# Hobart High School Key Stage 3 Curriculum Map – Year 7

**Department: Science**

| | Unit Title | Knowledge & Skills Developed | Assessment | Personal Development |
|---|---|---|---|---|
| Autumn 1 | 1. Forces<br>2. Space | The Night Sky<br>Solar System<br>The Earth<br>The Moon<br>Squashing and Stretching Forces<br>Drag and Friction<br>Forces at a distance<br>Balanced and Unbalanced Forces<br>**Skills:** Planning investigations, recording data, analysing data, Evaluating data<br>**Maths:** Graph skills, gradients, equations | Forces Test | |
| Autumn 2 | 3. Sound<br>4. Light | Waves<br>Vibrations and Energy Transfers<br>Loudness and Pitch<br>Detecting Sound<br>Echoes and Ultrasound<br>Light<br>Reflection<br>Refraction<br>Camera and the Eye<br>Colour<br>**Skills:** Planning investigations, recording data, analysing data, Evaluating data<br>**Maths:** Graph skills, gradients, equations, angles | Y7 Physics Test | |
| **Spring 1** | 5. Particles<br>6. Elements | Particle Model<br>States of Matter<br>Melting and Freezing<br>Boiling<br>Diffusion<br>Gas Pressure<br>Elements<br>Atoms | Elements Test | |

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| | | Compounds<br>Chemical Formulae<br>**Skills:** Planning investigations, recording data, analysing data, Evaluating data<br>**Maths:** Graphs, negative numbers, % change, standard form | | |
| **Spring 2** | 7. Reactions<br>8. Acids and Alkalis | Chemical Reactions<br>Word Equations<br>Burning Fuels<br>Thermal Decomposition<br>Conservation of Mass<br>Endothermic and Exothermic Reactions<br>Acids and Alkalis<br>Indicators and pH<br>Neutralisation<br>Making Salts<br>**Skills:** Planning investigations, recording data, analysing data, Evaluating data<br>**Maths:** Graphs, negative numbers, % change, standard form | Y7 Chemistry Test | CO2 and the environment |
| **Summer 1** | 9. Working Scientifically<br>10. Cells | Observing Cells,<br>Plant and Animal Cells<br>Specialised Cells.<br>Movement of Substances,<br>Unicellular Organisms<br>**Skills:** Planning investigations, recording data, analysing data, Evaluating data<br>**Maths:** Scale, Averages, Percentages, Significant figures | Cells Test | |
| **Summer 2** | 11. Reproduction<br>12. Body Systems | Adolescence<br>Reproductive Systems<br>Fertilisation<br>Development of a foetus<br>Menstrual Cycle<br>Flowers and Pollination<br>Levels of Organisation<br>Gas Exchange<br>Breathing | Y7 Biology Test | Physical and emotional changes during adolescence.<br>Exercise and Fitness |

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| | | Skeleton<br>Movement: Joints and Muscles<br>**Skills:** Planning investigations, recording data, analysing data, Evaluating data<br>**Maths:** Scale, Averages, Percentages, Significant figures | | |

# Hobart High School Key Stage 3 Curriculum Map – Year 8

**Department: Science**

| | Unit Title | Knowledge & Skills Developed | Assessment | Personal Development |
|---|---|---|---|---|
| **Autumn 1** | 1. Skills: Sports' Day<br>2. Energy | Food and Fuels<br>Energy and Temperature<br>Energy Transfer: particles and radiation<br>Energy Resources<br>Power, Work and Machines<br>**Skills:** Graph Skills, Planning investigations, recording data, analysing data, Evaluating data<br>**Maths:** Significant Figures, % change, fractions, unit conversion, gradients | Energy Test | Healthy Eating<br>Exercise |
| **Autumn 2** | 3. Electricity and Magnetism<br>4. Motion and Pressure | Charge<br>Circuits and Current<br>Potential Difference<br>Series and Parallel Circuits<br>Resistance<br>Magnets<br>Electromagnets and their uses<br>Speed<br>Motion Graphs<br>Pressure in liquids and gases<br>Pressure on Solids<br>Turning forces<br>**Skills:** Graphical skills, Planning investigations, recording data, analysing data<br>**Maths:** Equations, averages, ranges | Y8 Physics Test | |
| **Spring 1** | 5. Periodic Table<br>6. Metals and Acids | Metals and Non-Metals<br>Groups and Periods<br>Group 1 Elements<br>Group 7 Elements<br>Group 0 Elements<br>Acids and Metals<br>Metals and Oxygen<br>Metals and Water | Metals and Acids Test | Plastics |

