TOPICS
1. Chemistry – The Periodic Table, Bonding, Chemical reactions, Rate of reaction
2. Evolution – Geological Time, Natural selection, Evolution
3. Global systems – Climate, Cycles

LEARNING OUTCOMES

Students should be able to:

- investigate how human activity affects global systems
- model a cycle, such as the water, carbon, nitrogen or phosphorus cycle within the biosphere
- explain the causes and effects of the greenhouse effect
- investigate the effect of climate change on sea levels and biodiversity
- consider the long term effects of loss of biodiversity
- investigate currently occurring changes to permafrost and sea ice and the impacts of these changes
- examine the factors that drive the deep ocean currents, their role in regulating global climate, and their effects on marine life
- consider the role of science in identifying and explaining the causes of climate change
- consider the scientific knowledge used in discussions relate to climate change
- investigate the use and control of CFCs based on scientific studies of atmospheric ozone
- recognise that elements in the same group of the periodic table have similar properties
- describe the structure of atoms in terms of electron shells
- explain how the electronic structure of an atom determines its position in the periodic table and its properties
- investigate the chemical activity of metals
- predict the products of different types of simple chemical reactions
- use word or symbol equations to represent chemical reactions
- investigate the effect of a range of factors, such as temperature and catalysts, on the rate of chemical reactions
- investigate the development of the periodic table and how this was dependent on experimental evidence at the time
- identifying the potential hazards of chemicals used in experimental investigations
- outline processes involved in natural selection including variation, isolation and selection
- describe biodiversity as a function of evolution
- investigate changes caused by natural selection in a particular population as a result of a specified selection pressure such as artificial selection in breeding for desired characteristics
- relate genetic characteristics to survival and reproductive rates
- evaluate and interpret evidence for evolution, including the fossil record, chemical and anatomical similarities, and geographical distribution of species
- consider the role of different sources of evidence including biochemical, anatomical and fossil evidence for evolution by natural selection
**WORK REQUIREMENTS**

1. **Investigation: 10%**  
   Based on Global systems- research

2. **Laboratory practicals: 15%**  
   An overall mark is allocated based on the assessment of practical reports.

3. **Topic Tests: 45% (3 x 15%)**

4. **Examination: 30%**

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**TIMELINE**

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