

**ExxonMobil**

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# Week 2 #SolveItWithSTEM@Home Experiment Pack for Secondary Schools

*featuring Alice and Eddie - our STEM Gurus*

Make sure you do the experiment with an adult present.



Welcome to Week 2!...We hope you enjoyed last week's pack and experiment!

Alice and I have created another experiment for you to enjoy, please go to the next page to find out more...

We have also included the answers to the wordsearch from last week...you can find this on page 6.  
(Be honest and don't cheat guys!)

Why not try out the maths question on page 5...the correct answer will be issued next week 😊



# Experiment #2: The Gas in a Balloon, Baking Soda & Vinegar

(Make sure this experiment takes place **alongside an adult!**)

## Items Required:

- 1 x empty plastic bottle (small, individual use)
- 1 x balloon
- Baking Soda
- Vinegar (white vinegar is best for results)
- Cooking Funnel

## Instructions:

- Use the cooking funnel to put 4 tsp of Baking Soda into a balloon – twist the end of the balloon so that baking soda doesn't release too early.
- Fill the empty plastic bottle with approximately  $\frac{1}{4}$  of vinegar.
- Place the balloon opening over the top of the plastic bottle opening.
- Unwind the balloon and allow the baking soda to fall into the vinegar. Shake the bottle and watch the balloon inflate with  $\text{CO}_2$  (Carbon Dioxide)



# How does it work?...

The baking soda and the vinegar create an acid-base reaction and the two chemicals work together to create a gas (carbon dioxide).

Gases need a lot of room to spread out and the carbon dioxide starts to fill the bottle, and then moves into the balloon to inflate it.

They test this theory on the following video on Science Bob:

<https://sciencebob.com/build-a-fizz-inflator/>

Why not check out more on reactions with acids by completing the word equations below:

[Royal Society of Chemistry website – Word Equations](#)



# Week 2 – Maths Question!

If...       $2 = 6$   
               $3 = 12$   
               $4 = 20$   
               $5 = 30$   
               $6 = 42$   
Then...     $11 = ??$

Why not give this maths question a go...

The correct answer will be included within next week's pack...stay tuned!



# Week 1 Wordsearch Answers!

1. Atoms are chemically joined together by strong forces called **Bonds**
2. Copper + Oxygen = **Copper Oxide**
3. Coal, oil and natural gas are widely used fuels that contain **Hydrocarbons**
4. A **Catalyst** is a substance that speeds up reactions.
5. **Methane**
6. Na is **Sodium**
7. **Citric Acid**
8. Solutions can be acidic, alkaline or **Neutral**
9. The pH scale ranges from zero to **Fourteen**
10. **Potassium**

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H	Y	D	R	O	C	A	R	B	O	N



We hope you enjoyed the Week 2 activities.

Week 3 will be coming soon.

Best wishes

The ExxonMobil Fawley #SolveItWithSTEM Team!