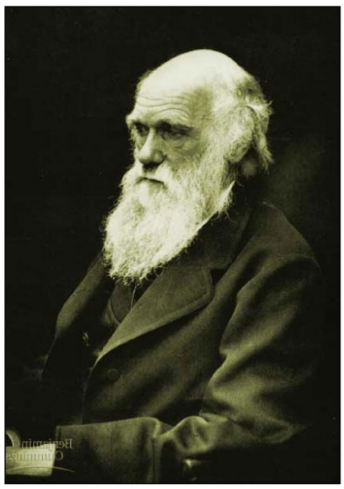
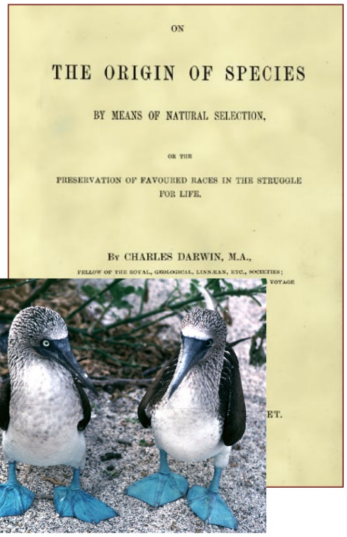
Evolution 2: Darwin, Adaptations, and Natural Selection





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How are humans suited to our environments? What anatomical features do we have that allow us to survive? What behaviors do we have that allow us to survive?

- BRAINS
- HAIR.
- OPPOSABLE THUMBS.
- SKIN
- IMMUNE
- CARDIOVASCULAR SYS.
- TEETH - OMNIVORE

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- REASONING
- COMMUNITY + FAMILY STRUCTURE.
- COMPLEX LANGUAGE.
- SYMBOLIC LANGUAGE
- INSTINCTS.

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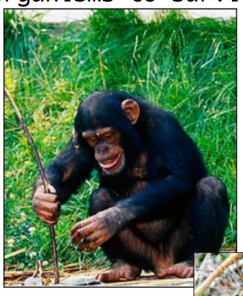
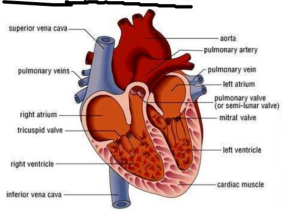
Adaptation: A structure, behavior or process that allows organisms to survive and reproduce.





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Examine the skull in front of you.
Make a chart with the following:

Feature/Adaptation	How does this help them survive and reproduce?
• Sharp teeth	• Probably a carnivore/omnivore

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Viewing Guide: What are the four conditions possible for evolution to occur?

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Evolution happens when natural selection happens to organisms.

We need four conditions for natural selection to occur:

- 1.
- 2.
- 3.
- 4.

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What about diseases passed between mothers and offspring?

What about lifestyle choices (smoking, drinking, nutrition)

What about immunity?

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What happens to the insects that lack camouflage/cryptic coloration adaptations?

Is all coloration camoflague? What else do organisms use coloration for?

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Are we always aware of our behavior?
Do we have adaptations we don't detect?

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Evidence of Evolution

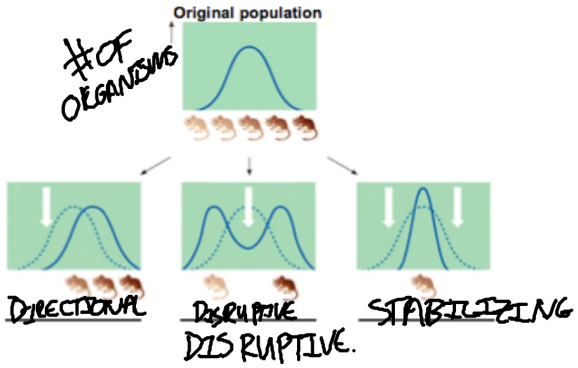
Homologous - Species that share a recent common ancestor have similar *structures* (eg. the same bones in the same order), but may have adapted them for different *functions* (eg. the hand of a human versus the flipper of a whale).

Analogous - Species that do NOT share a recent common ancestor may have different structures (eg. the wing of a butterfly and the wing of a bat) that have been adapted for similar functions (eg. flight).

