Science
Year 9

Irlam and Cadishead Academy
The best in everyone™
Part of United Learning

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

9PE – Electricity and Magnetism
- Current in series and parallel circuits
- Ohm's Law
- Magnets and magnetic fields
- Electromagnets and their uses

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:

Synoptic end of topic tests for each unit

Fluency once a week to support development of key skills to continue throughout the year.

Personal development:

Students to develop an understanding of why elements react and what factors can change the rate of reaction.

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
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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:

Synoptic end of Topic Tests for each unit.

Fluency

Mid-year Assessment on content from 9CR, 9CE, 9PE and 9BB plus foundational knowledge from Y7 and Y8

Personal development:

Students investigate the behaviour of electrical currents in circuits before expanding their knowledge to the uses of magnetic fields.

Summer

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 – B1 – Cell Biology
- Labelling the cell and describing the different functions of the cell
- How cells divide by mitosis
- Uses of stem cells

KS4 – C1 – Atomic structure and the periodic table
- Historical developments of the periodic table
- Arrangement of elements
- Models of atomic structure
- Changing scientific ideas

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 behaviour of particles to investigate density and pressure whilst the biology topic builds wonder as students explore the microscopic world.

Useful resources for supporting your child at home:
- BBC Bitesize
- Sparx Science
- Knowledge Organisers
- Science Padlet available on KS3 area of ICA website

Homework:

Set weekly - Sparx Science - Sparx can also be used by students to revise topics through quizzing.
Paper based revision booklets for midyear and end of year exam revision