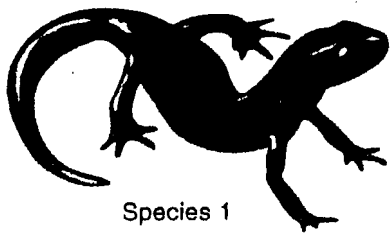
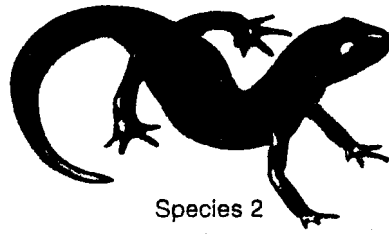


Use your book or the accompanying sheet to assess each isolating mechanism below. For each of the nine examples below give the name of the isolating mechanism and tell whether it is prezygotic or postzygotic and whether it involves mating or fertilization. (Why does a mating issue preclude a fertilization one?)

1. Fireflies have a unique lighting pattern. The frequency of lighting is species specific. Fireflies in the same area will not mate with those having a different lighting frequency.
2. A group of bears was separated when the landmass they were living on split up. One group eventually became black and brown bears, the other, polar bears.
3. Horse and donkeys produce mules, but their sterile.
4. Two species of butterflies are found in northern Michigan, but one species is found only near rivers and streams, the other near lakes.
5. In some bee populations only large bees are big enough to unfold flower petals and obtain nectar and pollen.
6. Two parents produce a hybrid offspring that lives only a short time and dies.
7. Two closely related species live in the same area and are capable of interbreeding but one releases pollen in February and the other in March.
8. A cross between two fish species occurs but development only occurs up to the 16-cell stage.
9. In *Drosophila*, when sperm from one species enters the other species, the sperm is immobilized and unable to fertilize the egg.



Species 1



Species 2

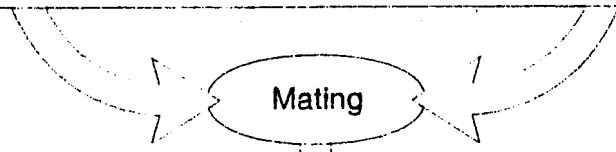
Prezygotic isolating mechanisms

Geographic Isolation
Species occur in different places

Ecological Isolation
Species utilize different resources in the habitat

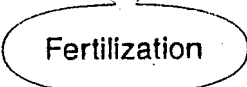
Behavioral Isolation
Species have different mating rituals

Temporal Isolation
Mating or flowering occur during different seasons or at different times of the day



Mechanical Isolation
Structural differences prevent mating or pollen transfer

Prevention of gamete fusion
Gametes fail to attract each other or function poorly



Postzygotic isolating mechanisms

Hybrid embryos do not develop properly

Developmental Isolation

Hybrid adults do not survive in nature

Hybrid Inviability

Hybrid adults are sterile or have reduced fertility

Hybrid Sterility

Fertile hybrid offspring

