

Science Year 7 Curriculum:

Aspects of biology, chemistry and physics will be covered in Year 7: the topics involved are health and safety, measurement, particles, energy resources, solutions and separating, light and Earth in space, microscopes and cells, forces and materials, density, acids, alkalis and indicators, expansion, plants and reproduction, rocks, variation, ecology and an investigation into dissolving jelly

Autumn Term:

1. Laboratory safety rules and hazard cards
2. Introduction to units and variables
3. The microscope
4. Plant and animal cells
5. Measurement techniques
6. The particle model of solids, liquids and gases
7. Forms of energy and energy resources
8. Lighting and using a Bunsen burner safely
9. Solutions
10. Separating substances
11. Shadows and the pinhole camera
12. Reflection of light
13. The movement of the Earth and the Moon
14. The planets

Key Objectives Autumn Term - To be able to:

1. Understand how to be safe in a school laboratory
2. Recall appropriate units
3. Choose appropriate measurement techniques
4. Understand the common features and differences between animal and plant cells
5. Understand that forces change the motion or shape of an object
6. Understand how the idea of a scientific model enables us to produce a model of solids, liquids and gases that explains a range of observed behaviour of substances
7. Recall the forms of energy and recognise how humans use energy
8. Be able to light and use a Bunsen burner safely
9. Understand what a solution is and that some substances are soluble in water whilst others are not
10. Recall the techniques used to separate substances
11. Understand that since light travels in straight lines it produces shadows and can be used to form images
12. Be able to draw an accurate diagram showing the reflection of light
13. Recall the relative movements of Earth, Sun and Moon
14. Recall the order of the planets and understand the trends as the distance from the planet to the Sun increases

Spring Term:

1. The effect of forces on materials
2. Manmade and natural materials
3. Density and its measurements
4. Acids and alkalis
5. Universal indicator and the pH scale
6. Heat transfer and expansion
7. Chromatography investigation
8. Solar Cells investigation

Key Objectives Spring Term - To be able to:

1. Be able prepare a microscope slide and be able to draw what is seen through a microscope
2. Be able to distinguish between manmade and natural substances
3. Be able to calculate density from measurements of mass and the dimensions of an object
4. Identify acids and alkalis
5. Recognise that the pH scale enables us to measure how strong an acid or alkali is
6. Be able to use the particle model to explain expansion and methods of heat transfer
7. Plan and carry out an investigation to determine what affect the retardation factor of solutes
8. Plan and carry out an investigation to decide the factors that affect the voltage output of a solar cell

Summer Term:

1. Parts of a flower
2. Pollination and seed dispersal
3. Introduction to geology
4. Variation between individuals of the same species
5. Quadrats
6. Comparison of habitats
7. Dissolving investigation
8. Plant growth investigation

Key Objectives Summer Term - To be able to:

1. Understand the functions of the parts of a flower
2. Describe the ways in which pollination and seed dispersal occur
3. Be able to classify rocks into three groups
4. Be able to plot a scattergraph to compare variables relating to variation between individuals
5. Be able to use a quadrat to estimate the proportion of different plants in an area
6. Be able to compare quadrat results for different parts of the school field
7. Be able to carry out an investigation to see the effect of a chosen factor on how quickly jelly dissolves
8. Plan and carry out an investigation to determine what affects the growth rate of plants

Key Performance Standards

1. Understand how to be use laboratory equipment safely and recognise hazards
2. Understand the particle model of solids, liquids and gases
3. Recall the forms of energy and recognise how humans use energy
4. Understand what a solution is be able to separate substances
5. Understand how light produces shadows
6. Recall the relative movements of Earth, Sun, Moon and planets
7. Be able to use a microscope
8. Understand the common features of animal and plant cells
9. Understand the effects forces on object
10. Be able to calculate density
11. Be able to use the pH scale to compare acids and alkalis
12. Understand the functions of the parts of a flower
13. Be able to classify rocks into three groups
14. Be able to use a quadrat
15. Be able to carry out an investigation and analyse its results