RELATIONSHIP OF ONTOGENESIS AND PHYLOGENESIS.RULES OF PHYLOGENESIS.PHYLOGENSIS OF CHORD AVIAN SKIN COVERAGE AND DEVELOPMENTAL DISORDERS OF SKIN COVERINGG IN HUMANS..

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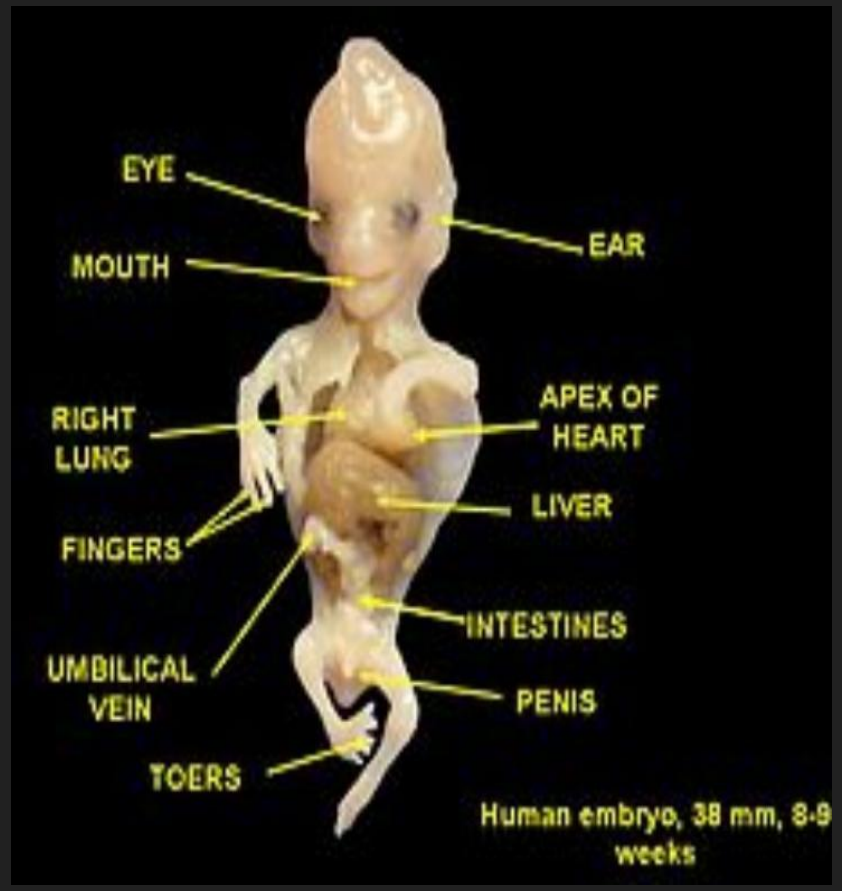
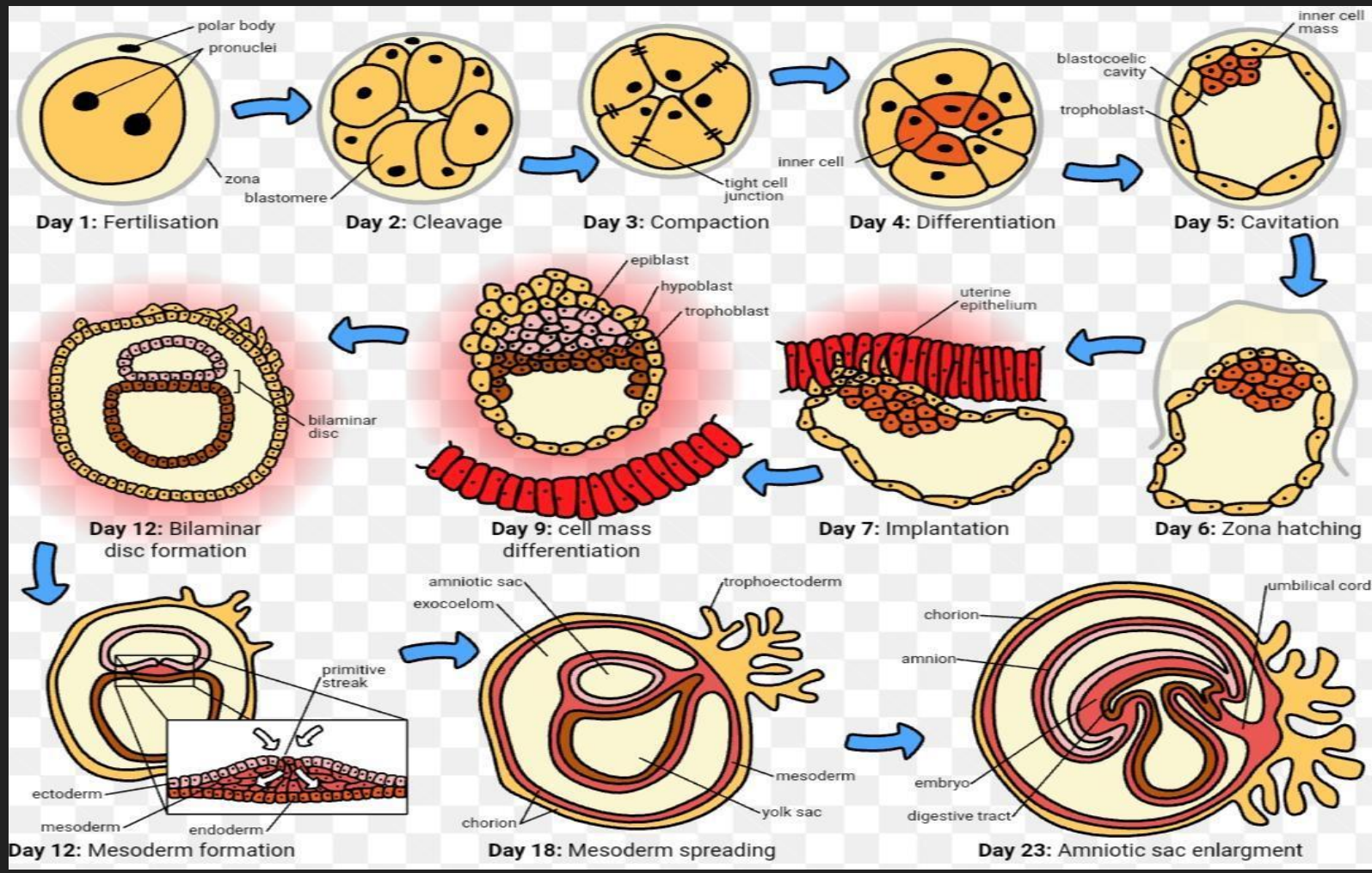
ONTOGENESIS

