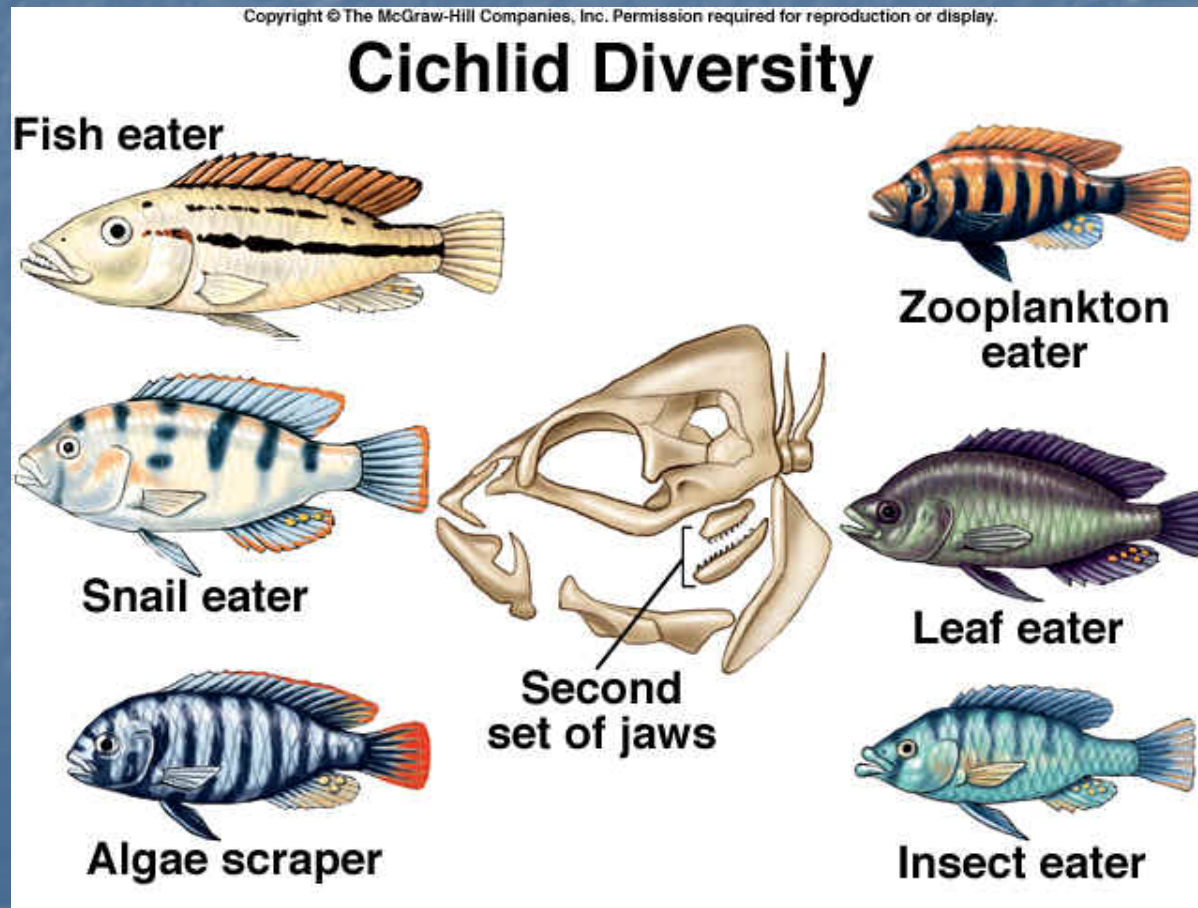


The Process of Speciation

16.3

Speciation

- Formation of a new species
- Populations must be reproductively isolated from each other.



