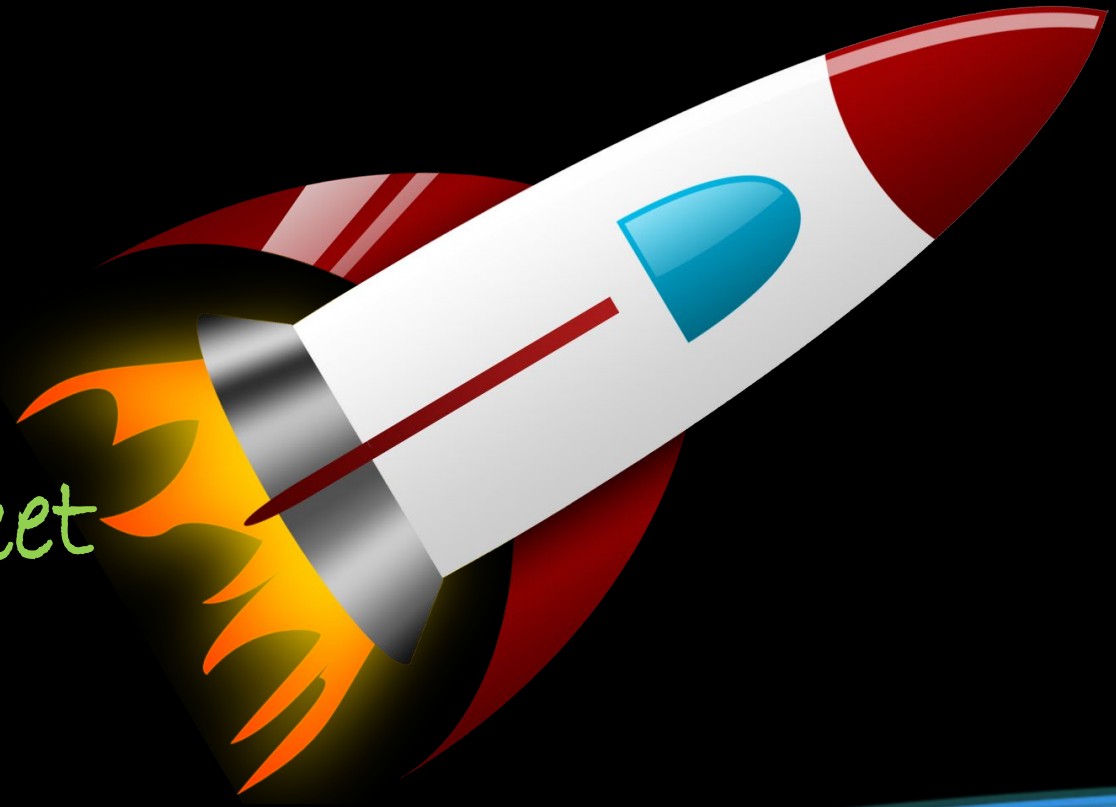
ROCKET SCIENCE!

Build your very own rocket



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INTRODUCTION

In this activity, will get to look at the workings of bottle rockets by using varying amounts of baking soda mixed with water as the propellant and observe how the surface area of solvents directly affect the reaction time which in turn, affects the launch time

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FUN FACTS

- Rocket technology is over 600 years old.
- Modern rockets push with over 2.5 million pounds of thrust.
- The fastest rocket to leave earth's atmosphere traveled at 36,000 miles per hour!
- The fins of the rocket help keep the rocket moving in a straight path.

DEFINITIONS

dissolve - to disintegrate or disperse into a liquid

expand - to increasing in size

propellant - the material or substance that fuels a rocket

solute - in a solution, the substance to be dissolved

solvent - in a solution, the substance doing the dissolving

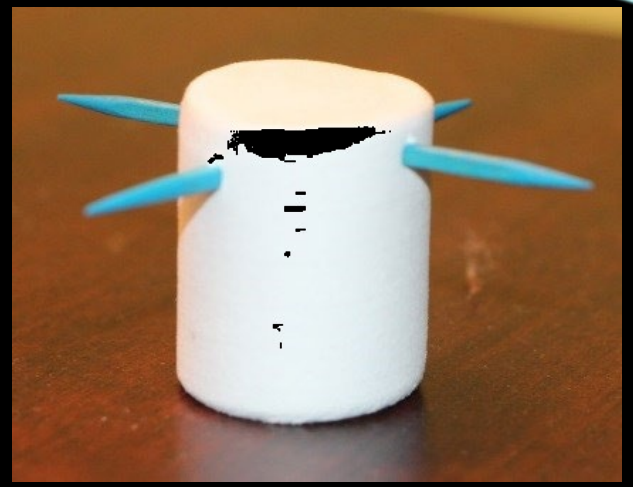
WORKING OF A ROCKET

- https://www.youtube.com/watch?v=jI-HeXhsUIg

LETS GET BUILDING!

- STEP 1: create four fins using craft foam

- STEP 2: poke two toothpicks through the foam marshmallow and tape the fins to the toothpicks



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STEP 3: MAKE THE ROKET PROPELLENT RECIPIE

- 1 ½ cup of water and choose your own solute from the list below.

Possible break downs of Solutes:

1 whole Alka-Seltzer Tablet OR

2 - 1/2 pieces Alka-Seltzer Tablet OR

3 - 1/3 pieces Alka-Seltzer Tablet OR

4 - 1/4 pieces Alka-Seltzer Tablet OR

Powder -Alka-Seltzer Tablet Ground into a Powder

- measure and add 1 1/2 cup of water to their bottle. Then tip the bottle sideways so that you can place the solute in the mouth of the bottle, but to not spill any of the water.
- Then place the packet of solute towards the top of the bottle. Avoid letting the packet and the water come in contact with each other.
- Next, secure the rocket to the top of the bottle, making sure there is a snug fit so that gas pressure will build up.

- Once the rocket is secured, tip the bottle upside-down causing the water to come in contact with the solute packet.
- At the same time, start the timer on the stop watch.
- Measure the time it takes for the rocket to launch.

DISCUSSION

1. What is causing the rocket to launch?
2. Which substance is the solute?
3. Why are we changing the size of the tablets?
4. By breaking the tablets into smaller pieces, are we changing the amount of solute in the chemical reaction?
5. What will make our rocket launch sooner?