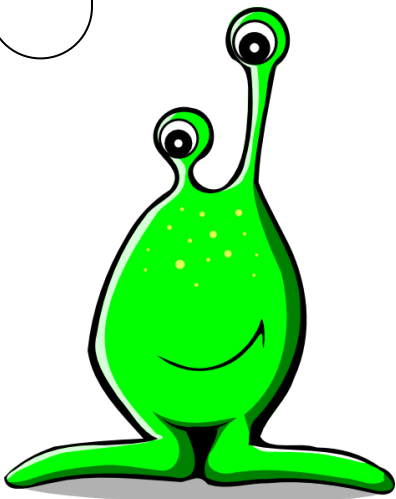


Science

Hello Year 6, soon to be Year 7!

You have been summoned by the Science Aliens below to complete some interesting and engaging missions over the coming months as part of your Science Project. **Biology, Chemistry** and **Physics** would like you to complete each task to the best of your ability to prepare you for Science at Irlam and Cadishead College. Once you have completed each mission, there are some exciting science practical activities you can do in your home! Enjoy and remember, try your best.

This work will be shared in your Science lessons in September so there is no escaping the Aliens!



Greetings, I'm
Biology



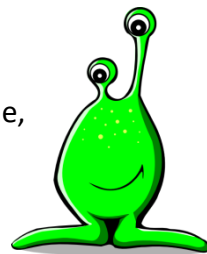
Hello there,
My name is
Chemistry!



Hi,
I'm
Physics!

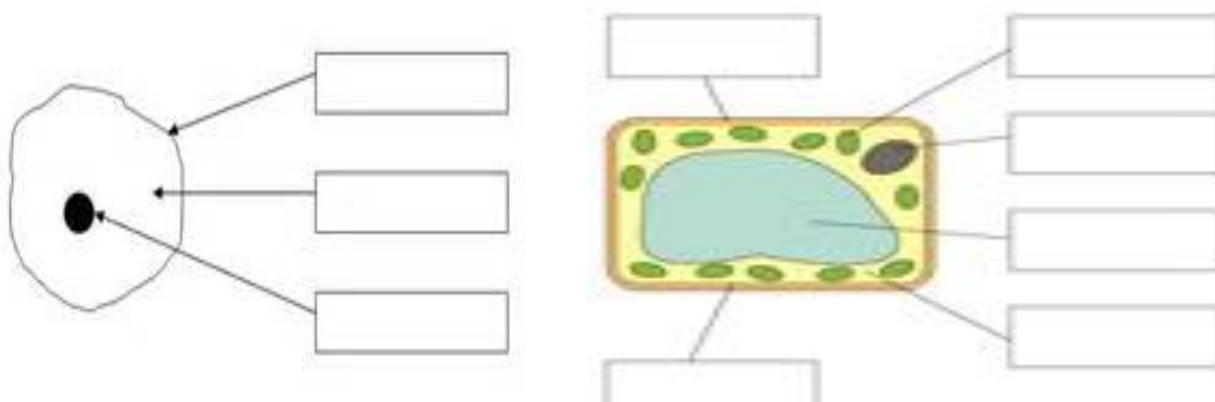
Biology - Cells

Mission: Research task! Yes, get excited because you will need to use the internet on a phone, Ipad/tablet or laptop/computer.



http://www.bbc.co.uk/bitesize/ks3/science/organisms_behaviour_health/cells_systems/revision/1/

1. State whether each cell below is an animal or plant cell.
2. Add labels to each cell to show the parts of an animal and plant cell.



3. Which cell part belongs to a **plant cell** or **animal cell** or **both**? Tick the correct box:

Cell part	Animal cell	Plant cell	Both
Chloroplast			
Cell membrane			
Cell wall			
Nucleus			
Vacuole			
Cytoplasm			
Mitochondria			

4. Describe the job or function of each cell part by completing the table below:

Cell part	Job or function
Chloroplast	
Cell membrane	
Cell wall	
Nucleus	
Vacuole	
Mitochondria	

Chemistry - Acids and alkalis

Indicators are chemical compounds that can be added to a solution to determine whether it is **acidic** or **alkaline**. The **indicator** will change **colour** depending on whether an **acid** or an **alkali** is added. The colour in red cabbage (a pigment called an anthocyanin) makes a very good indicator.

Acids have a sour taste, like vinegar and lemons. Alkalis are substances that react with acids and neutralise them. Soap and washing powder are alkalis.



