

## YEAR 7 Scheme of Work **Science**

### Rationale:

Year 7 students arrive to their Science lessons with a wide variety of experiences from primary school. Year 7 Science lessons support the transition from primary to secondary by revisiting some content and developing confidence before introducing new concepts and preparing students in becoming inquisitive investigators in the world around them. Our bespoke curriculum has been designed by the experienced and knowledgeable science teachers at UAH. It makes the best use of the excellent facilities we have here and is tailored to the needs of the students in our academy. We want all students to enjoy their Science lessons, have a greater understanding of the amazing world we live in and be able to make informed decisions about how they can improve their environment and the opportunities for the next generations.

Intent	Implementation	Impact
<p><b>Science curriculum</b></p> <ul style="list-style-type: none"> <li>• To meet the needs of our students</li> <li>• To enable all students to progress and achieve their potential</li> <li>• To inspire a love of Biology, Chemistry and Physics</li> <li>• To develop the essential investigative and experimental skills</li> <li>• To become effective communicators</li> <li>• A broad and balanced curriculum spanning a wide range topics within each of Biology, Chemistry and Physics</li> </ul> <p><b>Knowledge</b> Units in Biology, Chemistry and Physics are studied. The curriculum is organised so that units build on and consolidate content covered in previous units, with each unit fitting into a particular strand within each science. Student’s knowledge is tested in mini tests at the end of each unit.</p> <p><b>Alive and Kicking</b> Microscopes, Cells, Human Reproduction and Healthy Diets</p> <p><b>Ecosystems</b> Plant Cells, Plant Reproduction, Photosynthesis, Food Chains</p> <p><b>Earth Rocks</b> States of matter, heating and cooling, mixtures, separation techniques, recycling,</p> <p><b>Fizz Whizz Bang</b> Atoms, Periodic Table, Reactions and Compounds</p> <p><b>Fairground Attraction</b> Different types of energy, in depth look at sound and hearing,</p> <p><b>Rocket Science</b> Speed, Forces, Stretch and compression</p>	<p><b>Science curriculum</b></p> <ul style="list-style-type: none"> <li>• Three hours per week, usually with the same teacher for all three subjects.</li> <li>• Knowledge and skills are developed throughout</li> <li>• Builds on prior knowledge from each unit and throughout each year</li> <li>• Units are differentiated to meet the needs of all ability learners</li> <li>• Sequencing of units is consistent across KS3 to build on skills from earlier units</li> <li>• Homework currently being built into the schemes with activities to consolidate learning</li> <li>• Medium term plans and active inspire flipcharts are created for individual lessons created to ensure they are engaging</li> <li>• Lessons are structured to follow a sequence of lessons but teachers are expected to differentiate according to the needs of their group</li> </ul> <p><b>Practical work</b></p> <ul style="list-style-type: none"> <li>• Practical lessons are developed by the Science teachers and technicians. They are requested in advance and support the learning of a range of skills as well as enhancing the knowledge taught.</li> <li>• Students can expect to carry out practical activities on a regular basis and dependant on the topic taught.</li> <li>• Some investigations require students to carefully follow a prescribed method, others have the freedom built in for learners to design their own investigation.</li> </ul>	<ul style="list-style-type: none"> <li>• Common assessments, progress tests for units and end of year exams</li> <li>• Student response to specific targets set by teacher</li> <li>• Shared Learning Journey for every student at the beginning of each unit</li> <li>• Student voice feedback – questionnaire</li> <li>• Continuous review of the curriculum by staff and students following each unit</li> </ul>

