Speciation

- A species is a **population whose members can interbreed and produce fertile offspring.**

Speciation

What happens if the members of a population stop interbreeding?

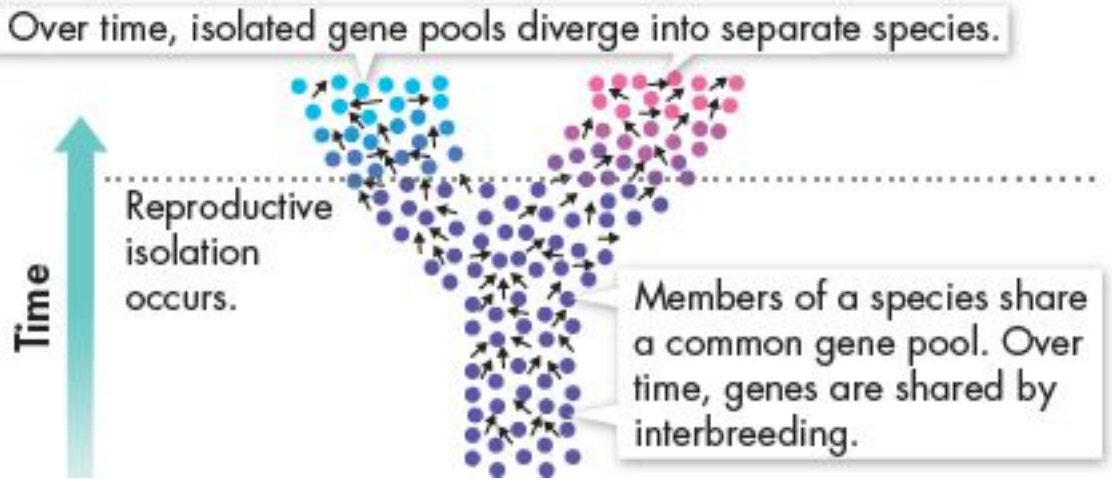
Speciation

What happens if the members of a population stop interbreeding?

- **A new species will form**, a process called **speciation**.

Isolating Mechanisms

- Reproductive isolation occurs when **a population splits into two groups and the two populations no longer interbreed.**
  - When populations become reproductively isolated, they can evolve into two separate species.

