

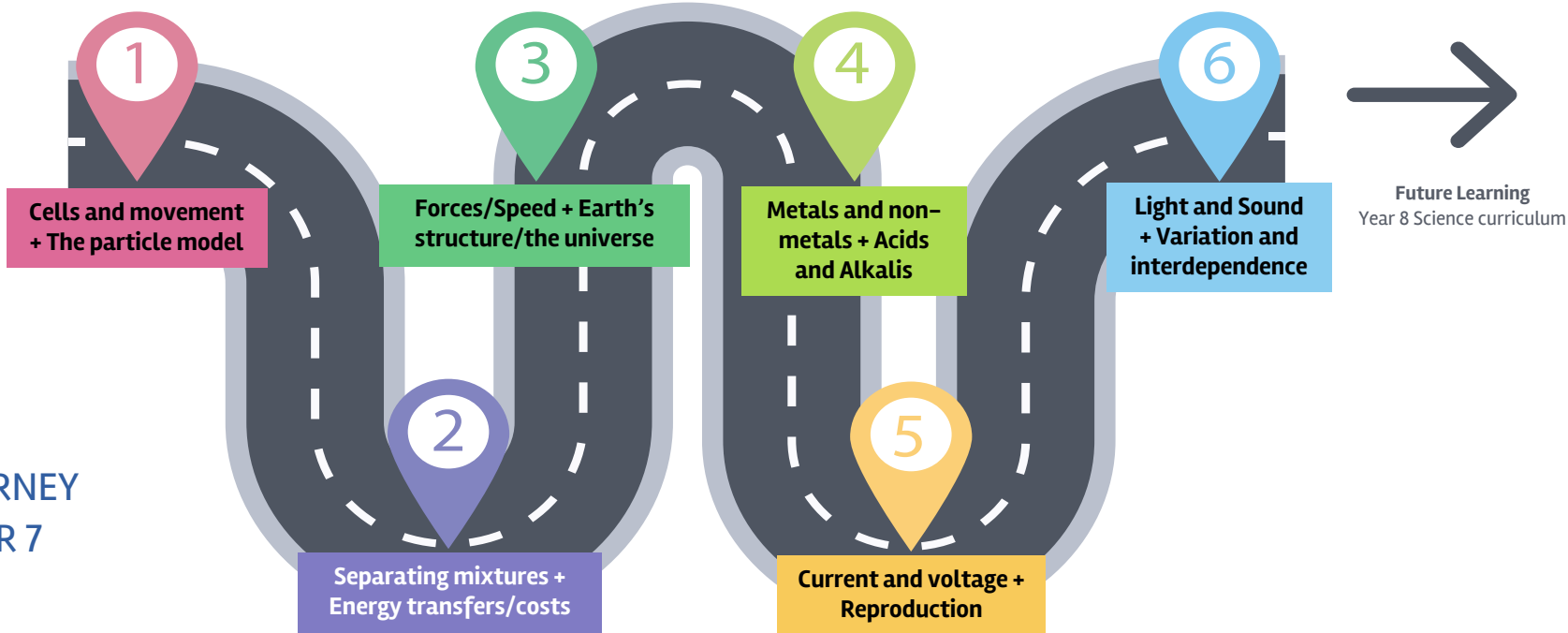


Prior Learning  
Science at KS2



Saint Joseph's  
CATHOLIC SCHOOL

## LEARNING JOURNEY SCIENCE – YEAR 7



Future Learning  
Year 8 Science curriculum

Terms:

1

### Cells and movement

Students learn about the structure of plant and animal cells. They learn to prepare slides and use a microscope.

They also learn about muscles and the skeleton.

### Particle model

Students learn why solids, liquids and gases behave as they do. They learn to define atoms, elements, compounds and mixtures.

2

### Separating mixtures

Students learn about separation techniques including filtration, evaporation, distillation and chromatography.

They also learn about diffusion and dissolving

### Energy transfers/cost

Students learn to describe how jobs get done using an energy model where energy is transferred from one store at the start to another at the end.

3

### Forces/speed

Students will be able to describe forces acting on an object and link this to a resultant force and speed

### Earth's structure and the universe

Students will be able to describe the different layers of the earth and the rocks that form it. Students will also build on knowledge of the solar system to explain the seasons and length of day.

