Year 9: Living World- Understanding and Managing Ecosystems

	Check	Date
ASSUMED KNOWLEDGE STAGE 4 OUTCOMES **SC4-14LW** relates the structure and function of living things to their classification, survival and reproduction **SC4-15LW** explains how new biological evidence changes people's understanding of the world	☐	
LW2 Conserving and maintaining the quality and sustainability of the environment requires scientific understanding of interactions within, the cycling of matter and the flow of energy through ecosystems		
DYNAMIC ECOSYSTEMS		
5LW2a. recall that ecosystems consist of communities of interdependent organisms and abiotic components of the environment (ACSSU176)	☐	
Define habitat, community, ecosystem, environment, abiotic and biotic	☐	
Distinguish between abiotic and biotic components of ecosystems	☐	
Define mutualism, symbiosis, commensalism, predator-prey and parasitic relationships, and give an example of each	☐	
Identify a range of abiotic and biotic factors that determine the distribution and abundance of a species in an environment (mutualism, symbiosis, commensalism, predator-prey and parasitic relationships, temperature, water availability, shelter etc.)	☐	
5LW2b. outline using examples how matter is cycled through ecosystems such as nitrogen (ACSSU176)	☐	
Define matter, energy and cycle	☐	
Describe how matter and energy are transferred within an ecosystem using the two examples of the carbon-oxygen cycle and the nitrogen cycle	☐	
5LW2c. describe how energy flows through ecosystems, including input and output through food webs (ACSSU176)	☐	
Define photosynthesis, producer, consumer, autotroph and heterotroph and food webs	☐	
Identify the difference between autotrophs and heterotrophs, giving two examples of each	☐	
Identify uses of energy by organisms	☐	
Identify the inputs and outputs for the process of photosynthesis and respiration	☐	
Describe the role of photosynthesis and respiration in ecosystems	☐	
CODE: 9LW20 First-Hand investigation: Starch production and light (Oxford pg91)	☐	
Identify energy is used for 'work' and can be lost between each level (heat and waste)	☐	
Describe how energy moves from one level of a food web to the next, but is not recycled	☐	
Describe trophic interactions between organisms in an ecosystem using food webs	☐	
Describe the role of decomposers in ecosystems	☐	
LITERACY SET 1: COSMOS ARTICLE	☐	
Assessment: Oxford online test- Dynamic Ecosystems Students to achieve 100% in Support and Consolidate **OR** Consolidate and Extend	☐	
CHANGING POPULATIONS		
5LW2d. analyse how changes in some biotic and abiotic components of an ecosystem affect populations and/or communities	☐	
Define biodiversity, carrying capacity, quadrats, transects and capture-recapture	☐	

Identify five examples of natural factors that affect population numbers	☐	
Analyse how changes in the following biotic and abiotic components of an ecosystem affect populations: (Oxford pg112) • limiting resources (carrying capacity) • intraspecific and interspecific competition • predator and prey population • disease (Tasmanian devil, Cheetah) • extreme natural changes (drought, bushfire, floods)	☐	
Identify five examples of how humans can affect population numbers	☐	
Analyse how human factors affect populations: (Oxford pg113) • competition for resources • pollution • irrigation • enhanced greenhouse effect • introduced species	☐	
CODE: 9LW21 First-Hand Investigation: Experiment 3.1.2 Observing competition page 99 **(Teacher demo because of cold weather)**	☐	
LITERACY SET 2: MIXED ACTIVITIES	☐	
Assessment: Oxford online test- Changing Populations Students to achieve 100% in Support and Consolidate **OR** Consolidate and Extend	☐	
MANAGING SUSTAINABLE ECOSYSTEMS		
5LW2e. assess ways that Aboriginal and Torres Strait Islander peoples' cultural practices and knowledge of the environment contribute to the conservation and management of sustainable ecosystems	☐	
Define conservation and sustainability	☐	
Identify, using examples, how Indigenous knowledge has contributed to the conservation and management of sustainable ecosystems	☐	
Compare indigenous and non-indigenous land use e.g. burn-off leads to the recycling of materials v's non indigenous deforestation, over grazing and over cropping, raised water table, salinisation, erosion (Oxford pg118)	☐	
Assess why different cultural groups e.g. Aboriginal and Torres Strait Islander peoples' hold different views in relation to scientific issues with regards to environmental issues	☐	
5LW2f. evaluate some examples in ecosystems, of strategies used to balance conserving, protecting and maintaining the quality and sustainability of the environment with human activities and needs	☐	
Describe some strategies being used to improve sustainability locally, nationally and internationally	☐	
Evaluate some local strategies used to balance human activities and needs with conserving, protecting and maintaining the quality and sustainability of the environment: • Recycling materials • 'organic' agriculture • reusing materials • promoting alternatives to car transport • Earth hour • Clean-up Australia day • Bush regeneration • Installing water tanks • Reducing water and electricity wastage	☐	
NUMERACY AND SKILLS SET	☐	
Assessment: Oxford online test- Changing Populations Students to achieve 100% in Support and Consolidate **OR** Consolidate and Extend	☐	
Assessment: UNDERSTANDING AND MANAGING ECOSYSTEMS CHAPTER TEST	☐	