

Summary Curriculum Map and Expectations

Subject: Science

Subject leader / Head of Faculty: Mr S Wearden

Year 7	Autumn term	Spring term	Summer term
Key content; Main learning objectives, Knowledge, Skills, Understanding,	<p><b>Introduction to Science</b> Health and safety, finding your way around the lab, using a Bunsen burner, how to use a microscope, investigative skills, making a flare.</p> <p><b>Big Idea 3: Energy</b> Part 1: Food and fuels, energy resources, energy and power. Part 2: Energy adds up, energy dissipation.</p> <p><b>Big Idea 5 part 1: Particle model</b> The particle model, states of matter, melting and freezing, boiling, more changes of state, diffusion, gas pressure, inside particles.</p>	<p><b>Big Idea part 2: Separating mixtures</b> Pure substances and mixtures, solutions, solubility, filtration, evaporation and distillation, chromatography.</p> <p><b>Big Idea 8: Movement</b> Part 1: Levels of organisation, the skeleton, movement joints, movement muscles. Part 2: Observing cells, plant and animal cells, specialised cells, movement of substances, uni-cellular organisms</p> <p><b>Big Idea 4: Waves</b> Part 1: Sound waves and speed, loudness and amplitude, frequency and pitch, the ear and hearing. Part 2: Light, reflection, refraction, the eye and vision, colour.</p>	<p><b>Big Idea 6: Reactions</b> Part 1: Chemical reactions, acids and alkali, indicators and the pH scale, acid strength, neutralisation, making salts.</p> <p>Part 2: More about elements, chemical reactions of metals and non-metals, metals and acids, metals and Oxygen, Metals and water, metal displacement reactions.</p>
Formal Assessments	Checkpoint assessment or progress task for every topic/ Big Idea.	Checkpoint assessment Big Idea 4 and 8 Formal test comprising of questions for topics completed up to January.	Checkpoint assessment Big Idea 6. Formal test comprising of questions for topics completed from January to June.
Homework expectations (frequency, time commitment)	Progress quizzes set for every topic with diagnostic feedback. Revision using the digital book ongoing in preparation for formal assessment.	Progress quizzes set for every topic with diagnostic feedback. Revision using the digital book ongoing in preparation for formal assessment.	Progress quizzes set for every topic with diagnostic feedback. Revision using the digital book ongoing in preparation for formal assessment.

Summary Curriculum Map and Expectations

Subject: Science

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Year 8	Autumn term	Spring term	Summer term
Key content; Main learning objectives, Knowledge, Skills, Understanding,	<p><b>Big Idea 9: Ecosystems</b> Part 1: Food chains and webs, disruption to food chains and webs, ecosystems, competition. Part 2: Flowers and pollination, fertilisation and germination, seed dispersal.</p> <p><b>Big Idea 5 part 1: Separating mixtures</b> Pure substances and mixtures, solutions, solubility, filtration, evaporation and distillation, chromatography.</p> <p><b>Big Idea 3: Energy</b> Part 1: Food and fuels, energy resources, energy and power. Part 2: Energy adds up, energy dissipation.</p> <p>Big idea 6 part 2: metals and non-metals More about elements, chemical reactions of metals and non-metals, metals and acids, metals and oxygen, metals and water, metal displacement reactions.</p>	<p><b>Big Idea 1 part 1: Speed</b> Speed, distance-time graphs.</p> <p><b>Big Idea 2: Electromagnets</b> Part 1: Potential difference, resistance, series and parallel circuits. Part 2: Current, charging up.</p> <p><b>Big Idea 10 part 1: Variation</b> Variation, continuous and discontinuous, adapting to change.</p> <p><b>Big Idea 3: Energy</b> Part 1: Work, energy and machines. Part 2: Energy and temperature, Energy transfer: particles, energy transfer: radiation and insulation.</p>	<p><b>Big Idea 9: Ecosystems</b> Part 1: Aerobic respiration, anaerobic respiration, biotechnology. Part 2: Photosynthesis, Leaves, Investigating photosynthesis, plant minerals.</p> <p><b>Big Idea 7: Earth</b> Part 1: Global warming, the carbon cycle climate change. Part 2: Extracting metals, recycling.</p>
Formal Assessments	Checkpoint assessment or progress task for every topic/ Big Idea.	Checkpoint assessment for Big Idea 2+3. Formal test comprising of questions for topics completed up to January.	Checkpoint assessment for Big Idea 7+9. Formal test comprising of questions for topics completed from January to June.
Homework expectations (frequency, time commitment)	Progress quizzes set for every topic with diagnostic feedback. Revision using the digital book ongoing in preparation for formal assessment.	Progress quizzes set for every topic with diagnostic feedback. Revision using the digital book ongoing in preparation for formal assessment.	Progress quizzes set for every topic with diagnostic feedback. Revision using the digital book ongoing in preparation for formal assessment.