## YEAR 7 Scheme of Work **Science**

Autumn Term 1	Spring Term 1	Summer Term 1
<p><u>Introduction to Science</u> Students learn how to be safe in the lab, how and when to perform CPR. At the end of the unit students learn how to light a Bunsen Burner and receive a certificate if they have lit it correctly.</p> <p><u>Alive and Kicking</u> Microscopes, Cells, Human Reproduction and Healthy Diets Assessment: End of topic test using exam style questions, scores support the movement of students in to ability set groups.</p>	<p>A rotation between:</p> <p><u>Fairground Attraction</u> Different types of energy, in depth look at sound and hearing Assessment: End of topic test using exam style questions</p> <p>And</p> <p><u>Earth Rocks</u> States of matter, heating and cooling, mixtures, separation techniques, recycling, Assessment: End of topic test using exam style questions</p>	<p>A rotation between:</p> <p><u>Ecosystems</u> Plant Cells, Plant Reproduction, Photosynthesis, Food Chains Assessment: End of topic test using exam style questions</p> <p>And</p> <p><u>Fizz, Whizz, Bang</u> Atoms, Periodic Table, reactions and Compounds Assessment: End of topic test using exam style questions</p> <p>And</p> <p><u>Rocket Science</u> Speed, Forces, Stretch and compression Assessment: End of topic test using exam style questions</p>
Autumn Term 2	Spring Term 2	Summer Term 3
<p>A rotation between:</p> <p><u>Fairground Attraction</u> Different types of energy, in depth look at sound and hearing Assessment: End of topic test using exam style questions</p> <p>And</p> <p><u>Earth Rocks</u> States of matter, heating and cooling, mixtures, separation techniques, recycling, Assessment: End of topic test using exam style questions</p>	<p>A rotation between:</p> <p><u>Ecosystems</u> Plant Cells, Plant Reproduction, Photosynthesis, Food Chains Assessment: End of topic test using exam style questions</p> <p>And</p> <p><u>Fizz, Whizz, Bang</u> Atoms, Periodic Table, reactions and Compounds Assessment: End of topic test using exam style questions</p> <p>And</p> <p><u>Rocket Science</u> Speed, Forces, Stretch and compression Assessment: End of topic test using exam style questions</p>	<p>A rotation between:</p> <p><u>Ecosystems</u> Plant Cells, Plant Reproduction, Photosynthesis, Food Chains Assessment: End of topic test using exam style questions</p> <p>And</p> <p><u>Fizz, Whizz, Bang</u> Atoms, Periodic Table, reactions and Compounds Assessment: End of topic test using exam style questions</p> <p>And</p> <p><u>Rocket Science</u> Speed, Forces, Stretch and compression Assessment: End of topic test using exam style questions</p>

## YEAR 8 Scheme of Work **Science**

### Rationale:

**Year 8 students follow the bought in package “Collins”. This has been the backbone of our two year curriculum and had provided students with the skills required to move into KS4. The requirement to change to a three year KS3 provided the opportunity to redesign and develop what we had in place. This is the last cohort of students to follow the Collins SOW.**

Intent	Implementation	Impact
<p><b>Science curriculum</b></p> <ul style="list-style-type: none"> <li>• To meet the needs of our students</li> <li>• To enable all students to progress and achieve their potential</li> <li>• To inspire a love of Biology, Chemistry and Physics</li> <li>• To develop the essential investigative and experimental skills</li> <li>• To become effective communicators</li> <li>• A broad and balanced curriculum spanning a wide range topics within each of Biology, Chemistry and Physics</li> </ul> <p><b>Knowledge</b> Units in Biology, Chemistry and Physics are studied. The curriculum is organised so that units build on and consolidate content covered in previous units, with each unit fitting into a particular strand within each science. Student’s knowledge is tested in mini tests at the end of each unit.</p> <p><b>2.1 Getting the energy your body needs &amp; 3.2 The effect of drugs</b> Respiration, Smoking, drugs, alcohol, microbes, antibiotics and vaccinations</p> <p><b>2.2 Looking at plants and ecosystems</b> Photosynthesis, movement of water, food webs, ecological balance</p> <p><b>2.3 Explaining Physics Changes</b> Change of state, density, diffusion, conserving mass</p> <p><b>2.4 Explaining Chemical Changes</b> Acids &amp; Alkalis, indicators, salts, combustion &amp; effects of burning</p> <p><b>2.5 Contact and Non-Contact Forces</b> Magnetic fields, static charges, pressure, floating &amp; sinking,</p> <p><b>2.6 Electricity &amp; 3.6 Waves</b> Energy &amp; circuits, series &amp; parallel circuits, light waves and coloured light</p>	<p><b>Science curriculum</b></p> <ul style="list-style-type: none"> <li>• Three hours per week, usually with the same teacher for all three subjects.</li> <li>• Knowledge and skills are developed throughout</li> <li>• Builds on prior knowledge from each unit and throughout each year</li> <li>• Units are differentiated to meet the needs of all ability learners</li> <li>• Sequencing of units is consistent across KS3 to build on skills from earlier units</li> <li>• Homework currently being built into the schemes with activities to consolidate learning</li> <li>• Medium term plans and active inspire flipcharts are created for individual lessons created to ensure they are engaging</li> <li>• Lessons are structured to follow a sequence of lessons but teachers are expected to differentiate according to the needs of their group</li> </ul> <p><b>Practical work</b></p> <ul style="list-style-type: none"> <li>• Practical lessons are developed by the Science teachers and technicians. They are requested in advance and support the learning of a range of skills as well as enhancing the knowledge taught.</li> <li>• Students can expect to carry out practical activities on a regular basis and dependant on the topic taught.</li> <li>• Some investigations require students to carefully follow a prescribed method, others have the freedom built in for learners to design their own investigation.</li> </ul>	<ul style="list-style-type: none"> <li>• Common assessments, progress tests for units and end of year exams</li> <li>• Student response to specific targets set by teacher</li> <li>• Shared Learning Journey for every student at the beginning of each unit</li> <li>• Student voice feedback – questionnaire</li> <li>• Continuous review of the curriculum by staff and students following each unit</li> </ul>

