Unit Title	Ecosystems				
Subject group and discipline	Science	MYP year	7	Unit duration (hrs)	18

Inquiry: Establishing the purpose of the unit

Key concept	Related concept(s)	Global context *choose 1 and then drill down to exactly which aspect of these the unit will focus on*
Systems	**Balance/Environment**	**Relationships and Sustainability**

Statement of inquiry

Systems reach a balance according to the environment which affecrs relationships and sustainability.

Inquiry questions

Factual— What are the levels of organisation in a food chain? What do the arrows in a food chain represent? How do we represent the populations of organisms in a food chain? How can we represent the interconnectedness of organisms within a community? How do we measure biomass? What biotic and abiotic factors might affect a population's size? What is bioaccumulation? What is the role of a decomposer? What is biodiversity?

Conceptual— What effect can a change in population of one organism have on other members of a community? Why is it necessary for organisms to consume multiple types of prey/food? Why are apex predators significantly smaller in population numbers compared with primary consumers? Why is only 10% of energy transferred between trophic levels? Why is it important to maintain biodiversity? Why is all life dependent on the success of the brown food chain? What impact will the increasing human population have on the survival of animal and plant species in the future? How do humans have a negative and positive impact on the levels of carbon dioxide in the atmosphere?

Debatable— The reintroduction of beavers into UK water systems will have a detrimental impact on aquatic communities. Farmers should be required to plant crops and plants to support pollinator populations by law. Humans will not be able to survive a new ice age. Hunting or culling apex predators to control population sizes is an important agricultural technique.

Objectives	Summative assessment	
Learning objectives for the unit Aiii interpret information to make scientifically supported judgments. Bii outline a testable prediction using scientific reasoning Ci present collected and transformed data Ciii discuss the validity of a prediction based on the outcome of the scientific investigation Di summarize the ways in which science is applied and used to address a specific problem or issue	Outline of summative assessment task(s) including assessment criteria: **GRASP:** Goal: to explore the different ways to encourage and promote bee and other pollinator species populations Role: A head gardener at the botanical gardens in Cambridge Audience: Allotment Society of Cambridge Situation: You are trying to promote the culturing of plants across Cambridgeshire to encourage pollinator populations. Your audience is concerned with food production and you need to convince them that they should give some of their land over to growing a diverse range of plants to promote the pollinator species. Purpose: Create a presentation or poster to explain the importance of pollinator species populations, the importance of diversity and what could happen if pollinator species decline. ***A:** ii. apply scientific knowledge and understanding to solve problems set in familiar and unfamiliar situations* *D: i. summarize the ways in which science is applied and used to address a specific problem or issue ii.* **Working Scientifically: Woodlice Investigation** **B**: ii outline a testable prediction using scientific reasoning **C** iii discuss the validity of a prediction based on the outcome of the scientific investigation **Recall (Exam Qs):**	Relationship between summative assessment task(s) and statement of inquiry: Students will show they understand the importance of balance by interpreting information about species found within an ecosystem

	A iii interpret information to make scientifically supported judgments. **OTHER: Graphing** **C** i present collected and transformed data	

Approaches to learning (ATL) ***These can be listed or you could offer some explanation of how they will be developed***
Thinking: Make inferences and draw conclusions, consider ideas from other perspectives and points of view, consider consequences of events, make logical, reasonable judgments and create arguments to support them, identify trends and forecast possibilities, apply skills and knowledge in unfamiliar situations, inquire in different contexts to gain a diverse perspective Communication: Use appropriate forms of writing for different purposes and audiences, negotiate ideas and knowledge with peers and teachers, write for different purposes, summarize and transform information, organize information logically, structure information correctly in summaries, essays, reports and presentations Social: Consider, respect and analyse different opinions, points of view, ideas and preferences, respect different opinions and the points of view of others Research: Access information to be informed and inform others, read critically and for comprehension, collect and verify data, collect and analyse data to identify solutions and/or make informed decisions, process data and report results Self management: make informed choices on behaviours and course of action, consider ethical, cultural and environmental implications of issues, plan and manage activities to develop a solution or complete a project, find and select information via different media

Action: Teaching and learning through inquiry

Learning objectives *(lesson by lesson/ week/ week/ fortnightly depending on your faculty)*	**Learning experiences and teaching strategies** *Space for you to develop approaches to learning and teaching. (There should be a range of learning experiences e.g. discussion, extended writing, quiz, performance, practical, presentation, debate, research, spaced practice, independent practice, questioning, scaffolding, review of previous learning, modelling, etc)*	**Formative assessment** *Peer assessment, self assessment, oral feedback, teacher marked*	**Differentiation and challenge**	**Resources**
1 Energy Flows Explain the order of organisms in a food chain and that arrows	Classify animals as predators or prey Create food chains of organisms	**Diagnostic**		

represent transfer of biomass				
2 Food webs Recognise food webs represent interconnected food chains within a community	Diagnostic – Food web Response –Discussion –what happens if ?			
3 Decomposers				
4 Sampling Populations	Quadrats practical lesson			
5 Pyramids Recognise that the words/pictures in a food chain represent the populations in a community	Diagnostic – how many organisms – pyramid of numbers	**Graphing Assessment – draw pyramids of number IMP**		
6 IMP feedback lesson	Or when appropriate – extend with pyramids of biomass			
7 Habitats	Diagnostic – keywords Response –what is an ecosystem? Diagnostic - Pollen seeds and bees disappearing			
8 Abiotic and Biotic Factors	Diagnostic – What would you include in an ecosystem? Response - Abiotic or Biotic?			

	Discussion – X factors			
9-10 Woodlice investigation		**Working scientifically**		
11 Predator-prey relationships	Diagnostic – pyramid of biomass and graph interpretations	**Graphing Assessment – iinterpret line graph IMP**		
12 IMP feedback lesson	Or when appropriate – extend with links back to foodwebs			
13 Bioaccumulation	Diagnostic – Reasons why ? Response – polar bears ? - wolves of yellowstone			
14 Biodiversity Recall biodiversity is the diversity of ecosystems, of living organisms plants and animals etc and also the genetic diversity of these organisms	Diagnostic –what is biodiversity?			
15-16 GRASP Biodiversity and Pollinators				

17 Present GRASP and consolidate				
18 Consolidate & IMP task		**Exam Q IMP task**		

Reflection: Considering the planning, process and impact of the inquiry

Prior to teaching the unit	During teaching	After teaching the unit