

## LENScience Senior Biology Seminar Series

# Harnessing Biodiversity

## Pre-seminar Questions and Discussion

### Pre-seminar School Discussion

This seminar looks at the range of services that ecosystems provide, which support human society, and the importance of biodiversity in supporting ecosystems in the provision of these services.

The key concept in this seminar is that of the ecosystem, which you have studied in Year 12 Biology. What this seminar requires you to do is to bring together (integrate) everything you learnt about ecosystems and ecosystem processes in Year 12 and use this understanding to analyse the context presented in the seminar—increasing biodiversity in ecosystems. In doing so you will be thinking at scholarship level.

This meets the Outcome Description from the Scholarship Biology Standard is “The student will analyse biological situations in terms of **ecological** and evolutionary principles and demonstrate integration of biological knowledge and skills”



*Use your knowledge of Y12 and 13 Biology and the information in the seminar paper to discuss the following questions.*

1. Three interspecific relationships you have studied this year are Parasitism, Herbivory and Predation. Explain the difference between each one. Why can parasites also be called predators?
2. One of the important nutrient cycles in an ecosystem is the carbon cycle. At certain stages in the carbon cycle the carbon is said to be 'captured'. What does this mean? In what form is it captured?
3. Food chains and food webs are found in all ecosystems, including those created by humans such as agricultural ecosystems. Use your knowledge of food chains and food webs to explain what biological control is.
4. Why do monocultures based ecosystems have more problems with pests and diseases than natural ecosystems?



<b>Vocabulary</b>	Competition	Exploitation	Predation
Abiotic	Decomposer	Herbivore	Producer
Biotic	Food Chain	Interspecific	Species
Community	Food web	Parasitism	Trophic levels
	Ecosystem	Population	

### Level 3 Achievement Standards linking to this seminar:

AS 90716 Describe animal behaviour and plant responses in relation to environmental factors

### Scholarship Biology Outcome Description:

The student will analyse biological situations in terms of ecological and evolutionary principles and demonstrate integration of biological knowledge and skills.



### Key Concepts from the curriculum that link to this seminar:

Below are selected objectives from the Y12 and 13 Biology programme that link to this seminar. THESE ARE NOT A FULL LIST OF THE CONCEPTS COVERED IN YOUR COURSE. You should review these concepts before the seminar.

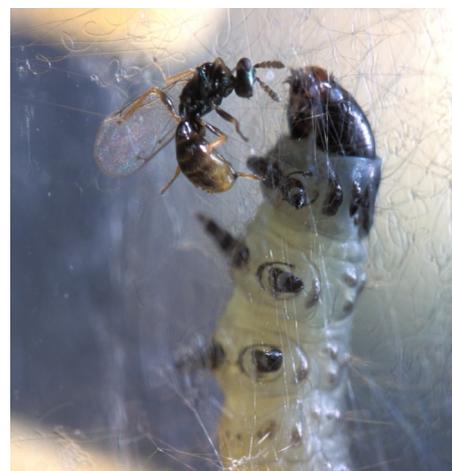
#### Nature of Science

- Use relevant information to develop a coherent understanding of socio-scientific issues.

#### Ecology, Ecosystems and Biodiversity

*Please remember these are only the objectives linking to this seminar—refer to your unit hand out at school for a full list*

- Define the difference between individual, population, community, ecosystem and biosphere and the relationship between them
- Identify the biotic and abiotic components of an ecosystem and describe the relationship between these components
- Recognise that ecosystems are dynamic and subject to change
- Describe species interrelationships: mutualism, competition, exploitation.
- Describe nutrient cycles and cycling.
- Define biodiversity and explain the impact humans are having on biodiversity
- Recognise the importance of biodiversity



A parasitic wasp laying eggs in a caterpillar.

#### Plant and Animal Responses to the Environment

*Please remember these are only the objectives linking to this seminar—refer to your unit hand out at school for a full list*

- Define the term interspecific relationships and describe examples of these in terms of –ve, +ve and mutual interactions between individuals.
- Define herbivory and parasitism