Mission: Colourful activity alert! This practical activity is engaging and very colourful. You will need to chop up about a quarter of a red cabbage, boil this and then strain off the cabbage. It is the cabbage juice (purple in colour) that you will be need!

Once the purple cabbage juice has cooled down, add a little bit to 6 different plastic cups/cleaned yoghurt pots/mugs/containers. It is your task to predict whether each is acidic, alkaline or neutral using the information above and then test your predictions to see if they are correct. Test 10 substances from around the house (eg. toothpaste, oven cleaner, washing up liquid, shampoo, juice, squash, vinegar, coke, lemonade, lemon juice, washing powder) to see whether your predictions are correct.

Acid = indicator turns red or pink

Neutral = indicator stays same colour (purple)

Alkali = indicator turns blue/green

Household substance	Prediction (acid, alkali, neutral?)	Colour cabbage indicator turned to	Acid, alkali or neutral?

Extra Challenge: Try blowing bubbles through a straw into one of your colours for 2-3 minutes. What happens to the colour? Why do you think this happens?

Physics – Forces

Mission: Collect as 7 different leaves from outside that all have a different width. It is your job to drop each leaf from a controlled height (shoulder height) and time (perhaps using your phone or a kitchen timer) how long it takes for each leaf to reach the floor. Drop each leaf 3 times and then work out an average.



Results table

Record the width of the leaf and the time taken to fall to the floor in the results table below.

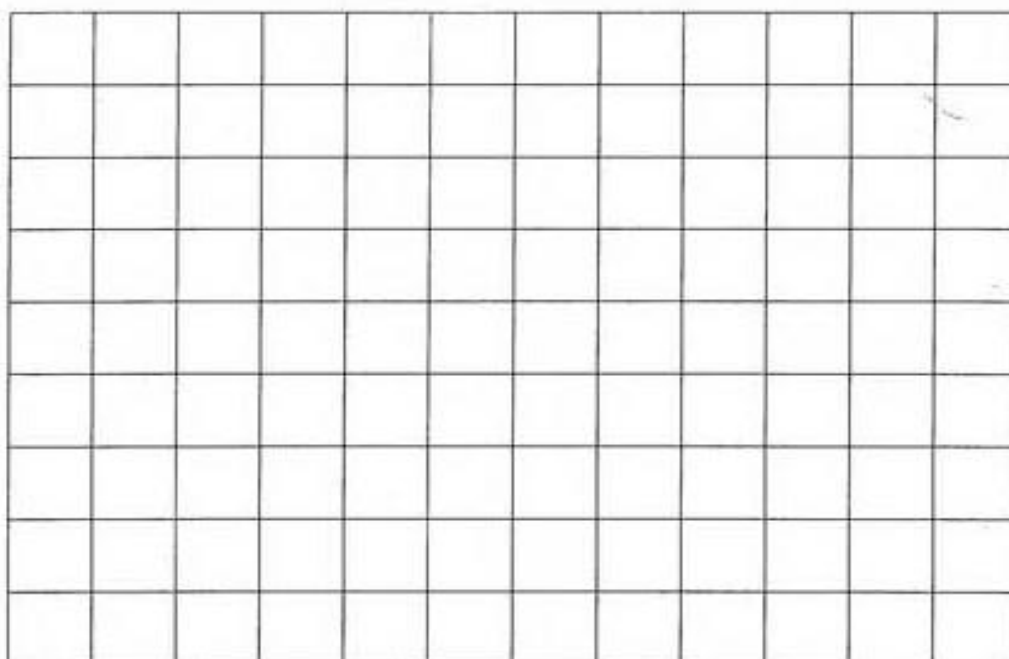
Top tip: Remember to write the unit of measurement in the table heading only!

Leaf width ()	Time taken for leaf to hit floor ()			Average time taken for leaf to reach floor ()
	Drop 1	Drop 2	Drop 3	

Presenting results

Use the grid paper below to draw a bar chart to represent the data you have collected.

Top tip: Remember to place the variable you measured on the y axis (vertical) and the variable you changed on the x axis (horizontal).



State the two types of cell?

A)

B)

Describe the differences between animal and plant cells?

Explain why plant cells have chloroplasts and animal cells do not have chloroplasts?



State 2 household substances that are acidic and 2 that are alkali?

Acidic =

Alkaline =

Describe what colour the indicator went if an acid or an alkali was added?

Explain why acids and alkalis turned the indicator into more than one colour?

State the width of the leaf which took the longest amount of time to fall to the ground?

Describe what you controlled, changed and measured during the Physics mission?

Explain why the leaf stated in question 1 took the longest amount of time to fall to the ground?