

### 6.3.1 Ecosystems

- (a)** ecosystems, which range in size, are dynamic and are influenced by both biotic and abiotic factors  
To include reference to a variety of ecosystems of different sizes (e.g. a rock pool, a playing field, a large tree) and named examples of biotic and abiotic factors.
- (b)** biomass transfers through ecosystems  
To include how biomass transfers between trophic levels can be measured AND the efficiency of biomass transfers between trophic levels AND how human activities can manipulate the transfer of biomass through ecosystems.  
M0.1, M0.2, M0.3, M0.4, M1.1, M1.3, M1.6 HSW12
- (c)** recycling within ecosystems  
To include the role of decomposers and the roles of microorganisms in recycling nitrogen within ecosystems (including Nitrosomonas, Nitrobacter, Azotobacter and Rhizobium) AND the importance of the carbon cycle to include the role of organisms (decomposition, respiration and photosynthesis) and physical and chemical effects in the cycling of carbon within ecosystems.  
HSW2, HSW12
- (d)** the process of primary succession in the development of an ecosystem  
To include succession from pioneer species to a climax community AND deflected succession.  
HSW12
- (e)** (i) how the distribution and abundance of organisms in an ecosystem can be measured  
M1.3, M1.4, M1.5, M1.7, M1.9, M1.10, M3.1, M3.2 PAG3  
HSW4
- (ii) the use of sampling and recording methods to determine the distribution and abundance of organisms in a variety of ecosystems.