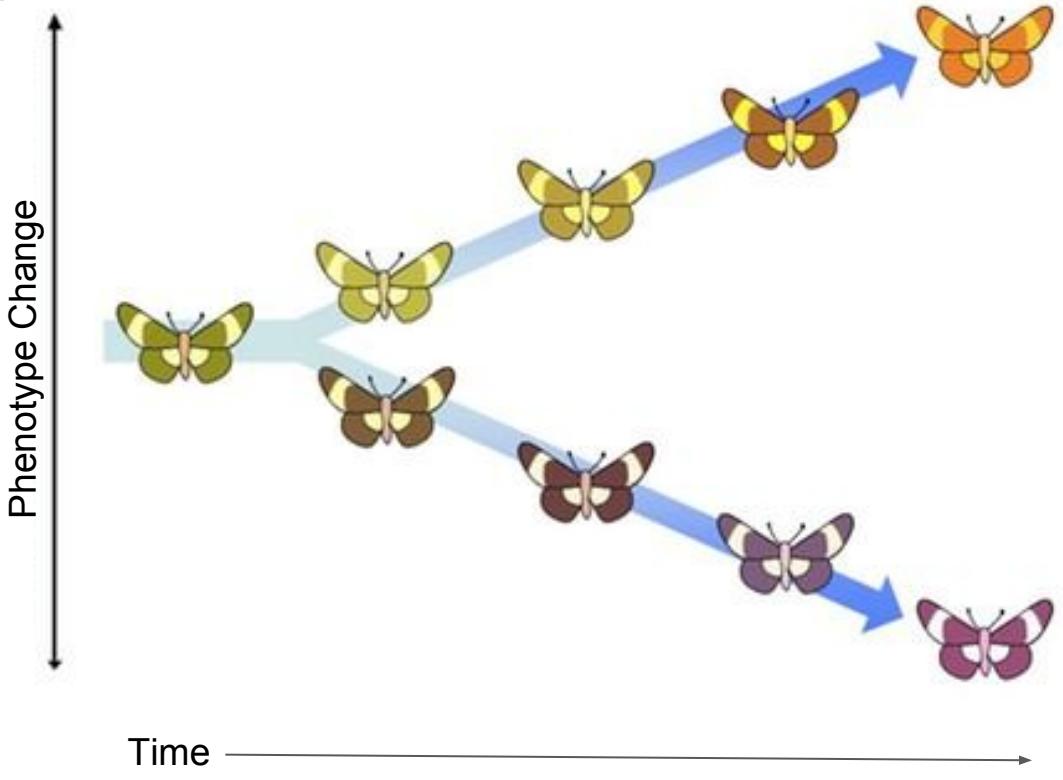
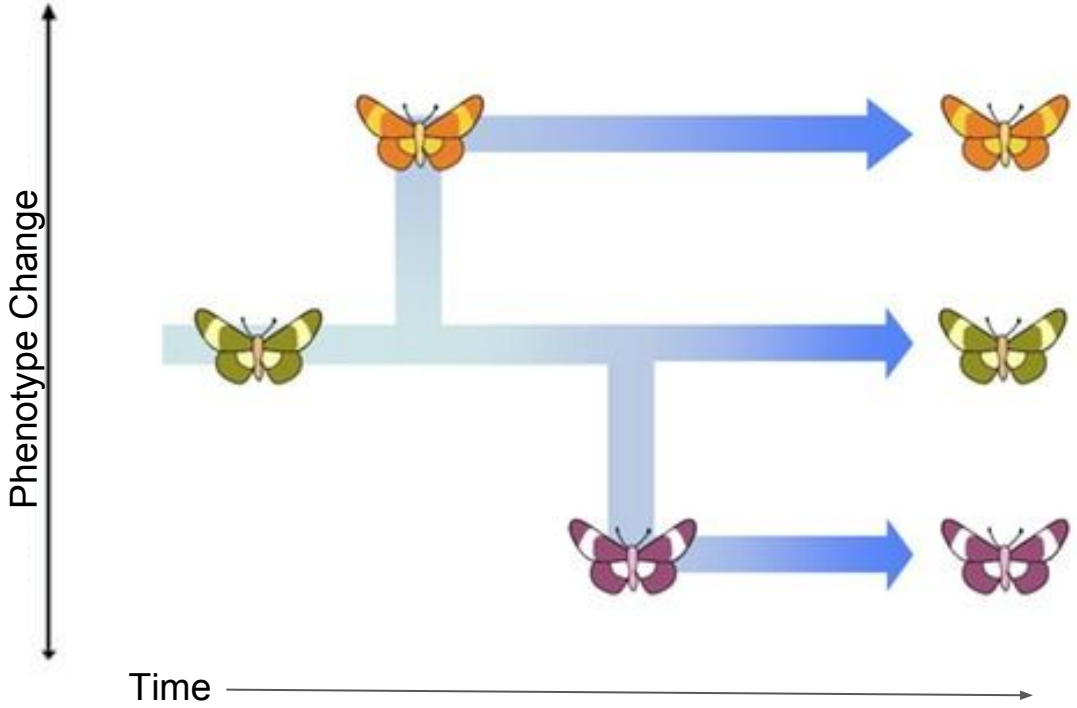
Station 1: Gradualism

