

# Year 11 Biology Learning Outcomes

## Unit 7: Ecology

### Unit 7.1: Adaptations Interdependence and Competition

- Describe different levels of organisation in an ecosystem from individual organisms to the whole ecosystem and describe the importance of interdependence and competition in a community.
- Explain how abiotic and biotic factors affect the location and abundance of species in a habitat.
- Measure the population size of a common species in a habitat. Use sampling techniques to investigate the effect of a factor on the distribution of this species.
- Suggest when given appropriate information, which factors organisms are competing for in a habitat.
- Explain how organisms are adapted to live in their natural environment (given appropriate information).

### Unit 7.2: Organising an Ecosystem

- Understand that photosynthetic organisms are the producers of biomass for life on Earth and that feeding relationships can be represented by food chains
- Explain the importance of decomposers in the ecosystem and the importance of the water cycle to living organisms.
- Explain the importance of the carbon cycle to living organisms
- Explain how temperature, water and availability of oxygen affect the rate of decay of biological material
- Investigate the effect of temperature on the rate of decay of fresh milk by measuring pH change.

### Unit 7.3: Biodiversity and Ecosystems

- Explain the reasons for an increasing human population and what impact this has on the planet.
- Explain what causes pollution on land and in water and the effects of this on biodiversity.
- Explain the impact of acid rain, smoke and smog on the human population and the environment including methods to reduce the impact on human health and describe how acid rain forms.
- Explain the environmental impacts of deforestation on the biodiversity of life and describe the reasoning for deforestation and peat bog destruction.
- Explain the biological consequences of global warming and discuss the potential methods to prevent global warming from happening.

- Evaluate the impact of environmental changes on the distribution of species in an ecosystem given appropriate information.
- Suggest the most significant means to maintain biodiversity from a range of methods.
- Explain reasons why all potential chemical energy (biomass) is not transferred to each consumer levels and describe the issues of using biomass to record potential energy transfer through consumers.
- Explain the impact if people do not have food security and decide on methods to ensure food security.
- Evaluate the advantages and disadvantages to intensive modern farming techniques in order to make ethical considerations to its future.
- Consider the future of obtaining protein-based foods through using biotechnology and explain the issues of overfishing.