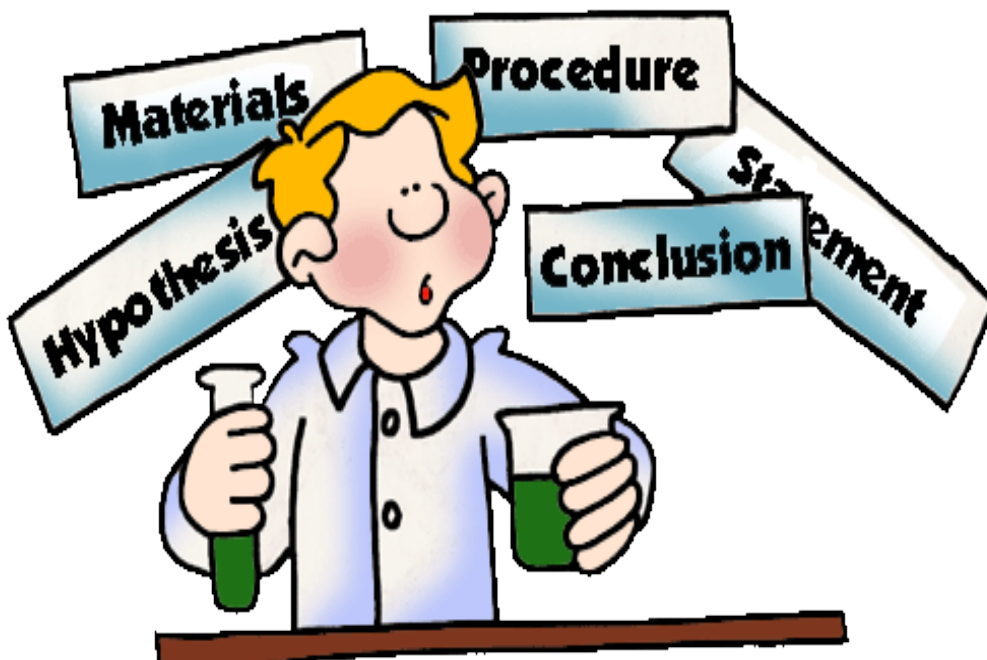


Year 7 Science Revision Booklet

Use this booklet to help you with your revision in preparation for your year 7 Science examination.

There are lots of tips and hints to make sure that the time you spend revising is effective.



Revision Top Tips

Use your exercise book
Go through the work that you have done in lessons – use your exercise book to remind yourself what you have studied.

Use your textbook

Your textbooks cover most of the work that you have done this year. Where work is not in the textbook then your exercise book or BBC Bitesize are good resources.

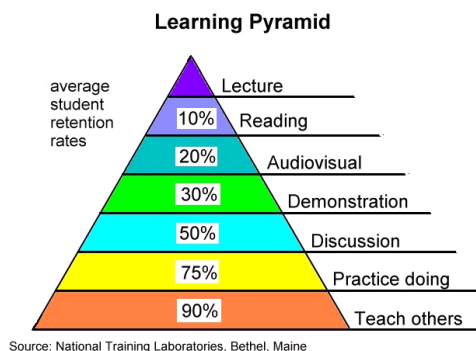
The books have great end of topic questions – try them.

KS3 BBC Bitesize

This is a good website with information, tests and quizzes covering most areas of the year 8 work.

<http://www.bbc.co.uk/bitesize/ks3/>

Remember the learning Pyramid when you do your revision.



Use the text book and revision book.

Read and write notes or draw a mind map

Condense work or notes




Write, write, write – at least then you have to engage with thinking

Test yourself




Look at the checklist




Use the checklist.

You have been given this checklist which tells you exactly what needs to be learnt and could be examined. Use it to help guide your revision plan and revision time. Just reading it and trying to learn some of the facts will help you to gain marks in the examination. If you don't understand any points then look them up in the textbook, your exercise book or ask a friend or teacher.

