**Science Understanding**

**Earth systems/cycles in nature**

 differences in geographical and physical conditions result in a wide variety of ecosystems

 abiotic factors, including temperature, pH, salinity, light, water and atmospheric gases, impact on the

survival of organisms within the environment

 there is interaction between organisms, biological communities and the abiotic environment in which

they live

 the biotic components of an ecosystem transfer and transform energy, originating primarily from the

sun, into biomass

 biotic components interact with abiotic components to facilitate biogeochemical cycling

 producers, consumers and decomposers have a role in the transfer of energy in an ecosystem

 food chains and food webs show the feeding relationships between organisms within a community

 the amount of energy transferred between trophic levels in food chains and food webs diminishes as the

trophic level increases

**Structure and function of biological systems**

 modes of interactions between species in ecosystems include competition, predation and symbiosis

(mutualism, commensalism and parasitism)

 species interactions affect population densities and are important in determining community structure

and composition

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**Ecosystems and sustainability**

 changes to abiotic and biotic factors, including climatic events, impact on the carrying capacity of

ecosystems

 biodiversity includes the diversity of genetics, species and ecosystems; biodiversity changes naturally

over time, and varies due to differences in location

 human interference is threatening biodiversity through deterioration of ecosystems and diminishing

habitat areas

**Species continuity and change**

 changes in ecosystems affect the survival of organisms within the ecosystem; individual variation assists

survival, which over time results in changes in characteristics of the species

 variation in the form of suitable characteristics assists survival of individuals

 environmental changes may lead to selection of advantageous biological characteristics within a species

**Study an Ecosystem**

**Aim:**

To investigate the effect of fire , over time, on an Australian ecosystem

Factors to examine are; Abiotic

changes in ecosystems affect the survival of organisms within the ecosystem; individual variation assists

survival, which over time results in changes in characteristics of the species

 variation in the form of suitable characteristics assists survival of individuals

 environmental changes may lead to selection of advantageous biological characteristics within a species

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