a chemical reaction occurs. The tablet begins to dissolve, creating carbon dioxide gas. As more gas is created in the canister space, the pressure increases until this pressure blows the lid off. This results in an imbalance of forces in which the downward action of the pressurized gas causes an upward reaction, or thrust, of the rocket, lifting the rocket off the ground. This relates to Isaac Newton's third law of motion that states, "Every action produces an equal and opposite reaction." Adding fins or a nose cone can improve the little rocket's stability.

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