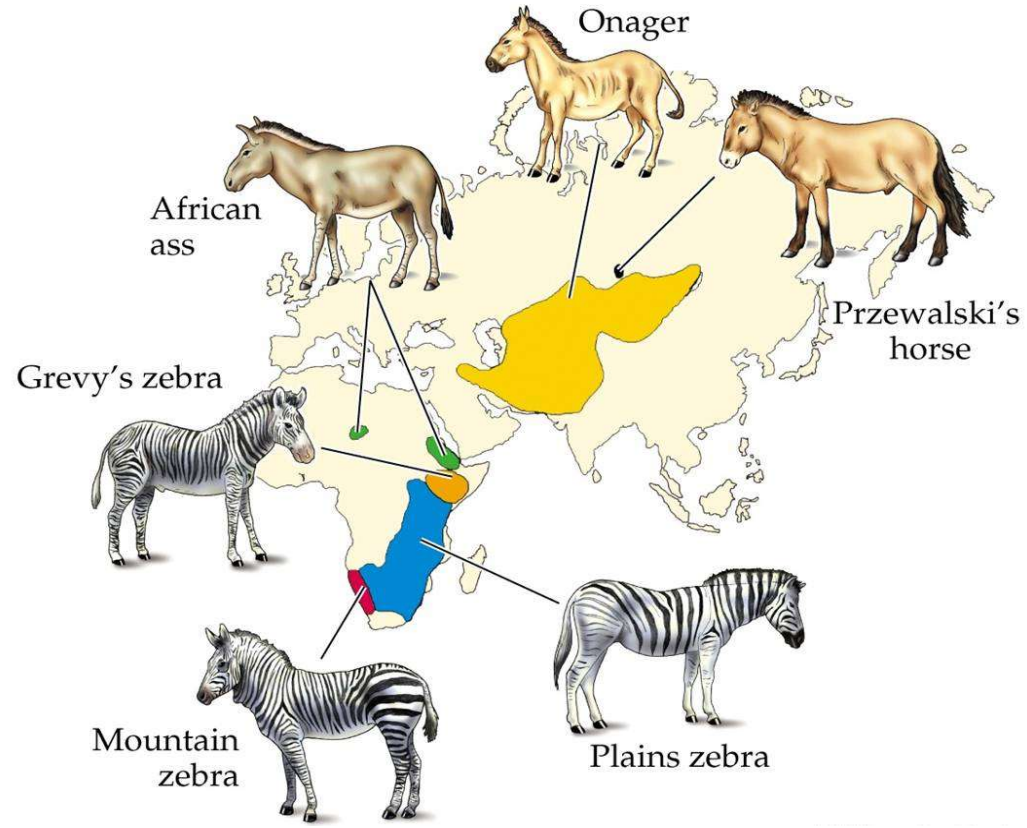
Evidence for Evolution Part 3: Embryology and Biogeography