Autumn Term 1	Spring Term 1	Summer Term 1
<p>A rotation between</p> <p><b>2.1 Getting the energy your body needs &amp; 3.2 The effect of drugs</b> Respiration, Smoking, drugs, alcohol, microbes, antibiotics and vaccinations</p> <p>And</p> <p><b>2.3 Explaining Physics Changes</b> Change of state, density, diffusion, conserving mass</p> <p>And</p> <p><b>2.5 Contact and Non-Contact Forces</b> Magnetic fields, static charges, pressure, floating &amp; sinking,</p>	<p>A rotation between</p> <p><b>2.1 Getting the energy your body needs &amp; 3.2 The effect of drugs</b> Respiration, Smoking, drugs, alcohol, microbes, antibiotics and vaccinations</p> <p>And</p> <p><b>2.3 Explaining Physics Changes</b> Change of state, density, diffusion, conserving mass</p> <p>And</p> <p><b>2.5 Contact and Non-Contact Forces</b> Magnetic fields, static charges, pressure, floating &amp; sinking,</p>	<p>A rotation between</p> <p><b>2.2 Looking at plants and ecosystems</b> Photosynthesis, movement of water, food webs, ecological balance</p> <p>And</p> <p><b>2.2 Looking at plants and ecosystems</b> Photosynthesis, movement of water, food webs, ecological balance</p> <p>And</p> <p><b>2.6 Electricity &amp; 3.6 Waves</b> Energy &amp; circuits, series &amp; parallel circuits, light waves and coloured light</p>
Autumn Term 2	Spring Term 2	Summer Term 3
<p>A rotation between</p> <p><b>2.1 Getting the energy your body needs &amp; 3.2 The effect of drugs</b> Respiration, Smoking, drugs, alcohol, microbes, antibiotics and vaccinations</p> <p>And</p> <p><b>2.3 Explaining Physics Changes</b> Change of state, density, diffusion, conserving mass</p> <p>And</p> <p><b>2.5 Contact and Non-Contact Forces</b> Magnetic fields, static charges, pressure, floating &amp; sinking,</p>	<p>A rotation between</p> <p><b>2.2 Looking at plants and ecosystems</b> Photosynthesis, movement of water, food webs, ecological balance</p> <p>And</p> <p><b>2.2 Looking at plants and ecosystems</b> Photosynthesis, movement of water, food webs, ecological balance</p> <p>And</p> <p><b>2.6 Electricity &amp; 3.6 Waves</b> Energy &amp; circuits, series &amp; parallel circuits, light waves and coloured light</p>	<p>A rotation between</p> <p><b>2.2 Looking at plants and ecosystems</b> Photosynthesis, movement of water, food webs, ecological balance</p> <p>And</p> <p><b>2.2 Looking at plants and ecosystems</b> Photosynthesis, movement of water, food webs, ecological balance</p> <p>And</p> <p><b>2.6 Electricity &amp; 3.6 Waves</b> Energy &amp; circuits, series &amp; parallel circuits, light waves and coloured light</p>

