

# SCIENCE

Science helps us to understand the world around us. It enables us to ask questions, make observations, collect data, evaluate evidence, solve problems and make informed decisions. In science we have heavily invested in a new science curriculum giving us a common format to lessons, resources and assessment across the 5 years from year 7 to year 11

## Key Stage 3

Scientific concepts and activities that will stimulate their naturally enquiring minds into asking the question, "how does science work?" The Key Stage Three Programme of Study is delivered during three lessons per week over two years and a half years. The course focuses on the applications and implications of science. Topical issues are used to encourage discussion of some of the ethical and moral dilemmas faced by modern science. There is an emphasis placed on collaborative work, where Pupils will develop the skills needed for successful cooperative learning. The objective is to develop confident young scientists who will have the capacity to analyse and evaluate scientific evidence and communicate their ideas in a coherent, creative and logical manner.



# YEAR 7

Year 7 Pupils follow the exciting and engaging Exploring Science: How Science Works scheme of work which centres around 12 topics made up from four of each of the science disciplines, biology, chemistry and physics. The year 7 units are as follows:

7A Cells, tissues and organs

7B Sexual reproduction in animals

7C Muscles and bones

7D Ecosystems

7E Mixtures and separation

7F Acids and alkalis

7G The particle model

7H Atoms, elements and molecules

7I Energy

7J Current electricity

7K Forces

7L Sound

## Main skills developed in Year 7:

Pupils will be able to investigate so that patterns and relationships between variables may be identified. Pupils should make measurements by selecting and using instruments effectively. Notably Pupils should be able to present and represent data identifying patterns, relationships and making suitable conclusions. Most importantly Pupils should be able to discuss how the world is observed and the impact of science within it. Pupils should distinguish between opinion based on valid, repeatable and reproducible evidence and opinion based on non-scientific ideas for example prejudices, whim or hearsay



# YR7

## SMSC and British Values:

In science spiritual, moral, social and cultural values are addressed during ethical, environmental and social topics such as the impact of humans on their environment and the effect on other living organisms both locally and globally. Pupils interact and experience different roles and responsibilities during group discussion tasks and practical investigations. They experience the acceptance of different opinions, ideas and beliefs through debate of economic, community and scientific-related projects. Pupils use their creativity in scientific modelling and experimental design. Pupils evaluate their work regularly and have opportunities to reflect on their experiences in science

Pupils are assessed formatively throughout the study of these topics with summative assessment after the completion of each topic to chart the progress made by pupils.

## Units taught in year 7

Autumn	Spring	Summer
7A cells,tissues and organs	7J Current electricity	7H Atoms, elements and molecules
7B Sexual reproduction in animals	7F Acids and alkalis	7C Muscles and bones
7E Mixtures and separation	7D Ecosystems	7K Forces
7I Energy	7G The particle Model	7L Sound



# YEAR 8

Year 8 Pupils continue to follow the exciting and engaging Exploring Science: How Science Works scheme of work which centres around 12 topics made up from four of each of the science disciplines, biology, chemistry and physics. The year 8 units are as follows:

8A Food and nutrition

8B Plants and their reproduction

8C Breathing and respiration

8D Unicellular organisms

8E Combustion

8F The periodic table

8G Metals and their uses

8H Rocks

8I Fluids

8J Light

8K Energy transfers

8L Earth and space

## **Main skills developed in Year 8:**

Pupils will be able to investigate so that patterns and relationships between variables may be identified. Pupils should make measurements by selecting and using instruments effectively. Notably Pupils should be able to present and represent data identifying patterns, relationships and making suitable conclusions. Most importantly Pupils should be able to discuss how the world is observed and the impact of science within it. Pupils should distinguish between opinion based on valid, repeatable and reproducible evidence and opinion based on non-scientific ideas for example prejudices, whim or hearsay.

## **SMSC and British Values:**

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Pupils are assessed formatively throughout the study of these topics with summative assessment after the completion of each topic to chart the progress made by pupils.

# UNITS TAUGHT IN YEAR 8

AUTUMN	SPRING	SUMMER
8A Food and nutrition	8J Light	8H Rocks
8B Plants and their reproduction	8J The periodic table	8C Breathing and respiration
8E Combustion	8D Unicellular	8K Energy transfers
8L Fluids	8G Metals and their uses	8L Earth and space

## Key Stage 4

In year 9, 10 and 11, pupils study science for four hours per week.

