

## Teaching and Learning Content: Core Science Year Group: 10

### Autumn and Spring Term

Module B1: Understanding Organisms

Module C1: Carbon Chemistry

Module P1: Energy For The Home

#### **Key Questions:**

- How does the human body function?
- How do drugs, alcohol and tobacco affect your health?
- How do humans control plant growth for commercial gain?
- How do we inherit features from our parents?
- How do we extract and use products from crude oil?
- How do we make and use polymers?
- Why do we need to preserve and cook food?
- How do we make paints?
- How and why do we insulate houses?
- How do we use waves in the electromagnetic spectrum?
- Why have we changed from analogue to digital communications?
- How can we use seismic waves to study the structure of the Earth?

**Students will be able to:**

- Explain the difference between fitness and health
- Explain how diet affects human health
- Describe how to stay healthy
- Describe the functions of the human nervous system
- Describe and explain the effects of different types of drugs on the human body
- Explain the process of homeostasis
- Describe how we can use hormones to control plant growth
- Explain how variation occurs and how some features are inherited
- Describe how we make crude oil useful
- Describe how we use carbon fuels
- Describe how we can reduce air pollution and explain the importance of this
- Explain how we make polymers
- Describe how we use designer polymers
- Explain that cooking food is a chemical process
- Explain how esters are used in perfumes
- Describe how paints are made and used
- Explain the processes of conduction, convection and radiation
- Describe how different types of insulation reduce heat transfer
- Describe the common properties and uses of all waves in the electromagnetic spectrum
- Explain how light can be used to produce lasers
- Describe and explain the uses of microwaves and infrared waves in cooking and communication
- Explain the advantages and disadvantages of analogue and digital signals
- Explain the advantages and disadvantages of wireless signals
- Describe and explain how earthquakes occur

## **Spring Term and Summer Term**

Module B2: Understanding Our Environment

Module C2: Chemical Resources

Module P2: Living For The Future (Energy Resources)

### **Key Questions:**

- How do we classify living organisms?
- How does energy flow in food chains?
- How are elements recycled in nature?
- How are plants and animals interdependent?
- How are plants and animals adapted to survive?
- How has the human population affected pollution?
- What is the structure of the Earth?
- How do we use metals and alloys?
- How and why do we manufacture ammonia?
- Why are acids and bases so important?
- How do fertilisers improve crop yields?
- How do we extract and use sodium chloride?
- How do we collect energy from the Sun?
- How do we generate electricity?
- How does human activity lead to global warming?
- How do we use nuclear radiation?
- What is the Solar System composed of?
- How do asteroids and comets threaten the Earth?
- How was the Universe formed?

**Students will be able to:**

- Classify living organisms including the 5 animal kingdoms.
- Explain how energy flows in food chains and food webs.
- Describe and explain the carbon and nitrogen cycles.
- Explain how plants and animals are interdependent on each other.
- Describe and explain how are plants and animals adapted to survive in different environments.
- Describe and explain how an increasing human population has affected the environment.
- Describe the structure of the Earth.
- Describe how we extract different metals.
- Describe how we use metals and alloys.
- Describe and explain how we manufacture ammonia.
- Explain what acids and bases are and describe their uses.
- Explain how chemical fertilisers are manufactured.
- Explain how we extract and use sodium chloride.
- Describe how solar panels are used to collect energy from the Sun.
- Describe how renewable and non renewable energy is used.
- Explain how human activity has lead to global warming.
- Describe how we use alpha, beta and gamma radiation.
- Describe the main features of the solar system.
- Describe the possible effects of an asteroid or comet colliding with the Earth.
- Explain how the Big Bang created the Universe.

**Suggested resources to support your child's learning:**

- CGP revision guides and workbooks (available for sale from the science department)
- [bbc.bitesize.co.uk](http://bbc.bitesize.co.uk) (GCSE OCR Gateway Core Science units)
- [s-cool.co.uk](http://s-cool.co.uk)
- [ocr.org.uk](http://ocr.org.uk) (GCSE OCR Gateway Core Science units)