- Evolution occurs slowly and produces gradual change over time
- Supported by Charles Darwin



Station 2: Punctuated Equilibrium

- Evolution occurs quickly and produces sudden change, followed by long period of no change
- Supported by Stephen Jay Gould

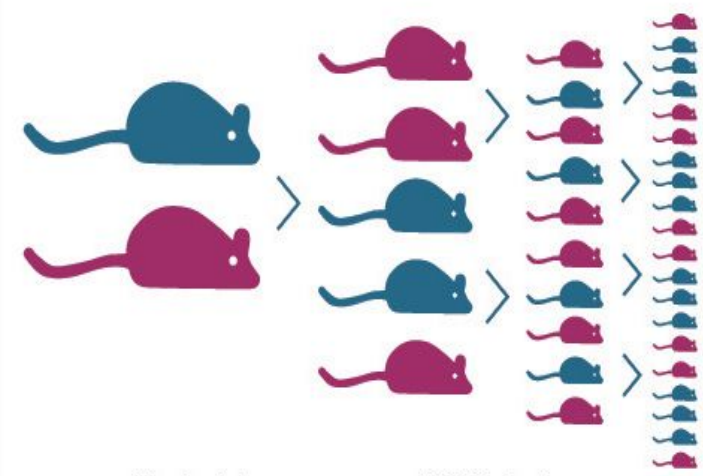


Station 3: Genetic Variation

- Increased by
  - sexual reproduction,
  - large population size
- Natural selection requires variation
  - More variation → More ability to change
- No variation → populations cannot adapt → may lead to extinction

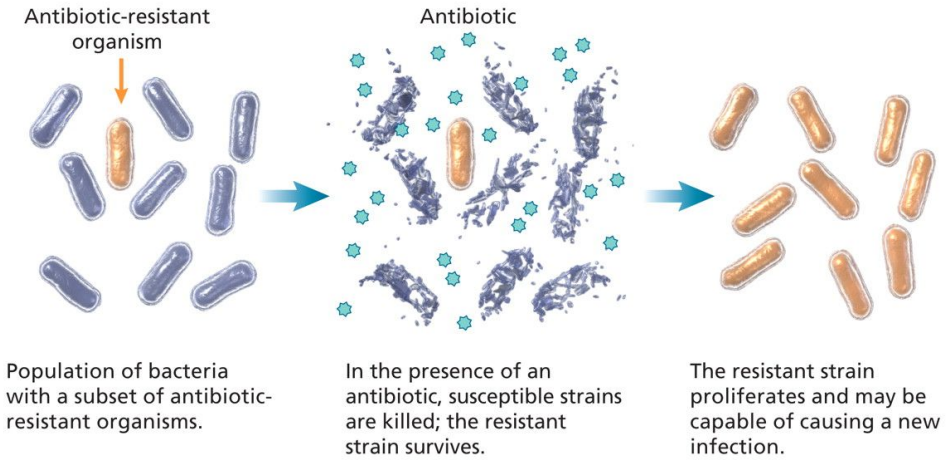
Station 4: Rapid Reproduction

- Increased by short generation times
- Natural selection requires multiple generations
  - Quicker generations → quicker change
- Slow reproduction → slow passing on of traits → slow adaptation