Summary Curriculum Map and Expectations

Subject: Science

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Year 9E1 and 9E3	Autumn term	Spring term	Summer term
<p>Key content; Main learning objectives, Knowledge, Skills, Understanding,</p>	<p><b>Big Idea 8 part 1: Cells</b> Observing cells, plant and animal cells, specialised cells, movement of substances, uni-cellular organisms.</p> <p><b>Big Idea 2: Electromagnets</b> Part 1: Potential difference, resistance, series and parallel circuits. Part 2: Current, charging up.</p> <p><b>Big Idea 4: Waves</b> Part 1: Sound waves, water waves, and energy. Radiation and energy. Part 2: Modelling waves.</p> <p><b>Big Idea 10 part 2: Inheritance</b> Inheritance, DNA, genetics, genetic modification.</p> <p><b>Big Idea 6 part 1: Reactions</b> Chemical reactions, acids and alkali, indicators and the pH scale, acid strength, neutralisation, making salts.</p>	<p>C1: Atomic structure C2: The Periodic Table P6: Molecules and matter</p>	<p>B5: Communicable diseases B6: Preventing and treating disease</p>
<p>Formal Assessments</p>	<p>Progress task for each topic Formal test comprising of questions for topics completed up to January.</p>	<p>End of unit test for C1+C2 End of unit test for P6</p>	<p>End of year examination</p>
<p>Homework expectations (frequency, time commitment)</p>	<p>Progress quizzes set for every topic with diagnostic feedback. Revision using the digital book ongoing in preparation for formal assessment.</p>	<p>Minimum of 2 homework + 1 DIRT work per half term (60 mins for each piece of homework): P1+P2; P6</p>	<p>Minimum of 2 homework + 1 DIRT work per half term - including revision for examinations (60 mins for each piece of homework): B5+B6</p>

Summary Curriculum Map and Expectations

Subject: Science

Subject leader / Head of Faculty: Mr S Wearden

Year 9E2 and 9E4	Autumn term	Spring term	Summer term
<p>Key content; Main learning objectives, Knowledge, Skills, Understanding,</p>	<p><b>Big Idea 8 part 1: Cells</b> Observing cells, plant and animal cells, specialised cells, movement of substances, uni-cellular organisms.</p> <p><b>Big Idea 2: Electromagnets</b> Part 1: Potential difference, resistance, series and parallel circuits. Part 2: Current, charging up.</p> <p><b>Big Idea 4: Waves</b> Part 1: Sound waves, water waves, and energy. Radiation and energy. Part 2: Modelling waves.</p> <p><b>Big Idea 10 part 2: Inheritance</b> Inheritance, DNA, genetics, genetic modification.</p> <p><b>Big Idea 6 part 1: Reactions</b> Chemical reactions, acids and alkali, indicators and the pH scale, acid strength, neutralisation, making salts.</p>	<p>P6: Molecules and matter C1: Atomic structure C2: The Periodic Table</p>	<p>B5: Communicable diseases B6: Preventing and treating disease</p>
<p>Formal Assessments</p>	<p>Progress task for each topic Formal test comprising of questions for topics completed up to January.</p>	<p>End of unit test for P6 End of unit test for C1+C2</p>	<p>End of year examination</p>
<p>Homework expectations (frequency, time commitment)</p>	<p>Progress quizzes set for every topic with diagnostic feedback. Revision using the digital book ongoing in preparation for formal assessment.</p>	<p>Minimum of 2 homework + 1 DIRT work per half term (60 mins for each piece of homework): P1+P2; P6</p>	<p>Minimum of 2 homework + 1 DIRT work per half term - including revision for examinations (60 mins for each piece of homework): B5+B6</p>

