

BIOLOGICAL SPECIES CONCEPT

- a species is a group of populations whose members have potential to interbreed + produce fertile offspring

ADVANTAGES

- Widely used

DISADVANTAGES

- no way to determine whether organisms know through fossils could interbreed
- cannot be applied to asexual organisms

MORPHOLOGICAL SPECIES CONCEPT

- classification is based on physical traits
- size, shape, form (morphology)
- morph = shape
- Ology = study of

ADVANTAGES

- Can be applied to asexual organisms

DISADVANTAGES

- Relies on subjective criteria, can be misleading

ECOLOGICAL SPECIES CONCEPT

- identifies species in terms of their ecological niches, focusing on unique adaptations to particular roles.

ADVANTAGES

- Works well in zoos or labs

DISADVANTAGES

- Cannot be applied to fossils

PHYLOGENETIC SPECIES CONCEPT

- The smaller group of individuals that share a common ancestor + form 1 branch on the tree

ADVANTAGES

- Works with fossils
- Works with asexual organisms

DISADVANTAGES

- can be confusing to interpret

PREZYGOTIC

objective: prevent mating/fertilization between species

- habitat isolation
- temporal isolation
- behavioral isolation
- mechanical isolation
- gamete isolation

POST ZYGOTIC

objective: operate after hybrid zygotes are fertilized

- reduced viability
- reduced hybrid fertility

ALLOPATRIC SPECIATION

geographic isolation → speciation

- the group in a **new environment** follows its own evolutionary course
- geographic barriers
 - mountains
 - lakes/oceans

when a NEW species is created

SYMPATRIC SPECIATION

- new species arises within the **same geographic area**
 - may occur when gene flow is reduced by polyploidy, habitat differentiation, or sexual selection

ADAPTIVE RADIATION

- evolution many diverse species from a common ancestor.

accidents during cell division that result in extra sets of chromosomes.

* common in plants

CONTINUED

STABILITY

- many hybrid zones are stable
- hybrids continue to be produced

a region in which mems from diff species meet + mate
↓
mixed ancestry offspring

GRADUAL SPECIATION

- gradual change

PUNCTUATED EQUILIBRIA

- long periods of stability with sudden change