Reproductive isolation

- When members of two populations can't interbreed and produce fertile offspring.
- Happens 3 ways
 - Behavioral isolation
 - Geographic isolation
 - Temporal isolation

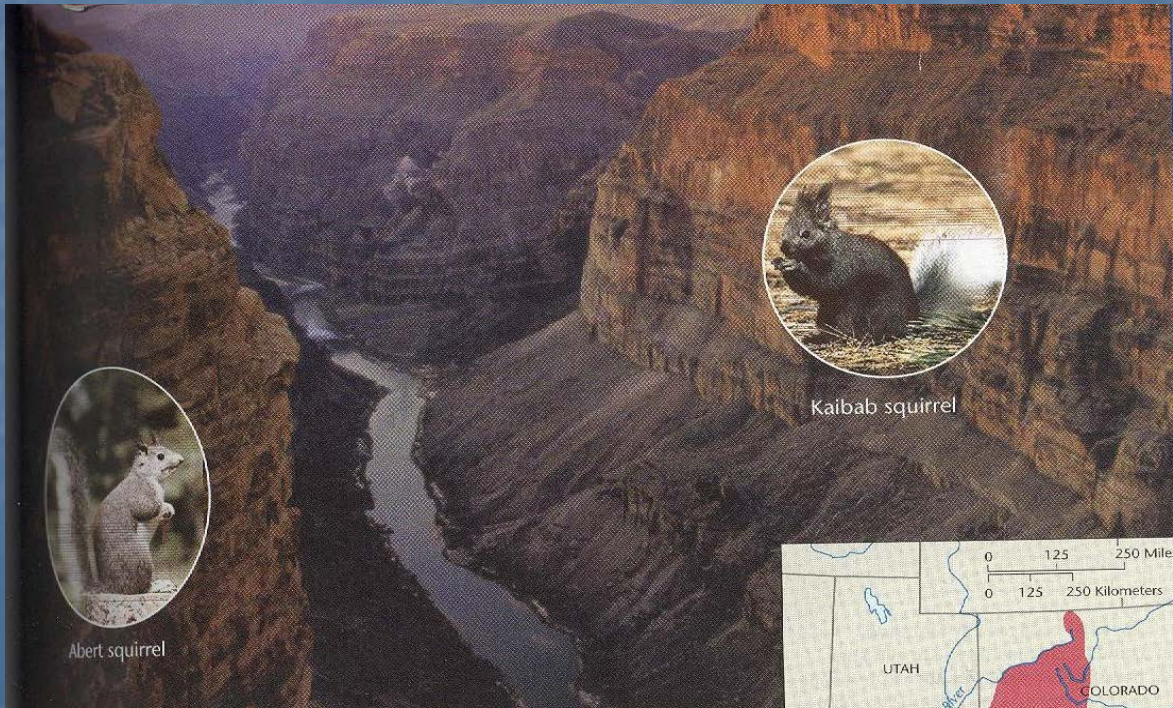
Behavioral isolation

- Two populations CAN interbreed, but don't because of different courtship rituals.
 - Different songs, mating dances, beak size



Geographic Isolation

- Two populations become separated by a Geographic barrier
 - River, desert, ocean, mountain, etc



Two types of pupfish that live in ponds in Death Valley are *Cyprinodon salinus* (top) and *Cyprinodon milleri* (bottom).





C. bifasciatus
Poza Escobeda



Introgressed population
Puente Dos Cuatas



C. atrorus
Polilla

Temporal Isolation

- Two or more populations that reproduce at different times
 - Flowers release pollen at different times
 - Animals breed at different times



Rana aurora - breeds January - March



Rana boylei - breeds late March - May



Speciation in Darwin's Finches

- Founders arrive from South America
- Natural Selection caused changes in the gene pool
- Reproductive Isolation



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bles in a population.
ation of new species.

as a group of organisms
fertile offspring. This
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uals has a shared gene
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and its offspring
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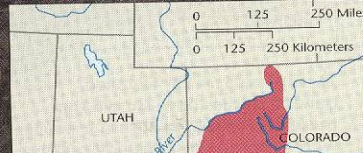
fers to the sum of
one species evolves



Abert squirrel



Kaibab squirrel



Build Science Skills

Applying Concepts Divide the class into several groups, and challenge each group to brainstorm a scenario in which a small population of a species becomes geographically isolated from the remainder of the species long enough to evolve into separate species. Urge groups to consider both natural events and human activities when they brainstorm about that geographic isolation could occur. Have each group elect a spokesperson to describe their scenario to the class. In each case, **Why did the geographically isolated population evolve into different species?** (Answers will depend on scenarios. Student might say, for example, that the isolated population was genetically different to begin with because of founder

