



Subject: Science

Year 8

Overview

Science in Year 8 comprises of six units which build upon knowledge students have obtained from their previous years in preparation for the next key stage.

Students learn how to work scientifically by:

- planning different types of scientific enquiries to answer questions, including recognising and controlling variables where necessary
- taking measurements, using a range of scientific equipment, with increasing accuracy and precision, taking repeat readings when appropriate
- recording data and results of increasing complexity using scientific diagrams and labels, tables, scatter graphs, bar and line graphs
- using test results to make predictions to set up further comparative and fair tests
- reporting and presenting findings from enquiries, including conclusions, causal relationships and explanations of and degree of trust in results, in oral and written forms such as displays and other presentations
- identifying scientific evidence that has been used to support or refute ideas or arguments
- evaluating experiments to suggest improvements for future experiments

Autumn

Autumn Term 1&2

B3-Reproduction and Genetics

This topic looks at:

- Reproduction in humans which includes the structure/function of the male and female reproductive system, the menstrual cycle, fertilisation, gestation and birth
- Reproduction in plants including flower structure, pollination, fertilisation and seed dispersal
- Introducing students to the structure of DNA and the scientists involved in discovering this
- Variation between species

Skills focus:

- Interpreting data to draw conclusions
- Drawing histograms

Key words: reproduction, fertilisation, pollination, chromosome, variation

P2- Earth and Space

This topic looks at:

- Composition and structure of the Earth
- Formation of rocks and the rock cycle
- Calculating weight and how it changes on different planets
- How we get seasons
- How we get day and night

Skills focus:

- Hypotheses
- Random and systematic error

Key words: weight, metamorphic, igneous, sedimentary, light year

Assessment:

Students are assessed on their practical write up skills.

Students demonstrate their knowledge on reproduction when they complete the "Race to make a baby." badger task.

Students sit an end of topic test for both units.

B4-Photosynthesis

This topic looks at:

- How plants make their own food
- Interdependence of organisms in an ecosystem
- Importance of plant reproduction
- How organisms are affected by their environment, including the accumulation of toxic materials

Skills focus:

- Research

Key words: photosynthesis, glucose, oxygen, carbon dioxide, stomata

P2- Earth and Space

This topic looks at:

- Composition and structure of the Earth
- Formation of rocks and the rock cycle
- Calculating weight and how it changes on different planets
- How we get seasons
- How we get day and night

Skills focus:Hypotheses

- Random and systematic error

Key words: weight, metamorphic, igneous, sedimentary, light year

Assessment:

5 short 16 mark tests (done at a time to fit in with lesson sequencing).
Assessing the key knowledge taught in the 3 topics this term.

The great sperm race badger assessed task – from conception through to birth..

Skills passport completion 2 – using book work with a specific focus on the crater size practical, and hypothesis and line graph drawing work in the space topic

P4- Waves

This topic looks at:

- Different types of waves- transverse and longitudinal
- How sound is made, how it travels through different mediums and how the ear works
- Uses of ray models to show refraction and reflection
- How the eye works
- Splitting white light into the different colours of the spectrum

Skills focus:

- Drawing scientific diagrams (ray diagrams)

Key words: transverse wave, longitudinal wave, refraction, reflection, convex

B4- Breathing and Circulation

This topic looks at:

- Structure and function of the gas exchange system
- Impact of exercise, asthma, and smoking on the respiratory system
- Structure and function of the circulatory system; this will include the structure of blood, blood vessels and the heart

Skills focus:

- Hypothesis testing
- Anomalous data

Key words: diaphragm, alveoli, oxygen, carbon dioxide, circulatory system

Assessment:

Students are assessed on their practical write up skills.

Students sit an end of topic test for both units.

Homework:

- Students given homework once a half term
- Students complete three from a choice of tasks
- Students will be made aware of when they have tests and the revision required to help prepare them for this