



	Year:	10	Subject:	Biology Triple	Spring 2	Summer 1	Summer 2		
Intent	Subject Concepts (Substantive knowledge)		<ul style="list-style-type: none"> <li>Human Biology</li> </ul>	<p>(B10, B11, B12) Homeostasis and response</p> <p><u>Practical opportunities</u> Investigate the effect of a factor on human reaction time</p> <p>Investigate the effect of light or gravity on the growth of newly germinated seedlings</p> <p>Effect of rooting compounds and weed killers on the growth of plants</p> <p>Eye dissection – more able</p> <p>Finding the blind spot</p>	<p>Prior Knowledge:</p> <ul style="list-style-type: none"> <li>Define a Healthy lifestyle</li> <li>Describe the role of the nervous system</li> <li>Identify Specialised cells</li> </ul> <p>Takeaway Learning:</p> <ul style="list-style-type: none"> <li>Explain the role of the endocrine system <ul style="list-style-type: none"> <li>Compare the nervous and hormonal responses and systems</li> <li>Explain how the body controls blood glucose level</li> <li>Explain why the body needs to get rid of carbon dioxide, urea, excess ions, and water</li> <li>Describe the role of hormones in reproduction and contraception</li> </ul> </li> </ul>	<p>Ecology (B16, B17, B18)</p> <p><u>Practical opportunities</u> Measure the population size of a common species in a habitat</p> <p>Investigate the effect of temperature on the rate of decay of fresh milk</p> <p>Investigating competition in plants</p> <p>Investigating the use of biomass in cellular respiration</p>	<p>Prior Knowledge:</p> <ul style="list-style-type: none"> <li>Write the word equation for photosynthesis <ul style="list-style-type: none"> <li>Describe the role of photosynthesis</li> <li>Draw food chains and food webs and explain factors affecting removal of organisms</li> <li>Describe some adaptations in plants and animals</li> </ul> </li> </ul> <p>Takeaway Learning:</p> <ul style="list-style-type: none"> <li>Explain adaptation and competition in plants and animals <ul style="list-style-type: none"> <li>Explain biodiversity</li> <li>Undertake different sampling methods</li> <li>Recognise that carbon atoms are moved around the Earth (recycled).</li> <li>Describe the carbon and water cycle</li> <li>Identify ecological relationships</li> </ul> </li> </ul>	<p>Ecology (B16, B17, B18)</p> <p><u>Practical opportunities</u> Measure the population size of a common species in a habitat</p> <p>Investigate the effect of temperature on the rate of decay of fresh milk</p> <p>Investigating competition in plants</p> <p>Investigating the use of biomass in cellular respiration</p>	<p>Prior Knowledge:</p> <ul style="list-style-type: none"> <li>Write the word equation for photosynthesis <ul style="list-style-type: none"> <li>Describe the role of photosynthesis</li> <li>Draw food chains and food webs and explain factors affecting removal of organisms</li> <li>Describe some adaptations in plants and animals</li> </ul> </li> </ul> <p>Takeaway Learning:</p> <ul style="list-style-type: none"> <li>Explain adaptation and competition in plants and animals <ul style="list-style-type: none"> <li>Explain biodiversity</li> <li>Undertake different sampling methods</li> <li>Recognise that carbon atoms are moved around the Earth (recycled).</li> <li>Describe the carbon and water cycle</li> <li>Identify ecological relationships</li> </ul> </li> </ul>
	Disciplinary Knowledge		<ul style="list-style-type: none"> <li>Feedback mechanisms maintain a living system’s internal conditions within certain limits and mediate behaviours, allowing it to remain alive and functional even as external conditions change within some range. Feedback mechanisms can encourage through positive feedback or discourage through negative feedback what is going on inside the living system.</li> <li>Understand how scientific methods and theories develop over time</li> <li>Appreciate the power and limitations of science and consider any ethical issues which may arise.