We hope you are excited to start Science at Saracens High School. We have 8 new and well equipped Science Labs. We have a great team of Science Teachers and Science Technicians to help you to explore this exciting subject.

Experiments!
If you want to try out some experiments and games at home, the Science Museum has lots of fun activities. If you try some of these, please take a picture or a video and maybe even write a summary of what you did and what happened. Please share these with your Science Teacher when you start in September.
https://learning.sciencemuseumgroup.org.uk/resources/?type=at-home
We have also included 2 activities below.

Spring Watch
Have you ever seen the documentary Spring Watch on BBC? If you start this booklet early enough, why not log in to see live webcams and follow the animals. If you don't have a garden there are ideas on how to bring the outdoors into your home. There are tips to help local wildlife and every day at 9am there is a 'Wildlife from my window' programme.
There is a blog and hopefully you can add what you see to your diary entries.
https://www.bbc.co.uk/programmes/b007qgm3

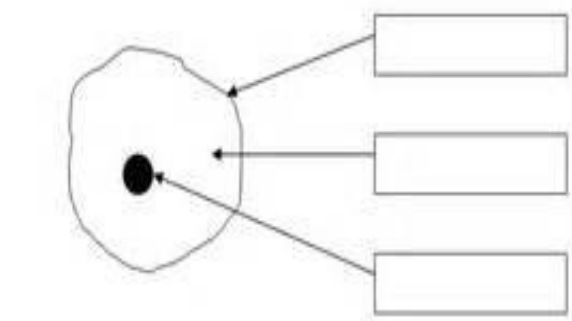
Moon Camp Challenge
https://mooncampchallenge.org/moon-camp-home/
In a future not too far from now, astronauts will have to stay for long periods of time on the Moon. Help them by creating a 3D model of a research base where they can live and work to explore the lunar surface.
Click on the link above and you can sign up to design a creative lunar base. Why not design a lunar lander, a lunar rover, a rocket and a space station or design a complete base on the Moon with astronauts' quarters with a greenhouse, a gym, a laboratory and a power plant. Don't forget to submit your design on the Moon Camp Challenge Website!

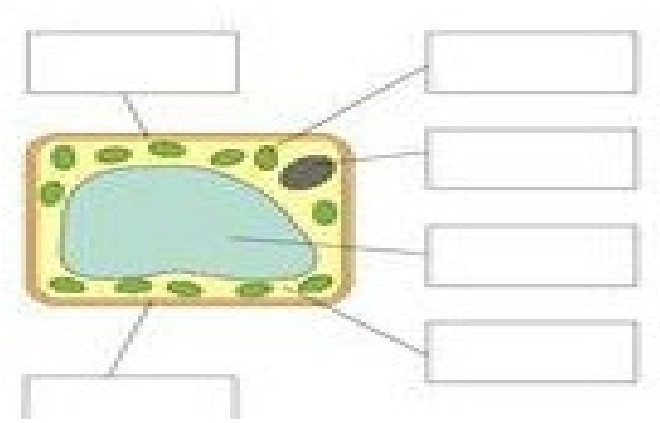
Improve your knowledge to be Year 7 Ready!
Read the science PowerPoint Slides and make notes.

If you want to test yourself when you have finished, try these online quizzes and make sure you record your results and share them with your new Science Teacher.
https://www.educationquizzes.com/ks3/science/

Answer the questions in the activities below. You can also research online using these websites:
Biology - https://www.bbc.co.uk/bitesize/subjects/z4882hv
Chemistry - https://www.bbc.co.uk/bitesize/subjects/znxtyrd
Physics - https://www.bbc.co.uk/bitesize/subjects/zh2xsbk

Biology - Cells





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.

Practical: Colourful activity alert! This practical activity is engaging and very colourful. You will need to chop up (with help from an adult) 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 (e.g. 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

Task: Collect 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 watch 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.

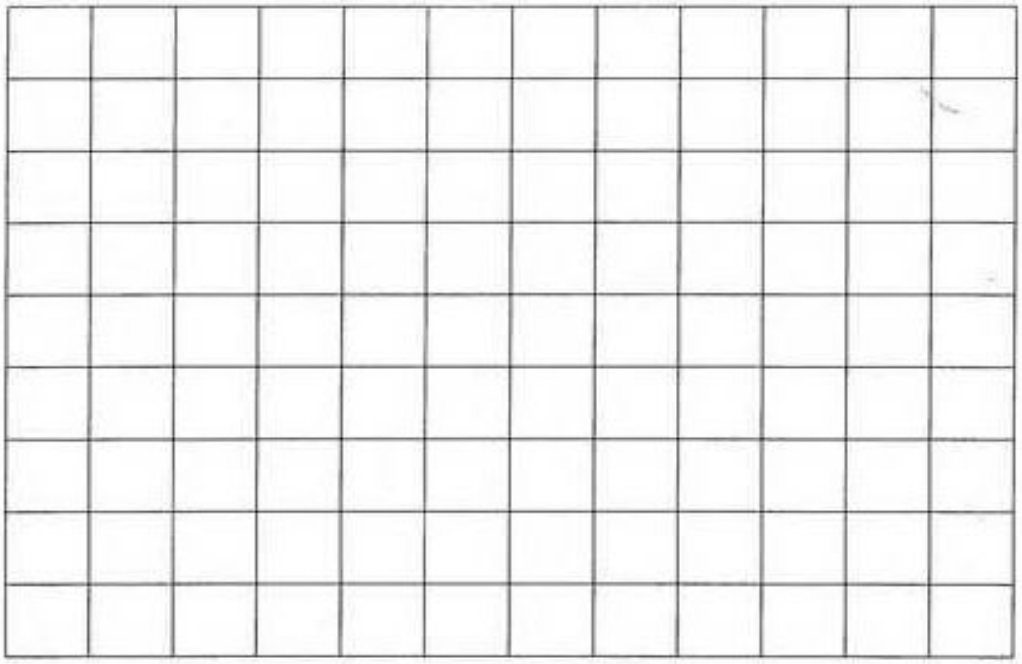
Results table

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).



Revision

State the two types of cell?

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?