Ms. Gill

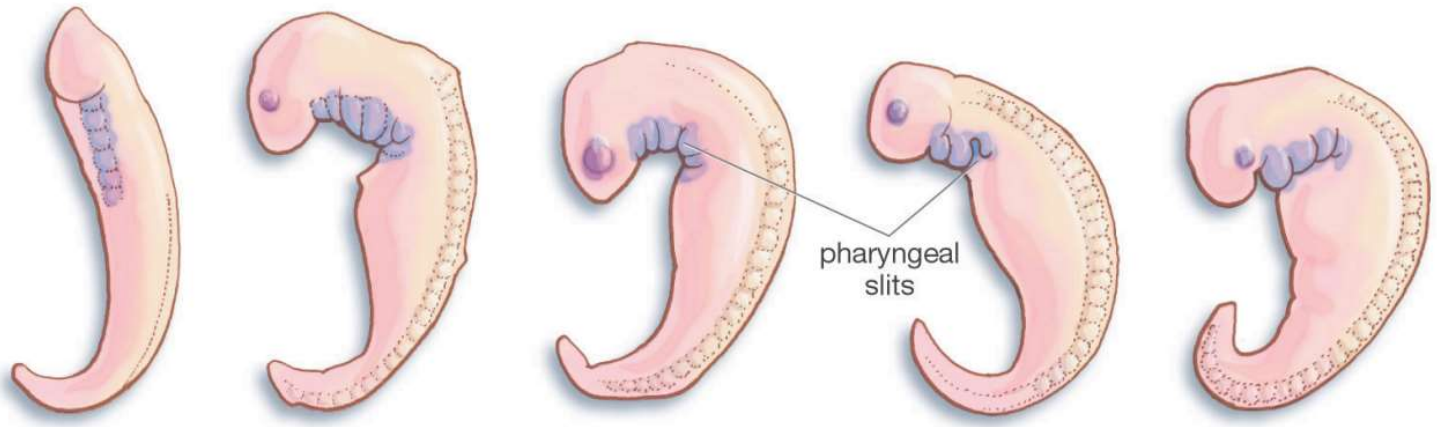
Honors Biology



Agenda

- Kahoot!!! Anatomical structure categorization
- Embryology card sort race
- Notes: Biogeography
- Biogeography and phylogeny
- Canary Island Lizard Lab: Parts 1-2

Embryology card sort race



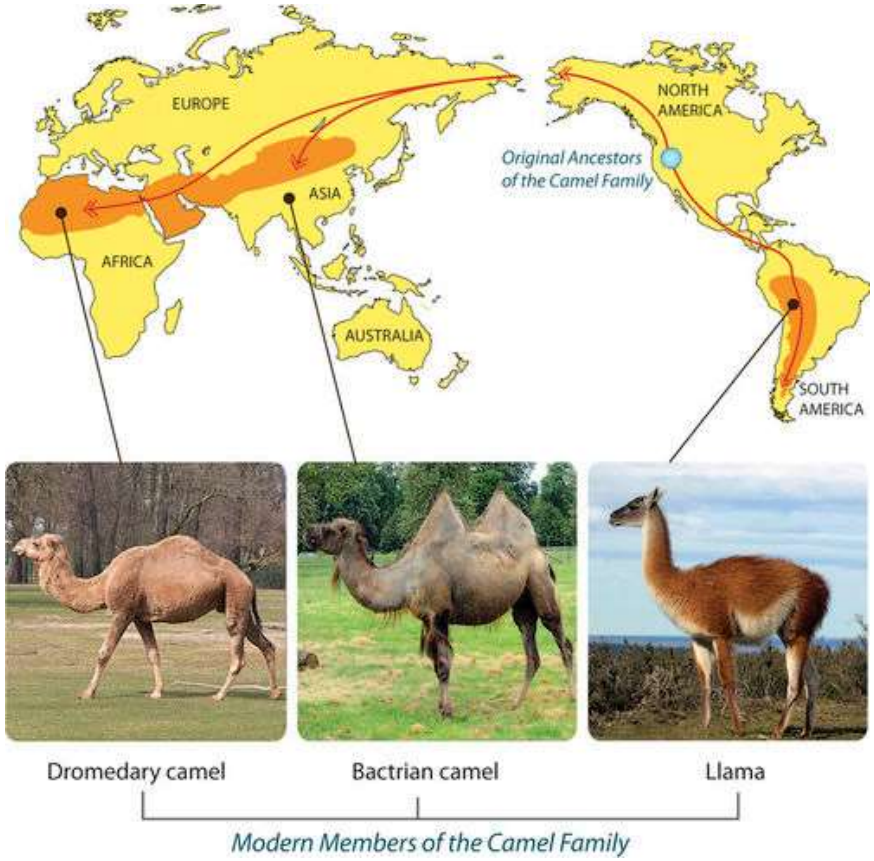
- 15 pictures of embryos
- 5 species, 3 stages of development
- Cut them up, then match them up and tape in place

- Teams of 3-4
- 5 minutes to complete, then a quick discussion
- First team with correct solution gets prizes!

