

Year 9- Our Earth

This unit will inform students about global issues including the effects of humans on the planet and sustainability. Students will learn how to reduce the use of resources and how to recycle.

Lessons covered

Lesson	Title
1	Water
2	Energy
3	Recycling
4	Doing recycling
5	Everyday recycling
6	Impacts on the planet x2?
7	Transport
8	Endangered animals
9	Endangered animals
10	Animal welfare

Year 9- Space

Students will learn about their place in the solar system , the effect of gravity, and even the potential that space holds for us.

Lessons order

Lesson	Title
1	Weight
2	Objects in the universe
3	Days and seasons
4	Space travel
5	Planets in our solar system
6	Space exploration

Year 9- Healthy lifestyle

This topic is to prepare students to look after their health as they enter adulthood. It will show how to look after themselves through diet, exercise and use of drugs.

Lessons covered

Lesson	Title
1	Brain
2	Drugs
3	Mental health
4	Exercise
5	Diet and obesity
6	Heart
7	Heart complications
8	Pathogens and parasites
9	Transplant
10	Medical diagnosis

Year 9- Fundamentals for GCSE Biology

This unit has been designed as a bridge between the KS3 and KS4 programme of study. Revisiting topics covered in “Year 7 Biology” such as cell structure and the digestive system (enzymes) and advances the level of detail. These fundamental concepts are then advanced upon in Year 10 and 11 in topics such as Health and disease, photosynthesis and hormonal control.

Topics covered

Cell Biology

- cells as the basic structural unit of all organisms; adaptations of cells related to their functions; the main sub-cellular structures of eukaryotic and prokaryotic cells
- stem cells in animals and meristems in plants
- enzymes
- factors affecting the rate of enzymatic reactions
- the importance of cellular respiration; the processes of aerobic and anaerobic respiration
- carbohydrates, proteins, nucleic acids and lipids as key biological molecules.

Year 9- Fundamentals for GCSE Chemistry

This unit has been designed as a bridge between the KS3 and KS4 programme of study. Revisiting topics covered in year 7 and 8 such as “Atoms, elements and compounds” and “the periodic table” and advances the level of detail. These fundamental concepts are then advanced upon in Year 10 and 11 in topics such as chemical changes, energy changes and organic chemistry.

Topics covered

Atomic structure and the Periodic Table

- a simple model of the atom consisting of the nucleus and electrons, relative atomic mass, electronic charge and isotopes
- the number of particles in a given mass of a substance
- the modern Periodic Table, showing elements arranged in order of atomic number
- position of elements in the Periodic Table in relation to their atomic structure and arrangement of outer electrons
- properties and trends in properties of elements in the same group
- characteristic properties of metals and non-metals
- chemical reactivity of elements in relation to their position in the Periodic Table.

Structure, bonding and the properties of matter

- changes of state of matter in terms of particle kinetics, energy transfers and the relative strength of chemical bonds and intermolecular forces
- types of chemical bonding: ionic, covalent, and metallic
- bulk properties of materials related to bonding and intermolecular forces
- bonding of carbon leading to the vast array of natural and synthetic organic compounds that occur due to the ability of carbon to form families of similar compounds, chains and rings
- structures, bonding and properties of diamond, graphite, fullerenes and graphene.

Year 9- Fundamentals for GCSE Physics

This unit has been designed as a bridge between the KS3 and KS4 programme of study. Revisiting topics covered in “Year 7 Physics” such as energy and heat energy and advances the level of detail. These fundamental concepts are then advanced upon in Year 10 and 11 in topics such as electricity and waves.

Topics covered

Energy

- energy changes in a system involving heating, doing work using forces, or doing work using an electric current: calculating the stored energies and energy changes involved
- power as the rate of transfer of energy
- conservation of energy in a closed system, dissipation
- calculating energy efficiency for any energy transfers