



OVERVIEW

The aim of Science is to inspire and enthuse our students, to develop inquisitive minds that question the world around them, come up with new ideas and discover new evidence that shapes our understanding of the world in which we live. In Year 9, students learn about biological systems and processes which has many links to the cells unit from Year 7. In chemistry we study reactivity which is linked to the structure of the atom that students learnt about in Year 8 in the periodic table unit. Year 9 pupils will also study the effects of forces in more detail, bringing together ideas from the Y7 Forces and Energy topics.

Autumn

9PF – Forces in Action

- Moments as turning forces
- Elastic deformation
- How forces are linked to energy (work done)
- Use of simple machines to reduce the force needed

9CR – Reactivity

- Recap of basic atomic structure and electron configuration
- Atomic mass and formula mass
- Writing chemical formulae and balancing equations
- Reactions with acids and making salts
- The reactivity series and displacement

Assessment:

End of Topic Tests for each unit

Fluency once a week to support development of key skills

Personal development:

The use of simple machines and knowledge of forces in our everyday lives

Spring

9CE – Energetics and Rates

- Factors that affect rates of reaction
- How rates of reaction are
- Surface area and catalysts
- Endothermic and exothermic reactions
- Combustion as an oxidation reaction
- Thermal decomposition.

9BB – Biological Systems and Processes

- Skeletal and muscular systems
- Antagonistic muscle pairings
- Respiratory system, breathing and gas exchange
- The impact of drugs and exercise
- Inheritance -the structure and function of DNA

Assessment:

End of Topic Tests for each unit

Fluency once a week to support development of key skills

Mid Year Assessment on 9PF, 9CR, 9BB plus foundational knowledge from Y7 and Y8

Personal development:

The effects of smoking and alcohol during pregnancy.

Summer

9PS – Sound Waves

- Types of wave
- Absorption of energy
- Speed of sound in different media.
- Uses of ultrasound
- Microphones and loudspeakers

KS4 – P3 – Particle Model

- Using the particle to explain the behaviour of solids, liquids and gases
- Investigating density
- Changes of state and energy
- Particle motion in gases and pressure

KS4 – C1 – Cell Biology

- Labelling the cell and describing the different functions of the cell
- How cells divide by mitosis
- Uses of stem cells

Assessment:

End of Topic Tests for each unit

Fluency weekly to support development of key skills

End of Year Assessment based on all topics studied this year, plus foundation knowledge from Y7 and Y8

Personal development

Students learn about the different uses of modern technology – ultrasound scans that use sound waves to build a picture of the baby in the uterus.

Useful resources for supporting your child at home:

- BBC Bitesize
- Seneca
- Knowledge Organisers

Homework:

Set weekly, either paper based or on Seneca. Seneca can also be used by students to revise topics through quizzing.