

Evolution Question

Variation

- Mutations, exon shuffling etc
- Recombination and meiotic sorting
- Gene flow from population (immigration or emigration)

Inherited (passed to offspring)

Genes in Development if the question is more molecular

- Pattern Formation
- HOX genes
- Signal molecules as "morphogens"
- Shared evolutionary history of animals clear from genes that control development

Differential survival (selection)

- Obtaining resources
 - Behavioral changes (e.g. hunting at night)
 - metabolic changes (e.g. resistance to toxic component of some food)
 - Anatomical changes (e.g. changes to beak size or shape)
- Predation
 - Behavioral changes (sleep during max time of predator)
 - biochemical defenses (e.g. toxins)
 - Anatomical changes (spines etc)
- Sexual/reproductive advantage
 - Selection for mate (e.g. behaviors or coloring etc)
 - off-spring rearing behavior (e.g. care for fewer young or produce lots of young)
 - other reproductive strategies (very diverse behaviors...e.g. birds laying eggs in another bird's nest; cuckolding behavior etc)
- Coevolutionary paths
 - pollinator/plant (e.g. insects and flowers)
 - parasite/host (e.g. immune system and pathogens)
 - predator/prey (e.g. speed of cheetah)