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February 2021 – Spring Term

#SolveItWithSTEM@Home

Infant and Primary Activity Pack

Friday 5th February 2021

Hello everybody!



Hey everyone and welcome back to the packs!... I can't quite believe we are on our 4th week!! – we hope you have enjoyed them so far.

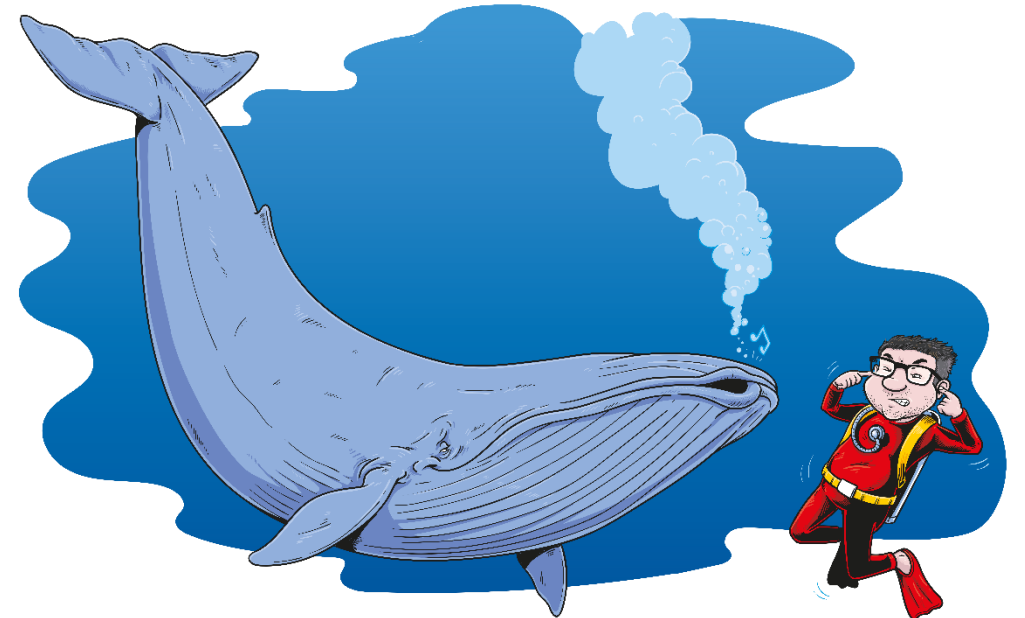
As you know last week we covered **Food**...making me hungry...we looked at fruit floating boats and the movement of water in cabbage.

Talking of water – this week we are looking at the wonderful world of **Water**!...Eddie, what's going on down there?

Thanks Alice – as you can see guys, I am a little busy at the moment listening to a whale in the deep blue sea. It is rather loud, I must say!!

Did you know our oceans cover **more than 70%** of the Earth's surface? And some how I have managed to end up next to a whale singing!...

Remember guys to share these packs with your family and friends online – just visit www.fawleyonline.org.uk



Activity: Why doesn't the water leak?!

(Make sure you have an adult help you with this activity)

The items you will require include:

- Plastic freezer or sandwich bag
- Water
- Sharpened pencils

Instructions:

- Fill a plastic bag a little more than half way full of water
- Seal the bag
- Quickly stab a sharpened pencil through the bag
- Try stabbing multiple pencils through the bag.....**Why doesn't the water leak?**

Don't forget to dispose of the bag thoughtfully. You could even reuse the bag to reduce waste!...don't use it for water though..



How Does the Experiment Work?

The magic of this experiment lies in what the bag is made out of. The material used for the bag is plastic and plastics can contain **polymers**. If you look really, really closely at a plastic bag (with a microscope), you will see it is made up of long chains. These are called **molecules**.

Molecules are used to make up many items in our day-to-day lives. Zipper top plastic bags (like the one used in our experiment), plastic grocery bags, plastic water bottles and plastic food packaging are all made of polymers. Products made of **polymers are flexible, lightweight, leak-proof, and low in cost to produce**.

