Yardleys Curriculum Aims

- To achieve academic excellence
- To educate the 'whole child' so they are ready for life
- To work collaboratively and ethically to provide education of the highest standard

SCIENCE – KEY STAGE 3

Curriculum Overview

Intent: Science helps students gain an understanding of the world around them, from the micro-level of particles and atoms to the macro-level of our expanding universe. It encourages students to question and enquire in order to learn more. We want our students to acquire the scientific knowledge and skills to meet their academic, practical and "real life" challenges of the future. We want our student to love Science and become experts in Science. We want our Scientists to:
- Build and remember a rich body of fundamental scientific knowledge.
- Connect this rich body of scientific knowledge and link it to everyday experiences in the world around them   and new and exciting situations
- Gain an understanding of scientific investigations and methodologies and how this has developed our understanding over time.
- Explore the world around them by using this disciplinary knowledge.

Year 7

KS3 Science will build on the foundations laid down in KS2 Science. By the end of the year students will know more about world around them. They will do this with a mix of practical and theory-based lessons that focus on 'everyday' and interesting phenomena.

	Forces	Energy	Particles	Chemical Reactions	Inside Cells	Cells to Systems
SUBSTANTIVE KNOWLEDGE	This unit is themed around a mission to Mars: • Forces, measuring forces and interacting forces	This unit is based around climate change and energy resources: • Energy Stores and Transfers	• The Particle Model • States of Matter and Changes of State	• The Periodic table • Reactants and Products in Chemical Reactions	• Plant and animal cells • Discovery of the Microscope • How to use a Microscope	• Specialised cells • Levels of organisation • The skeleton • Muscles and joints

	• Motion and measuring speed	• Renewable and Non-renewable Energy	• Elements, Compounds and Mixtures • Separating Mixtures	• Examples of reactions including combustion, oxidation and neutralisation	-Respiration and photosynthesis -Discovery of DNA Inheritance -Variation and natural selection -Extinction and Gene banks	• Diffusion in the Respiratory system • Gas exchange • Impact of asthma, exercise and smoking on the gas exchange system • Reproductive system • Pregnancy and Birth • Reproduction in plants • Pollination and seed dispersal
DISCIPLINARY KNOWLEDGE	• Identifying Variables • Testing Hypotheses • Recording and displaying data • Interpreting data • Deriving and using equations • Identify possible errors in investigations • Suggesting improvements to scientific methods	• Identifying Variables • Testing Hypotheses • Recording and displaying data Interpreting data • Deriving and using equations • Identify possible errors in investigations • Suggesting improvements to scientific methods	• Making Observations • Identifying Variables • Testing Hypotheses • Recording and displaying data • Interpreting data • Identify possible errors in investigations • Suggesting improvements to scientific methods	• Development of Scientific Theories • Making Observations • Identifying Variables • Recording and displaying data • Interpreting data • Identify possible errors in investigations • Suggesting improvements to scientific methods	• Making Observations • Identifying Variables • Recording and displaying data • Interpreting data • Identify possible errors in investigations • Suggesting improvements to scientific methods • Development of Scientific Theories	• Making Observations • Identifying Variables • Recording data • Interpreting data • Identify possible errors in investigations • Suggesting improvements to scientific method

Year 8

KS3 Science will build on the foundations laid down in KS2 Science. By the end of the year students will know more about world around them. They will do this with a mix of practical and theory-based lessons that focus on 'everyday' and interesting phenomena.

	Light and Sound	**Environmental Chemistry**	**Influences on Life**	**Electricity and Magnetism**	**Atmospheric Chemistry**	**Cycles of Life**
SUBSTANTIVE KNOWLEDGE	• How we see • Reflection and Refraction • Dispersion of Light • Sound	• The structure of the Earth • The Rock Cycle • Natural Disasters	• Diet and Health • The Digestive System • Drugs and Smoking • Pathogens and the body's defence	• Electricity including static electricity, voltage, current and resistance	• The composition of the earth's atmosphere • Global Warming • Acid Rain	• Ecosystems and food chain • Preserving biodiversity

					Magnets and Electromagnet		
DISCIPLINARY KNOWLEDGE	•Identifying Variables •Testing Hypotheses •Recording and displaying data •Interpreting dat	•Development of Scientific Theories •Interpreting data •Making models and suggesting improvements	•Making Observations •Interpreting data •Making models and suggesting improvements	•Making Observations •Identifying Variables •Recording and displaying data •Interpreting dat	•Making Observations •Identifying Variables •Recording data •Interpreting data •Identify possible errors in investigations •Suggesting improvements to scientific methods •Development of Scientific Theories •Making models and suggesting improvements	•Making Observations •Interpreting data •Making models and suggesting improvement