



## Curriculum Map for Combined Science Biology Year 10

YEAR 10	Autumn 1	Autumn 2
<b>Topics</b>	<b>Organisation &amp; The Digestive System</b> <b>Organising Plants &amp; Animals</b>	<b>Health &amp; Disease</b>
<b>Substantive Knowledge – The Knowledge and Content Taught By The Teacher</b>	<ul style="list-style-type: none"> <li>Tissues and organs, human digestive system, chemistry of food, catalysing and enzymes, how the digestive system works, the blood, heart, breathing and gas exchange.</li> </ul>	<ul style="list-style-type: none"> <li>Transport systems in plants, evaporation and transpiration, health and disease, pathogens, growing bacteria, preventing infection and viral diseases.</li> </ul>
<b>Disciplinary Knowledge – The Knowledge Scientists Need So They Can Collect, Understand and Evaluate Scientific Evidence</b>	<ul style="list-style-type: none"> <li>Heart disease developments of treatment</li> <li>Prevention of heart disease</li> </ul>	<ul style="list-style-type: none"> <li>Semmelweis and his development of preventing infection</li> <li>COVID 19</li> <li>Importance of aseptic technique</li> </ul>
<b>Skills</b>	<ul style="list-style-type: none"> <li>Using a variety of models such as representational, spatial, descriptive, computational and mathematical to solve problems, make predictions and to develop scientific explanations and understanding of familiar and unfamiliar facts.</li> <li>Evaluating risks both in practical science and the wider societal context, including perception of risk in relation to data and consequences.</li> <li>Presenting observations and other data using appropriate methods.</li> </ul>	<ul style="list-style-type: none"> <li>Explaining every day and technological applications of science; evaluate associated personal, social, economic and environmental implications; and make decisions based on the evaluation of evidence and arguments.</li> <li>Evaluating risks both in practical science and the wider societal context, including perception of risk in relation to data and consequences.</li> </ul>
<b>Links To Prior Learning</b>	<ul style="list-style-type: none"> <li>Year 7 and Year 8 cover the digestive system and its enzymes in brief detail.</li> <li>Tissues and cells covered in Year 9.</li> </ul>	<ul style="list-style-type: none"> <li>Year 8 covers how to prevent infection.</li> <li>Specialised cells covered in Year 9.</li> </ul>
<b>Literacy/ Numeracy</b>	<ul style="list-style-type: none"> <li>Recognise and use expressions in decimal form and standard form.</li> <li>Use ratios, fractions and percentages.</li> <li>Make estimates of the results of simple calculations.</li> <li>Literacy – extended answers.</li> </ul>	<ul style="list-style-type: none"> <li>Recognise and use expressions in decimal form and standard form.</li> <li>Use ratios, fractions and percentages.</li> <li>Make estimates of the results of simple calculations.</li> <li>Literacy – extended answers.</li> </ul>

<b>Cross Curricular</b>	<ul style="list-style-type: none"> <li>• Food and Nutrition – how the digestive system works.</li> <li>• PHSE – non communicable diseases.</li> </ul>	<ul style="list-style-type: none"> <li>• PSICHE- relationships, sex and contraception.</li> <li>• Food and Nutrition – lifestyle and diet.</li> </ul>
<b>Assessment</b>	<ul style="list-style-type: none"> <li>• Mid topic assessment - tissues and enzymes.</li> </ul>	<ul style="list-style-type: none"> <li>• Organisation assessment.</li> </ul>

