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Principal: Mrs C Stanyer

Subject: Triple BIOLOGY Year 11 Curriculum Map 2020 – 2021

Resources:

Week Commencing	Topic (including links to additional resources)	Assessment Window
1 st September	Bridging work	
7 th September	Bridging work	
14 th September	Bridging work	
21 st September	Bridging work	
28 th September	<p><u>TOPIC 7 ECOLOGY</u> <u>Lesson 1 – Classification</u> Classify organisms based on their similarities. Describe classification using:</p> <ul style="list-style-type: none"> •Kingdom •Phylum •Class •Order •Family •Genus •Species. <p>Explain why the importance of the binomial system to name organisms. Explain how modern technologies have affected how organisms are classified today. Describe Carl Woese's system of classification and classify organisms into the three mains.</p> <p><u>Lesson 2 – Communities</u> Understand and use the terms ecosystem, community, competition, habitat, interdependence. Describe factors that affect the survival of organisms in their habitat. Explain how one species depends on others for survival. Describe a stable community as one where all the species and environmental factors are in balance, so population sizes remain fairly constant. Give an example of a stable community. Describe resources that plants and animals compete for in a given habitat.</p>	
5 th October	<p><u>Lesson 3 – Biotic and abiotic factors</u> Name biotic factors in a habitat and explain how a change in a biotic factor might affect a community, eg:</p> <ul style="list-style-type: none"> •availability of food •new predators arriving 	

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	<ul style="list-style-type: none"> •new disease organisms •one species out-competing another so the numbers are no longer sufficient to breed. <p>Name abiotic factors in a habitat and explain how a change in a biotic factor might affect a community, eg:</p> <ul style="list-style-type: none"> •light intensity •temperature •moisture levels •soil pH and mineral content •wind intensity and direction •carbon dioxide levels for plants •oxygen levels for aquatic animals. 	
12 th October	<p>Lesson 4 – Distribution of organisms</p> <p>Describe how to carry out random sampling of organisms using a quadrat. Describe when and how a transect should be used. Evaluate data gathered by using a quadrat and transect. Calculate area, mean, median, mode and range. Explain why sample size is important to obtain valid results.</p> <p>Lesson 5 – Required practical</p> <p>Required practical: plan and carry out a valid method to estimate a plant population. Present and analyse the results.</p>	
19 th October (inset Friday 22 nd)	<p>Lesson 6 – Adaptations</p> <p>Describe and explain how structural, behavioural and functional adaptations, in a range of organisms, help them to survive in their habitat. Define the term extremophile and give general examples.</p>	
Half Term		
2 nd November	<p>Lesson 7- Levels of organization</p> <p>Explain what a food chain shows. Explain that photosynthetic organisms are the producers of biomass for life on Earth. Identify producers, primary, secondary and tertiary consumers in a food chain. Interpret and explain population curves, eg hare and lynx, red and grey squirrels, and native and American crayfish.</p> <p>Lesson 8 – Producers, consumers and decomposers</p> <p>Use and explain the terms: producer, consumer, decomposer, herbivore, carnivore and omnivore. Consider the effect on absorption of light, of plants being green in colour and often having a shiny surface. Describe how decomposers secrete external enzymes to digest dead plants and animals, then the small molecules diffuse into the microorganism.</p>	
9 th November	AR1 Assessment	AR1 ASSESSMENTS
16 th November	DDI Wave 1 DDI Wave 2	AR1 ASSESSMENTS
23 rd November	Reassessment	
30 th November	<p>Lesson 9 – Trophic levels and pyramids of biomass</p> <p>Identify the trophic levels on food chains and pyramids of biomass. Construct and interpret pyramids of biomass from data. Calculate the efficiency of biomass transfer between trophic levels. Explain what losses of biomass are due to.</p> <p>Lesson 10 – How material are cycled</p>	

