

# A Guide to IIIrd Form Science – an aid to revision

## Safety

- know and understand safety rules
- recognize hazard symbols and understand what they mean

## Using apparatus

- be able to read a range of different types of scale correctly
- appreciate the need for units
- be able to draw apparatus in the correct manner
- know how to light a Bunsen burner safely
- know the appearance of the different types of flames and their uses

## Carrying out an investigation

- understand the idea of a “fair test”
- be able to plan a simple experiment
- be able to write up an experiment
- produce tabulated experimental data
- draw line graphs

## The particle theory of matter

- know that tiny particles can explain how materials behave
- know the terms atom and molecule
- be able to define solids, liquids and gases in terms of volume and shape
- know the difference between mass and weight
- understand the concept of density
- be able to carry out calculations on density

In terms of particles:

- understand the model for the states of matter
- understand the changes of state (including sublimation)
- appreciate the wide range of melting / boiling points, and what we see as SL&G is just at OUR temperature
- know that changing state occurs at a FIXED temperature
- know the difference between evaporation and boiling
- understand the water cycle in terms of the states of matter
- understand that things float when they are less dense than the fluid (the Cartesian diver)
- know that expansion is due to heating and contraction due to cooling
- know that the different states expand at very different rates
- know that different materials of a given state expand at different rates
- be aware of how expansion can be used
- be aware of problems caused by expansion
- know that the Atmosphere has a (considerable) pressure
- know that trapping a heated gas will cause a pressure increase

In terms of particles:

- understand the process of diffusion
- understand the process of dissolving
  
- know the meaning of the words solvent, solute, solution, soluble, insoluble
- appreciate that different solvents dissolve different solutes
- know that suspensions and emulsions are not solutions

## **Cells**

- know the parts of a microscope, how to set it up and use it
- know the idea of cells
- be able to compare and contrast animal and plant cells
- know the wide range of cell types, and how they have adapted to do a wide range of jobs
  
- know the name, position and shape of the main organs, and their function
- know the main organ systems in the body

## **Reproduction**

- know that reproduction can be asexual or sexual and what these terms mean
- know the advantages of internal fertilisation
- know and understand what happens in fertilisation
- know the stages of growth and development between fertilisation and birth
- know what happens at birth
- know about puberty and the changes that occur
- know about the menstrual cycle

## **Classification, variation and evolution**

- know the seven characteristics of living things
- be able to use branching (spider) and statement keys for classification
- know that animals divide into vertebrates and invertebrates
- know the classification of vertebrates and invertebrates
- know the main classes of arthropods
- know the classification of plants
- know what variation is
- know that within species there is some variation between individuals
- know that variation is of two types: continuous and discontinuous
- know selective breeding is carried out
- know that evolution is the adaptation of a species to suit its environment and that it is a slow process

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