

SPECIES / SPECIATION

(Refer to Nelson Biology 12, Chapter 19)

A. Definition of Species and Speciation:

A **species** consists of one or more populations of individuals that can interbreed under natural conditions and produce fertile offspring that are reproductively isolated from other such populations.

Speciation refers to changes in allele frequencies that are significant enough to mark the formation of daughter species from parental species.

Speciation requires irreversible genetic divergence of one population from others. Isolation mechanisms maintain genetic divergence.

B. Isolating Mechanisms Maintain Separate Species

<i>----- Isolation (mating or zygote formation is blocked)</i>	
	Potential mates occupy overlapping ranges but reproduce at different times
	Potential mates meet but cannot figure out what to do about it
	Potential mates attempt engagement but sperm cannot be successfully transferred
	Sperm is transferred but egg is not fertilized (gametes dies or are incompatible)
	Potential mates occupy different local habitats within the same area
	Potential mates are separated by geographical barriers (oceans, mountain ranges, etc.)
<i>----- Isolation (Hybrids don't work)</i>	
	Egg is fertilized but zygote or embryo dies
	First-generation hybrid forms but shows very low fitness
	Hybrid is sterile or partially so