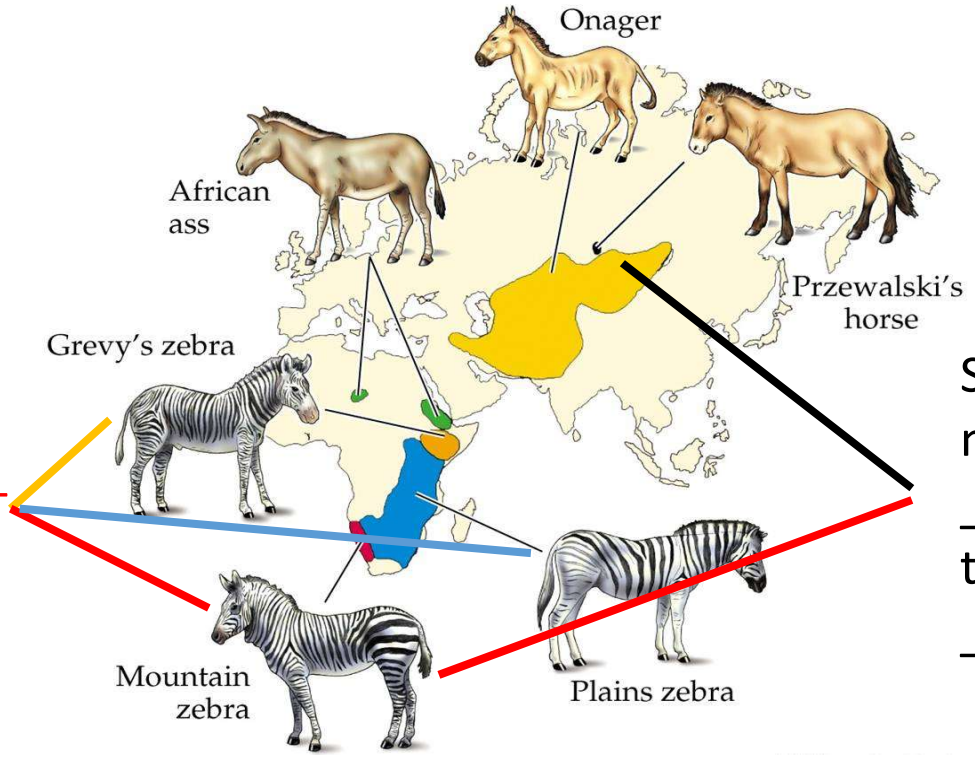
Biogeography

Studying the _____ of species

(_____ *and* _____)



Biogeography #1: _____mirrors _____

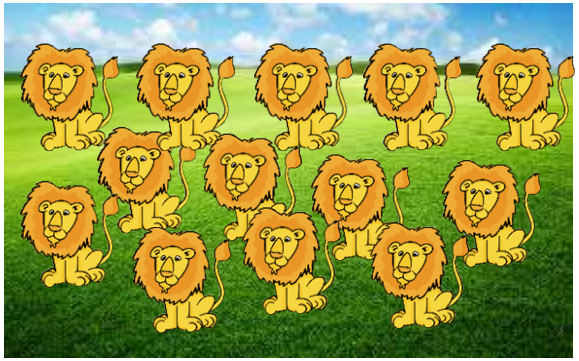


Closely related species tend to be found _____ _____ to each other

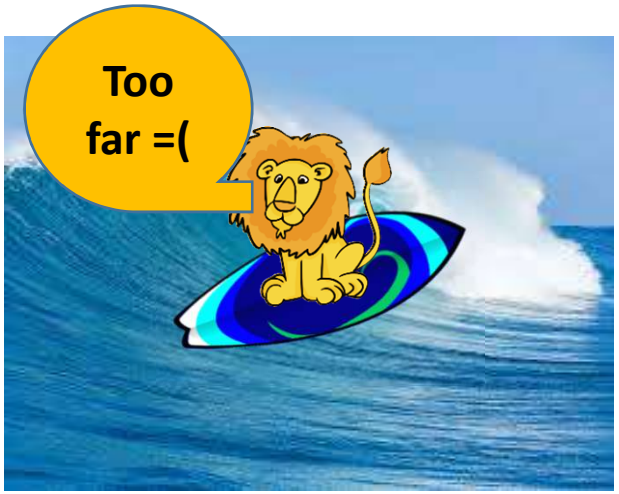
Species that are more _____ _____ tend to be more _____