## YEAR 9 Scheme of Work **Science**

### Rationale:

This is the third and final year in KS3 for students, they will have, from Year 7 seen the unit 6 unit titles and should have confidence in revisiting units before developing the content further. Skills, knowledge and terminology are all built upon in preparation for KS4, whilst some more complex topics are investigated that students won't see again in KS4 Combined Science, such as astronomy. Time is put aside for some project work, encouraging students to become more resilient in their research and completion of independent and group based tasks.

Intent	Implementation	Impact
<p><b>Science curriculum</b></p> <ul style="list-style-type: none"> <li>To meet the needs of our students</li> <li>To enable all students to progress and achieve their potential</li> <li>To inspire a love of Biology, Chemistry and Physics</li> <li>To develop the essential investigative and experimental skills</li> <li>To become effective communicators</li> <li>A broad and balanced curriculum spanning a wide range topics within each of Biology, Chemistry and Physics</li> </ul> <p><b>Knowledge</b></p> <p>Units in Biology, Chemistry and Physics are studied. The curriculum is organised so that units build on and consolidate content covered in previous units, with each unit fitting into a particular strand within each science. Student's knowledge is tested in mini tests at the end of each unit.</p> <p><b>Alive and Kicking</b></p> <p>Aerobic and Anaerobic respiration, Diffusion in cells, types of drugs DNA structure, classification and variation</p> <p><b>Ecosystems</b></p> <p>Photosynthesis, Transpiration, Osmosis, Selective Breeding and Cloning</p> <p><b>Earth Rocks</b></p> <p>Pure and impure substances, separation techniques, atmosphere, acid rain and the carbon cycle,</p> <p><b>Fizz Whizz Bang</b></p> <p>Thermal decomposition, Oxidation, Acids Reactions, Catalysts</p> <p><b>Fairground Attraction</b></p> <p>Light, ray diagrams, different types of energy</p> <p><b>Rocket Science</b></p> <p>Stretch and compression, magnets, the motor effect, space</p>	<p><b>Science curriculum</b></p> <ul style="list-style-type: none"> <li>Four hours per week, usually with the same teacher for all three subjects.</li> <li>Knowledge and skills are developed throughout</li> <li>Builds on prior knowledge from each unit and throughout each year</li> <li>Units are differentiated to meet the needs of all ability learners</li> <li>Sequencing of units is consistent across KS3 to build on skills from earlier units</li> <li>Homework currently being built into the schemes with activities to consolidate learning</li> <li>Medium term plans and active inspire flipcharts are created for individual lessons created to ensure they are engaging</li> <li>Lessons are structured to follow a sequence of lessons but teachers are expected to differentiate according to the needs of their group</li> </ul> <p><b>Practical work</b></p> <ul style="list-style-type: none"> <li>Practical lessons are developed by the Science teachers and technicians. They are requested in advance and support the learning of a range of skills as well as enhancing the knowledge taught.</li> <li>Students can expect to carry out practical activities on a regular basis and dependant on the topic taught.</li> <li>Some investigations require students to carefully follow a prescribed method, others have the freedom built in for learners to design their own investigation.</li> </ul>	<ul style="list-style-type: none"> <li>Common assessments, progress tests for units and end of year exams</li> <li>Student response to specific targets set by teacher</li> <li>Shared Learning Journey for every student at the beginning of each unit</li> <li>Student voice feedback – questionnaire</li> <li>Continuous review of the curriculum by staff and students following each unit</li> <li>Students are confident in the skills required for them to be successful in KS4 Science, for example the preparation of a microscope slide and setting up a simple electrical circuit.</li> </ul>