## Summary Curriculum Map and Expectations

Subject: Science

Head of Faculty: Mr S Wearden

Year 10E1	Autumn term	Spring term	Summer term
Key content; Main learning objectives, Knowledge, Skills, Understanding,	B8: Photosynthesis B9: Respiration C4: Chemical calculation P4: Electrical circuits P5: Electricity in the home B10: The human nervous system B11: Hormonal coordination C5: Chemical changes	C6: Electrolysis P6: Molecules and matter C7: Energy changes C8: Rates and equilibrium B12: Reproduction	B13: Variation and evolution C9: Crude oil and fuels P7: Radioactivity
Formal Assessments	End of unit test for B8+B9 End of unit test for P4+P5 End of unit test for B10+B11	End of unit test for C5+C6 End of unit test for C7 End of unit test for C8	End of year examination End of unit test for B12+B13 End of unit test for P7
Homework expectations (frequency, time commitment)	Minimum of 2 homework + 1 DIRT work per half term (60 mins for each piece of homework): B8+B9, P4+P5, B10+B11, C5	Minimum of 2 homework + 1 DIRT work per half term (60 mins for each piece of homework): C6, P6, C7, C8	Minimum of 2 homework + 1 DIRT work per half term - including revision for examinations (60 mins for each piece of homework): B12+B13. C9, P7

## Summary Curriculum Map and Expectations

Subject: Science

Head of Faculty: Mr S Wearden

Year 10E2	Autumn term	Spring term	Summer term
Key content; Main learning objectives, Knowledge, Skills, Understanding,	B3: Organisation and the digestive system B4: Organising animals and plants P2: Energy transfer by heating P3: Energy resources C5: Chemical changes C6: Electrolysis B8: Photosynthesis B9: Respiration P4: Electrical circuits P5: Electricity in the home	P5: Electricity in the home B5: Communicable diseases B6: Preventing and treating disease B7: Non-communicable diseases P6: Molecules and matter C7: Energy changes	B10: The human nervous system B11: Hormonal coordination C8: Rates and equilibrium P7: Radioactivity
Formal Assessments	End of unit test for B3+B4 End of unit test for C5+C6 End of unit test for B8+B9	End of unit test for P4+P5 End of unit test for B5+B6 End of unit test for C7	End of year examination End of unit test for B10+B11 End of unit test for C8
Homework expectations (frequency, time commitment)	Minimum of 2 homework + 1 DIRT work per half term (60 mins for each piece of homework): B3+B4, P2+P3, C5+C6, B8+B9	Minimum of 2 homework + 1 DIRT work per half term (60 mins for each piece of homework): P4+P5, B5+B6+B7, P6, C7	Minimum of 2 homework + 1 DIRT work per half term - including revision for examinations (60 mins for each piece of homework): B10+B11, C8, P7

Summary Curriculum Map and Expectations

Subject: Science

Head of Faculty: Mr S Wearden

Year 10E3	Autumn term	Spring term	Summer term
Key content; Main learning objectives, Knowledge, Skills, Understanding,	B8: Photosynthesis B9: Respiration P1: Conservation and dissipation of energy P2: Energy transfer by heating P3: Energy resources C5: Chemical changes C6: Electrolysis B5: Communicable diseases B6: Preventing and treating disease B7: Non-communicable diseases	P4: Electrical circuits P5: Electricity in the home C7: Energy changes B10: The human nervous system B11: Hormonal coordination P6: Molecules and matter	C8: Rates and equilibrium P7: Radioactivity B12: Reproduction B13 (part): Variation and evolution
Formal Assessments	End of unit test for B8+B9 End of unit test for P1, P2+P3 End of unit test for C5+C6 End of unit test for B5, B6+B7	End of unit test for P4+P5 End of unit test for C7 End of unit test for B10+B11	End of year examination End of unit test for C8
Homework expectations (frequency, time commitment)	Minimum of 2 homework + 1 DIRT work per half term (60 mins for each piece of homework): B8+B9, P1-3, C5+C6, B5-7	Minimum of 2 homework + 1 DIRT work per half term (60 mins for each piece of homework): P4+P5, C7, B10+B11, P6	Minimum of 2 homework + 1 DIRT work per half term - including revision for examinations (60 mins for each piece of homework): C8, P7, B12