4

### Metals and non-metals

Students will learn about the reactions of metals and non-metals with oxygen, furthermore how metals are arranged in order of reactivity

### Acids and alkalis

Students learn about acids and alkalis and how to identify their pH using a range of indicators. They learn about neutralisation and making salts.

5

### Current and voltage

Students learn how to draw circuit diagrams, measure current and voltage, furthermore, using these to calculate resistance

### Reproduction

Students learn about reproduction in humans and plants including the structure and function of the reproductive organs, fertilisation, gestation and birth.

6

### Light and sound

Students will learn about the properties of both sound and light waves and be able to use diagrams to represent the transmission of light through different objects and explain colour. Students will also investigate the speed of sound.

### Variation and interdependence

Students will learn about how organisms can differ in the same species via inheritance and the environment. Students will also learn how organisms in a food web are dependent on each other.



Prior Learning  
Year 7 Science curriculum

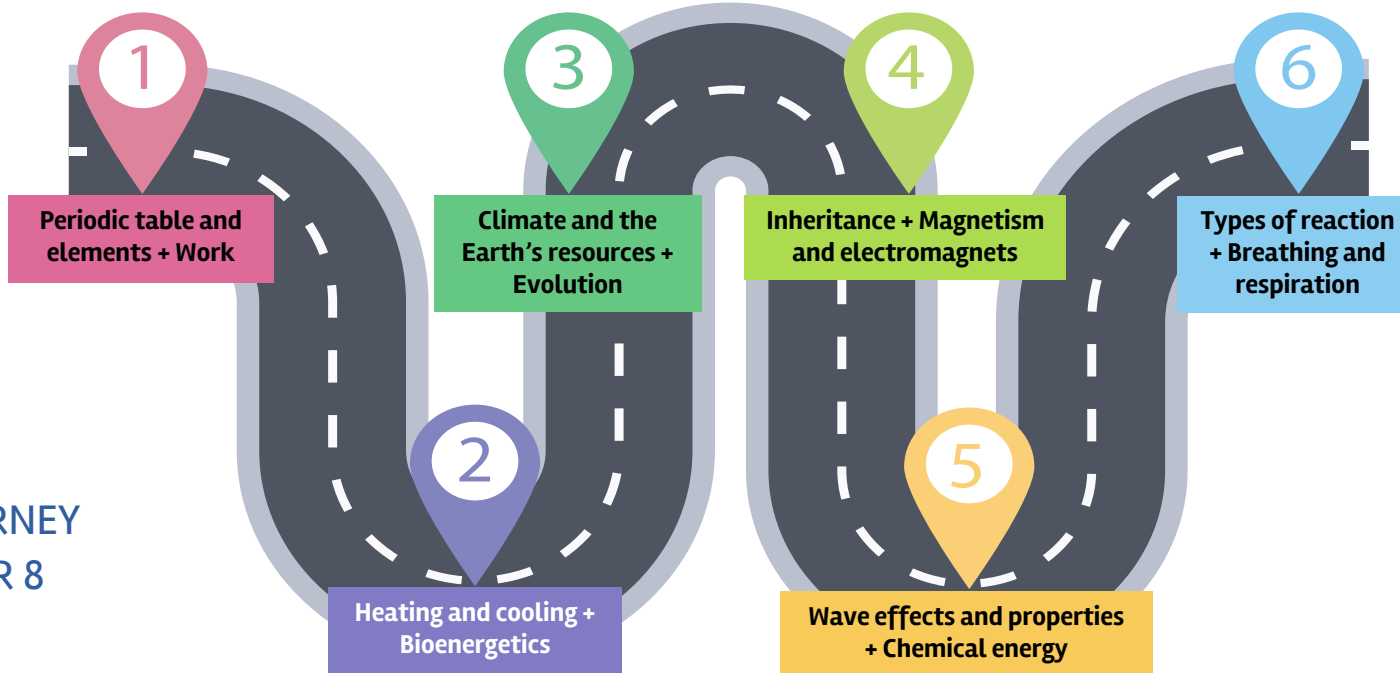


Saint Joseph's  
CATHOLIC SCHOOL

## LEARNING JOURNEY SCIENCE – YEAR 8



Future Learning  
Year 9 Science curriculum



Terms:

1

### Periodic table and elements

Students will learn that elements in a group react in a similar way and link the patterns in physical properties to an element's location in the periodic table. Students will also test how an element's properties change when bonded in a compound.

