

# Hazel Grove High School

## Year 7 Homework Book

### Term 1 – Autumn



Homework	Deadline	Score (Spellings and Definitions)	Score (Quiz)
1. Health and Safety			
2. Key skills			
3. Biology			
4. Chemistry			
5. Revision			
6. Physics			
7. Biology			
8. Science Project			

## Introduction to Science Homework

Science Homework will be set every fortnight by your class teacher. In the first week you need to complete part 1 and in the second week part 2. There will be a date set for you to hand the homework in.

Each piece has:

- a. **Spellings and definitions** that you need to learn.  
Your teacher will be quizzing you to check that you have learned them.
- b. **Quick quiz** to ensure that you have understood some key ideas from one of the topics that you have been taught in lesson.
- c. **Bonus challenge** – you can choose to complete this task or not– You can impress your teacher and improve your knowledge of Science for the future. Doing this challenge may earn you more rewards.

At least one homework of each term will be to prepare you for your assessment.

You will be asked to produce revision aids to not only help you get ready for this assessment but also to use in future exams.... Remember the new GCSE's test you on your Science knowledge from the first lesson of year 7 to the last lesson of year 11.

**Happy learning ☺ The Science Department**



**Learn the definitions (meanings)** of the following key words. You will be having a quick quiz in lesson to check you know how to spell these words and know what they mean.

Key word	Description
Risk	A situation where you are exposed to danger
Rules	Instructions that tell you what you can and can't do for your Health and Safety
Lab	A room where Science practicals and lessons are carried out
Chemical	A substance that can be used in a reaction
Equipment	Any piece of apparatus that can be used in a science practical
Safety	To protect from anything that could harm you



### Science Rules – True or False

#### Which of the following statements are True and which are False?

1. You must not talk when the teacher is talking. **T/F**
2. You should always sit down when carrying out a practical. **T/F**
3. You should only enter a lab when the teacher is present. **T/F**
4. Goggles should only worn when you are pouring chemicals. **T/F**
5. If you get chemicals on your skin you should wash them off and tell the teacher. **T/F**
6. You should run in a classroom or lab. **T/F**
7. You shouldn't tell your teacher if you spill a chemical or break a piece of equipment. **T/F**
8. You should tie your hair back when using chemicals and the Bunsen Burner **T/F**
9. You can eat and drink in a Science lab. **T/F**
10. You always touch the equipment and chemicals in a Science lab **T/F**

#### **Bonus Challenge – If you want to impress your science teacher.**

Design a Health and Safety poster for the Science department to help promote good working in a lab.

Think about what you have learned in lesson and use the health and safety rules on the front page of your book.

**Learn the definitions (meanings)** of the following key words. You will be having a quick quiz in lesson to check you know how to spell these words and know what they mean.

Key word	Description
Independent variable	This variable that the scientist changes.
Dependent variable	This variable that changes because of the independent variable. You measure it.
Control variables	All other factors that need to be kept the same to get valid results
Method	This is a step by step guide to setting up and carrying out the experiment.
Prediction	This is completed at the beginning of an experiment to say what you think will happen .
Conclusion	This is written at the end of an experiment to sum up the main findings.
Results	These are measured and recorded in a table.
Graph	This would be used to represent the results. It will need accurate scales.



### **Science Equipment - What's my name?**

- 1. What equipment is used to measure temperature?**
- 2. What equipment is used to measure the volume of water or a liquid?**
- 3. What equipment is used to heat substances up?**
- 4. What equipment is used to protect your eyes during an experiment?**
- 5. What equipment is used to light a Bunsen burner?**
- 6. What equipment is used to measure the time of an experiment?**
- 7. What equipment is used to calculate a mean?**
- 8. What equipment is used to hold a liquid?**
- 9. What equipment is used to hold a boiling tube in a Bunsen burner?**
- 10. What equipment is used to protect lab benches from heat?**

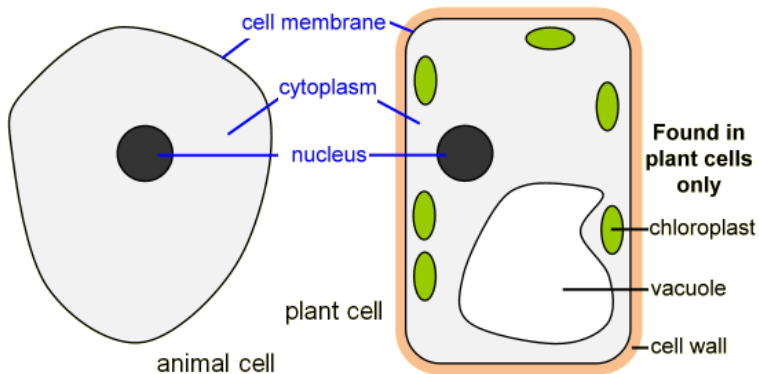
**Optional Challenge – If you want to impress your science teacher..**

Research a piece of interesting and unusual science equipment and tell them what it does.....

