Allele
One of two or more forms of a particular gene
Adaptive radiation
Where a common ancestor evolves into many separate species which occupy the different niches available an environment
Allopatric
Separation of populations due to geographic barriers

Analogous structures
Body parts that have a similarity in function, but different structure (e.g. the wings of insect vs. bird)
Artificial selection or selective breeding
Human managed reproduction of domesticated plants and animals to promote the occurrence of desirable traits
Behavioural isolation
Where reproduction between similar species is prevented because each group possesses its own characteristic courtship behaviours.

Biogeography
The study of past and present geographic distribution of organisms to identify evolutionary relationships
Bottleneck effect
genetic drift resulting from a drastic reduction in population size
Co-evolution
Where two species influence the evolution of each other, e.g. plants and their pollinators or predators and their prey

Comparative anatomy
study of similarities and differences in the anatomy of species in order to establish what evolutionary relationships exist between them.
Convergent evolution
Where species develop similar adaptations when faced with similar environmental conditions
Directional selection
natural selection in which individuals at one end of the phenotypic range survive and reproduce more successfully than do other individuals

Disruptive selection
natural selection in which individuals on both extremes of a phenotypic range are favoured over intermediate phenotypes
Divergence
Where one species evolves into two different species
Endemic
when a species occurs nowhere else in world

Evidence of evolution
Includes: studying fossils, biogeography, comparative anatomy and molecular biology
Extinction
the loss of a species
Fitness
the capacity of an individual of a certain genotype to reproduce

Fossil record

the sequence in which fossils appear within layers of sedimentary rock

Founder effect

genetic drift that occurs when a few individuals become isolated from a larger population

Gametic isolation

Where the egg and sperm of different species are incompatible. This is particularly important in aquatic environments because many aquatic animals release their gametes into the water, where fertilization takes place.

Gene flow
gain or loss of alleles from a population by the movement of individuals or gametes-migration of individuals into (immigration) or out of (emigration) an area
Gene pool
total collection of genes in a population at any one time.
Genetic drift
change in a gene pool of a small population due to random chance

Gradualism
Species slowly change by accumulating adaptive characteristics in response to selection pressures. Seen in the fossil record as a series of transitional forms linking past and present species
Habitat isolation
a pre-zygotic barrier in which two species whose ranges overlap live in different habitats and as a result, potential mates from the two species do not encounter one another
half-life
amount of time required for half of a sample of radioactive mineral to change into another substance

homology
similarity in characteristics resulting from a shared ancestry. E.g. pentadactyl limbs in whales humans and dogs
Mechanical isolation
Pre-zygotic barrier that occurs because the genital organs of different species are incompatible. Even if members of two species court and attempt copulation, mating is not successful.
microevolution
when the relative frequencies of alleles in a population change over a number of generations

molecular biology
The analysis of proteins and DNA sequences to identify evolutionary relationships between species.
mutation
a change in a nucleotide sequence of an organism's DNA that creates a new allele
natural selection
survival of the individuals with the features best suited to the environment

Non-random mating
selecting mates (sexual selection) rather than by chance
ontogeny
development of an individual
ontogeny recapitulates phylogeny
The idea that the development of an individual is a replay of its evolutionary history

Polyploidy
Where an organism possesses 3 or more copies of each chromosome
population
a group of individuals belonging to one species and living in the same geographic area
post zygotic barriers
Something that prevents a fertilized egg from developing into a fertile adult.

prezygotic barriers
Something that prevents fertilization.-could include habitat, temporal, behavioural, mechanical gametic isolation
Punctuated evolution
Species stay the same for long periods (stasis) except during short bursts where new species are produced in a relatively short passage of time
relative dating of fossils
How old fossils are in relation to one another (younger top older bottom)

reproductive barrier
a biological feature of a species that prevents it from interbreeding with other species even when populations of the two species live together
reproductive isolation
If members of a species are separated from other members is such a way that they cannot mate with them
sexual selection
a form of selection in which individuals with certain inherited characteristics are more likely than other individuals to obtain mates

Sources of genetic variation
crossing over, independent assortment, sexual reproduction, mutation
speciation
the evolution of a new species
stabilizing selection
natural selection that favours intermediate variants by acting against extreme phenotypes

strata
Layers of rocks (youngest on top)
Sympatric
Separation of populations due to barriers which are not geographic in nature
taxonomy
the branch of biology that identifies, names, and classifies species

Temporal isolation
A pre-zygotic barrier in which the two species reproduce at different times of the day, season, or year.
vestigial organs
A structure of marginal or no importance to an organism often used to provide evidence of possible evolutionary development and relationships.