Summary Curriculum Map and Expectations

Subject: Science

Head of Faculty: Mr S Wearden

Year 10E4	Autumn term	Spring term	Summer term
<p>Key content; Main learning objectives, Knowledge, Skills, Understanding,</p>	<p>C3: Structure and bonding P4: Electrical circuits P5: Electricity in the home B8: Photosynthesis B9: Respiration B5: Communicable diseases B6: Preventing and treating disease B7: Non-communicable diseases</p>	<p>P6: Molecules and matter C4: Chemical calculations C5: Chemical changes C6: Electrolysis B10: The human nervous system B11: Hormonal coordination C7: Energy changes</p>	<p>C8: Rates and equilibrium P7: Radioactivity P8 (revision): Forces in balance B12: Reproduction B13 (part) Variation and evolution</p>
<p>Formal Assessments</p>	<p>End of unit test for C3 End of unit test for P4+P5 End of unit test for B5, B6+B7</p>	<p>End of unit test for C5+C6 End of unit test for B10+B11 End of unit test for C7</p>	<p>End of year examination End of unit test for C8</p>
<p>Homework expectations (frequency, time commitment)</p>	<p>Minimum of 2 homework + 1 DIRT work per half term (60 mins for each piece of homework): C3, P4+P5, B8+B9, B5-7</p>	<p>Minimum of 2 homework + 1 DIRT work per half term (60 mins for each piece of homework): P6, C5+C6, B10+B11, C7</p>	<p>Minimum of 2 homework + 1 DIRT work per half term - including revision for examinations (60 mins for each piece of homework): C8, P7, B12</p>



## Summary Curriculum Map and Expectations

Subject: Science

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Year 11E1, E2 and G1	Autumn term	Spring term	Summer term
<p>Key content; Main learning objectives, Knowledge, Skills, Understanding,</p>	<p>B12: Reproduction B13: Variation and evolution B14: Genetics and evolution P7: Radioactivity C10: Chemical analysis C11: The Earth's atmosphere P13: Electromagnetism B15: Adaptation, interdependence, competition B16: Organising an ecosystem B17: Biodiversity and ecosystems</p>	<p>B15: Adaptation, interdependence, competition B16: Organising an ecosystem B17: Biodiversity and ecosystems  C12: The Earth's resources</p>	<p>Revision of course – details to follow dependent on needs highlighted from mock examinations and from within lessons</p>
<p>Formal Assessments</p>	<p>Mock examinations (Nov 2018) End of unit test for B12-14</p>	<p>Mock examinations (Feb 2019)</p>	<p>GCSE examinations (from beginning of May)</p>
<p>Homework expectations (frequency, time commitment)</p>	<p>Minimum of 2 homework + 1 DIRT work per half term (60 mins for each piece of homework): B12-14; P7; P13; B15-17</p>	<p>Minimum of 2 homework + 1 DIRT work per half term (60 mins for each piece of homework): B15-17; C12</p>	<p>Active, productive, revision – at least 5 hours per week</p>

## Summary Curriculum Map and Expectations

Subject: Science

Subject leader / Head of Faculty: Mr S Wearden

Year 11G2 and G3	Autumn term	Spring term	Summer term
<p>Key content; Main learning objectives, Knowledge, Skills, Understanding,</p>	<p>B1: Cell structure and transport B2: Cell division C7: Energy changes P7: Radioactivity B12: Reproduction B13: Variation and evolution B14: Genetics and evolution C10: Chemical analysis C11: The Earth's atmosphere P13: Electromagnetism B15: Adaptation, interdependence, competition B16: Organising an ecosystem B17: Biodiversity and ecosystems</p>	<p>B15: Adaptation, interdependence, competition B16: Organising an ecosystem B17: Biodiversity and ecosystems C8: Rates and equilibrium C9: Crude oil and fuels C12: The Earth's resources</p>	<p>Revision of course – details to follow dependent on needs highlighted from mock examinations and from within lessons</p>
<p>Formal Assessments</p>	<p>Mock examinations (Nov 2018) End of unit test for B12-14</p>	<p>Mock examinations (Feb 2019)</p>	<p>GCSE examinations (from beginning of May)</p>
<p>Homework expectations (frequency, time commitment)</p>	<p>Minimum of 2 homework + 1 DIRT work per half term (60 mins for each piece of homework): B1+B2; B12-14; C10+C11; B15-17</p>	<p>Minimum of 2 homework + 1 DIRT work per half term (60 mins for each piece of homework): B15-17; C8, C9+C12</p>	<p>Active, productive, revision – at least 5 hours per week</p>