</li> <li>Explain everyday 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>Use 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>1.4 Explain everyday 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>Evaluate risks both in practical science and the wider societal context, including perception of risk in relation to data and consequences.</li> <li>Recognise the importance of peer review of results and of communicating results to a range of audiences.</li> </ul>	<ul style="list-style-type: none"> <li>Use 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>1.4 Explain everyday 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>Evaluate risks both in practical science and the wider societal context, including perception of risk in relation to data and consequences.</li> <li>Recognise the importance of peer review of results and of communicating results to a range of audiences.</li> </ul>				
Implementation	Common Misconceptions		<ul style="list-style-type: none"> <li><a href="#">biology misconceptions</a></li> </ul>	<ul style="list-style-type: none"> <li>Plants are dependent on humans (e.g. watering, planting seeds)</li> <li>Plants cannot defend themselves against herbivores</li> <li>Food webs are interpreted as simple food chains, rather than a flow of energy</li> <li>Organisms higher in a food web, eat anything or everything that is lower in the food web.</li> <li>There are more herbivores than carnivores because people keep and breed herbivores</li> <li>Decomposers release some energy that is cycled back to plants</li> <li>Carnivores have more energy or power than herbivores do.</li> </ul>	<ul style="list-style-type: none"> <li>Plants are dependent on humans (e.g. watering, planting seeds)</li> <li>Plants cannot defend themselves against herbivores</li> <li>Food webs are interpreted as simple food chains, rather than a flow of energy</li> <li>Organisms higher in a food web, eat anything or everything that is lower in the food web.</li> <li>There are more herbivores than carnivores because people keep and breed herbivores</li> <li>Decomposers release some energy that is cycled back to plants</li> <li>Carnivores have more energy or power than herbivores do.</li> </ul>				



<b>Enabling or Adapting the Curriculum</b>	<b>SEND Students</b>	<ul style="list-style-type: none"> <li>• Teach keyword vocabulary and break down ie photo – light, lysis to split</li> <li>• Breaking text into chunks on powerpoints</li> <li>• Dual coding - visual clues</li> <li>• Scaffolding for long text, graphing</li> <li>• Use coloured slides</li> <li>• Modelling</li> <li>• Subtitles on any videos</li> </ul>	<ul style="list-style-type: none"> <li>• Carnivores are big or ferocious, or both. Herbivores are small and passive.</li> </ul>	<ul style="list-style-type: none"> <li>• Carnivores are big or ferocious, or both. Herbivores are small and passive.</li> </ul>
	<b>Disadvantaged Students</b>	<ul style="list-style-type: none"> <li>• Bring career links into lessons (aspirational)</li> <li>• External trips – linked with STEM co-ordinator?</li> <li>• Access to revision guides</li> <li>• Support with exam questions through use of displays and key terminology</li> <li>• Support long answer questions with sentence starters</li> <li>• Use of CGP books to support in PLC lessons</li> </ul>	<ul style="list-style-type: none"> <li>• Demo – acid rain effect</li> <li>• Link greenhouse effect with greenhouses</li> <li>• Teach keyword vocabulary and break down ie photo – light, lysis to split</li> <li>• Breaking text into chunks on powerpoints</li> <li>• Dual coding - visual clues</li> <li>• Scaffolding for long text, graphing</li> <li>• Use coloured slides</li> <li>• Modelling</li> <li>• Subtitles on any videos</li> </ul>	<ul style="list-style-type: none"> <li>• Demo – acid rain effect</li> <li>• Link greenhouse effect with greenhouses</li> <li>• Teach keyword vocabulary and break down ie photo – light, lysis to split</li> <li>• Breaking text into chunks on powerpoints</li> <li>• Dual coding - visual clues</li> <li>• Scaffolding for long text, graphing</li> <li>• Use coloured slides</li> <li>• Modelling</li> <li>• Subtitles on any videos</li> </ul>