Biogeography #2:
There are _____ that some species _____

Example: Mammals are not found on islands >300 mi to sea



Lots of mammals on continents

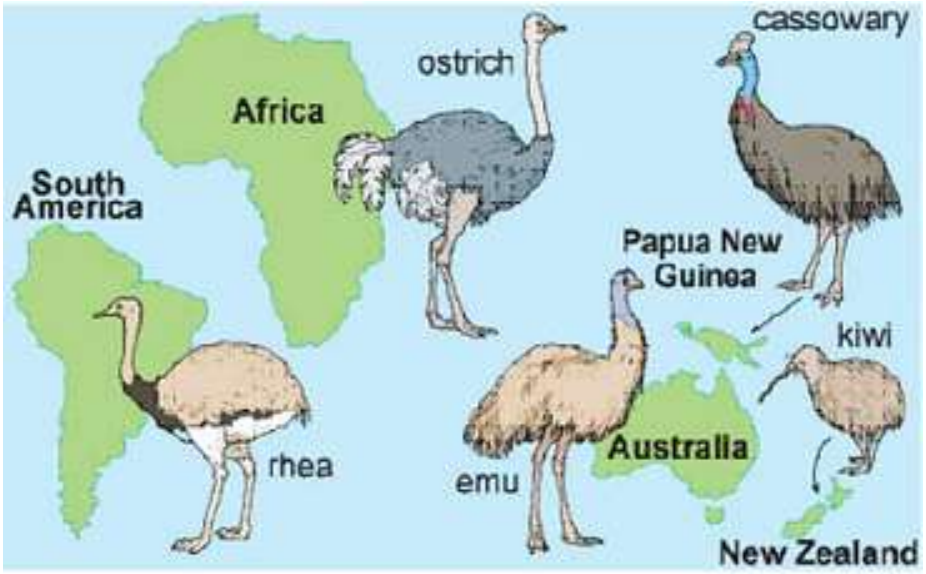


Mammals can't swim to far islands

What are some other examples of boundaries?

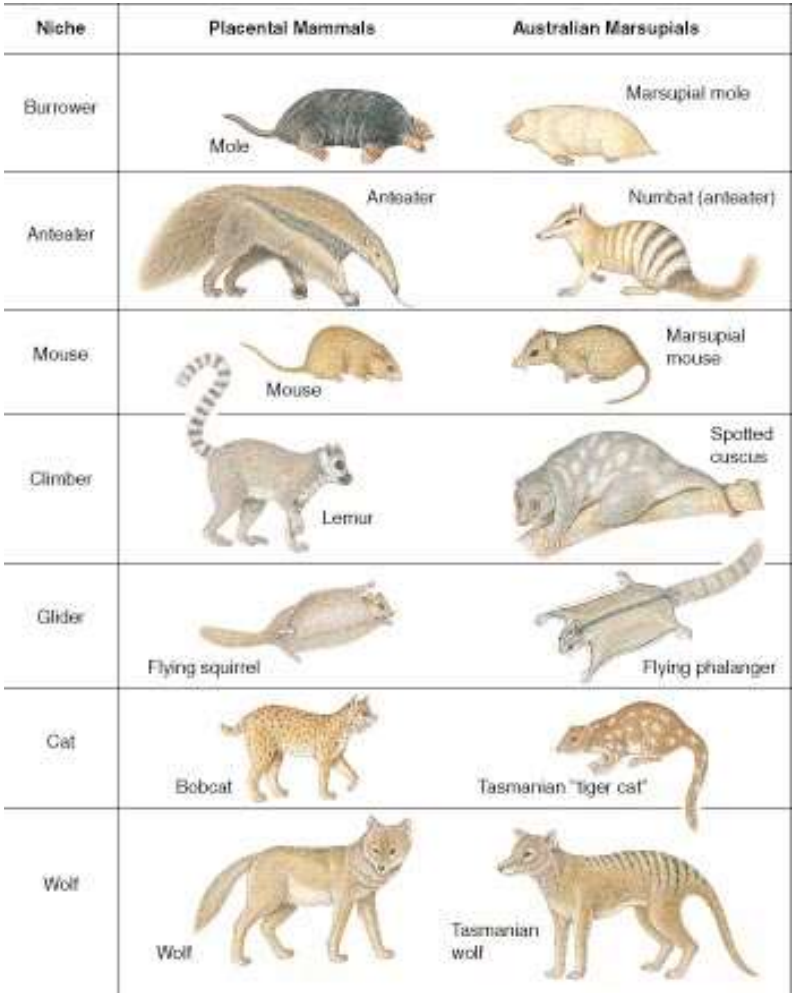
Physical (mountains) *temperature* *climate (desert)*