- Ontogenesis is the origination and development of an organism (both physical and psychological, e.g., moral development), usually from the time of fertilization of the egg to adult. The term can also be used to refer to the study of the entirety of an organism's lifespan.
- It is the development of an individual organism or anatomical or behavioral feature from the earliest stage to maturity.



STAGES OF ONTOGENESIS

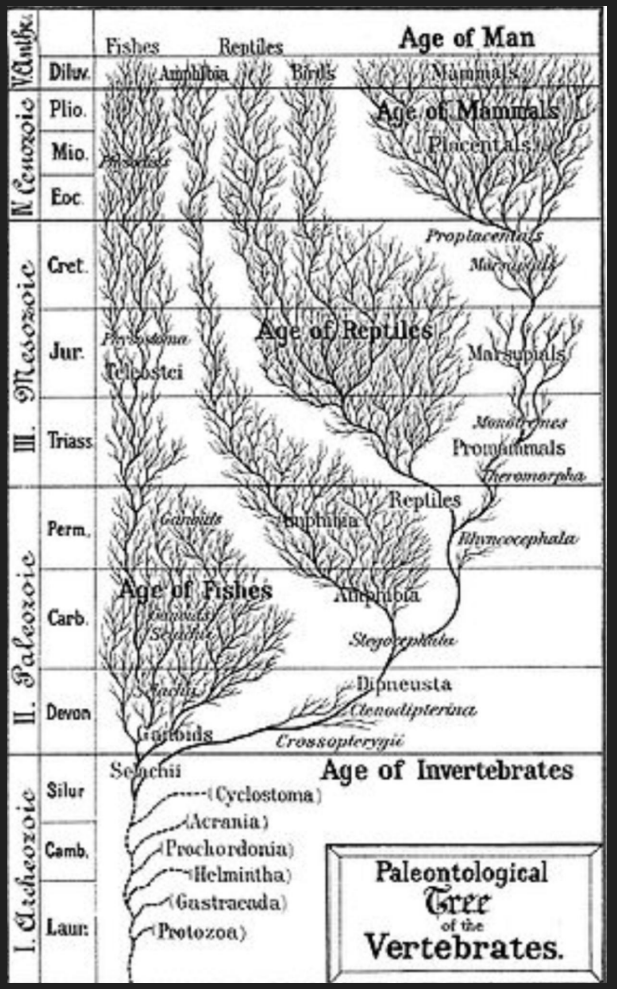


ONTOGENETIC DEVELOPMENT AND BEHAVIOR

- Ontogenetic development can be conceptualized as the portion of physical, cognitive, emotional, and social development that can be attributed to experiences with the environment and the individuals within the environment.
- Ontogenetic behavior is due to events that occur over the lifetime of an individual. Ontogenetic history builds on species history to determine when, where, and what kind of behavior will occur at a given moment.