<b>YEAR 10</b>	<b>Spring 1</b>	<b>Spring 2</b>
<b>Topics</b>	<b>Preventing &amp; Treating Diseases</b>	<b>Non-Communicable Diseases</b>
<b>Substantive Knowledge – The Knowledge and Content Taught By The Teacher</b>	<ul style="list-style-type: none"> <li>• Diseases Caused by Fungi and Protists</li> <li>• Human Defence Responses</li> <li>• More About Plant Diseases</li> <li>• Plant Defence Responses</li> <li>• Vaccination</li> <li>• Antibiotic and Painkillers</li> <li>• Discovering Drugs</li> <li>• Developing Drugs</li> <li>• Making Monoclonal Antibodies</li> <li>• Uses of Monoclonal Antibodies</li> </ul>	<ul style="list-style-type: none"> <li>• Non-Communicable Diseases</li> <li>• Cancer</li> <li>• Smoking and The Risk of Diseases</li> <li>• Diet, Exercise and Diseases</li> <li>• Alcohol and Other Carcinogens</li> </ul>
<b>Disciplinary Knowledge – The Knowledge Scientists Need So They Can Collect, Understand and Evaluate Scientific Evidence</b>	<ul style="list-style-type: none"> <li>• Development of Vaccines</li> <li>• Lateral Flow Tests</li> <li>• Pregnancy Test Development</li> </ul>	<ul style="list-style-type: none"> <li>• Development of Cancer Treatments</li> <li>• Prevention of Diseases Through Lifestyle Changes</li> </ul>
<b>Skills</b>	<ul style="list-style-type: none"> <li>• Explaining every day and technological applications of science; evaluate associated personal, social, economic and environmental implications; and make decisions based on the evaluation of evidence and arguments.</li> </ul>	<ul style="list-style-type: none"> <li>• Evaluating risks both in practical science and the wider societal context, including perception of risk in relation to data and consequences.</li> <li>• Recognising the importance of peer review of results and of communicating results to a range of audiences.</li> </ul>
<b>Links To Prior Learning</b>	<ul style="list-style-type: none"> <li>• Year 8 looks at human defence systems.</li> </ul>	<ul style="list-style-type: none"> <li>• Year 8 looks at drugs, smoking and alcohol.</li> </ul>
<b>Literacy/ Numeracy</b>	<ul style="list-style-type: none"> <li>• Use an appropriate number of significant figures.</li> <li>• Find arithmetic means.</li> <li>• Construct and interpret frequency tables and diagrams, bar charts and histograms.</li> <li>• Understand the principles of sampling as applied to scientific data.</li> <li>• Understand simple probability.</li> <li>• Understand the terms mean, mode and median.</li> </ul>	<ul style="list-style-type: none"> <li>• Use an appropriate number of significant figures.</li> <li>• Find arithmetic means.</li> <li>• Construct and interpret frequency tables and diagrams, bar charts and histograms.</li> <li>• Understand the principles of sampling as applied to scientific data.</li> <li>• Understand simple probability.</li> <li>• Understand the terms mean, mode and median.</li> </ul>

	<ul style="list-style-type: none"> <li>• Use a scatter diagram to identify a correlation between two variables.</li> <li>• Make order of magnitude calculations.</li> <li>• Literacy – 6-mark question development and experiment write up.</li> </ul>	<ul style="list-style-type: none"> <li>• Use a scatter diagram to identify a correlation between two variables.</li> <li>• Make order of magnitude calculations.</li> <li>• Literacy – 6-mark question development and experiment write up.</li> </ul>
<b>Cross Curricular</b>	<ul style="list-style-type: none"> <li>• History - Development of Medicines</li> <li>• PHSE – Vaccines and Antivax Debate</li> <li>• Psychology/Philosophy and Ethics- Links Between Arguments and Ethics</li> </ul>	<ul style="list-style-type: none"> <li>• PE – Health and Exercise</li> <li>• Food and Nutrition - Healthy Eating</li> <li>• Geography – Access to Resources</li> </ul>
<b>Assessment</b>	<ul style="list-style-type: none"> <li>• Mid-Topic Assessment - Pathogens</li> </ul>	<ul style="list-style-type: none"> <li>• Infection and Response Assessment</li> </ul>