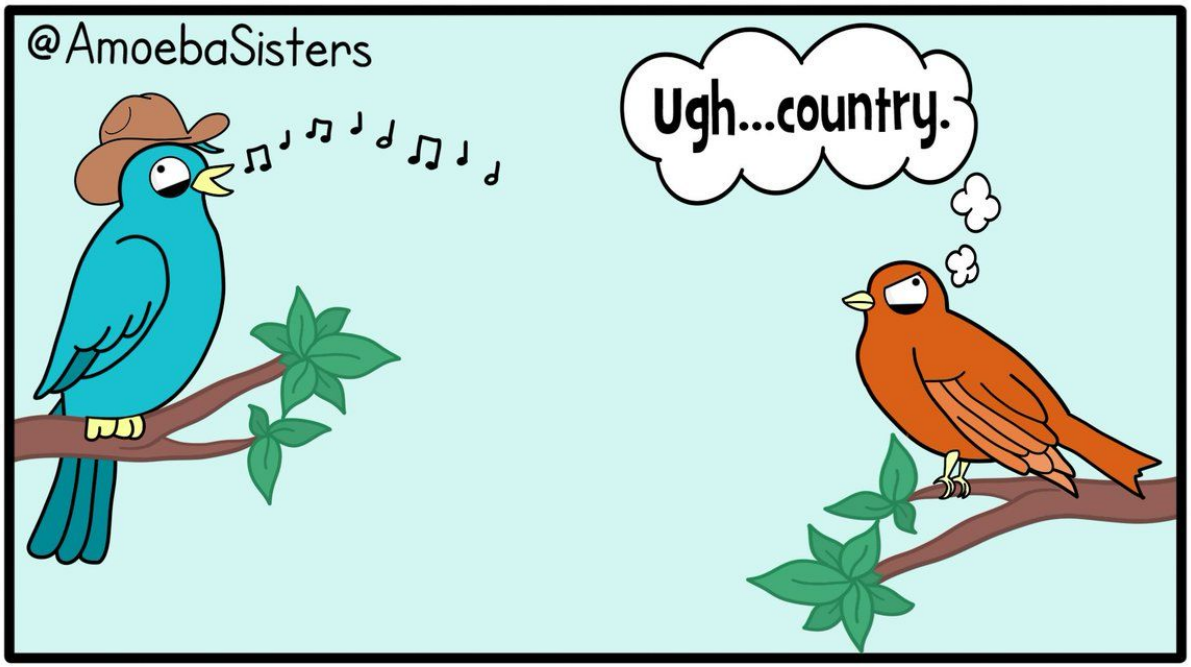


Isolating Mechanisms

- Reproductive isolation occurs by one of three mechanisms:
  1. **Behavioral isolation**
  2. **Geographical isolation**
  3. **Temporal isolation**

Isolating Mechanisms

- Behavioral isolation occurs when **two populations that are capable of interbreeding develop differences in courtship rituals or other behaviors.**

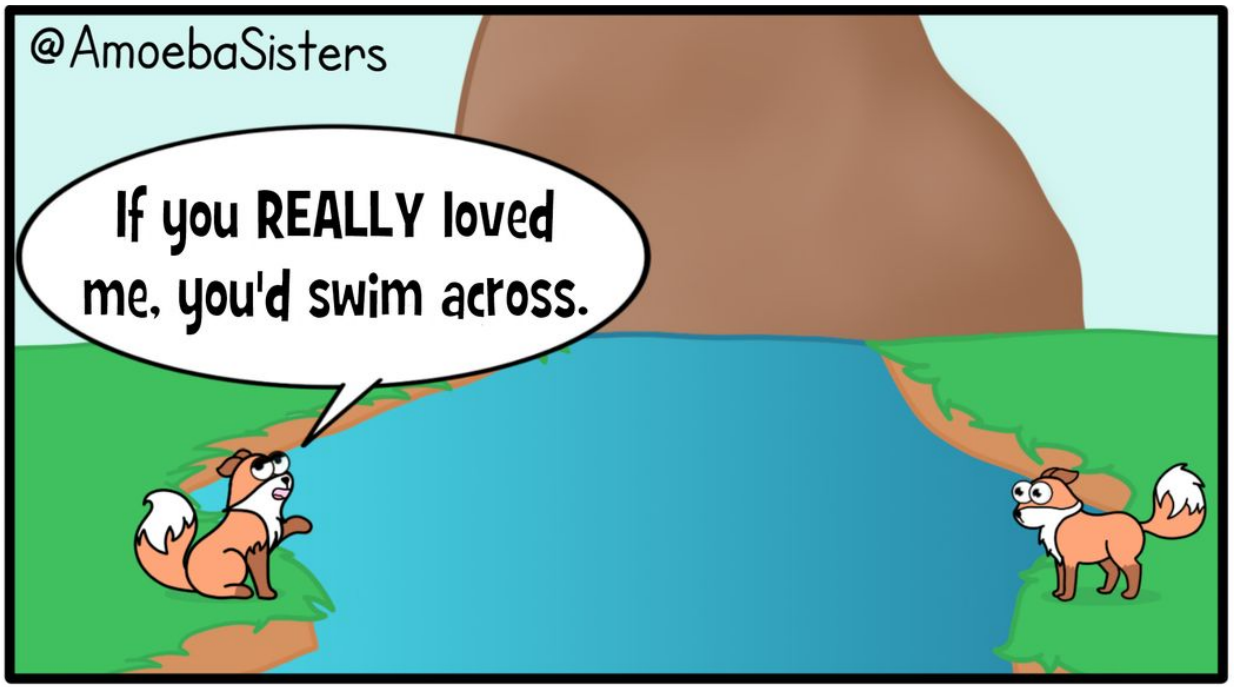


Isolating Mechanisms

- For example, the western and eastern meadowlark have distinctly different songs. As a result, they do not interbreed and are classified as separate species.