Introduction and Investigating			
Identify potential dangers in the laboratory			
Explain what a risk assessment is and produce one with potential dangers and suggestions for how you can work safely			
Identify and draw a wide range of scientific apparatus			
Name the different Bunsen burner flames			
Suggest things that would ensure you conduct a fair test			
Choose your own question, highlighting the independent, dependent and control variables			
Use tables to present experimental results including correct details such as a title with clear headings			
<p>Independently draw a appropriate graph (with regard for whether data is continuous or discontinuous (discrete)):</p> <p>Write a meaningful title</p> <p>Draw graph bigger than $\frac{1}{2}$ a page using sensible scale</p> <p>Label the correct axes, with correct units</p> <p>Plot points clearly</p> <p>Draw a smooth line of best fit</p> <p>Read off a graph to find a value not on the results table - interpolate</p>			
Interpret results from an investigations and use scientific knowledge to explain findings			
Evaluate investigations and practical work suggesting where modifications to the plan would improve the results			
Use millimetres, mm, for measuring very short lengths, centimetres, cm, for measuring small lengths and metres m, for measuring short distances			
Use kilometres, km, for measuring longer distances			
Use cm^3 (not ml) for measuring small volumes of liquids			
Use litres, l, for measuring larger volumes of liquid			
Calculate the area of a rectangle using length x width			
Calculate the area of a triangle using $\frac{1}{2}$ length x height			
Use the units mm^2 , cm^2 , m^2 , or km^2 for areas			
Calculate volumes using length x width x height			
Use the units mm^3 , cm^3 , m^3 or km^3 for volumes			
Convert between different units of length			
Convert between different units of area			
Convert between different units of volume			











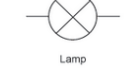
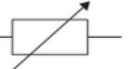
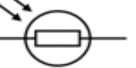




Describe how to correctly use a measuring cylinder			
Explain how to measure the volume of a regular shaped object			
Explain how to measure the volume of an irregularly shaped object (like a crown!)			

Particles and Separation Techniques			
Draw a diagram to show the arrangement of particles in the different states - solid, liquid and a gas			
Relate the arrangement of the particles in a particular state to its properties			
Explain the properties of the different states of matter using ideas about the arrangement of the particles and their energy			
Use ideas about particles and energy to explain what happens when: <ul style="list-style-type: none"> • Objects are heated • When gases and substances in liquids diffuse • When substances dissolve 			
Use the terms, solute, solubility, insoluble, soluble, solution			
Relate the process of dissolving to particles and their energy			
Explain what affects the process of dissolving as a result of my own investigative work including what happens at saturation			
Interpret and explain what is shown in a solubility curve			
Explain with labelled diagrams how the separation techniques filtration, evaporation, chromatography and distillation are used			
Use ideas about particles and energy to explain separation techniques			
Explain how to separate soluble substances from insoluble substances using filtration			
Explain how to get back a solid that has dissolved by evaporation and how best to get large crystals			
Explain how to separate several different soluble substances (eg inks in coloured pens) using chromatography			
Explain how to separate two liquids using distillation			

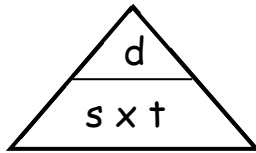
Chemical Changes			
Recognise the names and formulae of the main acids and alkalis we have used including Hydrochloric acid- HCl, Sulphuric acid - H ₂ SO ₄ , Nitric acid- HNO ₃ , Sodium hydroxide- NaOH and Ammonium hydroxide, NH ₄ OH			
Explain what a pH scale is and give the pH value of acids, alkalis and neutral substances			
State the colour of acids, alkalis and neutral substances in universal indicator and litmus			
State what happens when an acid is added to an alkali			
Write an equation or draw a particle diagram to show what is happening when neutralisation takes place			
Explain how a salt is made at neutralisation and can write an equation to show what is taking place			
Explain how to remove the indicator when you make a salt			
Plan and undertake an investigation on indigestion remedies			
Identify chemical and physical changes			
Explain observations made during a chemical change			
Explain observations could made during a physical change			
Explain using ideas about particles why some chemical changes increase in mass, decrease in mass or stay the same mass			
Draw particle diagrams to show a chemical reaction happening			
Explain what happens to particles of magnesium when they are reacted with oxygen and can use ideas about particles to explain why the mass increases			
Explain what happens to the particles of copper carbonate when it is heated and use practical observations and understanding of particles to explain why the mass decreases			
Calculate the % mass loss or gain from a chemical change			
Write a formula equation for simple reactions			
Describe chemical reactions and begin to write equations both word and symbol and draw particle diagrams			
Write a word equation to show the reaction of a metal with oxygen			
Write a word equation to show a metal carbonate breaking into carbon dioxide and a metal oxide			
Write a word equation to show an acid and alkali reacting			
Describe how to test for oxygen, hydrogen and carbon dioxide			

