

**ExxonMobil**

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# Week 4 #SolveItWithSTEM@Home Experiment Pack for Secondary Schools

*featuring Alice and Eddie - our STEM Gurus*

**Reminder: Make sure you do the experiment safely and with an adult present!**



Hello, how is everyone doing? Time has passed very quickly...we are now on Week 4!

Alice and I have some more experiments for you this week and we hope you enjoy them.

We have included the answer to the maths question from Week 3 on page 7. Why not give our new maths question a go on page 6!

Our experiments include a compass and a lava lamp this week...good luck all 😊





# Experiment #5: Salty Lava Lamp

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

## Items Required:

- 1 litre plastic bottle
- Vegetable oil
- 180ml of water
- Food colouring
- 3 x teaspoons of salt

## Instructions:

- Take the plastic bottle and pour in the water.
- Slowly pour in the vegetable oil into the bottle until it is almost full. You may have to wait several minutes for the oil and water to separate.
- Add about 10 drops of food colouring to the mixture. The drops will pass through the oil and then mix with the water.
- Pour the salt into the bottle. Watch it sink to the bottom and let the lava begin!
- To keep the effect going – add more salt!



# How does it work?...

## Why does the oil float on the water?

- Oil floats on water because a drop of oil is lighter than a drop of water the same size. Another way of saying this is to say that water is denser than oil. Density is a measurement of how much a given volume of something weighs. Things that are less dense than water will float in water. Things that are more dense than water will sink.
- Even though oil and water are both liquids, they are what chemists call immiscible liquids. That's a fancy word that means they don't mix.

## What happens when I pour salt on the oil?

- Salt is heavier than water, so when you pour salt on the oil, it sinks to the bottom of the mixture, carrying a blob of oil with it. In the water, the salt starts to dissolve. As it dissolves, the salt releases the oil, which floats back up to the top of the water.

If you fancy taking a look at the experiment online, please follow the link below to the Mad Science Group on Youtube who provide further detail:

[https://www.youtube.com/watch?v=2TSFt\\_PjsGA](https://www.youtube.com/watch?v=2TSFt_PjsGA)



# Experiment #6: Compass

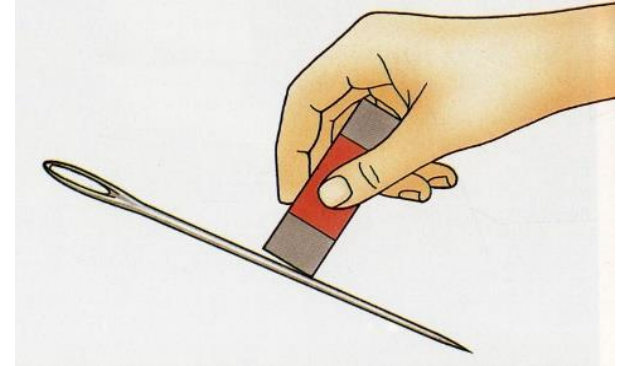
(Make sure this experiment takes place **alongside an adult!**)

## Items Required:

- A needle
- Magnet
- Bowl
- Water
- Cork or a leaf

## Instructions:

- Magnetise the needle – do this by stroking the needle with the magnet in the same direction at least 5 times then remove the magnet.
- Fill a bowl with water.
- Place the magnetised needle either on a cork or small plant leaf and let it float.
- The needle should point north!



# Week 4 – Maths Question!

What number should appear next in this sequence:

1      5      12      34      92      252      .....

Why not give this maths question a go...  
The correct answer will be included within next week's pack...stay tuned!  
😊



# Week 3 – Maths Question Answer...

## Question...

If Tom gives Tim £12.00, they will both have the same amount of money.  
If Tim gives Tom £12.00, Tom will have five times as much as Tim.  
Who has what?

## Answer...

**Tom has £48**

**Tim has £24**

If Tom gives Tim £12.00, they are both on £36.  
If Tim gives Tom £12.00, Tom will be on £60 whilst Tim is on £12.  
60 is 5 lots of 12.



We hope you enjoyed the Week 4 activities.

Week 5 will be coming soon.

Best wishes

The ExxonMobil Fawley #SolveItWithSTEM Team!