



		Year:	10	Subject:	Biology Triplet	Autumn 1	Autumn 2	Spring 1	
Intent	Subject Concepts (Substantive knowledge)	<ul style="list-style-type: none"> Human Biology 		<p>(B5, B6, B7) Infection and response</p> <p><u>Practical opportunities</u> Model the spread of disease – iodine and milk</p> <p>Growing useful organisms</p> <p>Investigating the effect of disinfectants and antibiotics (RP)</p>	<p>Prior Knowledge:</p> <ul style="list-style-type: none"> Identify the different types of microbes <ul style="list-style-type: none"> Describe the aspects of a healthy lifestyle Explain how to prevent infections 	<p>(B8, B9) Bioenergetics</p> <p><u>Practical opportunities</u> Investigate the effect of light intensity on the rate of photosynthesis (RP)</p> <p>Respiration practical – breathing rate increase (effect of exercise – link with KS3)</p> <p>Starch on leaf – link to KS3 topics, energy for plant</p>	<p>Prior Knowledge:</p> <ul style="list-style-type: none"> State the word equations for photosynthesis and respiration <ul style="list-style-type: none"> Explain basic factors that affect PS and respiration Describe the effect of exercise on heart rate Year 7 Cell covering the basic structure and function of cells and their organelles Year 8 Respiration and Photosynthesis Topics cover all the basics of bioenergetics topic 	<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>Prior Knowledge:</p> <ul style="list-style-type: none"> Define a Healthy lifestyle <ul style="list-style-type: none"> Describe the role of the nervous system Identify Specialised cells
		Disciplinary Knowledge			<ul style="list-style-type: none"> 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. Recognise the importance of peer review of results and of communicating results to a range of audiences. 		<ul style="list-style-type: none"> 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. 	<ul style="list-style-type: none"> 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. 	
Implementation	Common Misconceptions			<ul style="list-style-type: none"> How communicable diseases are spread, students do not always appreciate the different modes of transmission of different pathogens <ul style="list-style-type: none"> vaccines are possible alternatives to the use of antibiotics. Bacteria are the only pathogens that antibiotics can be used to treat. When an antibiotic no longer works, the bacteria has not developed antibodies to it so it is not "immune". Instead, it has developed resistance to that antibiotic 		<ul style="list-style-type: none"> Breathing is not the same as respiration. Plants respire all the time, not just at night when they have finished photosynthesising. Respiration is the release of energy, not the production of energy. Plants obtain their energy directly from the sun. Plants have multiple sources of food (heterotrophic as well as autotrophic). Carbon dioxide, water, and minerals are food. Plants feed by absorbing food through their roots. Plants use heat from the sun as a source of energy for photosynthesis Sunlight is a food. Sunlight is composed of molecules. Sunlight is consumed in photosynthesis. Plants absorb water through their leaves. Plants produce oxygen for our benefit. 	<ul style="list-style-type: none"> "Negative feedback is detrimental for the body; positive is better for the body." "Homeostasis means that the body always does what is best for itself."- Not always. Homeostasis is the ability to maintain constant internal conditions. However, sometimes the constant the body is maintaining is not ideal. Such as when the body maintains a high blood pressure. 		
	Enabling or Adapting the Curriculum	SEND Students		<ul style="list-style-type: none"> Provide keywords to support the topic and understanding Model spread of disease – practical Teach keyword vocabulary and break down ie photo – light, lysis to split Breaking text into chunks on powerpoints 		<ul style="list-style-type: none"> Provide keywords to support the topic and understanding Stomata in leaves – opportunity to recap previous knowledge through practical (link with microscopes yr 7 and 8) - https://youtu.be/Haiiw5SHSGO Model practicals/show on youtube (provide links on Teams), step by step instructions Make a 3D cube model of a leaf Model plants producing oxygen 	<ul style="list-style-type: none"> Provide keywords to support the topic and understanding Examples of contraception to show <p>Provide writing frames and support for answer 6 mark questions</p>		



		<ul style="list-style-type: none"> Dual coding - visual clues Scaffolding for long text, graphing Use coloured slides Modelling Subtitles on any videos Provide writing frames and support for answer 6 mark questions 	<ul style="list-style-type: none"> Teach keyword vocabulary and break down ie photo – light, lysis to split Breaking text into chunks on powerpoints Dual coding - visual clues Scaffolding for long text, graphing Use coloured slides Modelling Subtitles on any videos 	<ul style="list-style-type: none"> Teach keyword vocabulary and break down ie photo – light, lysis to split Breaking text into chunks on powerpoints Dual coding - visual clues Scaffolding for long text, graphing Use coloured slides Modelling Subtitles on any videos
