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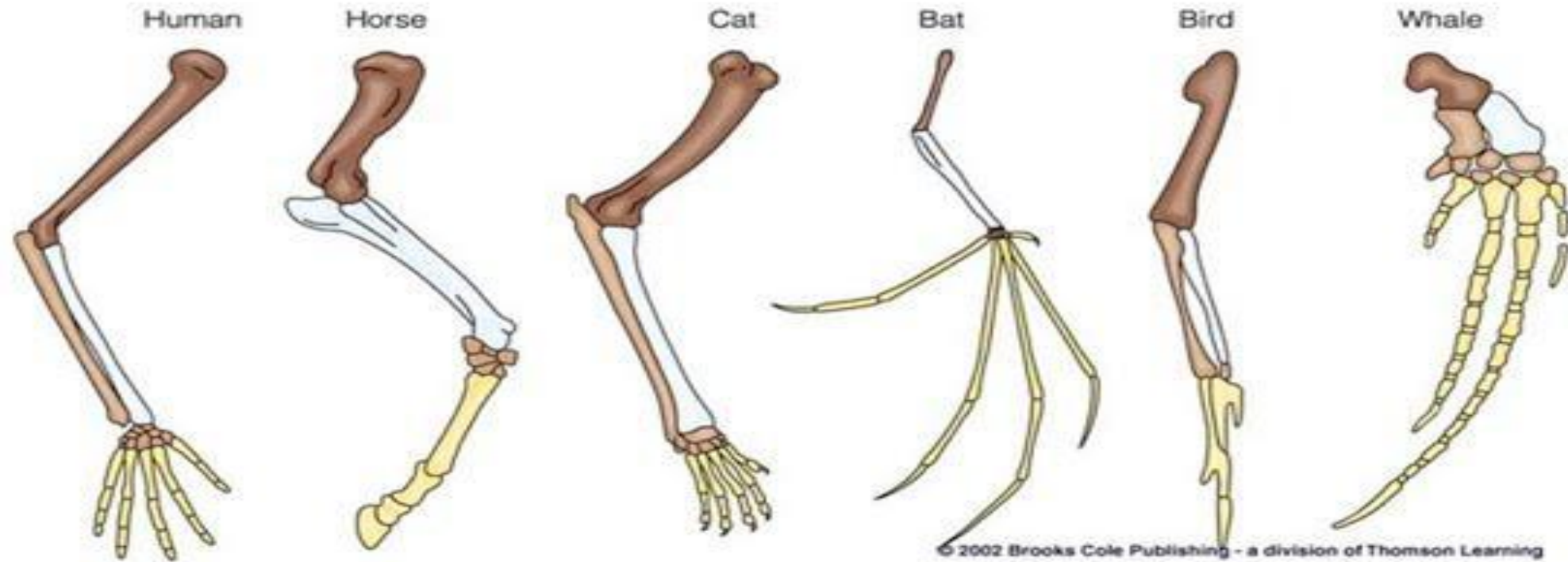
Types of evolution

- three main **types of evolution**:
divergent, convergent, and
parallel **evolution**