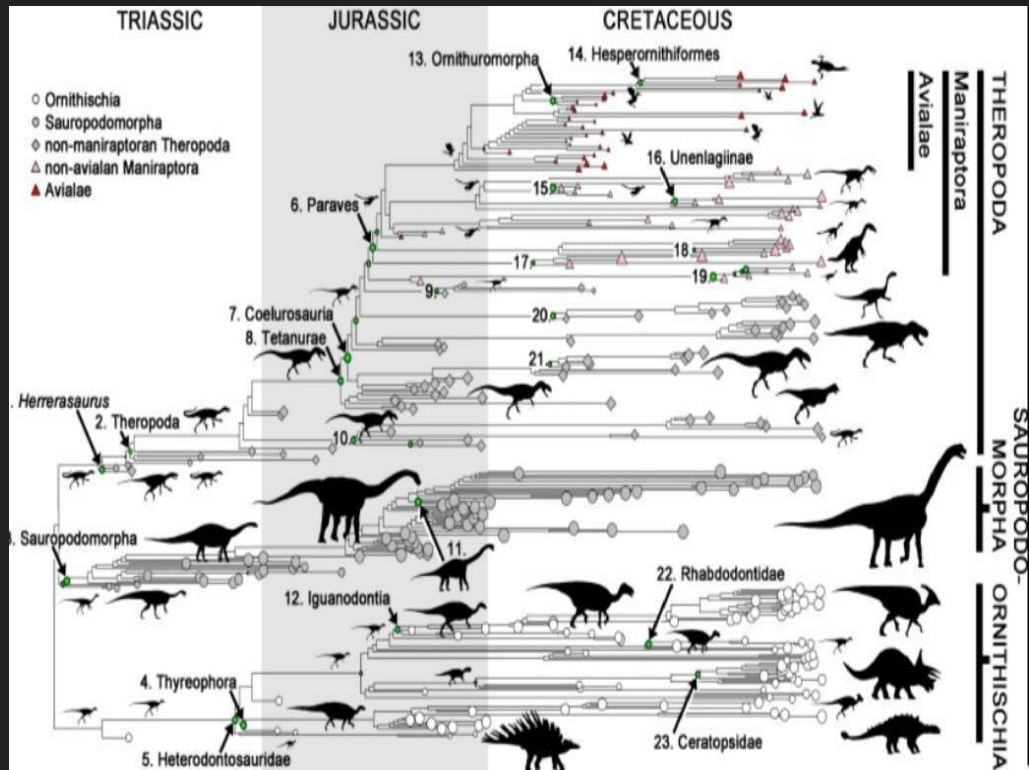
PHYLOGENESIS

- It is the evolutionary development and diversification of a species or group of organisms, or of a particular feature of an organism.
- Phylogenesis is the biological process by which a taxon appears. The science that studies these processes is called phylogenetics. These terms may be confused with the term phylogenetics, the application of molecular - analytical methods, in the explanation of phylogeny and its research.