	Disadvantaged Students	<ul style="list-style-type: none"> Bring career links into lessons (aspirational) External trips – linked with STEM co-ordinator? Access to revision guides Support with exam questions through use of displays and key terminology Support long answer questions with sentence starters Use of CGP books to support in PLC lessons 	<ul style="list-style-type: none"> Bring career links into lessons (aspirational) External trips – linked with STEM co-ordinator? Access to revision guides Support with exam questions through use of displays and key terminology Support long answer questions with sentence starters Use of CGP books to support in PLC lessons 	<ul style="list-style-type: none"> Bring career links into lessons (aspirational) External trips – linked with STEM co-ordinator? Access to revision guides Support with exam questions through use of displays and key terminology Support long answer questions with sentence starters Use of CGP books to support in PLC lessons
	More Able Students	<ul style="list-style-type: none"> Debating – to vaccinate or not https://resource.download.wjec.co.uk/vtc/2015-16/15-16_27/pdf/unit03/activities/to-vaccinate-debating-cards.pdf Investigate the effect of herd immunity Build into lessons well-designed extension tasks promote higher-order skills such as speculation, inference, prediction, hypothesis and synthesis, as well as nurturing independence and self-knowledge. Asking probing questions Encourage effective discussion between teacher and pupil open-ended tasks that do not have one right answer Set an independent task, such as a further investigation 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. 	<ul style="list-style-type: none"> Algae to fuel – extend understanding - https://www.energy.gov/eere/education/articles/energy-101-algae-fuels Chromatography of leaf pigments – link with separating substances KS3. Lactic acid in athletes – task on Kerboodle pg 126 Alcoholic yeast Build into lessons well-designed extension tasks promote higher-order skills such as speculation, inference, prediction, hypothesis and synthesis, as well as nurturing independence and self-knowledge. Asking probing questions Encourage effective discussion between teacher and pupil open-ended tasks that do not have one right answer Set an independent task, such as a further investigation 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. 	<ul style="list-style-type: none"> Diabetes in young people, The search for genetics https://www.stem.org.uk/elibrary/resource/27540 Kidney failure - https://www.stem.org.uk/resources/elibrary/resource/26476/kidney-failure Kidney and eye dissection Debate on issues relating to fertility and ethics Build into lessons well-designed extension tasks promote higher-order skills such as speculation, inference, prediction, hypothesis and synthesis, as well as nurturing independence and self-knowledge. Asking probing questions Encourage effective discussion between teacher and pupil open-ended tasks that do not have one right answer Set an independent task, such as a further investigation 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.
Literacy/Numeracy Skills 	LITERACY	<ul style="list-style-type: none"> Biology keywords Literacy tasks https://resources.edugas.co.uk/pages/ResourceSingle.aspx?rliid=874 	<ul style="list-style-type: none"> Bioenergetics keywords Hydroponics literacy task (taken from combined science Kerboodle pg118) 	<ul style="list-style-type: none"> Biology topic keywords https://thescienceteacher.co.uk/writing-in-science/
	Reading:	<ul style="list-style-type: none"> How exercise affects your immunity and susceptibility to infection – article link to the areas being covered https://www.stem.org.uk/resources/elibrary/resource/30205/fighting-fit-suitable-home-teaching further reading into the topic of microbes and disease https://microbiologysociety.org/why-microbiology-matters/what-is-microbiology/microbes-and-the-human-body/microbes-and-disease.html Created a reading list to link with the topics. share once joined as on my area Reading textbook, slides, questions Display keywords on slides Teach keyword vocabulary and break down ie photo – light, lysis to split Class textbooks BBC bitesize Revision guides 	<ul style="list-style-type: none"> Life magazine link - https://www.suttongrammar.sutton.sch.uk/ckfinder/userfiles/files/Life%20Magazine%202023%20issue%201.pdf Created a reading list to link with the topics. share once joined as on my area Reading textbook, slides, questions Display keywords on slides Teach keyword vocabulary and break down ie photo – light, lysis to split Class textbooks BBC bitesize Revision guides 	<ul style="list-style-type: none"> Keeping things steady - https://www.stem.org.uk/resources/elibrary/resource/27689/keeping-things-steady-suitable-home-teaching Diabetes in young people - https://www.stem.org.uk/elibrary/resource/27540 All about the kidneys from catalyst magazine - https://www.stem.org.uk/resources/elibrary/resource/27621/kidneys-suitable-home-teaching Created a reading list to link with the topics. share once joined as on my area Reading textbook, slides, questions Display keywords on slides Teach keyword vocabulary and break down ie photo – light, lysis to split Class textbooks BBC bitesize Revision guides