Useful Chemistry Key Words

Solvent solute soluble Dissolve diffuse
suspension Insoluble particle reactants Products
mass meniscus Filter paper funnel evaporate
Condense distillation melting Subliming (solid → gas) Bunsen
burner luminous Non-luminous vibrate heat energy Kinetic
energy volume pH scale Neutralisation acid
alkali Indicator decolourising clear Translucent
opaque salt Alcohol/ethanol boiling filtrate
Evaporating basin Liebig condenser balance crystallisation
point measuring cylinder beaker flask random H₂O
CO₂ soot variables control variable independent variable
flow Chromatogram separate dependent variable
cm³ (centimetre cubed NOT millilitres!) residue particle solubility
dissolving neutralisation

Electricity			
Recognise and draw the symbol for a bulb		 Battery	
Recognise and draw the symbol for a cell	 Switch		
Recognise and draw the symbol for a battery	 Voltmeter		
Recognise and draw the symbol for a switch	 Ammeter		
Recognise and draw a symbol for a loudspeaker	 Resistor		
Recognise and draw a symbol for a microphone	 Cell		
Recognise and draw a symbol for a buzzer	 Lamp		
Recognise and draw a symbol for a resistor	 Variable resistor		
Recognise and draw a symbol for a variable resistor	 light dependent resistor (LDR)		
Recognise and draw a symbol for a voltmeter	 fuse		
Recognise and draw a symbol for an ammeter			
Recognise and draw a symbol for a light dependent resistor			
Recognise and draw a symbol for a fuse			
Draw a series circuit			
Draw a parallel circuit			
Explain what happens in a circuit with 2 or 3 cells when one is the wrong way round			

Forces and Space	😊	😐	☹️
Draw force arrows to represent unbalanced forces			
Draw force arrows to show the forces when an object is changing speed			
Draw force arrows to show an object moving at a constant speed			
Draw force arrows to show an object at rest			
State and explain Newton's First Law			
Use the units Newtons, N, for forces			
Explain the difference between mass and weight			
State the gravitational field strength on Earth			
Calculate weight on different planets if you know their gravitational field strength			
Use the formula triangle to calculate speed, distance or time			
Use the units metres per second, m/s, or kilometres per hour, km/h, for speed (NB not mps or kph)			
Explain what thinking distance is			
Explain what braking distance is			
Calculate overall stopping distance of an object			
Suggest factors that affect thinking distance			
Suggest factors that affect braking distance			
List the eight planets in order			
State that Jupiter is the largest planet			
Name the gas giants			
Name the rocky planets			
State that the asteroid belt is made from rocks and dust			
Explain why some planets are hotter than most			
Explain why some planets are easier to see than others			
Name at least one dwarf planet			
State that the earth tilts on an axis			
State that the Earth spins on its axis once every 24 hours			
Explain how the spinning relates to daytime or night time			
State that the Earth orbits the sun once every $365 \frac{1}{4}$ days			
State that the moon orbits the Earth approximately once per month			
Explain what is happening when the moon is waxing			
Explain what is happening when the moon is waning			



Draw a crescent moon			
Draw a half moon			
Draw a gibbous moon			
Draw a new moon			
Draw a full moon			
Draw the phases of the moon showing the position of the Earth and the sun			
You also need to be able to confidently use all key words (listed on next page)			

