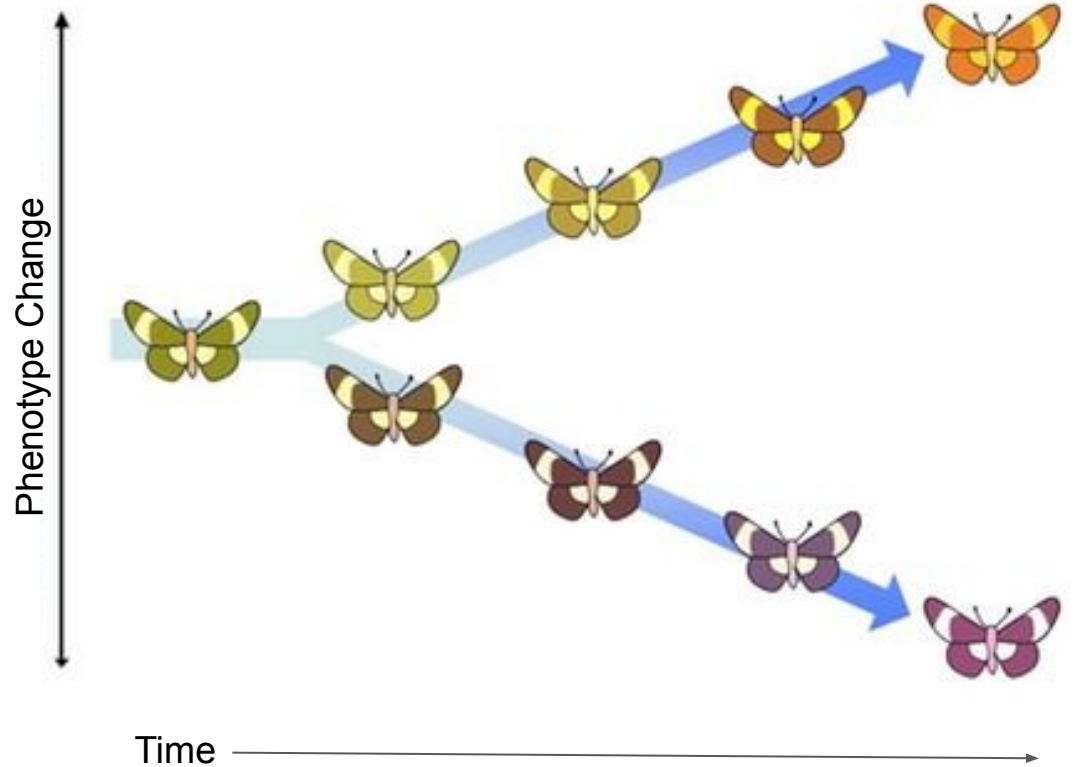


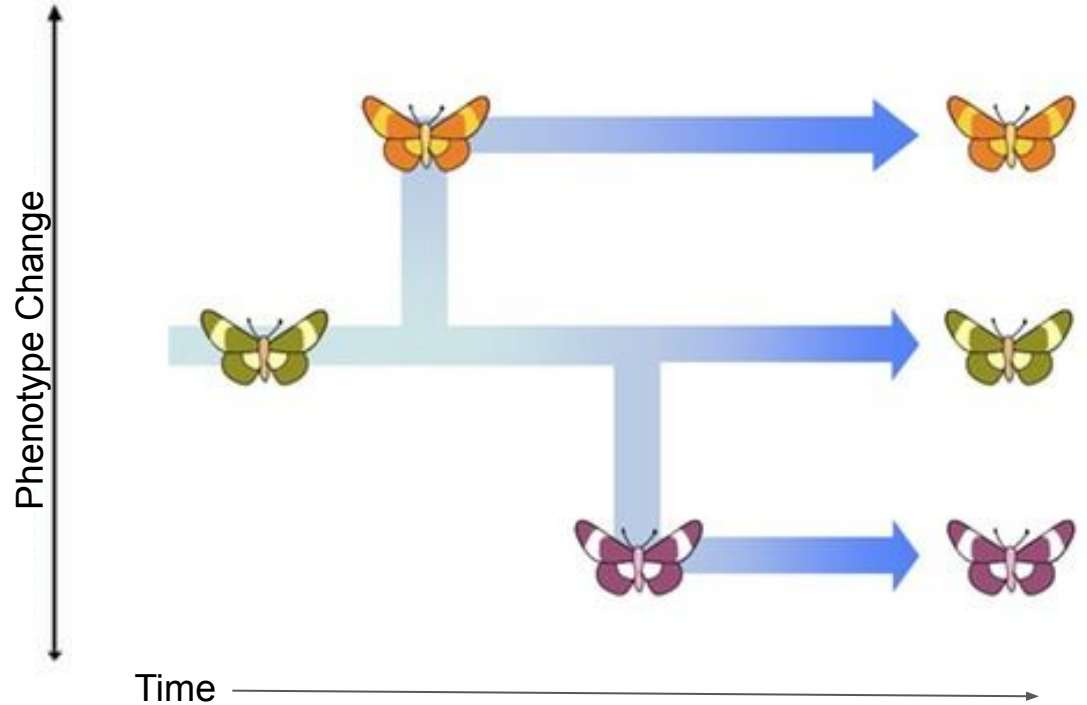
# Station 4: Gradualism

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



# Station 5: Punctuated Equilibrium

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



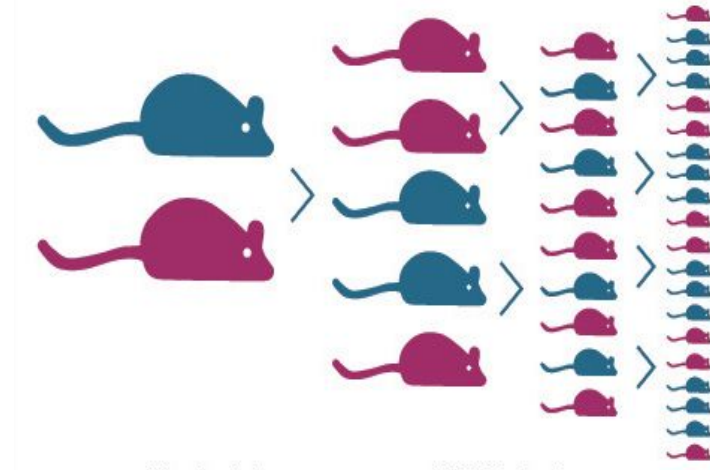
# Station 1: Genetic Variation

- Increased by
  - sexual reproduction,
  - large population size,
  - high mutation rate
- Natural selection requires variation
  - More variation → More potential for change
- No variation → no potential for change → may lead to extinction



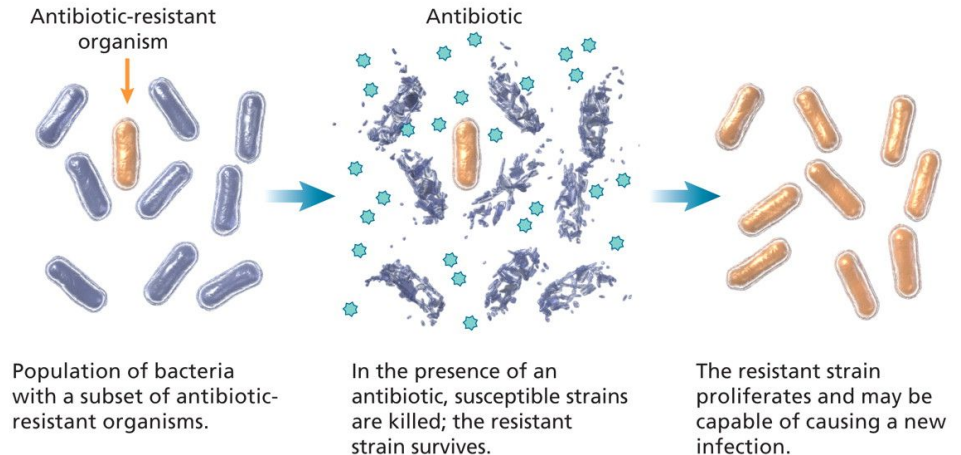
# Station 2: Reproduction Rate

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



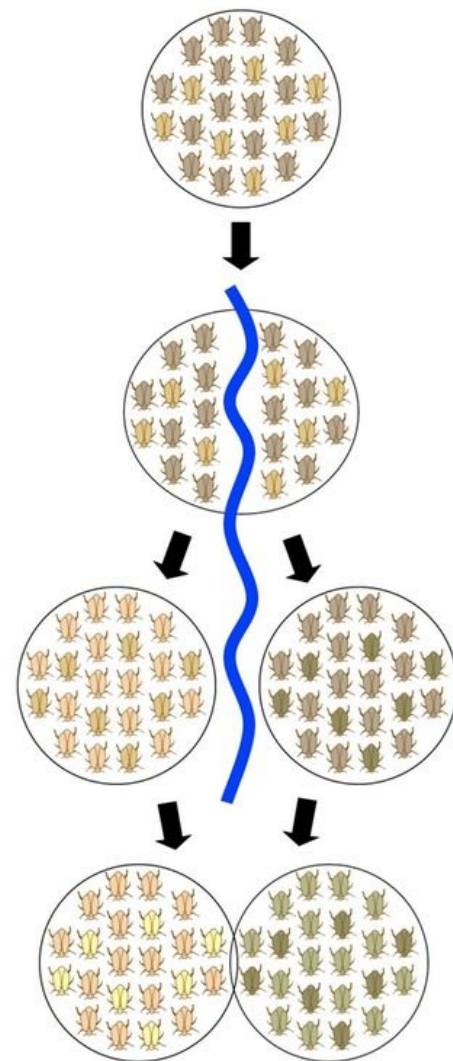
# Station 3: Selective Pressure

- Increased by
  - competition for limited resources
  - threats to survival
- Natural selection requires struggle for survival
  - More struggle → greater advantage of beneficial variations
- No competition → no “survival of the fittest” → no selection



# Station 6: Isolation of Populations

1. 1 Population divided by a barrier:
  - a. geographic (water, mountains)
  - b. behavioral (different mating preferences)
2. Isolated populations evolve differently
  - a. Unique selective pressures
  - b. Unique gene pools
3. Over time, 2 populations evolve differently to become different species (can no longer interbreed with other population)



# Station 8: Adaptive Radiation

1. New empty niche is “colonized” by some individuals from a founder population
2. “Colonists” are isolated from founders & change through natural selection due to new selective pressures
3. Changes accumulate so 2 populations never interbreed → new species