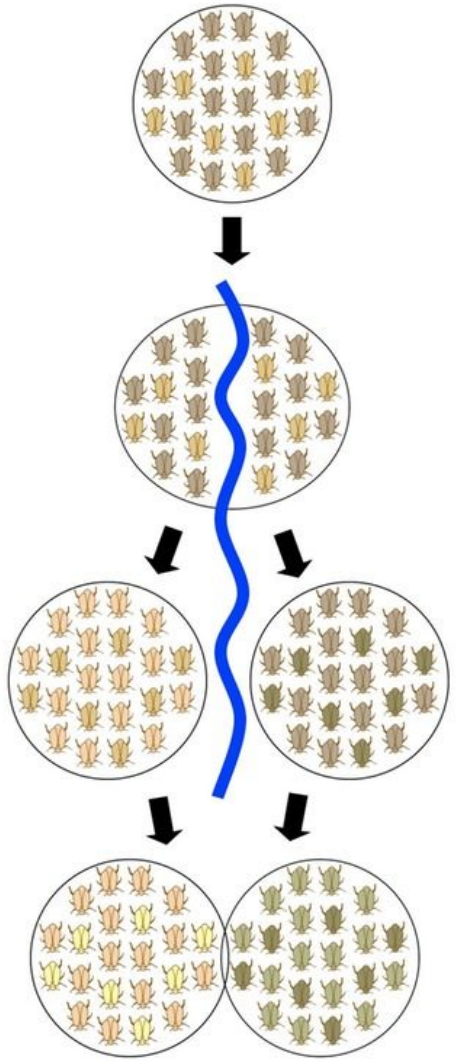
Station 5: Selective Pressure (Competition)

- Increased by environmental challenges
- Natural selection requires competition
  - Greater competition → more advantage of beneficial variations
- No competition → no difference in fitness → no “survival of the fittest”



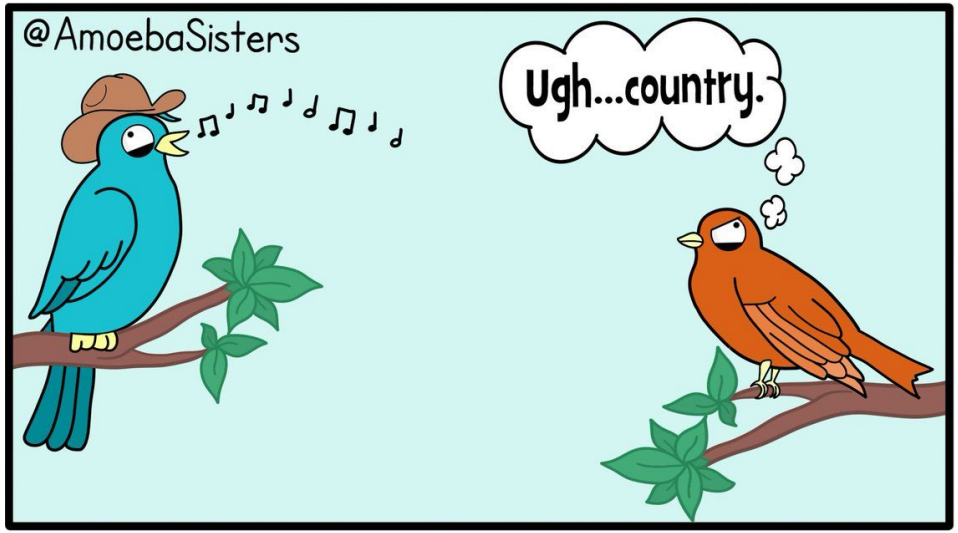
Station 6: Geographic Isolation

1. Population divided by a geographic barrier (water, mountains, etc.)
2. Isolated populations evolve differently
    a. Different selective pressures
    b. Different gene pools
3. Over time, populations change to become different species (never interbreed with other populations)



Station 7: Behavioral Isolation

1. Some individuals behave differently → don't mate with the rest of the population
2. Isolated group evolves differently
3. Over time, populations change to become different species (never interbreed with other population)



Station 8: Adaptive Radiation

1. New empty niches appear
2. Individuals in a population fill empty niches → become isolated & adapt through natural selection
3. Each group changes enough to become different species (never interbreed with other populations)