Biogeography #3: related species that are _____ tend to _____



Example: In many areas, big flightless birds have successful, but they _____ and then evolved _____

Biogeography #4: distant environments support _____species



Similar _____ support species with similar _____…

…but if they are very distant, the species are likely _____

Mammals didn't make it to Australia, but their cousins the marsupials evolved _____ roles

How come polar bears don't eat penguins?

Think-pair-share:

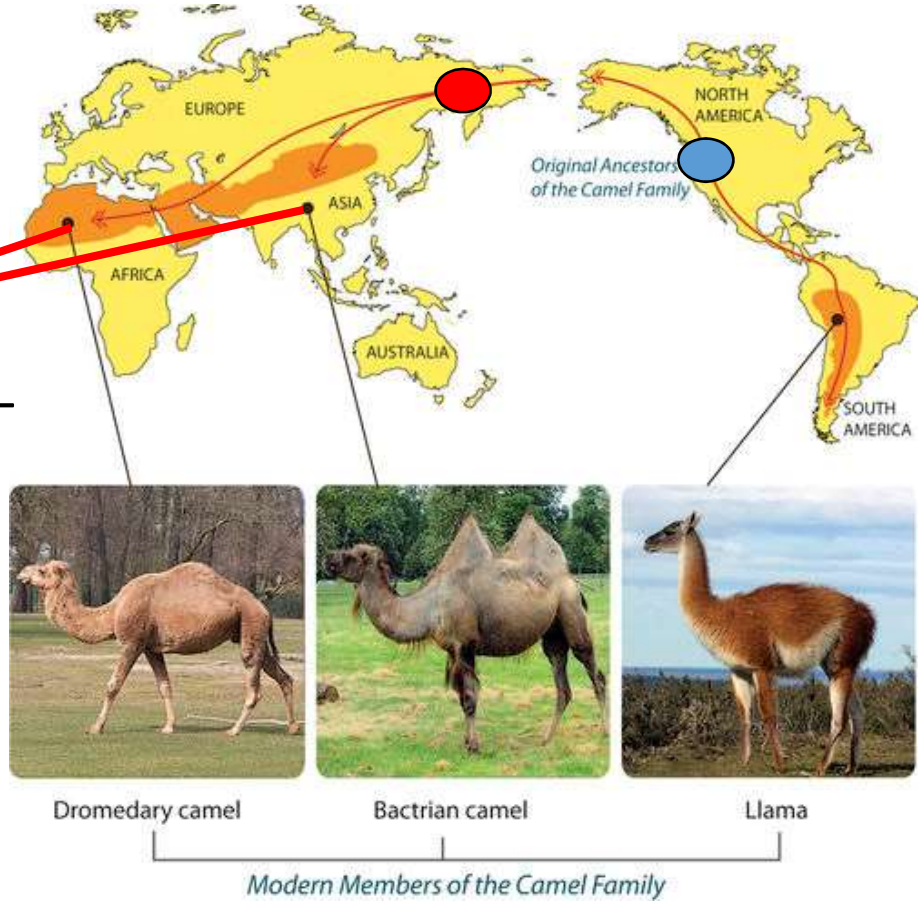
Come up with **two** explanations involving biogeography.

