AS 91605

Demonstrate understanding of evolutionary processes leading to speciation

Speciation terms

- ❑ **adaptive radiation** - when a large number of species form to occupy different ecological niches
- ❑ **allopatry** - speciation as a result of geographical isolation
- ❑ **allopatric speciation** - speciation occurring where organisms are initially capable of actually interbreeding but cannot because they are geographically separated
- ❑ **analogous structures** – structures which have the same job but have different bone make up e.g. wings of a bird, bats and insects. Do not share a common ancestor
- ❑ **biogeography** – the study of the geographic distribution of organisms
- ❑ **cline** – a gradual variation in the characteristics of a species or population over a geographical range
- ❑ **co-evolution** - when one species or group changes its genetic composition in response to a genetic change in another
- ❑ **convergent evolution** - when different species living in the same environment come to look similar
- ❑ **divergent evolution** - when one species branches to form two or three species
- ❑ **embryology** – the study of how embryos develop, looking at which genes are turned on and when
- ❑ **endemic** – only found naturally in a certain country or area
- ❑ **evolution** – the gradual process by which the present diversity of plants and animals arose from earliest and most primitive organisms
- ❑ **genetic drift** – the important random fluctuation in the frequencies of alleles due to chance events
- ❑ **geographic or topographic barrier** – a physical barrier (for the species) that prevents gene flow. e.g. a mountain ridge may be a barrier for an insect
- ❑ **gradualism** - slow changes between populations that occur as a result of different selection pressures
- ❑ **homologous structures** – structures which have a similar evolutionary history but have developed to suit different functions e.g. wing of bat, flipper of dolphin and arm of human
- ❑ **hybrid** – an individual formed by mating between genetically different populations or species
- ❑ **instant speciation** – the formation of a new species through autopolyploid or allopolyploid. Because the chromosome numbers of the new 'instant' species do not match that of the original species they cannot interbreed
- ❑ **isolating mechanism** - any mechanism that prevents interbreeding of hybrids
- ❑ **parallel evolution** – the development of related organisms along similar evolutionary paths due to strong selective pressures acting on all of them in the same way
- ❑ **polyploidy** - when cells have more than 2n chromosomes; common in plants
- ❑ **punctuated equilibrium** - where evolution consists of long periods of stability, followed by short rapid changes as a result of critical selection pressures
- ❑ **reproductive isolation** – a barrier to breeding that exists due to differences in mating seasons or mating organs e.g. flowers flowering at different times of the year

- ❑ **ring species** – two apparently distinct species that are connected by a series of intermediate geographical and structural subspecies between which interbreeding can occur
- ❑ **selection pressure** - the environmental factors that favour certain phenotypes
- ❑ **speciation** - a mechanism by which new species are formed
- ❑ **species** - a group of individuals with common features and ancestry, which will interbreed
- ❑ **sympatry** - speciation within the same area by natural selection; there are a number of niches and groups move into the niches best suited to them
- ❑ **temporal barrier** – when gene flow is prevented due to the populations or species having different mating times of day, month or year
- ❑ **vestigial organ** – any part of an organism that has diminished in size during its evolution because the function it serves has decreased in importance e.g. the appendix in humans