	<b>More Able Students</b>	<ul style="list-style-type: none"> <li>• <a href="https://www.stem.org.uk/elibrary/resource/27540">Diabetes in young people, The search for genetics</a></li> <li>• <a href="https://www.stem.org.uk/resources/elibrary/resource/26476/kidney-failure">Kidney failure -</a></li> <li>• <a href="#">Kidney and eye dissection</a></li> <li>• <a href="#">Debate on issues relating to fertility and ethics</a></li> <li>• Build into lessons well-designed extension tasks</li> <li>• promote higher-order skills such as speculation, inference, prediction, hypothesis and synthesis, as well as nurturing independence and self-knowledge.</li> <li>• Asking probing questions</li> <li>• Encourage effective discussion between teacher and pupil</li> <li>• open-ended tasks that do not have one right answer</li> <li>• Set an independent task, such as a further investigation</li> <li>• invite students to decide how they would like to demonstrate their learning to you or the rest of the class after an agreed length of time.</li> </ul>	<ul style="list-style-type: none"> <li>• <a href="#">Link greenhouse effect with greenhouses</a></li> <li>• Bring career links into lessons (aspirational)</li> <li>• External trips – linked with STEM co-ordinator?</li> <li>• Access to revision guides</li> <li>• Support with exam questions through use of displays and key terminology</li> <li>• Support long answer questions with sentence starters</li> <li>• Use of CGP books to support in PLC lessons</li> </ul>	<ul style="list-style-type: none"> <li>• <a href="#">Link greenhouse effect with greenhouses</a></li> <li>• Bring career links into lessons (aspirational)</li> <li>• External trips – linked with STEM co-ordinator?</li> <li>• Access to revision guides</li> <li>• Support with exam questions through use of displays and key terminology</li> <li>• Support long answer questions with sentence starters</li> <li>• Use of CGP books to support in PLC lessons</li> </ul>
<b>Literacy/Numeracy Skills</b> 	<b>LITERACY</b>	<ul style="list-style-type: none"> <li>• <a href="#">Biology keywords</a></li> <li>• <a href="https://thescienceteacher.co.uk/writing-in-science/">https://thescienceteacher.co.uk/writing-in-science/</a></li> </ul>	<ul style="list-style-type: none"> <li>• <a href="#">Biology keywords</a></li> <li>• <a href="#">Key mathematical terms – mean, mode, median, average, quantitively, qualitative</a></li> </ul>	<ul style="list-style-type: none"> <li>• <a href="#">Biology keywords</a></li> <li>• <a href="#">Key mathematical terms – mean, mode, median, average, quantitively, qualitative</a></li> </ul>
	<b>Reading:</b>	<ul style="list-style-type: none"> <li>• <a href="#">Diabetes and stem cell treatment article</a></li> <li>• <a href="https://www.stem.org.uk/resources/elibrary/resource/27689/keeping-things-steady-suitable-home-teaching">Keeping things steady -</a></li> <li>• <a href="https://www.stem.org.uk/elibrary/resource/27540">Diabetes in young people -</a></li> <li>• <a href="https://www.stem.org.uk/resources/elibrary/resource/27621/kidneys-suitable-home-teaching">All about the kidneys from catalyst magazine -</a></li> <li>• <a href="#">Created a reading list to link with the topics. share once joined as on my area</a></li> <li>• Reading textbook, slides, questions</li> <li>• Display keywords on slides</li> <li>• Teach keyword vocabulary and break down ie photo – light, lysis to split</li> </ul>	<ul style="list-style-type: none"> <li>• <a href="#">Effect of deforestation on biodiversity</a></li> <li>• <a href="#">Created a reading list to link with the topics. share once joined as on my area</a></li> <li>• Reading textbook, slides, questions</li> <li>• Display keywords on slides</li> <li>• Teach keyword vocabulary and break down ie photo – light, lysis to split</li> </ul>	<ul style="list-style-type: none"> <li>• <a href="#">Effect of deforestation on biodiversity</a></li> <li>• <a href="#">Created a reading list to link with the topics. share once joined as on my area</a></li> <li>• Reading textbook, slides, questions</li> <li>• Display keywords on slides</li> <li>• Teach keyword vocabulary and break down ie photo – light, lysis to split</li> </ul>