Physics Key Words

Current Amps voltage volts resistance ohms bulb
 lamp




displacement eureka beaker volume
 meniscus mass weight force

Newtons Newton meter average fair test push
 pull thrust upthrust gravity

Wind/air resistance water resistance friction
 reaction force stopping distance thinking distance
 braking distance orbit axis phases




crescent gibbous new moon full moon waxing
 waning atmosphere reflecting

greenhouse effect asteroid metre second millimetre
 kilometre

Life Processes			
Make detailed observations using a microscope safely and correctly			
Label the different parts of a microscope and identify the functions of the different parts of the microscope.			
Identify common problems when using a microscope and suggest how they maybe corrected.			
Calculate the magnification of the eyepiece and objective lenses			
Understand the processes which are the characteristics of life			
Identify the parts of an animal cell and explain their functions			
Identify the parts of a plant cell and explain their functions			
Outline the need and processes of cell division			
Explain why cells are specialised for different jobs and be able to give examples of how certain cells are adapted to their job			
Recall the main organs of humans and plants			
Describe how living things are organised into cells, tissues, organs and organ systems			
Explain why some people may need organ transplants			




Biological Key words

Cytoplasm nucleus cell wall cell membrane microscope objective lens
 classification puberty menstrual cycle placenta
 Fertilization specialised magnification cell division adaptation
 courtship asexual sexual foetus embryo hormones anther
 stamen ovule inheritance variation

Reproduction			
Explain the importance of reproduction and how courtship rituals ensure successful mating			
Compare asexual and sexual reproduction and explain the advantages and disadvantages of each			
Explain what fertilization is and how the nuclei fuse			
Explain how eggs and sperm are adapted to their functions			
Explain how fertility treatments can assist fertilization and some of the ethical issues involved			
Describe the main stages of foetal development and birth			
Describe and explain the role of specialised organs in pregnancy			
Explain the role of the placenta and how it is specialised			
Describe the stages of birth			
Explain why some substances may harm a foetus			
List the changes and the influence of hormones during pregnancy			
Describe the menstrual cycle			
Identify the function of different parts of a flower plant			
Explain how flowers are adapted to different methods of pollination			
Observe and accurately record what happens to a pollen grain when it lands on a stigma			
Explain plant fertilization including growth of the pollen tube			
Identify the need for and the different methods by which seeds are distributed			

Exam Technique

- Scan all the questions.
- Read these questions carefully – more than once!
- Decide on an order – best answers first!
- Divide up your time – allow time at the end to re-read your answers, stick to your time plan!
- Underline the key words in the question.
- Plan your answer – look at the marks available for each part of the answer.
- Stick to the point of the question.
- Write your answer.
- Look for mistakes – remember, sometimes the difference in an A and C could be quite a small number of marks – finding a mistake or improving an answer might just be what you need to get the next mark.
- Allow time to re-read all your answers.

Variation, Classification and Ecology			
Describe some of the causes of variation between living things and give examples of variation caused by genes and or the environment			
Recognise that some features are affected by the environment and other by genes (inherited)			
Explain how an organisms adaptations improve its chances of survival			
Explain the link between inherited variation in genes and adaptation of a species to their habitat			
Explain that genes provide information that may cause variation and be able to explain how a feature is passed on by parents			
Understand how selective breeding can exploit this process			
Predict the outcome of a simple genetic cross. Explain how genetics can be used to improve crops by selective breeding			
Know that observation and scientific evidence can help classify organisms			
Recognise that scientific evidence and investigation can assist classification			
Explain the importance and applications of classification			
Explain the importance and classification and create a key			
Explain the application of classification in identification of newly discovered species			

How can you revise?

The following are just suggestions. You may wish to use more than one approach or adapt some of them.

- Produce condensed versions of your notes with just the pertinent information
- Make up your own questions and answers
- Draw spider diagrams or mind maps.
- Produce flash cards or index cards.