## YEAR 9 Scheme of Work **Science**

Autumn Term 1	Spring Term 1	Summer Term 1
<p>A rotation between:</p> <p><b><u>Alive and Kicking</u></b> Aerobic and Anaerobic respiration, Diffusion in cells, types of drugs DNA structure, classification and variation Assessment: End of topic test using exam style questions,</p> <p style="text-align: center;">And</p> <p><b><u>Earth Rocks</u></b> Pure and impure substances, separation techniques, atmosphere, acid rain and the carbon cycle, Assessment: End of topic test using exam style questions</p> <p style="text-align: center;">And</p> <p><b><u>Fairground Attraction</u></b> Light, ray diagrams, different types of energy Assessment: End of topic test using exam style questions</p>	<p>A rotation between:</p> <p><b><u>Alive and Kicking</u></b> Aerobic and Anaerobic respiration, Diffusion in cells, types of drugs DNA structure, classification and variation Assessment: End of topic test using exam style questions,</p> <p style="text-align: center;">And</p> <p><b><u>Earth Rocks</u></b> Pure and impure substances, separation techniques, atmosphere, acid rain and the carbon cycle, Assessment: End of topic test using exam style questions</p> <p style="text-align: center;">And</p> <p><b><u>Fairground Attraction</u></b> Light, ray diagrams, different types of energy Assessment: End of topic test using exam style questions</p>	<p>A rotation between:</p> <p><b><u>Ecosystems</u></b> Photosynthesis, Transpiration, Osmosis, Selective Breeding and Cloning Assessment: End of topic test using exam style questions</p> <p style="text-align: center;">And</p> <p><b><u>Fizz, Whizz, Bang</u></b> Thermal decomposition, Oxidation, Acids Reactions, Catalysts Assessment: End of topic test using exam style questions</p> <p style="text-align: center;">And</p> <p><b><u>Rocket Science</u></b> Stretch and compression, magnets, the motor effect, space Assessment: End of topic test using exam style questions</p>
Autumn Term 2	Spring Term 2	Summer Term 3
<p>A rotation between:</p> <p><b><u>Alive and Kicking</u></b> Aerobic and Anaerobic respiration, Diffusion in cells, types of drugs DNA structure, classification and variation Assessment: End of topic test using exam style questions,</p> <p style="text-align: center;">And</p> <p><b><u>Earth Rocks</u></b> Pure and impure substances, separation techniques, atmosphere, acid rain and the carbon cycle, Assessment: End of topic test using exam style questions</p> <p style="text-align: center;">And</p> <p><b><u>Fairground Attraction</u></b> Light, ray diagrams, different types of energy Assessment: End of topic test using exam style questions</p>	<p>A rotation between:</p> <p><b><u>Ecosystems</u></b> Photosynthesis, Transpiration, Osmosis, Selective Breeding and Cloning Assessment: End of topic test using exam style questions</p> <p style="text-align: center;">And</p> <p><b><u>Fizz, Whizz, Bang</u></b> Thermal decomposition, Oxidation, Acids Reactions, Catalysts Assessment: End of topic test using exam style questions</p> <p style="text-align: center;">And</p> <p><b><u>Rocket Science</u></b> Stretch and compression, magnets, the motor effect, space Assessment: End of topic test using exam style questions</p>	<p>A rotation between:</p> <p><b><u>Ecosystems</u></b> Photosynthesis, Transpiration, Osmosis, Selective Breeding and Cloning Assessment: End of topic test using exam style questions</p> <p style="text-align: center;">And</p> <p><b><u>Fizz, Whizz, Bang</u></b> Thermal decomposition, Oxidation, Acids Reactions, Catalysts Assessment: End of topic test using exam style questions</p> <p style="text-align: center;">And</p> <p><b><u>Rocket Science</u></b> Stretch and compression, magnets, the motor effect, space Assessment: End of topic test using exam style questions</p>

## YEAR 10 Scheme of Work Science

### Rationale:

**Students are following the Pearson Edexcel exam board and specification. All students are studying Combined Science (providing them with a double GCSE grade), unless they have taken the Triple Science option. This option sees the students achieving individual grades in Biology, Chemistry and Physics. What needs to be taught is controlled by the exam board, we have chosen to tailor the content and timing of the topics to our student's needs.**