<b>YEAR 10</b>	<b>Summer 1</b>	<b>Summer 2</b>
<b>Topics</b>	<b>The Human Nervous System</b>	<b>Hormonal Coordination</b>
<b>Substantive Knowledge – The Knowledge and Content Taught By The Teacher</b>	<ul style="list-style-type: none"> <li>• Principles of Homeostasis</li> <li>• The Structure and Function of the Human Nervous System</li> <li>• Reflex Actions</li> <li>• Practical: Investigating Ruler Drop</li> <li>• The Brain</li> <li>• The Eye</li> <li>• Common Problems in the Eye</li> </ul>	<ul style="list-style-type: none"> <li>• Principles of Hormonal Control</li> <li>• Control of Blood Glucose</li> <li>• Treating Diabetes</li> <li>• The Role of Negative Feedback</li> <li>• Human Reproduction</li> <li>• Hormones and the Menstrual Cycle</li> <li>• The Artificial Control of Fertility</li> <li>• Infertility Treatments</li> <li>• Plant Hormones and Plant Responses</li> <li>• Using Plant Hormones</li> <li>• Germination</li> </ul>
<b>Disciplinary Knowledge – The Knowledge Scientists Need So They Can Collect, Understand and Evaluate Scientific Evidence</b>	<ul style="list-style-type: none"> <li>• Development of studies of the brain, eye and nervous system.</li> <li>• Discovery and treatment of diseases associated with the brain, eye and nervous system.</li> </ul>	<ul style="list-style-type: none"> <li>• Development of treatments of diabetes over time and searching for a cure for Type 1 Diabetes.</li> <li>• Control and development of fertility and it's treatments- IVF and contraception methods.</li> </ul>
<b>Skills</b>	<ul style="list-style-type: none"> <li>• Appreciating the power and limitations of science and consider any ethical issues which may arise.</li> <li>• Explaining every day and technological applications of science; evaluate associated personal, social, economic and environmental implications; and make decisions based on the evaluation of evidence and arguments.</li> </ul>	<ul style="list-style-type: none"> <li>• Evaluating risks both in practical science and the wider societal context, including perception of risk in relation to data and consequences.</li> <li>• Recognising the importance of peer review of results and of communicating results to a range of audiences.</li> <li>• Planning experiments or devise procedures to make observations, produce or characterise a substance, test hypotheses, check data or explore phenomena.</li> </ul>
<b>Links To Prior Learning</b>	<ul style="list-style-type: none"> <li>• The eye is covered in Year 7.</li> <li>• Specialised cells - nerve cells are covered in Year 7.</li> </ul>	<ul style="list-style-type: none"> <li>• Year 8 looks at the different diseases and disorders that effect the body that can include diabetes.</li> </ul>

<b>Literacy/ Numeracy</b>	<ul style="list-style-type: none"> <li>• Use an appropriate number of significant figures.</li> <li>• Find arithmetic means.</li> <li>• Construct and interpret frequency tables and diagrams, bar charts and histograms.</li> <li>• Understand the principles of sampling as applied to scientific data.</li> <li>• Use a scatter diagram to identify a correlation between two variables.</li> <li>• Literacy – 6-mark question development and experiment write up.</li> </ul>	<ul style="list-style-type: none"> <li>• Use an appropriate number of significant figures.</li> <li>• Find arithmetic means.</li> <li>• Construct and interpret frequency tables and diagrams, bar charts and histograms.</li> <li>• Understand the principles of sampling as applied to scientific data.</li> <li>• Use a scatter diagram to identify a correlation between two variables.</li> <li>• Analysing hormone graphs in Menstrual Cycle.</li> <li>• Evaluating forms of contraception.</li> </ul>
<b>Cross Curricular</b>	<ul style="list-style-type: none"> <li>• PE – Nervous System Hand Eye Coordination</li> <li>• Physics - Eye Light and Refraction/Lenses</li> <li>• Photography – Light and Eye</li> <li>• Medical Physics A-Level - Brain PET Scanners</li> </ul>	<ul style="list-style-type: none"> <li>• Health and Social Care – Fertility</li> <li>• PHSE – Health and Drugs/Sex Education</li> <li>• Philosophy and Ethics - Ethics of Birth Control</li> </ul>
<b>Assessment</b>	<ul style="list-style-type: none"> <li>• Mid-Topic Assessment - Homeostasis and Response</li> </ul>	<ul style="list-style-type: none"> <li>• SIR Task</li> <li>• End of Topic Test to be Completed Year 11 in September</li> </ul>