### Work

Students will learn about energy can be transferred by doing "work" and that this can be reduced by using levers and pulleys

2

### Heating and cooling

Students will learn the difference between heat and temperature, furthermore than thermal energy of an object depends upon its mass, temperature and what it's made of.

### Bioenergetics (photosynthesis and respiration)

Students will learn the reactants and products involved in the main chemical processes of photosynthesis and respiration

3

### Climate and the Earth's resources

Students will learn about how carbon is recycled in natural processes throughout the earth, furthermore how human activities are affecting this. Students will also learn about finite and renewable resources.

### Evolution

Students will learn about natural selection, how species evolve, the importance of biodiversity and how species can become extinct.

4

### Inheritance

Students will learn the structure of DNA and how characteristics are inherited. They will study human evolution and the classification system along with completion within and between the species. Students will learn about the reasons behind extinction and why conservation is important.

### Magnetism and electromagnets

Students will learn to describe magnetic objects, show their magnetic fields and explain why field strength changes. Students will also make and experiment with their own electromagnets

5

### Wave effects and properties

Students will be able to explain the properties of a wave due to its amplitude and frequency as well as describe reflection and refraction.

### Chemical energy

Students will be able to describe how chemical bonds are broken and made during a reaction, furthermore how net energy transfer effects temperature.

6

### Types of reaction

Students will learn about different types of reaction, such as combustion and thermal decomposition. Students will also be able to describe if a reaction is exothermic or endothermic.

### Breathing and digestion

Students will also learn about the processes of breathing and digestion and how breathing rate is altered with exercise, and the consequences of an imbalanced diet. Students will learn how the structures involved with these key processes and how they are adapted for their function.