Intent	Implementation	Impact
<p><b>Science curriculum</b></p> <ul style="list-style-type: none"> <li>To meet the needs of our students</li> <li>To enable all students to progress and achieve their potential</li> <li>To inspire a love of Biology, Chemistry and Physics</li> <li>To develop the essential investigative and experimental skills</li> <li>To become effective communicators</li> <li>A broad and balanced curriculum spanning a wide range topics within each of Biology, Chemistry and Physics</li> </ul> <p><b>Knowledge</b></p> <p>Units in Biology, Chemistry and Physics are studied. The curriculum is organised so that units build on and consolidate content covered in previous units, with each unit fitting into a particular strand within each science. Student's knowledge is tested progress tests three times a year, with teachers using assessment opportunities throughout the topic to check progress.</p> <p><b>Combined Science</b></p> <p>CB1 – Microscopes, Cells, Enzymes, Diffusion, Osmosis, Active Transport            CB2/3 – Mitosis, Growth, Nerves, Meiosis, DNA, Inheritance            CB4-5 – Evolution, Classification, Health &amp; Disease, Immune System, Antibiotics            CC1-4 – States of Matter, Separation Techniques, Structure of the Atom, Periodic Table            CC5-7 +9 - Ionic &amp; Covalent Bonding, Metals, Calculations involving masses            CC8&amp;10 – Acids and Alkalis, Solubility, Electrolysis            CP1-2 – Motion and Forces            CP3 – Conservation of energy            CP4-5 – Waves, Light and the EM spectrum</p> <p><b>Triple Science (additional content on top of the Combined Science Specification)</b></p> <p>SB5 – Virus Life Cycles, Plant Diseases,            SC11-13 – Using metals, reversible reactions, transition metals            SP4 – Hearing, sound            SP5 - Lenses</p>	<p><b>Science curriculum</b></p> <ul style="list-style-type: none"> <li>Four hours per week, usually with the same teacher for all three subjects.</li> <li>Triple Science students have an additional two hours in an option block. They will have two or three different teachers to provide them with the best combination of specialist teachers available.</li> <li>Knowledge and skills are developed throughout</li> <li>Builds on prior knowledge from KS3</li> <li>Units are differentiated to meet the needs of all ability learners</li> <li>Homework currently being built into the schemes with activities to consolidate learning</li> <li>Medium term plans and active inspire flipcharts are created for individual lessons created to ensure they are engaging</li> <li>Lessons are structured to follow a sequence of lessons but teachers are expected to differentiate according to the needs of their group</li> </ul> <p><b>Practical work</b></p> <ul style="list-style-type: none"> <li>Practical lessons are developed by the Science teachers and technicians. They are requested in advance and support the learning of a range of skills as well as enhancing the knowledge taught.</li> <li>Within the specification there are a number of Core Practicals that all students will carry out or observe the demonstration. Dates of completion are carefully tracked and students are able to access online demonstrations to revisit or catch up on missed lessons.</li> <li>Students can expect to carry out practical activities on a regular basis and dependant on the topic taught.</li> </ul> <p>Some investigations require students to carefully follow a prescribed method, others have the freedom built in for learners to design their own investigation.</p>	<ul style="list-style-type: none"> <li>Common assessments, progress tests for units and end of year exams</li> <li>Student response to specific targets set by teacher</li> <li>Shared Learning Journey for every student at the beginning of each unit</li> <li>Student voice feedback – questionnaire</li> <li>Continuous review of the curriculum by staff and students following each unit</li> </ul>