**Learn the definitions (meanings)** of the following key words. You will be having a quick quiz in lesson to check you know how to spell these words and know what they mean.

Key word	Description
Cell	The smallest unit of life. All living organisms are made from cells.
Nucleus	Contains DNA – the genetic code to build the organism
Membrane	Controls what goes in and out of the cell (by diffusion)
Chloroplasts	Contain chlorophyll for photosynthesis
Vacuole	A storage area for plant cells
Cell wall	Made from cellulose, gives a cell structure
Tissue	Made from a group of similar cells
Organ	A part of an organism which carries out a vital function

This section can be found on pg 2-3 and 14 of the KS3 revision guide



**The parts of a cells and their functions**

As well as these main cells the human body has a number of specialist cells which are adapted (changed) so that they are better at their job. Please use the index at the back of the KS3 revision guide or the BBC Bitesize website to help.

Specialised cell	Job	How it is adapted
Sperm cell		
Red blood cell		
White blood cell		
Root hair cell		
Bacterium		

**Optional Challenge** – Cells can only be seen due to the development of microscopes. Find out who invented microscopes and draw and label a picture of a microscope.

**Learn the definitions (meanings)** of the following key words. You will be having a quick quiz in lesson to check you know how to spell these words and know what they mean.

Key word	Description
Particle/atom	Smallest form of matter
States of matter	Solid, liquid or gas
Solid	A state of matter where particles are arranged in fixed rows and the particles vibrate
Liquid	A state of matter where particles are able to flow over one another
Gas	A state of matter where particles are randomly moving with energy
Bonds/forces	How particles are attached together
Melting	Turning a solid into a liquid by supplying energy and breaking some bonds
Boiling	Turning a liquid into a gas by supplying energy and breaking all bonds
Condensing	Turning a gas into a liquid and bonds forming
Freezing	Turning a liquid into a liquid and bonds forming

This section can be found on pg 54-60 of the KS3 revision guide

**Please complete the sentences by filling in the missing words:**

The three states of matter are \_\_\_\_\_, \_\_\_\_\_ and \_\_\_\_\_. All matter is made of \_\_\_\_\_.

In a solid, the particles v \_\_\_\_\_ but can not f \_\_\_\_\_. They are in fixed \_\_\_\_\_.

In a liquid, the particles can \_\_\_\_\_ over each. In a

In a gas, the particles move r \_\_\_\_\_ and have space \_\_\_\_\_ them. They have a lot of energy.

To change a solid to a liquid by \_\_\_\_\_ energy must be supplied, in the form of \_\_\_\_\_. This energy causes the \_\_\_\_\_ to v \_\_\_\_\_ more and some of the forces between the particles to b \_\_\_\_\_.

When a change of state is happening the \_\_\_\_\_ of the chemical \_\_\_\_\_ increase. Instead the e \_\_\_\_\_ is used to break the forces.

**If you need some extra help ask your teacher for a list of the missing words.**

**Optional Challenge – If you want to impress your science teacher or have some fun at home (YOU MUST have permission from your parent or guardian.)**

When cornflour and water mix they form a very clever mixture that can have properties of a liquid and a solid. What are those properties?

You need to use your revision guide, exercise book and homework to create a revision resource/s for you to use to revise for this assessment and future assessments.

This homework is to ensure you are ready for your assessment and future assessments on this topic.

The topics you have covered this half term are:

**Biology – Cells and organisms**

**Chemistry – Particles**

**Skills – Equipment and Safety**

Examples include:

- Mind maps
- Flash cards
- Power point of key areas of weakness
- Making questions and mark schemes

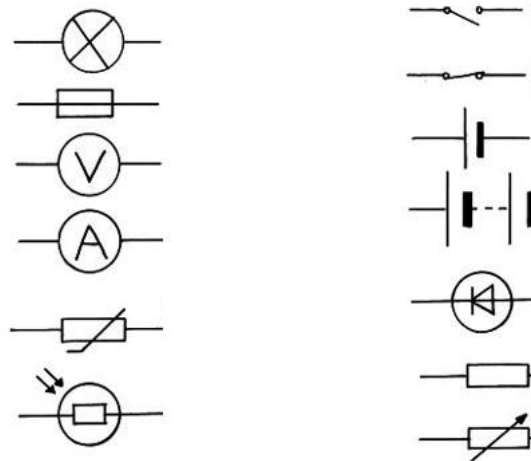
**Please make sure that you can show your revision aid to your teacher. It is not good enough to say I read my notes; you must produce a piece of work that you can use now and in the future.**

**Learn the definitions (meanings)** of the following key words. You will be having a quick quiz in lesson to check you know how to spell these words and know what they mean.