Isolating Mechanisms

- Geographic isolation occurs when **two populations are separated by geographic barriers such as rivers, mountains, or bodies of water.**

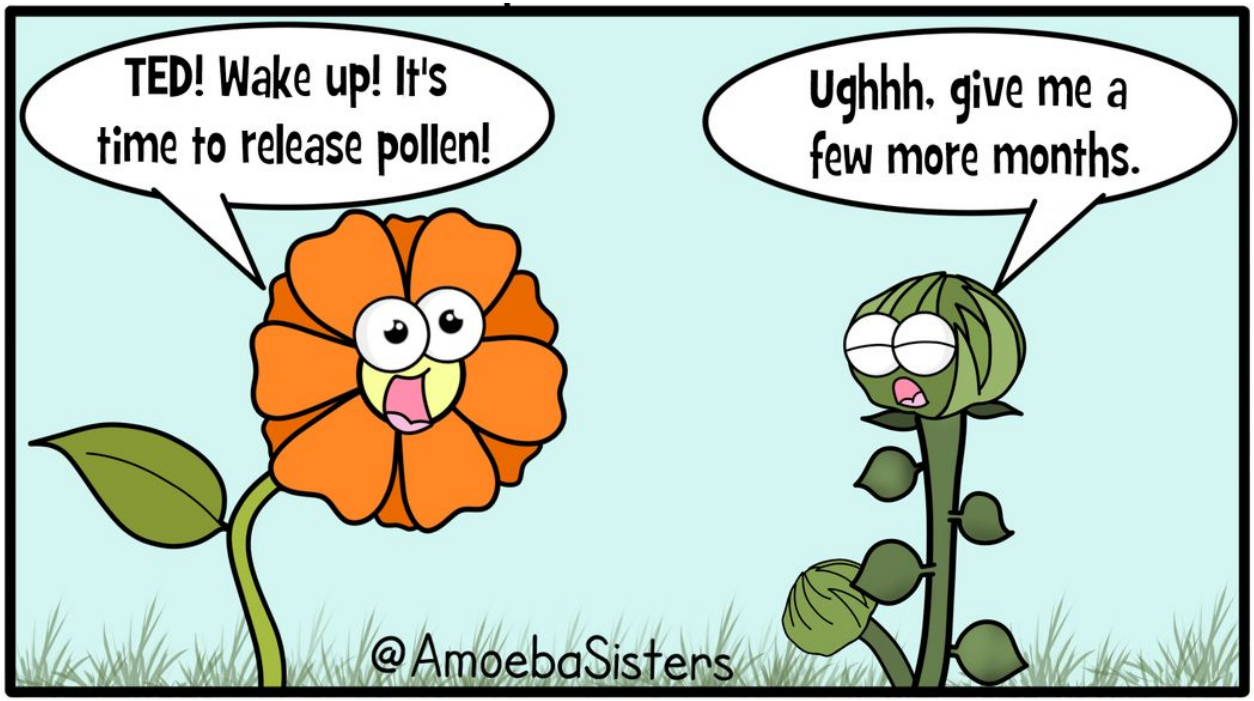


Geographic Isolation

- For example, the Kaibab squirrel is a subspecies of the Abert's squirrel that formed when a small population became isolated on the north rim of the Grand Canyon. Separate gene pools formed, and genetic changes in one group were not passed on to the other.

Temporal Isolation

- Temporal isolation occurs when **two or more species reproduce at different times.**



Temporal Isolation

- For example, three species of orchid live in the same rain forest. Each species has flowers that last only one day and must be pollinated on that day to produce seeds. Because the species bloom on different days, they cannot pollinate each other.

Crash Course: Speciation