2016 Experiment Challenge
Let Kids Love Science

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Self-introduction

We are Roxane and Angelyn. We both take Physics, Chemistry and Biology as our electives at school. Having a huge interest in science, we hope to take part in this contest so as to widen our horizons in science as well as to promote the fun sides of science to children.

Who is blowing up the balloon?

Theme: Food

Age group: 10 to 12 years old

Procedures

1. • Label the conical flasks with corresponding names

2. • Measure 50 cm^3 of each liquid using a measuring cup or a measuring cylinder

3. • Pour the liquid into their corresponding flasks

4 Using a paper funnel, spoon 2.5 cm^3 of bicarbonate of soda into each balloon

5 Fit the mouth of the balloon over the opening of the flask carefully without spilling the power into the solution

6 Tip all the balloons up at the same time so that the powder can fall into the solutions

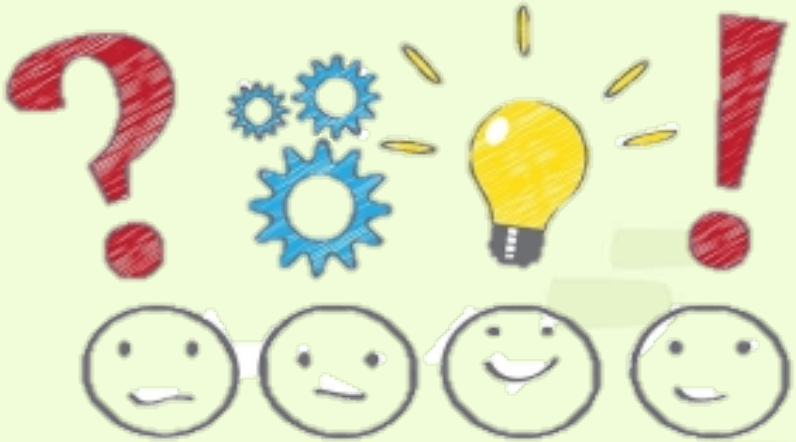
7 Observe what will happen in the liquids and the balloons

Question time!

Before the tipping up the balloon:

- What will happen to the balloon when we tip the powder into the vinegar? Why?

During the reaction:



- What do you see and hear happening?
- What is the gas bubble? Why is gas produced?

After the reaction:

- Do the liquids that fizz with the bicarbonate of soda have anything in common?
- Which liquid gives rise to the biggest balloon?

Going further… Making a fire extinguisher!

Science and Learnings behind

Bicarbonate of soda + acid → carbon dioxide

When **carbon dioxide** is produced, it **increases** the **gas pressure** in the balloon. Thus, the balloon becomes inflated

Among the four liquid samples, all of them are **acidic**

- Vinegar: ethanoic acid
- Coke: carbonic acid
- Orange juice: citric acid
- Soya sauce: lactic acid

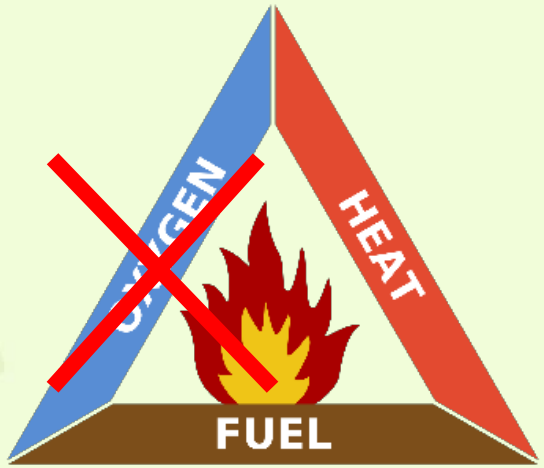
Science and Learnings behind

Balloon for **vinegar** is the **largest**→ amount of **CO_2** from the reaction between baking soda and vinegar is also the **largest**

⇨Vinegar is the **most acidic** out of the four solutions

Science and Learnings behind

Carbon dioxide produced can be used as a **fire extinguisher**. As carbon dioxide can **cut off oxygen supply** because it is **denser than air**, the fire goes out quickly.



Be safe!

- ✓ Remember to check that there is **no leakage** between the balloon and the bottle, otherwise, the solution will **splash out**.
- ✓ Children should use a **match** or a **lighter** with their **parent's guidance** and **supervision**.
- ✓Children should wear **gloves** throughout the experiment to prevent contact of vinegar from their skin

How we co-created it!

Think of what do children like

Colourful objects such as balloons, candies

Special ways to inflate a balloon using food

By the production of CO_2 through neutralization

→ self-inflating balloon

What can CO_2 do?

→ Fire extinguisher (candle experiment)