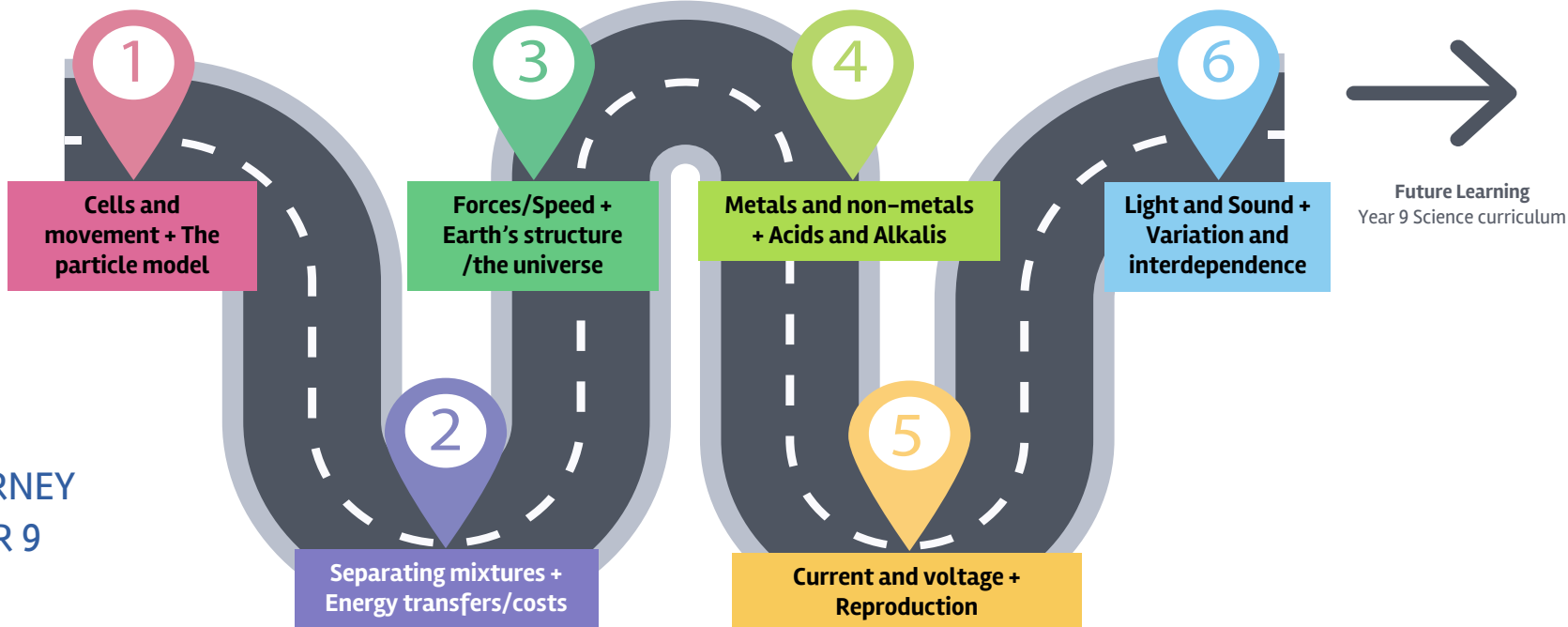


Prior Learning  
Year 7 Science curriculum



Saint Joseph's  
CATHOLIC SCHOOL

## LEARNING JOURNEY SCIENCE – YEAR 9



Terms:

