

All Saints Catholic High School

Year 11 | Science | Curriculum Knowledge Map - 2025/2026



Knowledge

- **CP10: Magnetism and the Motor Effect**
- **CP11: Electromagnetic Induction**
- **CB8 Exchange and Transport in Animals.**
- **CC13: Groups in the periodic table.**
- **CC14: Rates of reaction.**
- **CC15: Heat Energy Changes in Chemical Reactions.**
- **CP7/8**
- **CB9 Ecosystems and Material Cycles**
- **CC16 Fuels**
- **CC17 Earth and Atmospheric Science**
- **CP12 Particle Model & CP13 Forces and Matter**

Skills

- **Experimental skills and strategies**
- a) Use scientific theories and explanations to develop hypotheses.
- b) Plan experiments or devise procedures to make observations, produce or characterise a substance, test hypotheses, check data or explore phenomena.
- c) Apply a knowledge of a range of techniques, instruments, apparatus and materials to select those appropriate to the experiment.
- d) Carry out experiments appropriately, having due regard to the correct manipulation of apparatus, the accuracy of measurements and health and safety considerations.
- e) Recognise when to apply a knowledge of sampling techniques to ensure any samples collected are representative.
- f) Make and record observations and measurements using a range of apparatus and methods.
- g) Evaluate methods and suggest possible improvements and further investigations.

All Saints Catholic High School

Year 11 | Science | Curriculum Knowledge Map - 2025/2026



Cross Curricular and Curriculum Enrichment Opportunities

Maths

- Application and rearrangement of equations.
- Drawing and interpreting graphs.

Food Technology

- Energy in Food.

PSHE

- Physical Health
- Reproduction
- Misuse of drugs

Knowledge and Knowledge Extension

Building On

Assessment

All Saints Catholic High School

Year 11 | Science | Curriculum Knowledge Map - 2025/2026



Autumn 1

CP10: Magnetism and the Motor Effect CP11: Electromagnetic Induction

- About permanent and induced magnets and how to represent a magnetic field
- About the magnetic field around a wire and the factors that affect it
- how the field from the individual coils in a solenoid interact
- [H] How current can be induced in a wire and the factors that affect it.
- [H] How to calculate the size of the force on a wire carrying a current in a magnetic field
- [H] How to work out the direction of this force

CP10: Magnetism and the Motor Effect CP11: Electromagnetic Induction

Y8 Force Fields

- How to plot the shape of a magnetic field and that the earth has a magnetic field
- That electric currents cause magnetic fields, including in electromagnets and motors

CP10: Magnetism and the Motor Effect CP11: Electromagnetic Induction

AL4

- Magnets and Motor effect
- [H] Electromagnetic induction

Summative: EoU test

- Higher
- Foundation

All Saints Catholic High School

Year 11 | Science | Curriculum Knowledge Map - 2025/2026



CB8 Exchange and Transport in Animals.

- more about diffusion, gas exchange and the surface area : volume ratio.
- more about the different types of respiration.
- how the lungs, heart, blood vessels and blood are adapted for their functions.
- how to calculate cardiac output.

Core practicals:

- Respiration rates.

CC13: Groups in the periodic table.

CC14: Rates of reaction.

CC15: Heat Energy Changes in Chemical Reactions.

- about the properties of the elements in groups 1,7 and 0.
- how changes in conditions can affect the rates of reactions.
- about the energy transfers that occur during chemical reactions.

Core practicals:

- Investigating rates of reaction.

CB8 Exchange and Transport in Animals.

Y8: Food and Nutrition.

- how digestion gets glucose and other food molecules into the blood.

Y8: Breathing and Respiration.

- how the respiratory system gets oxygen into the blood.
- about aerobic and anaerobic respiration.

CB1.

- about diffusion.
- about different animal cells and their adaptations.

CC13: Groups in the periodic table.

CC14: Rates of reaction.

CC15: Heat Energy Changes in Chemical Reactions.

Y7: Elements, compounds and molecules.

Y7: Energy

- about fuels and energy resources.

Y8: The Periodic table.

- Elements compounds and the Periodic table.
- What happens during chemical reactions.

CC3 & CC5

CB8 Exchange and Transport in Animals.