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| | | Metal Displacement Reactions<br>Extracting Metals<br>Ceramics, Polymers and Composites<br>**Skills:** Graphical skills, Planning investigations, recording data, analysing data, interpreting and evaluating models.<br>**Maths:** % change, averages, interpreting graphs | | |
| **Spring 2** | 7. Separation Techniques | Mixtures<br>Solutions<br>Solubility<br>Filtration<br>Evaporation and Distillation<br>Chromatography<br>**Skills:** design of experiments, selection and use of equipment<br>**Maths:** Graphs | Y8 Chemistry Test | |
| **Summer 1** | 8. Healthy Lifestyle<br>9. Adaptation and Inheritance | Nutrients<br>Food Tests<br>Unhealthy Diet<br>Digestive System<br>Bacteria and Enzymes in Digestion<br>Drugs<br>Alcohol<br>Smoking<br>Competition and Adaptation<br>Adapting to Change<br>Variation (continuous and discontinuous)<br>Inheritance<br>Natural Selection<br>Extinction<br>**Skills:** Graphical data, research skills, evaluating data<br>**Maths:** Averages, % Change, significant figures | Health Test | Healthy Eating<br>Drugs/Smoking<br>Diet |
| **Summer 2** | 10. Ecosystems<br>11. Project (TBC) | Photosynthesis<br>Leaves<br>Plant Minerals<br>Chemosynthesis<br>Aerobic Respiration<br>Anaerobic Respiration | Y8 Biology Test | Ecosystems |

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| | | Food Chains and Webs<br>Ecosystems<br>**Skills:** Use of models, equations,<br>**Maths:** % change | | |

# Hobart High School Key Stage 3 Curriculum Map – Year 9

**Department: Science**

| | Unit Title | Knowledge & Skills Developed | Assessment | Personal Development |
|---|---|---|---|---|
| **Autumn 1** | **Physics:** Energy Transfers | Energy stores and systems<br>Changes in energy<br>Energy changes in systems<br>Power<br>**Skills:** Measurement, practical design (risk and accuracy)<br>**Maths:** Calculate energy change, application, use and rearrangement of equations, | Energy Transfer Exam<br>Specific Heat Capacity Required Practical | |
| **Autumn 2** | **Physics:** Energy Resources | Conservation and dissipation of energy<br>Energy transfers in a system<br>Efficiency<br>National and global energy resources<br>**Skills:** Investigate thermal conductivity, Evaluate energy resources (efficiency, environmental impact)<br>**Maths:** calculate efficiency (percentage, decimal), use of equations and rearranging equations. | Energy Resources Exam | |
| **Spring 1** | **Chemistry:** Atomic Structure and Periodic Table | Atoms, elements and compounds<br>Mixtures<br>The development of the model of the atom<br>Size and mass of atoms<br>Relative atomic mass<br>Electronic structure<br>The periodic table<br>Development of the periodic table<br>Metals and non-metals<br>Group 0, 1, 7<br>**Skills:** Word and symbol equations, balancing equations, safe use of a range of separation techniques, evaluate evidence, prediction<br>**Maths:** SI Units, nano prefix, Standard form, Visualise and represent 2D and 3D forms, size and scale, | Atomic Structure Exam | |

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| **Spring 2** | **Chemistry:** Bonding | Chemical bonds<br>Ionic bonding<br>Covalent bonding<br>Polymers<br>Metallic bonding<br>Properties of metals and alloys<br>The three states of matter<br>Structure and bonding of carbon<br>Graphene and fullerenes<br>**Skills:** Use of diagrams to show atoms, ions and molecules<br>**Maths:** Visualise and represent 2D and 3D forms, Empirical formula, | Bonding Exam | |
| **Summer 1** | **Biology:** Cell Biology | Cell structure<br>Eukaryotes and prokaryotes<br>Animal and plant cells<br>Cell specialisation<br>Cell division<br>Mitosis and the cell cycle<br>Stem cells<br>Microscopy<br>Transport in cells<br>Diffusion<br>Osmosis<br>Active transport<br>**Skills:** Use of models, drawing and interpreting images of cells, Evaluate risk and ethical issues (stem cells)<br>**Maths:** Uses of measurement and prefixes (nano, micro etc), Standard Form, Percentage change, graph skills, | Cell Biology Exam<br>Microscopy Required Practical | |
| **Summer 2** | **Biology:** Organisation | Principles of organisation<br>Animal tissues, organs and organ systems<br>The human digestive system<br>The heart and blood vessels<br>Blood<br>Coronary heart disease: a non-communicable disease | Organisation Exam<br>Carbohydrate, Lipid and Protein testing Required Practical | |

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| | | The effect of lifestyle on some non-communicable diseases<br>Cancer<br>Plant tissues, organs and systems<br>Plant organ system<br>**Skills:** Size and scale, use of models (enzymes), Evaluating risk, Collecting data, displaying data, evaluating data (graphs, tables), drawing and observation (leaf section)<br>**Maths:** Scale, measurement, percentages, scatter diagrams | | |