Key word	Description
Current	How quickly electrons flow
Voltage (potential difference)	Push of electrons
Resistance	Stopping the flow of electrons
Electron	A negative sub atomic particle
Ions	A charged particle/atom
Metal	A material that can conduct heat and electricity with free electrons
Ammeter	A piece of equipment that measures current in Amps
Voltmeter	A piece of equipment that measures voltage(PD) in Volts
Fuse	A piece of wire that melts when the current gets too high for safety
Series circuit	A circuit where the electrons only have one pathway
Parallel circuit	A circuit where the electrons have more than one pathway.

This section can be found on pg 162-167 of the KS3 revision guide

**What pieces of equipment do the following electricity symbols represent?**



Draw a series and parallel circuit (on paper) that has 2 bulbs, a switch a variable resistor, voltmeter and ammeter.

**Optional Challenge – If you want to impress your science teacher. YOU MUST get permission from a parent/guardian to complete this practical task**

**Can you wire a plug?**

What are the parts? With parents/guardians permission have a go at wiring a plug. Use the internet (BBC Bitesize) to find out the information. If you don't have a plug or don't have permission, then use the internet to draw a diagram of how to wire a plug.



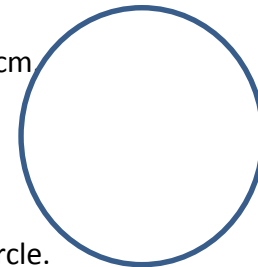
**Learn the definitions (meanings)** of the following key words. You will be having a quick quiz in lesson to check you know how to spell these words and know what they mean.

Key word	Description
Diffusion	Spreading out of particles from a high concentration to a low concentration
Concentration	How many particles in a volume. Low concentration means few particles in a volume.
Universal indicator	A chemical that changes colour depending on how strong/weak an acid or alkali is
Temperature	How hot an object is usually measured in °C
Thermometer	A piece of equipment used to measure temperature
Observation	What you see

This section can be found on pg 3 and 56 of the KS3 revision guide

**How is your maths? You must show ALL of your working out.**

- $5 \times 6 =$
- $7 \times 2 =$
- $7 \times 9 =$
- The sides of a cube have a length of 10cm. Calculate this cube's volume.



- Label the radius and diameter of this circle.
- What is the smallest measurement your ruler can take? (resolution.)
- Use your ruler – what is the diameter of the circle above?
- Draw a circle with a diameter of half the size of this.
- Calculate the area of this new circle.
- If this new circle was made into a cylinder 5cm long, what would the volume of the cylinder be?

**Optional Challenge – If you want to impress your science teacher**

Apply your knowledge of diffusion to draw and explain how someone stood on the opposite side of a room can still smell a perfume that has been sprayed.

**Science and Engineering week** is coming up after Christmas.

Your homework over the next few weeks will build towards producing a project to hand in, to showcase an area of Science that you have researched and understood.

You will be doing some work on this with your teacher in lesson but please ask if you need any extra help.

### **Homework 1 – Plan the project**

You can use the internet/library/newspapers to research ideas about Science that you can test/carry out/explain/apply and eventually share with students and staff at Hazel Grove.

Examples from previous projects are:

- Genetics – Why do I have blue eyes?
- Solar powered hovercraft – Building and Testing
- Chromatography – What is it and can I do it at home?
- Coke and mentos – What is the rate of this reaction?

**Task** - On paper, produce a plan of what you are going to do for this project. Include:

- Summary – What the project is about

You could also include:

- Diagram – Labelled picture of what you intend to do
- Resource list – A list of all the items you would need to carry out your project
- Risk assessment – An explanation of how you would be safe carrying the experiment out

Your work will be marked by your classmates and teacher and the top 3 students from the class will be put forward to the school competition where parents/guardians will be able to come and view the amazing work that you have produced.

Now your plan is completed, it's time to put together your project.

### **Homework 2 – Project**

You should display your research or your investigation on a display board as pictured below. These can be made however you like – remember the displays with the best scientific content and presentation will be chosen to represent the school at the science fair, and prizes will be available.

If you have carried out research, all your sources need to be shown in a bibliography. If you have completed an investigation, you need to demonstrate your knowledge of writing a method, controlling variables and drawing conclusions.

Happy Sciencing ☺