**YEAR 10 Scheme of Work Science**

<b>Autumn Term 1</b>	<b>Spring Term 1</b>	<b>Summer Term 1</b>
A Rotation between:	A Rotation between:	A Rotation between:
CB1 – Microscopes, Cells, Enzymes, Diffusion, Osmosis, Active Transport	CB2/3 – Mitosis, Growth, Nerves, Meiosis, DNA, Inheritance	CB4-5 – Evolution, Classification, Health & Disease, Immune System, Antibiotics
And	And	And
CC1-4 – States of Matter, Separation Techniques, Structure of the Atom, Periodic Table	CC5-7 +9 - Ionic & Covalent Bonding, Metals, Calculations involving masses	CC8&10 – Acids and Alkalis, Solubility, Electrolysis
And	And	And
CP1-2 – Motion and Forces	CP3 – Conservation of energy	CP4-5 – Waves, Light and the EM spectrum
<b>Autumn Term 2</b>	<b>Spring Term 2</b>	<b>Summer Term 3</b>
A Rotation between:	A Rotation between:	A Rotation between:
CB2/3 – Mitosis, Growth, Nerves, Meiosis, DNA, Inheritance	CB4-5 – Evolution, Classification, Health & Disease, Immune System, Antibiotics	CB4-5 – Evolution, Classification, Health & Disease, Immune System, Antibiotics
And	And	And
CC5-7 +9 - Ionic & Covalent Bonding, Metals, Calculations involving masses	CC8&10 – Acids and Alkalis, Solubility, Electrolysis	CC8&10 – Acids and Alkalis, Solubility, Electrolysis
And	And	And
CP3 – Conservation of energy	CP4-5 – Waves, Light and the EM spectrum	CP4-5 – Waves, Light and the EM spectrum

## YEAR 11 Scheme of Work Science

### Rationale:

Students continue their studies of either Combined Science or Triple Science as they move into Year 11. The aim is to finish teaching new content by March and begin a bespoke revision programme for the students. Students are following the Pearson Edexcel exam board and specification. All students are studying Combined Science (providing them with a double GCSE grade), unless they have taken the Triple Science option. This option sees the students achieving individual grades in Biology, Chemistry and Physics. What needs to be taught is controlled by the exam board, we have chosen to tailor the content and timing of the topics to our student's needs.

Intent	Implementation	Impact
<p><b>Science curriculum</b></p> <ul style="list-style-type: none"> <li>• To meet the needs of our students</li> <li>• To enable all students to progress and achieve their potential</li> <li>• To inspire a love of Biology, Chemistry and Physics</li> <li>• To develop the essential investigative and experimental skills</li> <li>• To become effective communicators</li> <li>• A broad and balanced curriculum spanning a wide range topics within each of Biology, Chemistry and Physics</li> </ul> <p><b>Knowledge</b> Units in Biology, Chemistry and Physics are studied. The curriculum is organised so that units build on and consolidate content covered in previous units, with each unit fitting into a particular strand within each science. Student's knowledge is tested progress tests three times a year, with teachers using assessment opportunities throughout the topic to check progress.</p> <p><b>Combined Science</b> CB6 &amp; 9 – Plant Structures &amp; Functions, Ecosystems and Material Cycles CB7 &amp; 8 – Animal Coordination, Control &amp; Homeostasis, Exchange &amp; Transport in animals CC11 – 15 Reactivity, Equilibria, Groups, Catalysts, Energy changes CC16 – 17 Fuels, Earth &amp; Atmospheric Science CP6 – Radioactivity, CP7&amp;8 - Forces doing work &amp; their effects CP9-11 - Electricity, Magnetism and Electromagnetism CP12-13 – Particle Model, Forces &amp; Matter</p> <p><b>Triple Science (additional content on top of the Combined Science Specification)</b> SB6 – Plant Hormones SB7 &amp; 9 – Osmoregulation, The Kidneys, Food Security SC14 – 16 – Quantitative Analysis, Calculations involving Volume of gases, Chemical and fuel cells</p>	<p><b>Science curriculum</b></p> <ul style="list-style-type: none"> <li>• Four hours per week, usually with the same teacher for all three subjects.</li> <li>• Triple Science students have an additional two hours in an option block. They will have two or three different teachers to provide them with the best combination of specialist teachers available.</li> <li>• Knowledge and skills are developed throughout</li> <li>• Builds on prior knowledge from KS3</li> <li>• Units are differentiated to meet the needs of all ability learners</li> <li>• Homework currently being built into the schemes with activities to consolidate learning</li> <li>• Medium term plans and active inspire flipcharts are created for individual lessons created to ensure they are engaging</li> <li>• Lessons are structured to follow a sequence of lessons but teachers are expected to differentiate according to the needs of their group</li> <li>• Students will have two weeks of exam preparation prior to their Mock Exams in December on Paper 1, 3 and 5.</li> <li>• The teaching of new content should be complete by March. This allows the class teacher to deliver targeted revision to their group in preparation for the Mock Exams at Easter on Papers 2, 4, 6</li> <li>• Intervention is offered to students on a Wednesday evening. It is open to all students. Following a tracking review staff will contact the parents of students that are making less than expected progress to encourage their participation.</li> <li>• Saturday Schools and Easter Schools – again open to all students, contacting parents of students of concern.</li> </ul> <p><b>Practical work</b></p> <ul style="list-style-type: none"> <li>• Practical lessons are developed by the Science teachers and technicians. They are requested in advance and support the learning of a range of skills as well as enhancing the knowledge taught.</li> </ul>	<ul style="list-style-type: none"> <li>• Common assessments, progress tests for units and Mock Exams in December and April</li> <li>• Student response to specific targets set by teacher</li> <li>• Shared Learning Journey for every student at the beginning of each unit</li> <li>• Student voice feedback – questionnaire</li> <li>• Continuous review of the curriculum by staff and students following each unit</li> <li>• Students are successful in their GCSE exams</li> </ul>