1

- Cells and movement
- The particle model

2

- Separating mixtures
- Energy transfers/costs

3

- Forces/Speed
- Earth's structure/the universe

4

- Metals and non-metals
- Acids and Alkalis

5

- Current and voltage
- Reproduction

6

- Light and Sound
- Variation and interdependence



Prior Learning  
Year 9 Science curriculum

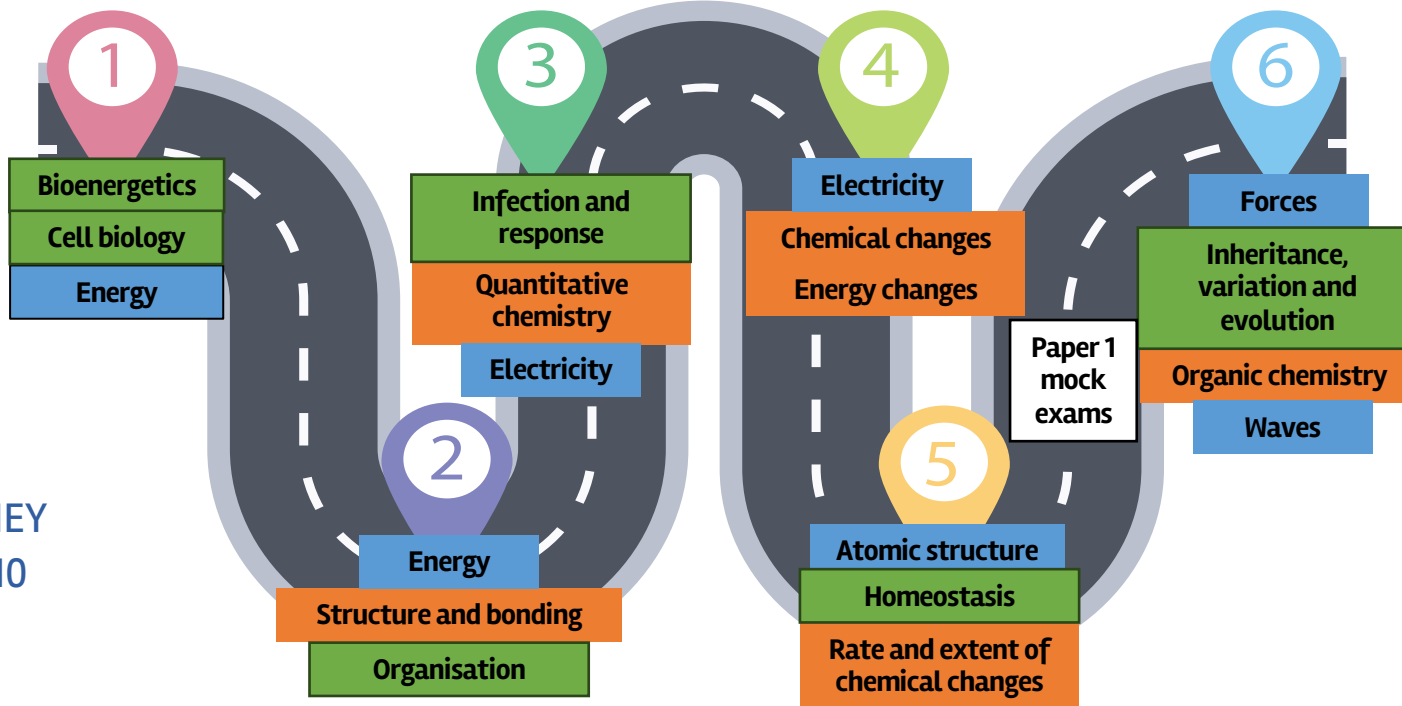


Saint Joseph's  
CATHOLIC SCHOOL

## LEARNING JOURNEY SCIENCE – YEAR 10



Future Learning  
Year 11 Science curriculum



Terms:

1

2

3

4

5

6

### B4- Bioenergetics

Will look at the effect of exercise on respiration

### B1- Cell Biology

Covering cell division, differentiation and stem cells

### P1- Energy

Covering renewable energy resources, efficiency of energy transfer and reducing unwanted energy transfers

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Covering renewable energy resources, efficiency of energy transfer and reducing unwanted energy transfers

### C2- Structure and bonding

Covering examples of covalent bonding in simple molecules, polymers and giant structures. We will also cover metallic bonding

### B2- Organisation

Will cover enzymes in digestion and non-communicable diseases such as cardiovascular disease and cancer

### B3- Infection and response

Covering how both our immune system, medication and vaccinations fight infections

### C3- Quantitative Chemistry

We will cover the concept of the Mole, its use in working our masses of products and limiting reactants to a reaction

### P2- Electricity

Covering how electricity is transported for domestic use via the national grid

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Covering how electricity is transported for domestic use via the national grid

### C4- Chemical Changes

Covering the reactions of metals and acids, separating metals from their ores, via displacement and electrolysis

### C5- Energy changes

The difference between Exothermic and Endothermic reactions, and bond energy calculations

### P4- Atomic Structure

Covering how the model of the atom has changed over time, isotopes and nuclear radiation, including half-life

### B5 Homeostasis

Introducing the body's method of maintaining a constant internal environment and hormones in the endocrine system

### C6- Rate and extent of chemical change

Using two different experiments to look at the factors that affect the rate of a reaction

### P5- Forces

Covering Newton's first three laws and investigating motion

### B6 Inheritance, variation and evolution

Covering meiosis, genetic diagrams, selective breeding and genetic engineering

### C7- Organic Chemistry

Covering the fractional distillation of crude oil, the uses and cracking of the different fractions

### P6- Waves

Students will learn about transverse waves and the uses of the electromagnetic spectrum

