

## CURRICULUM CONTENT

### Biology

#### 1. Variation

- Understand that organisms inherit characteristics from their parents through genetic material that is carried in cell nuclei.
- Describe the human reproductive system, how genes control development
- Describe how selective breeding can lead to new varieties
- Instincts and learned behaviors
- Using genes in drug development
- Know about the role of micro-organisms in the breakdown of organic matter, food production and disease

#### 2. Extremes

- Explore the role of the skeleton and joints and the principle of antagonistic muscles.
- Recognize the basic components of the respiratory system and know their functions
- Recognize and model the basic components of the circulatory system and know their functions.
- Define and describe aerobic respiration, and use the word equation.

#### 3. Interdependence

- Understand what is meant by a species.
- Investigate variation within a species.
- Classify animals and plants into major groups, using some locally occurring examples.
- Describe how organisms are adapted to their habitat, drawing on locally occurring examples.
- Draw and model simple food chains.
- Discuss positive and negative influence of humans on the environment, e.g. the effect on food chains, pollution and ozone depletion.
- Discuss a range of energy sources and distinguish between renewable and non-renewable resources.
- Understand the importance of water and mineral salts to plant growth.

## Chemistry

### 4. The carbon cycle

- Diamond and its properties
- Diamond detectives (Evidence and theory)
- Explain why the proportion of carbon dioxide in air is increasing, and why this is important.
- Compounds, the air , Photosynthesis
- Oil and methane formation
- Burning hydrocarbons
- Making limestone and marble
- Carbon in living things
- The carbon cycle
- Estimating carbon stored in plants
- Scientists collaborating
- Scientists developing new products

### 5. Transport of the future

- Using data to compare material properties
- The reactivity series
- Using science to reduce car CO<sub>2</sub> emissions
- Using data to compare cars
- How clean are new car technologies
- Using secondary data to make travel decisions
- The benefits and drawbacks of new train fuels
- Making diesel
- Investigating health risks

### 6. The cost of your drink

- Obtaining iron
- Fizzy drinks solutions
- Minerals in water
- Cleaning drinking water
- Foams
- Calculating alcohol units
- Fermentation and distillation