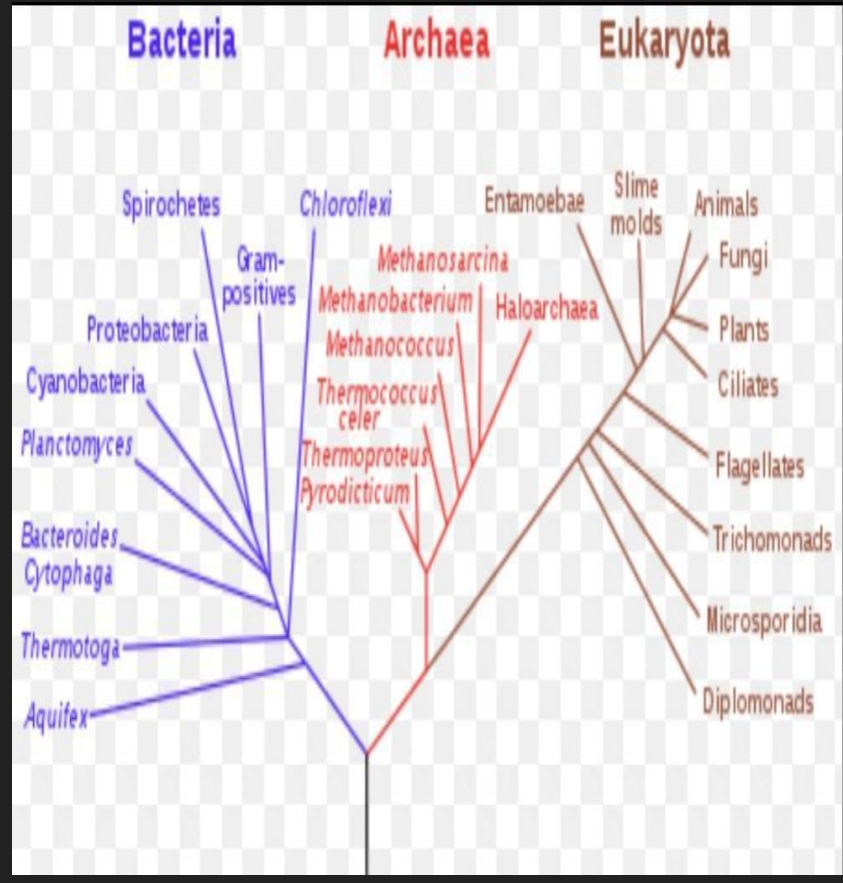
PURPOSE OF PHYLOGENESIS

- The main purpose of phylogenesis is to create a classification system whereby organisms are explicitly grouped in a way that reflects their evolutionary relationships.
- To build phylogenetic trees, scientists must collect character information that allows them to make evolutionary connections between organisms. Using morphologic and molecular data, scientists work to identify homologous characteristics and genes



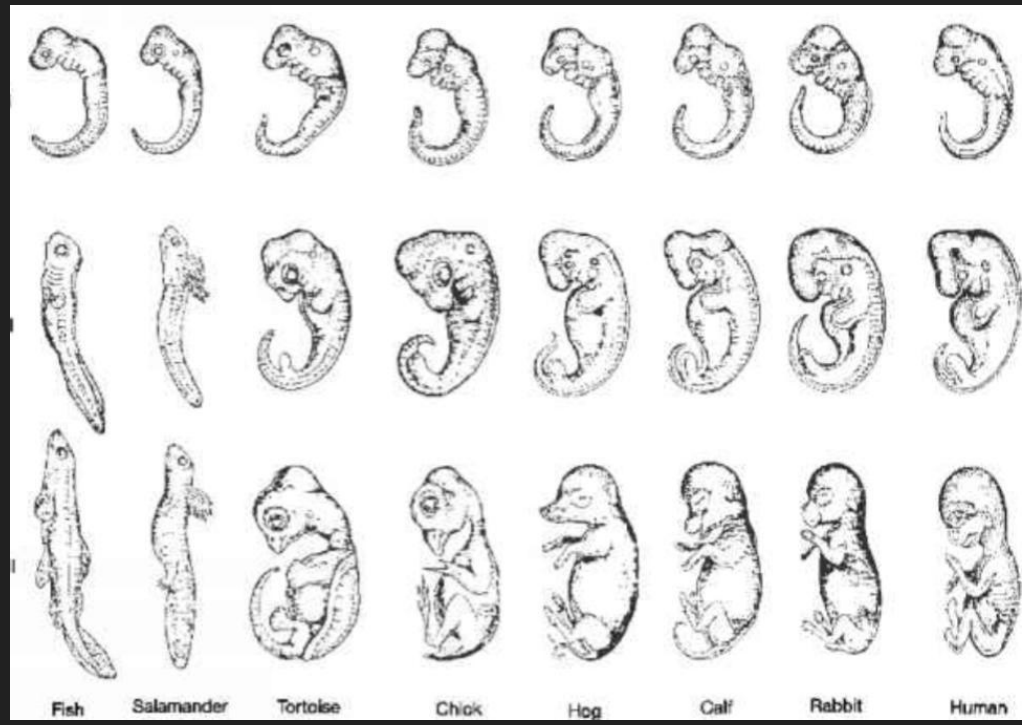
RULES OF PHYLOGENESIS

- The study of phylogenesis i.e, phylogenetics is important because it enriches our understanding of how genes, genomes, species (and molecular sequences more generally) evolve.
- The root of the tree represents the ancestral lineage, and the tips of the branches represent the descendants of that ancestor. As you move from the root to the tips, you are moving forward in time. When a lineage splits (speciation), it is represented as branching on a phylogeny.



ONTOGENY RECAPITULATES PHYLOGENY

- Ontogeny recapitulates phylogeny" is a catchy phrase coined by Ernst Haeckel, a 19th century German biologist and philosopher to mean that the development of an organism (ontogeny) expresses all the intermediate forms of its ancestors throughout evolution (phylogeny).