	Writing:	<ul style="list-style-type: none"> Short story - A journey of a microbe and how it infects the body/spreads – how the body responds Research project on non-communicable diseases Definition quizzes – all three key areas 6 mark questions 	<ul style="list-style-type: none"> Writing a practical to investigate the effect of exercise on the body Definition quizzes – all three key areas 6 mark questions End of topic tests 	<ul style="list-style-type: none"> Definition quizzes – all three key areas 6 mark questions End of topic tests

			<ul style="list-style-type: none"> 6 mark questions 						
		Oracy:	<ul style="list-style-type: none"> Debating – to vaccinate or not https://resource.download.wjec.co.uk/vtc/2015-16/15-16_27/pdf/unit03/activities/to-vaccinate-debating-cards.pdf Cold calling, answering questions in class Class discussion on topic areas being addressed Reading out loud Answering questions Feedback through discussion and debates 	<ul style="list-style-type: none"> Cold calling, answering questions in class Class discussion on topic areas being addressed Reading out loud Answering questions Feedback through discussion and debates 	<ul style="list-style-type: none"> Class discussion/debate on advantages and disadvantages of IVF Cold calling, answering questions in class Class discussion on topic areas being addressed Reading out loud Answering questions Feedback through discussion and debates 				
		NUMERACY	<ul style="list-style-type: none"> Looking at data and graphs, analysing data <ul style="list-style-type: none"> Differences between diseases and infections - HIV and AIDS the difference (activity using graph and data) https://thescienceteacher.co.uk/infection-and-response/ Numeracy tasks - https://resources.edugas.co.uk/pages/ResourceSingle.aspx?rId=874 Calculating means 	<ul style="list-style-type: none"> Recording data form required practical, analysis for limiting factors <ul style="list-style-type: none"> Reading scales and using apparatus Measuring photosynthetic rates Using data to compare respiration types (Graphs and Tables) - Lactic acid in athletes – task on Kerboodle pg 126 	<ul style="list-style-type: none"> Interpret data about sweating and temperature - https://practicalbiology.org/control-and-communication/homeostasis/interpreting-information-about-sweating-and-temperature Analysis of data 				
	Digital Strategy		<ul style="list-style-type: none"> Christmas lectures on virus – particular focus on corona virus - https://www.rigb.org/explore-science/explore/video/going-viral-how-covid-changed-science-forever-invisible-enemy-2021 https://www.rigb.org/explore-science/explore/video/going-viral-how-covid-changed-science-forever-perfect-storm-2021 Cognito videos – all science subjects Interactive whiteboards for ipads - https://whiteboard.fi/ Use of ipads to complete forms quiz to support PLC and teacher assessment Interactive physics simulation and questions - physcis concept builder phet simulations 	<ul style="list-style-type: none"> Investigate the effect of light intensity on the rate of photosynthesis – Phet simulations, you tube videos <ul style="list-style-type: none"> Photosynthesis biology lab - https://study.com/academy/lesson/lab-5-photosynthesis.html Online biology lab - https://study.com/academy/topic/bioenergetics.html Cognito videos – all science subjects Interactive whiteboards for ipads - https://whiteboard.fi/ Use of ipads to complete forms quiz to support PLC and teacher assessment Interactive physics simulation and questions - physcis concept builder phet simulations 	<ul style="list-style-type: none"> Testing reaction rates online – sheep dash https://games.kidzsearch.com/computer/title/sheep-dash-how-fast-are-your-reactions-23781 Homeostasis simulation - https://pbsIm-contrib.s3.amazonaws.com/WGBH/conv16/conv16-int-bcc/index.html Cognito videos – all science subjects Interactive whiteboards for ipads - https://whiteboard.fi/ Use of ipads to complete forms quiz to support PLC and teacher assessment Interactive physics simulation and questions - physcis concept builder phet simulations 				
	Home Learning	<ul style="list-style-type: none"> Use of animations 	<ul style="list-style-type: none"> Use of animations 	<ul style="list-style-type: none"> Use of animations 					
Impact	Composite Assessment	Date: <input type="text"/> Content: <input type="text"/> Synoptic assessment baseline on year 9 topics	Date: <input type="text"/> Content: <input type="text"/> Synoptic assessment on all content covered in terms 1 and 2.	Date: <input type="text"/> Content: <input type="text"/> Synoptic assessment on all content covered since September					