<p>SC22 -24 Hydrocarbons, Alcohols and Polymers SC25 – 26 – Qualitative Analysis, tests for ions, nanoparticles SP7 – Astronomy SP15 – Pressure in fluids &amp; upthrust</p>	<ul style="list-style-type: none"><li>• Within the specification there are a number of Core Practicals that all students will carry out or observe the demonstration. Dates of completion are carefully tracked and students are able to access online demonstrations to revisit or catch up on missed lessons.</li><li>• Students can expect to carry out practical activities on a regular basis and dependant on the topic taught.</li></ul> <p>Some investigations require students to carefully follow a prescribed method, others have the freedom built in for learners to design their own investigation.</p>	
--	---	--

Autumn Term 1	Spring Term 1	Summer Term 1
<p>A rotation between</p> <p>CB6 &amp; 9 – Plant Structures &amp; Functions, Ecosystems and Material Cycles</p> <p>And</p> <p>CC16 – 17 Fuels, Earth &amp; Atmospheric Science</p> <p>And</p> <p>CP6 – Radioactivity, CP7&amp;8 - Forces doing work &amp; their effects</p>	<p>A rotation between</p> <p>CB7 &amp; 8 – Animal Coordination, Control &amp; Homeostasis, Exchange &amp; Transport in animals</p> <p>And</p> <p>CC11 – 15 Reactivity, Equilibria, Groups, Catalysts, Energy changes</p> <p>And</p> <p>CP9-11 - Electricity, Magnetism and Electromagnetism CP12-13 – Particle Model, Forces &amp; Matter</p>	<p>Revision for Exams</p> <p>Final GCSE Exams in papers 1, 3 &amp; 5</p>
Autumn Term 2	Spring Term 2	Summer Term 3
<p>A rotation between</p> <p>CB6 &amp; 9 – Plant Structures &amp; Functions, Ecosystems and Material Cycles</p> <p>And</p> <p>CC16 – 17 Fuels, Earth &amp; Atmospheric Science</p> <p>And</p> <p>CP6 – Radioactivity, CP7&amp;8 - Forces doing work &amp; their effects</p> <p><b>Mock Exams - Papers 1, 3, &amp; 5</b></p>	<p>A rotation between</p> <p>CB7 &amp; 8 – Animal Coordination, Control &amp; Homeostasis, Exchange &amp; Transport in animals</p> <p>And</p> <p>CC11 – 15 Reactivity, Equilibria, Groups, Catalysts, Energy changes</p> <p>And</p> <p>CP9-11 - Electricity, Magnetism and Electromagnetism CP12-13 – Particle Model, Forces &amp; Matter</p> <p><b>Mock Exams - Paper 2, 4, &amp; 6</b></p>	<p>Revision</p> <p>Final GCSE exams in Papers 2, 4 &amp; 6</p>