Using biogeography to draw phylogeny

- In general, we can use _____ to estimate evolutionary distance
  - Physically closer together = _____ related
  - Physically farther apart = _____ related

- At some point, species shared a common ancestor
  - Closely related species = _____ ancestor
  - Distantly related species = _____ ancestor

Example: camel phylogeny from biogeography



D,B _____

→ _____

ancestor

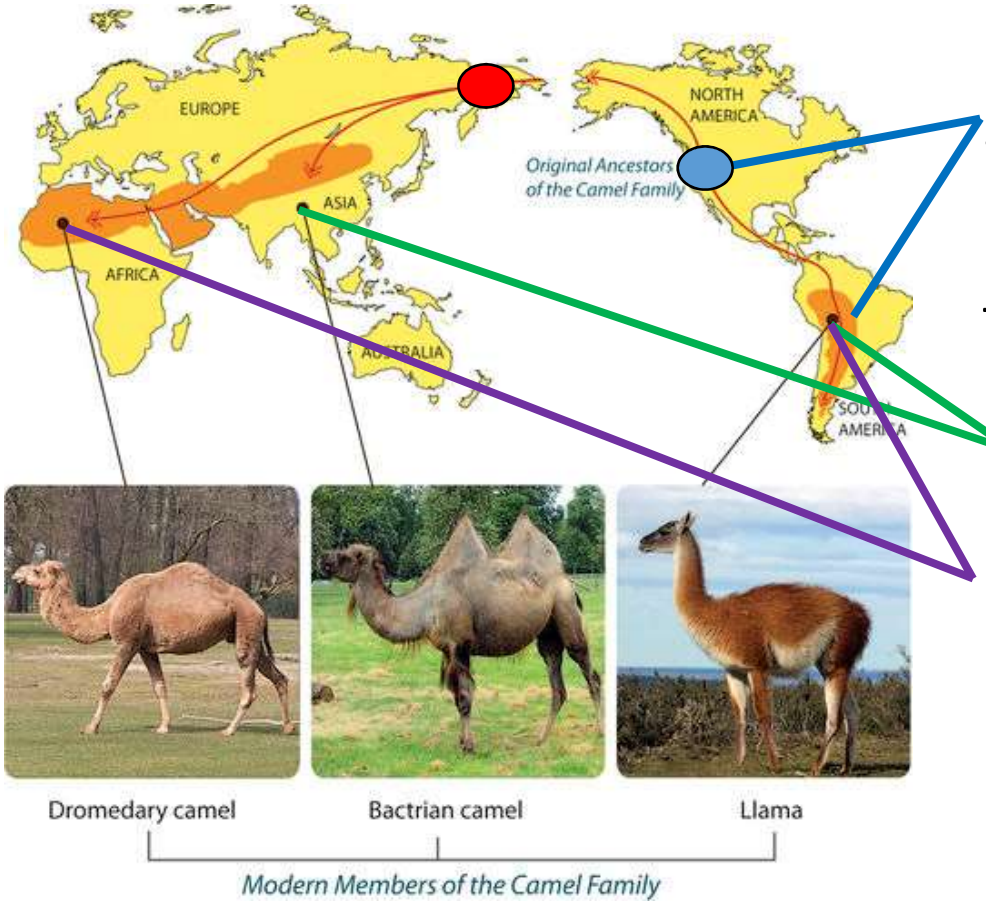
Original ancestor

Draw the phylogeny tree for D, B

Species D Species B Species L

Example: camel phylogeny from biogeography

Draw the complete phylogeny tree



L is _____ to site of original ancestor – _____ relative

D,L and B, L _____ → _____ ancestor

Species D Species B Species L