



Key Stage 2

Working Scientifically: planning, identifying variables. Taking measurements and repeats. Recording data in tables, scatter graphs, bar and line graphs. Using results to make predictions. Reporting and presenting evidence from findings including conclusions, relationships and explanations of the degree of trust in results. Using scientific evidence in support of arguments.

Living things and their habitats: life cycles of mammals, amphibians, insects and birds. Reproduction in some plants and animals. Classification on similarities and differences.

Animals, including Humans: changes as humans develop to old age, description of circulatory system, function of heart, blood vessels and blood.

Evolution and inheritance: fossils provide information about things that inhabited millions of years ago, offspring vary and are non-identical to parents, adaptations of animals to suit environments.

Properties and Changes in Materials: compare and group materials on hardness, solubility, transparency, conductivity, response to magnets. Dissolving to form a solution and recovering solid from solution. Solids, liquids and gases to decide how mixtures might be separated through filtering, sieving and evaporation. Demonstrate reversible changes. Changes that result in new materials are not reversible, including burning and action of acids on bicarbonate of soda.

Earth and Space: movement of Earth and planets relative to the Sun. Movement of moon relative to Earth. Earth's rotation to explain day and night and movement of Sun in the sky.

Forces: Gravity to explain falling objects. Identify effects of air resistance, water resistance and friction that act between moving services. Mechanisms including levers, pulleys and gears allow a smaller force to have a greater effect.

Light: light travels in straight lines, light rays drawn to explain how we see non-luminous objects. Light travels in straight line to explain why shadows have the same shape as objects that cast them.

Electricity: associate brightness of lamp or loudness of buzzer with number of cells in circuit. Use symbols when drawing circuits.

Term 1

Year 7

- Cell structure, specialised cells and movement
- Particle model of matter and separation techniques
- Atoms, elements, compounds and reactions

Graph skills and data handling taught throughout

Term 2

- Systems of the body (digestive, respiratory and circulatory)
- Space and gravity
- Forces and their effects
- Sound waves

Practical skills including planning investigations and identifying variables

Term 3

- Acids, alkalis and neutralisation
- Reproduction in animals
- Plant structure and reproduction in plants
- Electricity and circuits

Skills requiring analysis of data and enquiry with research

Cultural Exposure:

- STEM Outreach and engagement with ambassadors
- Robotics club and competition
- British Science week
- Primary Transition
- Unilever Bright Futures
- Skyhawk cross-curricular
- External visitor - Space PhD Student

Year 8

- Motion and forces including pressure
- Health and disease
- Energy and its interactions

Solving practical problems using knowledge and application

- Inheritance and adaptations
- Light waves
- Periodic table and trends in reactivity
- Ecology and feeding relationships

Describing patterns in data and evaluating communication between scientists

- Metals and their reactions
- Earth and the atmosphere
- Electricity and magnetism
- Lifestyle choices

Creating models to better understand abstract theories and investigative skills

Cultural Exposure:

- Unilever Bright Futures
- CREST awards
- Careers in Science
- Runshaw Renewable Energy day
- Land based science opportunity
- UCLAN Robotics visit
- STEM Club
- Planet Possibility
- STEM Challenge Day

Year 9

- Building blocks of life
- Elements and the Periodic Table
- Particle models and changes of states

How scientific theories have developed and developing hypotheses

- Digestion and food
- Energy stores and transfers

Planning of experiments, interpreting data and identifying patterns

- Bonding and structures
- Transport in organisms and plants
- Chemical Analysis

Selecting techniques and apparatus for experiments, recording reactions

Cultural Exposure:

- Engineers Club
- British Science week
- Salter's chemistry festival
- The BAE Systems Schools Roadshow
- STEM club
- Top of the Bench
- STEM Challenge Day

Year 10

- The human body and lifestyle choices
- Bioenergetics
- Electricity, static charge and domestic appliances

Developing explanations and explaining results of scientific investigations

- Infection and body defences
- Atomic structure and radiation
- Energy changes in chemistry

Ethical issues, perception of risk and carrying out experiments

- Chemical reactions and pH scale
- Ecology (ecosystems and human activities)
- Waves and their interactions
- Organic chemistry and synthesis

Experimenting accurately and safely, evaluating and suggesting improvements to sampling

Cultural Exposure:

- Microbiologist/Marine Biologists visit
- GCSE Science live
- Women in Engineering
- STIs and unhealthy lifestyle choices
- UCLAN Forensics visit
- British Science week
- Top of the Bench

Year 11

- Inheritance and genetics
- Quantitative chemistry
- Forces, movement and interactions

Ethical issues, experimenting and analysing data and recording observations

- Homeostasis and response
- Magnetism and electromagnetism

Translate data, peer review, checking accuracy and precision

- Evolution of the Earth's atmosphere
- Rates of reactions
- Space and stellar evolution (separate science)

Communicate scientific rationales for investigations using scientific vocabulary

Cultural Exposure:

- GCSE Science live
- Spectroscopy in a Suitcase (SIAS)
- Outside speakers (Physics)
- British Science week
- Top of the Bench
- UCLAN practical workshop