Divergent Evolution Definition

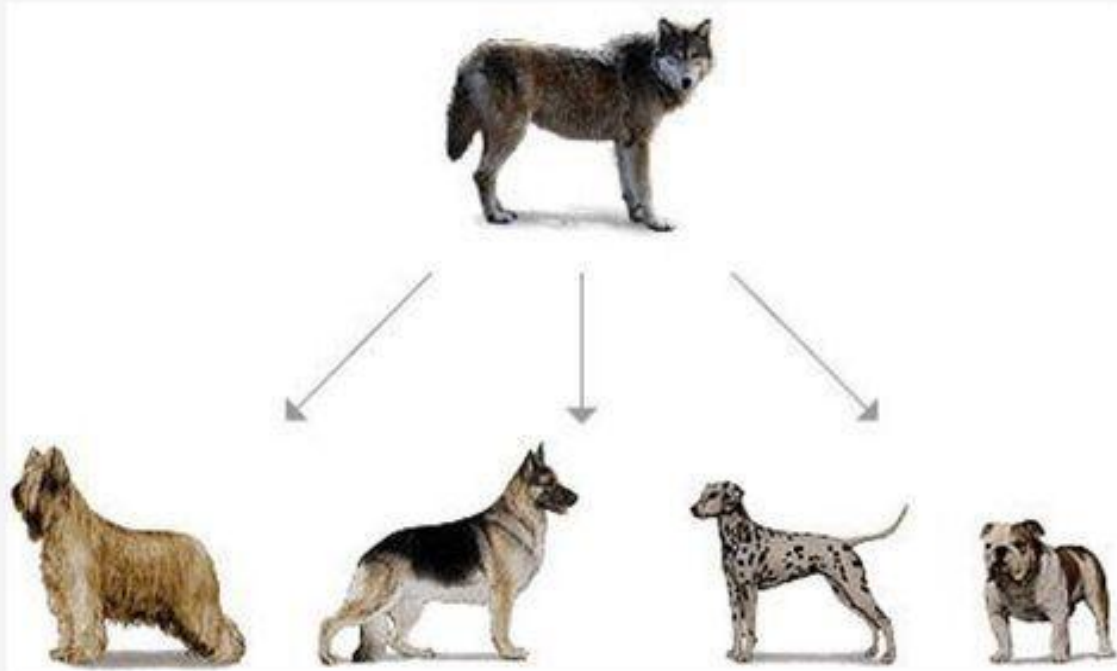
- Divergent evolution is the process whereby groups from the same common ancestor evolve and accumulate differences, resulting in the formation of new species.