A4L:

- Circulation system
- Respiration

Summative:EoU test

- Higher
- Foundation

CC13: Groups in the periodic table.

CC14: Rates of reaction.

CC15: Heat Energy Changes in Chemical Reactions.

A4L:

- Groups in the periodic table
- Rates of reaction
- Energy in reactions .

Summative: EoU test

- Higher
- Foundation

All Saints Catholic High School

Year 11 | Science | Curriculum Knowledge Map - 2025/2026



CP7 Energy - Forces doing work CP8 Forces and their effects

- How the energy in a system can be changed
- How to calculate power and work done
- How objects interact with each other, through force fields and contact forces
- [H] How to use vector diagrams to work out the effect of forces on an object

- the nature of atoms and ions.

CC8

- how to write balanced symbol equations with state symbols.

CP7 Energy - Forces doing work CP8 Forces and their effects

Y7: Energy

- the different ways in which energy can be stored and transferred.

Y7: Forces

about using force arrows in diagrams, adding forces in one dimension, balanced and unbalanced forces.

CP7 Energy - Forces doing work CP8 Forces and their effects CP9: Electricity and Circuits

A4L:

- Energy and forces
- vector diagrams
- Electric circuits
- Resistance
- Power and safety.

Summative: EoU test

- Higher/Foundation

All Saints Catholic High School

Year 11 | Science | Curriculum Knowledge Map - 2025/2026



Autumn 2	PPE's 2 weeks	PPE's 2 weeks	PPE's 2 weeks
	CB9 Ecosystems and Material Cycles • how ecosystems are organised. • how communities are affected by abiotic and biotic factors. • how the abundance and distribution of organisms are measured. • about parasitism and mutualism. • how humans can affect ecosystems. • about the benefits of maintaining biodiversity. • how materials cycle through ecosystems. • about the importance of the carbon cycle, the water cycle and the nitrogen cycle. Core practicals: • Quadrats and transects. Start: CC16 Fuels CC17 Earth and Atmospheric Science • about the hydrocarbons found in crude oil and natural gas. • how crude oil is separated into useful fractions. • about the alkanes homologous series.	CB9 Ecosystems and Material Cycles Y7: Ecosystems. • about the interdependence of organisms including food webs and insect pollination. • how organisms affect and are affected by their environments including the accumulation of toxic materials. Y8: Plants Growth. • how almost all life on Earth depends on photosynthesis in plants and algae. Start: CC16 Fuels CC17 Earth and Atmospheric Science Y7: Elements, compounds and molecules. Y8: The Periodic table. • Elements compounds and the Periodic table. • What happens during chemical reactions.	CB9 Ecosystems and Material Cycles A4L: • Ecosystem • Biodiversity • material cycles Summative:EoU test • Higher • Foundation Start: CC16 Fuels CC17 Earth and Atmospheric Science A4L: • Hydrocarbons and Fractional distillation. • Combustion of Hydrocarbons. • The Earth's Atmosphere .

All Saints Catholic High School

Year 11 | Science | Curriculum Knowledge Map - 2025/2026



- about the problems caused by some atmospheric pollutants.
- how and why the cracking of oil fractions is carried out.
- about the advantages and disadvantages of different fuels for cars.
- about how the Earth's atmosphere has changed in the past and how it is changing now.
- more about the causes and effects of climate change.

Y7: Energy

- about fuels and energy resources.

Y7: Acids and Alkalis

- about the acidity of non-metal oxides.

CC1

- mixtures can be separated using fractional distillation.

CC8

- how to write balanced symbol equations with state symbols.

Summative: EoU test

- Higher
- Foundation

All Saints Catholic High School

Year 11 | Science | Curriculum Knowledge Map - 2025/2026



Spring 1

Finish: CC16 Fuels CC17 Earth and Atmospheric Science

- about the hydrocarbons found in crude oil and natural gas.
- how crude oil is separated into useful fractions.
- about the alkanes homologous series.
- about the problems caused by some atmospheric pollutants.
- how and why the cracking of oil fractions is carried out.
- about the advantages and disadvantages of different fuels for cars.
- about how the Earth's atmosphere has changed in the past and how it is changing now.
- more about the causes and effects of climate change.

