**Exploring Physical and Chemical Changes**

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**Introduction**

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Baking Soda

Sugar

🎬**Watch this video** [**https://vimeo.com/416623219**](https://vimeo.com/416623219) **(Password: 123456)**

🖹**Now prepare some sugar and baking soda in containers and answer the following questions:**

* What differences can you see between sugar and baking soda? What is the difference in taste?
* What do you think will happen to sugar when you add vinegar to it? Explain.
* What do you think will happen to baking soda when you add vinegar to it? Explain.

## **Investigation 1: Froth and Bubbles**

In this activity, we will explore *the differences between physical change and chemical change.*

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🎬**Watch this video to see the experiment by Victor and Annabeth** <https://vimeo.com/416629406> **(Password: 123456)**

## 🖹 You will need:

* two zip-lock sandwich bags
* vinegar
* sugar
* baking soda
* a cup measure
* a teaspoon

**📋 Conduct an investigation to explore the differences between physical and chemical changes**

## Take two zip-lock bags. Add 50ml of vinegar to each bag.

## Put a teaspoon of sodium bicarbonate in one bag and a teaspoon of sugar in another bag. Quickly seal the bags. Observe what happens.

## Use the investigation planner below:

## Record your results: what did you observe?

## Draw a diagram that explains what happened to the sugar in the vinegar.

## Draw a diagram that explains what happened to the baking soda in the vinegar.

## Open the bags and smell the liquid in each bag, can you still smell the vinegar in both bags? Describe and explain your thoughts.

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| **My Investigation Planner** |
| **Question** for my investigation |  |
| I will **keep the same** |  |
| I will **observe or measure** |  |
| This is what I **predict** will happen and reasons for my prediction:This is what I **observed**:This is how I **show** and **explain** the results: |

## **Investigation 2: Balloon Blowout**

In this activity, we will explore *properties of carbon dioxide and air.*

🎬**Watch this video to see the introduction to the experiment by Victor and Annabeth** <https://vimeo.com/416638130>

 **(Password: 123456)**

🖹 You will need:

* a small plastic soft-drink bottle
* a balloon
* a spoon
* a funnel
* vinegar
* baking soda

**📋 Conduct an investigation to explore the properties of carbon dioxide and air in a balloon**

1. Pour vinegar into a small plastic soft-drink bottle, to a depth of 2 to 3 cm.
2. Put a teaspoon of baking soda into a balloon (you could use a funnel)
3. Fit the mouth of the balloon tightly over the mouth of the bottle
4. Lift the balloon to allow all the baking soda to fall into the vinegar.

🖹**Answer these questions:**

* What causes the balloon to blow up? What has happened to the baking soda, and the vinegar?

What is in the balloon?

* Take the balloon carefully off the bottle, sealing it and tying it. Blow up another balloon to the identical size. Both balloons are not full of gas, and you can compare them. Do they feel the same? Do they drop at the same rate? Explain.