Divergent evolution

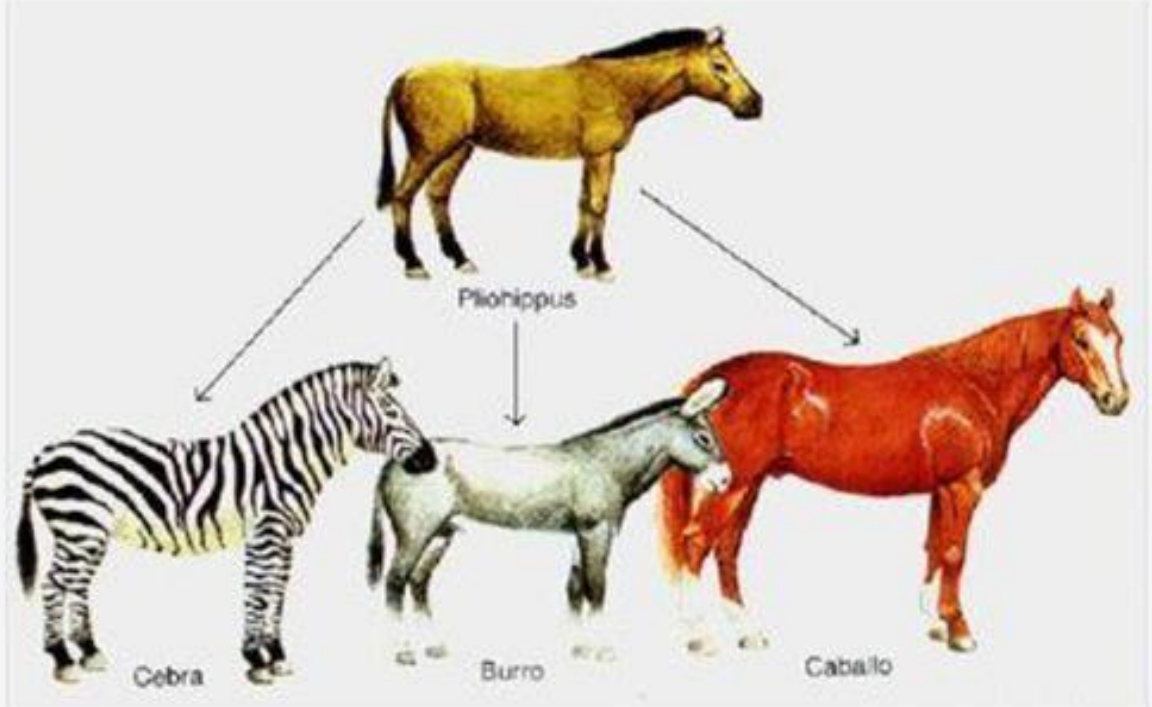


DIVERGENT EVOLUTION

common ancestor (RELATED) → adapt different traits



Example 1: Dog species descend from a wolf



Example 2: Zebras, Donkeys, and Horses are related

Convergent evolution

- Convergent evolution is the independent evolution of similar features in species of different periods or epochs in time

examples of convergent evolution?

- An **example of convergent evolution** is the similar nature of the flight/wings of insects, birds, pterosaurs, and bats. All four serve the same function and are similar in structure, but each **evolved** independently.

Convergent evolution

shark



fish

ichthyosaur












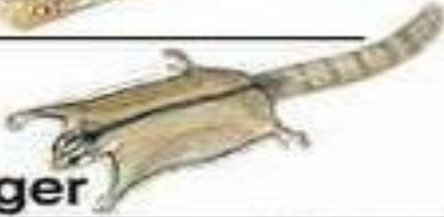




reptile

dolphin



mammal

Convergent Evolution

| Niche | Placental Mammals | Australian Marsupials |
|----------|---|--|
| Burrower | Mole  | Marsupial mole  |
| Anteater | Lesser anteater  | Numbat (anteater)  |
| Mouse | Mouse  | Marsupial mouse  |
| Climber | Lemur  | Spotted cuscus  |
| Glider | Flying squirrel  | Flying phalanger  |
| Cat | Ocelot  | Tasmanian "tiger cat"  |
| Wolf | Wolf  | Tasmanian wolf  |

WHAT IS PARALLEL EVOLUTION

- **Parallel evolution** is the similar development of a trait in distinct species that are not closely related, but share a similar original trait in response to similar evolutionary pressure

Julidochromis ornatus



Tropheus brichardi



Bathybates ferox



Cyphotilapia frontosa



Lobochilotes labiatus



Melanochromis auratus



Pseudotropheus microstoma



Ramphochromis longiceps



Cyrtocara moorei



Placidochromis milomo



| Evolutionary level | Parallel evolution | Convergent evolution |
|---------------------|---|---|
| Phenotype | Similar phenotypes occur in closely related taxa | Similar phenotypes occur in distantly related taxa |
| Gene | Similar phenotypes are produced by orthologous genes (homologues that have diverged from a common ancestral gene) | Similar phenotypes are produced by different, non-homologous, genes |
| Nucleotide sequence | Similar phenotypes are produced by identical changes in the same gene | Similar phenotypes are produced by different changes in the same gene |

Human Evolution

Human evolution

Human **evolution** is the lengthy process of change by which people originated from apelike ancestors.

What did humans first evolve from?

- **Modern humans** originated in Africa within the past 200,000 years and evolved from their most likely recent common ancestor, **Homo erectus**, which means 'upright man' in Latin. **Homo erectus** is an extinct species of human that lived between 1.9 million and 135,000 years ago.

What are the 4 stages of human evolution?

- The evolution of **modern humans** from our **hominid** ancestor is commonly considered as having involved four major steps: evolving terrestriality, bipedalism, a large brain (encephalization) and civilization.

the correct order of human evolution?

- Homo-Habilis → Homo-Neanderthalensis → Australopithecus → Homoerectus → Cro-magnon → Homosapiens.



IMPORTANCE OF EVOLUTION

- Understanding **evolution** is **important**.
Understanding **evolution** helps us solve biological problems that impact our lives. ...
To control hereditary diseases in people, researchers study the **evolutionary** histories of the disease-causing genes. In these ways, a knowledge of **evolution** can improve the quality of human life.

THANK
YOU