CP12 Particle Model CP13 Forces and Matter

- How to explain and calculate different densities of substances

Finish: CC16 Fuels CC17 Earth and Atmospheric Science

- Y7: Elements, compounds and molecules.
Y8: The Periodic table.
- Elements compounds and the Periodic table.
 - What happens during chemical reactions.

- Y7: Energy
- about fuels and energy resources.

- Y7: Acids and Alkalis
- about the acidity of non-metal oxides.

- CC1
- mixtures can be separated using fractional distillation.

- CC8
- how to write balanced symbol equations with state symbols.

CP12 Particle Model CP13 Forces and Matter

- Y7 Particles
- That mass is conserved during a change of state

Finish CC16 Fuels CC17 Earth and Atmospheric Science

- A4L:
- Hydrocarbons and Fractional distillation.
 - Combustion of Hydrocarbons.
 - The Earth's Atmosphere .

- Summative: EoU test
- Higher
 - Foundation

CP12 Particle Model CP13 Forces and Matter

- AL4
- Particles and energy
 - Gas laws
 - Springs

All Saints Catholic High School

Year 11 | Science | Curriculum Knowledge Map - 2025/2026



- About specific heat capacity and specific latent heat and how to calculate them
- How changing the temperature of a gas affects its pressure
- About Kelvin and Celsius temperature scales
- About elastic and inelastic distortion
- About the relationship between force and extension
- How to calculate the work done when stretching a spring

Core practicals:

- Investigating density
- investigating SHC of water
- investigating Springs

- About the properties of solids, liquids and gases
- How particles are arranged in a solid, liquid and a gas and how this is affected by temperature

CP2 Forces and Motion

Some of the effects that forces have on objects

Summative: EoU test

- Higher
- Foundation

All Saints Catholic High School

Year 11 | Science | Curriculum Knowledge Map - 2025/2026



PPE Revision Paper 2

PPE Revision Paper 2

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All Saints Catholic High School

Year 11 | Science | Curriculum Knowledge Map - 2025/2026



Spring 2

Collapse timetable PPE's 2 weeks

Revision for GCSE Examination

Paper 2 Revision

- 1) Chemistry CC3/4 Revision
- 2) Chemistry - CC5/7 - Ionic and Metals Bonding Models
- 3) CC6/7 - Covalent Bonding Models
- 4) Bio CB1h Transporting Substances and Osmosis Core Practical .
- 5)Bio - CB1d,f,g Enzymes and Core Practical Enzymes
- 6)Bio CB1b,c&a- Plant and Animal cells, Specialised Cells Microscopes and Core Practical
- 7)Physics -Using the formula sheet in physics .
- 8)Physics - electricity Part 1
- 9) Physics electricity part 2.
- 10)Chemistry CC9 - Calculations (include from other topics)
- 11)Chemistry CC13/14 - Groups and Rate of Reaction
- 12)CC12/15 - Equilibrium and Energy

Collapse timetable PPE's 2 weeks

Revision for GCSE Examination

Collapse timetable PPE's 2 weeks

Revision for GCSE Examination

All Saints Catholic High School

Year 11 | Science | Curriculum Knowledge Map - 2025/2026



	changes 13)Biology CB6- Photosynthesis and Transport 14)CB7- Homeostasis 15)CB8- The Heart and Respiration. 16)CP6 radioactivity 17)CP7/9 Energy and forces 18)CP12 particles		
Summer 1	<u>Paper 1 Revision for GCSE Examination</u> 1) CC1/2 States and separation 2) CC8 acids and alkalis 3) CC8 acids and alkalis 4) CB2 cells 5) CB3 Genetics 6) CB4 natural selection 7) CP1 Motion 8) CP2a motion and forces part 1 9) CP2b Motion and forces part 2 10) CC10/11 Electrolysis 11) CC10/11extracing metals 12) CB5 Health and disease 13) CP3 Conservation of energy 14) CP4 Waves 15) CP5 light and EM		

All Saints Catholic High School

Year 11 | Science | Curriculum Knowledge Map - 2025/2026



Summer 2

GCSE Examination

Tuesday 12th May- Biology 1 - Afternoon
Monday 18th May- Chemistry 1 Morning
Tuesday 2nd June- Physics 1 Morning

Monday 8th June- Biology- Morning.
Friday 12th June- Chemistry- Morning
Monday 15th- June - Physics Morning.