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	<p>Interpret and explain the processes in diagrams of the carbon, water and decay cycles.</p> <p>Explain the importance of these cycles to living things.</p> <p>Explain the carbon cycle.</p> <p>Explain the water cycle.</p> <p>Explain the role of microorganisms in cycling materials through an ecosystem.</p>	
7 th December	<p><u>Lesson 11 – Decomposition</u></p> <p>Describe the factors which affect the rate of decay as:</p> <ul style="list-style-type: none"> •temperature •availability of oxygen •availability of moisture •availability of microorganisms to carry out decay •pH •build-up of toxic substances. <p>Interpret data showing how factors affect the rate of decay.</p> <p>Calculate the rate of decay using data.</p>	
14 th December	<p><u>Lesson 12 – Required practical</u></p> <p>Required practical: plan and carry out a controlled investigation. Identify variables; record, present and analyse result; calculate rates of decay.</p> <p><u>Lesson 13 – Biodiversity</u></p> <p>Define the term biodiversity.</p> <p>Explain how great biodiversity maintains food supplies and shelter for organisms, and maintains the physical environment.</p> <p>Describe examples of how a reduction in biodiversity can affect climate, food supplies for humans, useful chemical for the future etc.</p>	
Christmas Holiday		
4 th January	<p><u>Lesson 14 – Waste management</u></p> <p>Describe the problems associated with an increasing human population.</p> <p>Interpret graphs showing human population growth.</p> <p>Describe how water can be polluted with sewage, fertiliser or toxic chemicals.</p> <p>Analyse and interpret data about water pollution.</p> <p>Describe examples of air pollutants and where they come from.</p> <p>Describe the effects of smoke on buildings, humans and plant photosynthesis.</p> <p>Describe how acid rain is formed and the effects of acid rain on living organisms.</p> <p>Analyse and interpret data about air pollution.</p> <p>Evaluate the use of fertiliser on plant growth and oxygen levels.</p> <p>Describe what herbicides and pesticides are used for.</p>	
11 th January	<p><u>Lesson 15 – Land use and deforestation</u></p> <p>Explain what peat is and why it is important to preserve areas of peat.</p> <p>Explain why peat should not be burnt.</p> <p>Define the term deforestation.</p> <p>Explain why vast tropical areas have been cleared of trees.</p> <p>Explain how deforestation increases the amount of carbon dioxide in the atmosphere and leads to a reduction in biodiversity.</p> <p><u>Lesson 16 – Global warming</u></p> <p>Explain the terms greenhouse effect and global warming.</p> <p>Explain with the aid of a diagram how levels of carbon dioxide and methane contribute to global warming.</p> <p>Describe the possible effects of global warming.</p>	
18 th January	<p><u>Lesson 17 – Maintaining biodiversity</u></p> <p>Describe programmes introduced to maintain biodiversity:</p> <ul style="list-style-type: none"> •breeding programmes for endangered species 	

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	<ul style="list-style-type: none"> •protection and regeneration of rare habitats, eg coral reefs, mangroves, heathland •reintroduction of field margins and hedgerows in agricultural areas •reduction of deforestation and carbon dioxide emissions by some governments •recycling resources rather than dumping waste in landfill. <p>Explain and evaluate conflicting pressures on maintaining biodiversity.</p>	
25 th January	PAPER 1 and PAPER 2 (2020 Summer used in the autumn)	FULL MOCK EXAMS
1 st February		FULL MOCK EXAMS
8 th February (Inset 12 th February)		FULL MOCK EXAMS
February Half Term		
22 nd February	<p><u>Lesson 18 – Factors affecting food security</u> Explain how factors affect food production and food security locally and globally. Interpret population and food production statistics to evaluate food security.</p> <p><u>Lesson 19 – Farming techniques</u> Explain how restricting the movement of animals and controlling the temperature of their surroundings improves efficiency of food production. Define the term factory farming and give examples of animals farmed in this way. Evaluate modern farming techniques.</p>	
1 st March	<p><u>Lesson 20 - Sustainable fisheries</u> Explain why some fish stocks are declining and why this is a problem. Describe ways that fish stocks can be conserved. Give an example of sustainable food production.</p>	
8 th March	<p><u>Lesson 21 – Role of biotechnology</u> Describe how microorganisms can be grown in large vats to produce useful products. Explain how the conditions in the vat are monitored and controlled for optimal growth. Describe how the fungus Fusarium can be grown to produce mycoprotein that can be eaten. Evaluate the use of mycoprotein as a food. Describe the process of genetic engineering to produce better crops. Describe what Golden rice is and how it was produced. Interpret information about genetic engineering techniques. Make informed judgements about the economic, social and ethical issues concerning genetic engineering.</p>	
15 th March	Revision	
22 nd March	Revision	
29 th March	Revision	
Easter Holiday		
19 th April	Revision	

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26 th April	Revision	
3 rd May	Revision	
10 th May	EXAMS BEGIN	
17 th May	EXAMS	
24 th May	EXAMS	
7 th June	EXAMS	
14 th June	EXAMS	
21 st June	EXAMS	
28 th June		
5 th July		
12 th July		
19 th July (School closed from 22 nd)		

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