



***Enhanced Learning
Educational Services***
“the study skills specialist”

SCIENCE SKILLS



Developing your skills for Science will help you learn the subject more effectively and enjoy the process!

- You should read each point and **highlight the key phrases** in that point.
- Discuss with a friend or parent as you read through the handout.
- You may like to work through this over a number of sessions.

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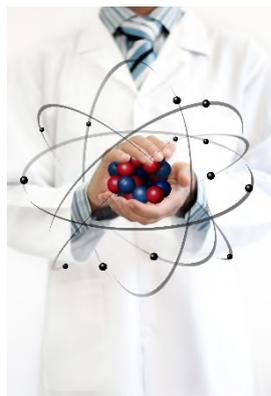
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1. SCIENCE IN THE SCHOOL LABORATORY

- **BE PREPARED FOR CLASS:** come to class with your workbook, textbook, pens, pencils, ruler, calculator and science apron or lab coat.
- **SIT AWAY FROM DISTRACTIONS:** including friends or the window if you tend to gaze out and daydream.
- **BE PREPARED TO LEARN:** this means going over your notes from the previous lesson and writing down any clarification you need before learning new material. You also may like to read ahead.
- **ASK QUESTIONS:** don't be shy about asking a question, someone else probably has the exact same query.
- **LOOK FOR REAL LIFE APPLICATIONS:** where possible, try to apply the theory you are learning in practice – making an everyday or laboratory connection to what you are learning will help to consolidate the info you are learning.
- **BECOME A SELF-DIRECTED LEARNER:** active learners will seek out information themselves. This means you have a desire to learn more about a topic and are self-motivated to do it in your own time outside of the school setting.



Safety in the laboratory:



- **LAB LAYOUT:** Knowing the layout of your school laboratory will help you become even more prepared.
- **EQUIPMENT:** If you are not sure how to assemble some of the equipment, simply ask the teacher to demonstrate how to put it together and write yourself a note so you remember for next time.
- **FIRST AID:** make sure you always know where the first aid kit is, the location of the shower and eye wash station and the broken glass disposal unit.
- **RISKS:** before commencing any practical investigation you should be aware of any risk involved, how to minimise that risk and what to do in the case of an accident.
- **REPORT ISSUES:** never be afraid to tell your teacher about an incident, your safety comes first.
- **RISK ASSESSMENTS:** a risk assessment is written before commencing any practical. You can also be asked to write a risk assessment in an exam, so it is important to learn about risk and safety in the laboratory.

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Lab reports:

We use lab reports to document our ideas, method and findings in science. There are some rules to follow:

- Always write in the 3rd person – never say 'I think' or 'we did this' or 'you should'.
- Always use pencil to draw up tables and graphs.
- Include all the following headings in order (if your school has a specific template to follow then use the headings your school provides): Aim, Hypothesis, Risk Assessment, Materials, Method, Results, Discussion, Conclusion.



a. Are you sensible in the school laboratory? Do you follow all of the principles outlined above?

2. KEY TERMINOLOGY

Scientific Method

The scientific method is the basis of all science, research and experiments.

- **STEPS:** The steps to follow are: Make observations, ask questions and try and understand the observations, carry out research, form a hypothesis to explain the observations, make predictions based on the hypothesis, design a fair test (controlled experiment) to test the hypothesis, carry out the test, make a conclusion about the hypothesis.
- **HYPOTHESIS:** A Hypothesis is your proposed explanation of why something happens. You must be able to test your hypothesis to see if your idea is correct or not. It is not just a guess about what might happen, it is an "educated guess" based on the information you have and the observations you have made.



Observations

- **QUALITATIVE** observations involve using your senses to observe the results (sight, smell, touch, sound and taste). For example: The leaf is dark green in colour and smells like mint.
- **QUANTITATIVE** observations are made with equipment like rulers, cylinders, balances, stop watches and thermometers and give us a numerical value (measurement). Always remember to include units when making a quantitative observation. For example: The leaf was 15cm long.
- **INFERENCE:** An inference is an explanation you try to make based on your observations.

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