### **BIOLOGICAL SPECIES CONCEPT**

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

## ADVANTAGES

• Widely used

no way to determine whether organisms know through fossils could interbreed

DISADVANTAGES

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
- Relies on subjective criteria, can be misleading

DISADVANTAGES

## 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

Cannot be applied to fossils

DISADVANTAGES

## PHYLOGENETIC SPECIES CONCEPT

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

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# ADVANTAGES

- Works with fossils
- Works with asexual organisms

can be confusing to interpret

DISADVANTAGES

# PREZYGOTIC

#### objective :

prevent mating/fertilization between species

# POST 2YGOTIC

**objective :** operate after hybrid zygotes are fertilized

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

- 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

### SYMPATRIC SPECIATION

new species arises within the same geographic area

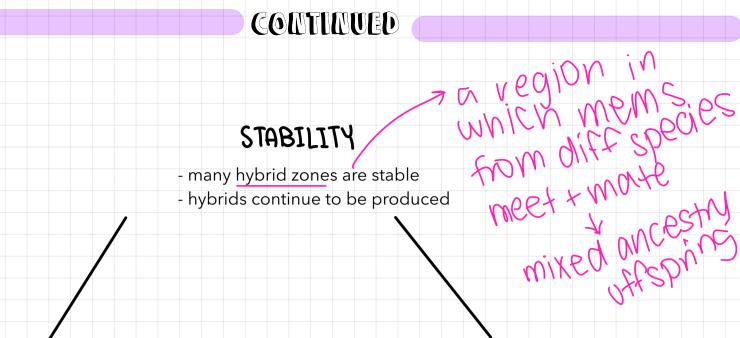
• may occur when gene flow is reduced by polyploidy, habitat differentiation, or sexual selection

### ADAPTIVE RADIATION

• evolution many diverse species from a common ancestor.

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

when when a here species evented ;s evented



### GRADUAL SPECIATION

### PUNCTUATED EQUILIBRIA

gradual change

 long periods of stability with sudden change