Think of polymers as long chains of beads. When you stab a pencil through the bag, the polymers move apart. This is the same as if you stuck a pencil between two chains of beads. Because polymers are flexible, when you stab a pencil through the bag, the **polymers push back toward the pencil and form a temporary seal**. This prevents the water from leaking out of the holes. If you remove the pencils from the bag, **the holes will remain in the bag because you have permanently pushed the polymers aside, allowing water to leak out**.



Experiment: Does an orange float or sink?

(Make sure you have an adult help you with this activity)

Items Required:

- An orange or two
- A deep bowl or container
- Water

Instructions:

- Fill the bowl with water.
- Put the orange in the water and watch what happens.
- Peel the skin from the orange and try the experiment again...what happens this time?

What's happening?

An orange with a peel is heavier than an orange without a peel. So why does the orange with the peel (the heavier one) float and the orange with the peel (the lighter one) sink?

The secret to this experiment is density! Density is a measure of the mass per unit volume of a substance. Water has a density of 1 gram per millilitre. Objects will float in water if their density is less than 1 g/ml. Objects will sink in water if their density is greater than 1 g/ml.

The orange with the peel floats because the peel is porous and filled with tiny air pockets. These pockets of air help increase the buoyancy of the orange. This increase in buoyancy helps the orange become less dense than the water, so the orange will float in the water. Think of the pockets of air in the orange peel as tiny floatation devices for the orange. On the other hand, when you remove the peel from the orange, you are in fact making it lighter, but you are also removing those tiny air pocket floatation devices. Therefore, the orange without the peel is denser than water and it sinks.

Does an orange float or sink when placed in water? Seems like a fairly straight forward question, but is it? Try this fun density science experiment and answer the question whilst learning a unique characteristic of oranges.









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Maths

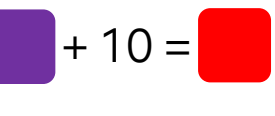








  $6 + 1 = \square$

   $+ 9 = \square$

   $+ 1 = \square$

   $+ 5 = \square$

   $+ 10 = \square$    $\times 3 = \square$ 

Help our water friend make his way through the pipes!...

You will need to work out the equation in the **red box** and use that number in the **purple box**....why not give it a go!

Remember once you have the answer in the red box...carry this across to the purple box! Answers will be provided in next week's pack...



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Answers: w/e 29th January 2021 STEM Pack

Maths (Page 5 and 6) – Sugar Smart worksheets, answers are in the yellow boxes

Year 1

Sugar Smart World report

1. Can you help Rocky the Ranger with his sugar sums?

Find out how many sugar cubes the people of Sugar Smart World are having for breakfast, lunch and pudding.

Breakfast	 +  = 13
Lunch	 +  = 8
Pudding	 +  +  = 11







2. Circle the healthier food and drink that you like.



Year 3

Can you help the people of Sugar Smart World? Shanie the Sherriff needs your help!

1. Show her how many sugar cubes and grams of sugar each item contains.

			
3 sugar cubes	6 sugar cubes	9 sugar cubes	3 sugar cubes
12 grams of sugar	24 grams of sugar	36 grams of sugar	12 grams of sugar

1 = 4 grams of sugar

2. Can you help Shanie with her sums?

An 8-year-old citizen showed Shanie how much sugar he has in a day from this food and drink:













Breakfast	Drinks
	
Yoghurts	Puddings
	

Work out the citizen's total:

- 21** Daily sugar cubes?
- 15** Sugar cubes over his daily maximum of 6 cubes?
- 84** Daily grams of sugar?
- 147** Weekly sugar cubes?

3. Can you help the citizen to reduce his daily sugar intake by making some swaps?

Circle the items that you would choose.

Breakfast	Drinks
  	  
Yoghurts	Puddings
  	  

We hope you enjoyed this week's activities.

Another pack will be on its way to you next week...

Best wishes

The ExxonMobil Fawley #SolveItWithSTEM Team!

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