

**The Prebendal School**  
**Science Department**  
**Outline Scheme of Work**

**Year 3**

**Michaelmas Term**

**Scientific Enquiry**

What is a scientist?  
How do we study science?  
Skills and equipment  
The language of science

**Teeth and eating**

How animals feed  
Balanced and varied diets  
Different kinds of human teeth  
Keeping teeth healthy

**Rocks and soils**

Different kinds of rocks  
Where rocks come from and what they are used for  
How soil is formed  
Differences between soils

**Lent Term**

**Magnets and springs**

Magnets push and pull  
Uses of magnets  
Springs

**Materials and their Uses**

Properties of different materials  
Glass  
Plastics  
Fabrics  
Paper and cardboard

## **Summer Term**

### **Light and shadows**

How light travels

Transparent, translucent and opaque substances

Why shadows form

How light is reflected

How we see, including the structure of the human eye

### **Helping plants grow**

Identifying the parts of a plant and their jobs

What do plants need to grow well?

Plants for food

Measuring height, volume and mass of plants, fruits and seeds

## **Year 4**

### **Michaelmas Term**

#### **Scientific Enquiry**

Asking questions  
Testing ideas  
Gathering information  
Recording information  
Drawing conclusions  
Communicating  
Looking for patterns

#### **Habitats**

Features of a habitat  
Habitats in the garden  
Seashore, pond and woodland habitats  
Adaptation to the environment  
Simple food chains and food webs

#### **Circuits and conductors**

Electrical conductors and insulators  
Simple electric circuits  
Electrical safety

### **Lent Term**

#### **Keeping warm**

Thermal conductors and insulators  
Testing insulators  
How we keep warm and how we keep cool

#### **Separating solids and liquids**

Mixtures  
Solutions  
Soluble and insoluble substances  
Evaporating  
Decanting  
Filtering

### **Summer Term**

#### **Moving and growing**

The skeleton and joints  
Muscles

## **Friction**

What is friction?

Useful and harmful friction?

Friction in liquids and gases

## **Year 5**

### **Michaelmas Term**

#### **Life cycles**

Reproduction in flowering plants including flowers, fruits and seeds  
Insect and amphibian life cycles – metamorphosis  
The human life cycle

#### **Earth, sun and moon**

The Solar System  
Day, night and the seasons, shadow formation  
The moon  
Eclipses

#### **Changing state**

Solid, liquid and gas  
The water cycle

### **Lent Term**

#### **Sounds**

How sound is produced  
How sound travels  
Factors affecting sound  
How we hear, including structure of the human ear

#### **Gases**

Gases in the air  
Making and testing carbon dioxide  
Making and testing oxygen  
Uses of carbon dioxide and oxygen  
Nitrogen and noble gases

### **Summer Term**

#### **Keeping Healthy**

Food types and a balanced diet  
Diet and health  
The heart and circulation  
Exercise and fitness  
Healthy living

## **Year 6**

### **Michaelmas Term**

#### *Materials and their properties:*

Safe use of the Bunsen burner  
Basic Science apparatus  
Finding the boiling point of water  
The states of matter and changes of state  
Sublimation  
Particle theory  
Physical changes and chemical reactions

#### *Life and living processes:*

Sorting animals and plants into groups, including vertebrate groups, insects and spiders  
Producing and using keys  
Interdependence and adaptation  
Habitats, food chains and food webs  
Pollution and conservation

### **Lent Term**

#### *Physical processes:*

Use of electricity and electrical safety  
Circuit symbols  
Basic electric circuits; series and parallel  
The brightness of lamps in circuits  
Measuring electric current  
Components including motors, buzzers, LEDs and various types of switch  
The electricity supply industry and alternative energy sources

#### *Materials and their properties:*

Common acids and alkalis  
Measuring pH values  
Making salt by neutralization

### **Summer Term**

#### *Life and living processes:*

Plant growth and photosynthesis  
Testing the conditions needed for photosynthesis  
The iodine test for starch  
Micro-organisms and food, including food preservation  
Micro-organisms and disease  
Useful microorganisms

Revision and consolidation for June examination

## **Year 7**

### **Michaelmas Term**

Chemistry (Materials and their properties):

Mixtures and How to Separate Them: Types of mixture, purifying rock salt, chromatography, distillation, fractional distillation.

Biology (Life and living organisms):

The Microscope and Cells: Use of a microscope, preparing slides for viewing, looking at typical plant and animal cells, estimating the size of a specimen, parts of a cell, organization of cells within an organism.

Physics (Physical processes):

Basic Measurement: Units, measuring instruments, mass, volume and density, force, area and pressure, distance, time and speed.

### **Lent Term**

Chemistry (Materials and their properties):

Types of Chemical Reaction: A survey of the different types of chemical reaction, including chemical combination, thermal decomposition and combustion. Gas tests for water vapour, carbon dioxide, oxygen and hydrogen.

Biology (Life and living processes):

Reproduction and Life Cycles: Flowering plants, including flowers, fruits, seed dispersal, germination and growth. Human reproduction, including puberty, growth and development of the embryo/fetus and birth. Asexual reproduction, including vegetative propagation (cuttings). *NB It is likely that this section will continue into the Summer term*

### **Summer Term**

Biology (Life and living processes):

Completion of Reproduction and Life Cycles.

Physics (Physical Processes):

Forces: Measuring forces, floating and sinking, stretching springs, balancing levers.

The Earth in Space: The Solar System, phases of the Moon.

Revision and consolidation for June examination.

## **Year 8**

Note: Throughout Year 8, pupils will regularly complete past Common Entrance or Scholarship papers in order to improve examination technique and increase familiarity.

A Science Club to further assist pupils with Scholarship and Common Entrance meets after school each Tuesday.

### **Michaelmas Term**

Chemistry (Materials and their properties):

The Reactivity Series: Displacement reactions, oxidation and reduction, extracting metals from rocks, very reactive metals, corrosion of metals.

Biology (Life and living processes):

Human Reproduction. Ecology: Study of habitats, estimating populations, food chains and food webs, pollution and its effects.

Physics (Physical processes):

Electricity and Circuits: Revision of series and parallel circuits, resistance, electromagnets, alternative energy sources.

### **Lent Term**

Chemistry (Materials and their properties):

Acids, Alkalis and Salts: Measuring pH values, neutralization and salt formation, agricultural and medical uses of neutralization.

Physics (Physical processes):

Energy: Revision of types of energy, thermal conductors and insulators, reflection, refraction and dispersion of light, sound waves and echoes.

Biology (Life and living processes):

The Human Body: Revision of organ systems including the digestive system, muscles and movement, the heart and circulation, the skeleton, the brain and coordination, health.

### **Summer Term**

Intensive revision of all topics, particularly those covered in Years 6 and 7 and those found particularly challenging.

Examination preparation, including practice and analysis of past CE and appropriate scholarship papers.

It is expected that pupils will be involved in Science project work after the June CE examinations.