All pupils study science. We follow the Edexcel GCSE (9-1)

Combined Science specification for GCSE in which pupils study units from each of the science disciplines, biology, chemistry and physics. This course leads to 2 GCSEs in science graded on a 17 point system from 9-9, through 9-8, 8-8, 8-7 etc. to 1-0



# YEAR 9 UNTIL EASTER

Year 9 starts with pupils completing the exciting and engaging Exploring Science: How Science Works scheme of work which centres around 12 topics made up from four of each of the science disciplines, biology, chemistry and physics designed to prepare pupils for the transition up to GCSE. The year 9 Exploring Science units are as follows:

9A Genetics and evolution

9B Plant growth

9C Biology revision and projects

9D Biology transition to GCSE

9E Making materials

9F Reactivity

9G Chemistry revision and projects

9H Chemistry transition to GCSE

9I Forces and motion

9J Force fields and electromagnets

9K Physics revision and projects

9L Physics transition to GCSE

*Units taught in year 9 (until February half term)*

Autumn
9A Genetics and evolution
9B Plant Growth
9E Making materials
9F Reactivity
9J forces and motion
9J forces fields and electromagnets

Pupils start the GCSE course after Easter of year 9 and continue until they finish the course and start revising in year 11.

*Year 9 until Summer*

Spring/Summer
CB1 Key concepts in Biology
CC1/2 States of matter; Methods of separating and purifying substances
CC3/4 Atomic structure; The periodic Table
CP1 Motion
CP2 Forces and motion

### **Main skills developed in Year 10:**

Pupils will be able to investigate so that patterns and relationships between variables may be identified. Pupils should make measurements by selecting and using instruments effectively. Notably Pupils should be able to present and represent data identifying patterns, relationships and making suitable conclusions. Most importantly Pupils should be able to discuss how the world is observed and the impact of science within it. Pupils should distinguish between opinion based on valid, repeatable and reproducible evidence and opinion based on non-scientific ideas for example prejudices, whim or hearsay.

### **SMSC and British Values:**

In science spiritual, moral, social and cultural values are addressed during ethical, environmental and social topics such as the impact of humans on their environment and the effect on other living organisms both locally and globally. Pupils interact and experience different roles and responsibilities during group discussion tasks and practical investigations. They experience the acceptance of different opinions, ideas and beliefs through debate of economic, community and scientific-related projects. Pupils use their creativity in scientific modelling and experimental design. Pupils evaluate their work regularly and have opportunities to reflect on their experiences in science



## Units taught in year 10:

AUTUMN	SPRING	SUMMER
CB2 Cells and control	CB4 Natural selection and genetic modification	CB6 Plant structures and their functions
CB3 Genetics	CB5 health, disease and the development of medicines	CB7 animal coordination, control and homeostasis
CC5/6/7 Ionic Bonding; Covalent Bonding; Types of substance	CC8 Acids and alkalis	CC9 Calculations involving Masses CC10/11/12 Electrolytic processes; Obtaining and using Metals; Reversible reactions and equilibria
CP3 Conservation of Energy	CP5 Light and the Electromagnetic spectrum	Cp7/8 Energy – Forces doing work; Forces and their effects
CP4 Waves	Cp6 radioactivity	CP9 Electricity and circuits

## Year 11

In year 11, pupils complete the Edexcel (9-1) GCSE Combined Science course then revise for their external assessments.



## Units taught in year 11

AUTUMN	SPRING	SUMMER
CB8 Exchange and transport in animals	Revision	Revision/exams
CB9 Ecosystems and material cycles	Revisions	Revision/exams
CC13/14/15 Groups in the periodic Table; Rates of Reaction; Heat energy changes in Chemical Reactions	Revision	Revision/exams
CC16/17 Fuels; Earth and Atmospheric science	Revision	Revision/Exams
CP10/11 Magnetism and the Motor Effect; Electromagnetic induction	Revision	Revision/exams
CP12/13 Particle Model; Forces and Matter	Revision	Revision/exams

All Science GCSE Pupils are assessed by external exams at the end of the course covering all the content taught in year 9, 10 and 11.