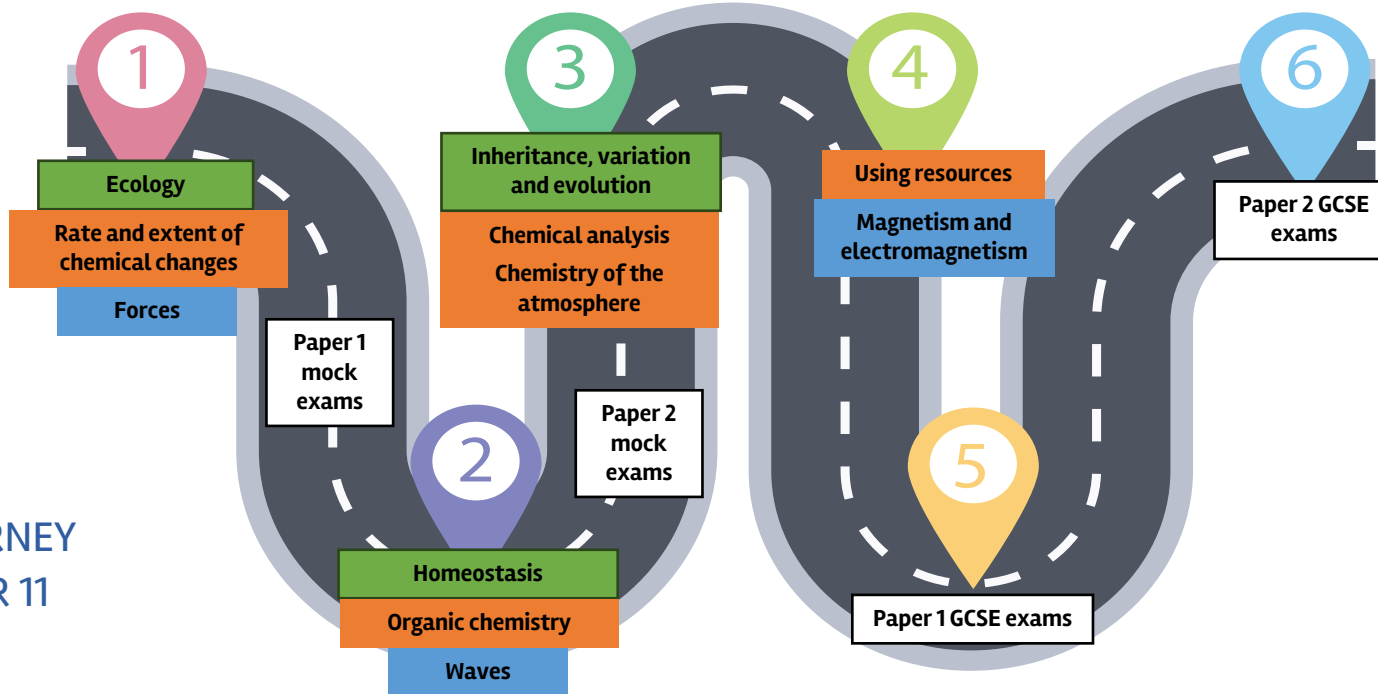


Prior Learning  
Year 10 Science  
curriculum

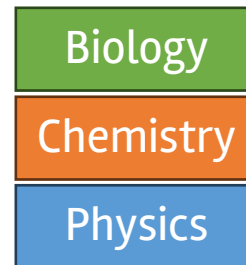


Saint Joseph's  
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## LEARNING JOURNEY SCIENCE – YEAR 11



Future Learning  
Post 16 education



Terms:

1

- B7- Ecology**  
Covering methods to estimate populations, the importance of biodiversity and the consequences of deforestation
- C6- Rate and extent of Chemical change**  
Covering reversible reactions and altering conditions to change equilibrium
- P5- Forces**  
Covering stopping distances, reactions times and momentum

2

- B5- Homeostasis**  
Covering the adrenal and thyroid glands, and the hormones they produce (adrenaline and thyroxine), and their effects on the body
- P6- Waves**  
Covering the hazards of electromagnetic waves and infrared radiation

3

- C8- Chemical analysis**  
Covering formulations, testing purity, tests for common gases and chromatography
- C9- Chemistry of the atmosphere**  
Covering the greenhouse effect, global climate change, carbon footprints and atmospheric pollutants

4

- C10- Using resources**  
Covering reusing and recycling resources, furthermore, how to do a lifecycle assessment of a product. Students will also cover how to treat water to make it potable.
- P7- Magnetism and electromagnetism**  
Covering permanent and induced magnets, the motor effect and electric motors

5

- Biology paper 1 (B1-4)**  
Including Cell biology, Organisation, Infection and response and Bioenergetics
- Chemistry paper 1 (C1-5)**  
Including Atomic structure and the periodic table, Structure and bonding, Quantitative Chemistry, Chemical changes and Energy changes
- Physics paper 1 (P1-4)**  
Including Energy, Electricity, Particles and Atomic Structure

6

- Biology Paper 2 (B5-7)**  
Including Homeostasis and response, Inheritance, variation and evolution and Ecology
- Chemistry paper 2 (C6-10)**  
Including The rate and extent of chemical changes, Organic chemistry, Chemical analysis, Chemistry of the atmosphere, and Using resources
- Physics paper 2 (P5-7)**  
Including Forces, Waves and Magnetism and electromagnetism