		<b>Writing:</b>	<ul style="list-style-type: none"> <li>• Definition quizzes – all three key areas</li> <li>• 6 mark questions</li> <li>• End of topic tests</li> </ul>	<ul style="list-style-type: none"> <li>• <b>Importance of recycling</b></li> <li>• Definition quizzes – all three key areas</li> <li>• 6 mark questions</li> <li>• End of topic tests</li> </ul>	<ul style="list-style-type: none"> <li>• <b>Importance of recycling</b></li> <li>• Definition quizzes – all three key areas</li> <li>• 6 mark questions</li> <li>• End of topic tests</li> <li>•</li> </ul>					
		<b>Oracy:</b>	<ul style="list-style-type: none"> <li>• <b>Class discussion/debate on advantages and disadvantages of IVF</b></li> <li>• Cold calling, answering questions in class</li> <li>• Class discussion on topic areas being addressed</li> <li>• Reading out loud</li> <li>• Answering questions</li> <li>• Feedback through discussion and debates</li> </ul>	<ul style="list-style-type: none"> <li>• <b>Global warming debate</b></li> <li>• Cold calling, answering questions in class</li> <li>• Class discussion on topic areas being addressed</li> <li>• Reading out loud</li> <li>• Answering questions</li> <li>• Feedback through discussion and debates</li> </ul>	<ul style="list-style-type: none"> <li>• <b>Global warming debate</b></li> <li>• Cold calling, answering questions in class</li> <li>• Class discussion on topic areas being addressed</li> <li>• Reading out loud</li> <li>• Answering questions</li> <li>• Feedback through discussion and debates</li> <li>•</li> </ul>					
		<b>NUMERACY</b>	<ul style="list-style-type: none"> <li>• Interpret data about sweating and temperature - <a href="https://practicalbiology.org/control-and-communication/homeostasis/interpreting-information-about-sweating-and-temperature">https://practicalbiology.org/control-and-communication/homeostasis/interpreting-information-about-sweating-and-temperature</a></li> <li>• Analysis of data</li> <li>•</li> </ul>	<ul style="list-style-type: none"> <li>• <b>Mean, mode, median – quadrats</b></li> <li>• Analysis of data</li> <li>• Drawing graphs</li> <li>•</li> </ul>	<ul style="list-style-type: none"> <li>• <b>Mean, mode, median – quadrats</b></li> <li>• Analysis of data</li> <li>• Drawing graphs</li> <li>•</li> </ul>					
	<b>Digital Strategy</b>		<ul style="list-style-type: none"> <li>• <b>Testing reaction rates online – sheep dash</b> <a href="https://games.kidzsearch.com/computer/title/sheep-dash-how-fast-are-your-reactions-23781">https://games.kidzsearch.com/computer/title/sheep-dash-how-fast-are-your-reactions-23781</a></li> <li>• <b>Homeostasis simulation -</b> <a href="https://pbslm-contrib.s3.amazonaws.com/WGBH/conv16/conv16-int-bcc/index.html">https://pbslm-contrib.s3.amazonaws.com/WGBH/conv16/conv16-int-bcc/index.html</a></li> <li>•</li> </ul>	<ul style="list-style-type: none"> <li>• Interactive whiteboards for ipads - <a href="https://whiteboard.fi/">https://whiteboard.fi/</a></li> <li>• Use of ipads to complete forms quiz to support PLC and teacher assessment</li> <li>• Interactive physics simulation and questions - <a href="#">physcis concept builder</a></li> <li>• <b>phet simulations - all three sciences</b></li> <li>•</li> </ul>	<ul style="list-style-type: none"> <li>• Interactive whiteboards for ipads - <a href="https://whiteboard.fi/">https://whiteboard.fi/</a></li> <li>• Use of ipads to complete forms quiz to support PLC and teacher assessment</li> <li>• Interactive physics simulation and questions - <a href="#">physcis concept builder</a></li> <li>• <b>phet simulations - all three sciences</b></li> <li>•</li> </ul>					
	<b>Home Learning</b>	•	•	•	•					
<b>Impact</b>	<b>Composite Assessment</b>	Date:	Content:	<b>Term 4-</b> Synoptic assessment on Homeostasis and response	Date:	Content:	<b>Term 5-</b> Synoptic assessment on homeostasis and response and ecology	Date:	Content:	<b>Term 6- Year 10 Mock Exams</b>