Vestigial - Species may have structures that show their evolutionary history that they no longer use.
Eg. The hipbones of whales and snakes.

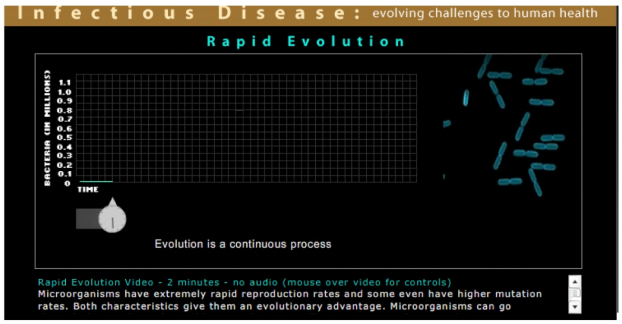
The following chart shows three types of selection.
Work in your groups to answer the following:

Which do you think is "disruptive" selection? WHY?
Which do you think is "directional" selection? WHY?
Which do you think is "stabilizing" selection? WHY?



- ERNST MAYR
- MORPHOLOGICAL SPECIES CONCEPT
  - APPEARANCE.
- GENETIC SPECIES CONCEPT
  - DNA
- BIOLOGICAL - MUST MATE IN THE WILD + PRODUCE VIABLE, FERTILE OFFSPRING.

Putting it all together!



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Examine the containers of Play-Dough in front of you. Using their external and internal features, sort them into "species."

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Format for species names:
Genus species

1. Genus is first and capitalized.
2. species is second and lower case.
3. *The whole name is italicized.*

Ex. *Homo sapiens* } MODERN HUMANS
Ex. *Canis lupus* } WOLF.
Ex. *Pan troglodytes* } CHIMPS
Ex. *Gorilla gorilla* } GORILLA.

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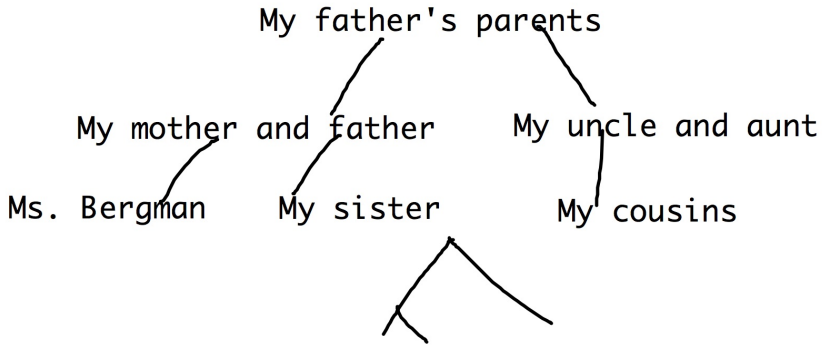
Take a minute and write out your family tree. Include yourself, your parents, EITHER your maternal (mother's) or paternal (father's) parents, and one set of cousins.



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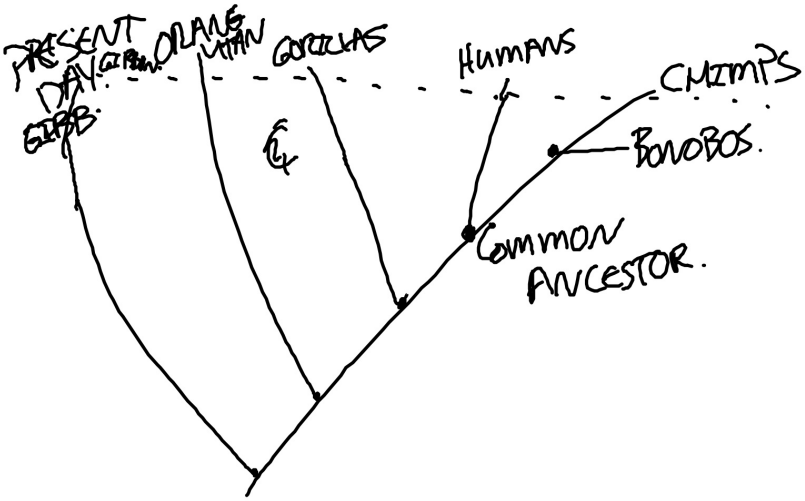

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