

# SCIENCE

## AIMS

- ◆ To provide pupils with a broad and balanced Science Curriculum
- ◆ To stimulate curiosity, interest and enjoyment in the study of Science
- ◆ To promote an interest in the care for the environment
- ◆ To allow pupils to “find out” for themselves by carrying out practical investigations
- ◆ To allow pupils to develop thinking skills through “Thinking Science”
- ◆ To help pupils develop the key skills of numeracy, literacy and ICT
- ◆ To prepare Year 9 pupils for GCSE

## ASSESSMENT

Pupils are assessed regularly by end of unit tests, classwork and homework tasks (which are added to individual pupil portfolios) and examinations. All of which contribute to the teacher assessed end of Key Stage level.

## ENQUIRY WORK

Pupils are involved in active learning using a “hands on” approach. They are encouraged to investigate scientific problems by enquiry.

Enquiry work in Science is assessed in the following categories:-

- Fair test
- Exploration
- Pattern seeking
- Design a system
- Classification
- Use and apply a model

## TOPIC - INTERDEPENDENCE OF ORGANISMS

Investigating how animals and plants are independent yet rely on each other for survival, applying this to life in countries with different levels of economical development.

### YEAR 7 CELLS

- ◆ Investigate the basic structure and function of some cells, tissues, organs and organ systems and how they support vital life processes.

### YEAR 8

#### FOOD WEBS AND PHOTOSYNTHESIS

- ◆ Investigate the interdependence of organisms and their representation as food webs, pyramids of numbers and simple energy-flow diagrams.
- ◆ Investigate how and why food webs are affected by environmental factors e.g. light intensity, water availability, temperature and their fluctuations.
- ◆ Investigate how plants make their own food during photosynthesis.

#### FOOD AND DIGESTION

- ◆ Investigate how food is used by the body as fuel during respiration.
- ◆ Investigate the components of a balanced diet and their effect on good health

### YEAR 9

#### MOVEMENT ACROSS A MEMBRANE

- ◆ Investigating the movement of molecules across the membrane.

#### ORGANISATION OF LIFE

- ◆ Investigating the structure and role of various human organ systems.



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## TOPIC - THE SUSTAINABLE EARTH

Investigating materials in the earth and its atmosphere and how they can change and apply this in contemporary contexts.

### YEAR 7

#### **CHEMICAL & PHYSICAL CHANGE**

- ◇ Investigate the properties of solids, liquids and gases and how to move between them.
- ◇ Investigate what happens with chemical change and how to spot when this has occurred.

#### **ACIDS AND ALKALIS**

- ◇ Investigate the differences between acids and alkalis and their corresponding reactions.
- ◇ Investigate how to test for the presence of acids and alkalis.

### YEAR 8

#### **ELEMENTS, MIXTURES & COMPOUNDS SOLUTIONS**

- ◇ Investigate how mixtures can be separated by simple techniques.
- ◇ Understand the concepts of concentration/dilution and dissolving.

### YEAR 9

#### **METALS AND NON-METALS**

- ◇ Investigate the properties of metals and non-metals and how we use these in society.

#### **REACTIONS**

- ◇ Investigate the reactions of metals to observe differences in reactivity.
- ◇ Investigate the differences between elements, mixtures and compounds and how to distinguish between them.

## TOPIC - HOW THINGS WORK

Investigating the science involved in a range of contemporary devices/machines and evaluate different energy resources and possibilities.

### YEAR 7

#### **ENERGY CONSERVATION**

- ◇ Investigate the conservation of energy and ways in which energy can be stored.

### YEAR 8

#### **ELECTRICITY & MAGNETISM**

- ◇ Investigate the theory and application of electricity and magnetism in devices.

#### **ENERGY AND FORCES**

- ◇ Investigate the applications of energy and forces in devices. Investigate the forces in devices and their relationship to work done and power.

### YEAR 9

#### **ENERGY RESOURCES**

- ◇ Investigate how renewable and non-renewable energy resources are used to generate electricity and the implications of decisions about their use.

#### **USING ENERGY EFFICIENTLY**

- ◇ How energy is used in our homes and investigate how we can reduce heat loss.

#### **ELECTRICITY**

- ◇ To investigate how electrical circuits work.

#### **WAVES**

- ◇ Investigating the properties and uses of waves



CLASSROOM PRACTICAL LESSONS