RELATIONSHIP BETWEEN ONTOGENESIS AND PHYLOGENESIS

- The pharyngeal or branchial region represents a classical example where the relationship between ontogenesis and phylogenesis has been demonstrated and described.It is the region where the development of gills during ontogenesis of all the chordates have been recapitulated.

ONTOGENESIS v/s PHYLOGENESIS

ONTOGENESIS

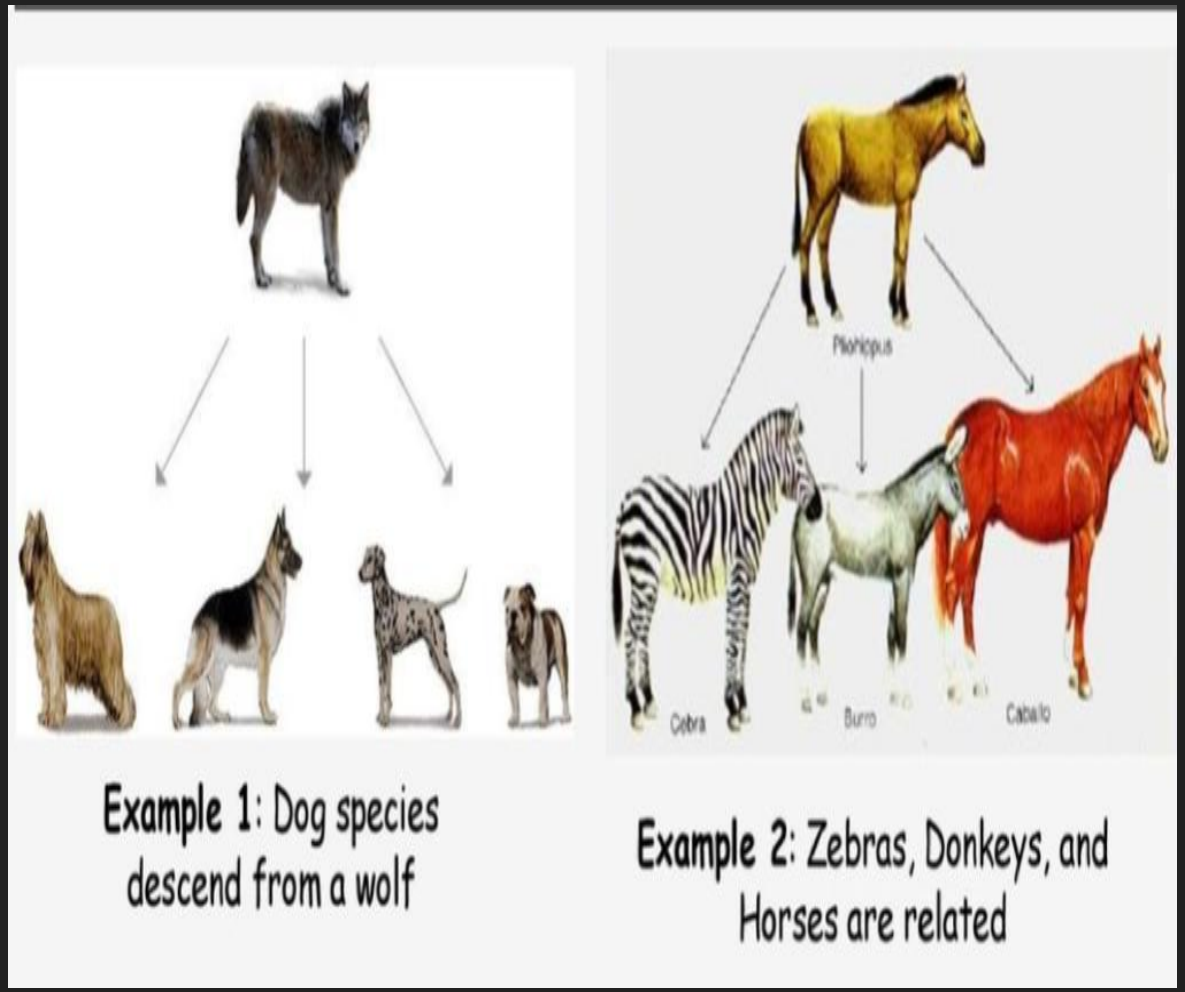
- Development of individual organisms
- Gives the development of an organism within its lifetime

PHYLOGENESIS

- Evolution of group of organisms or species
- Gives evolutionary history of species

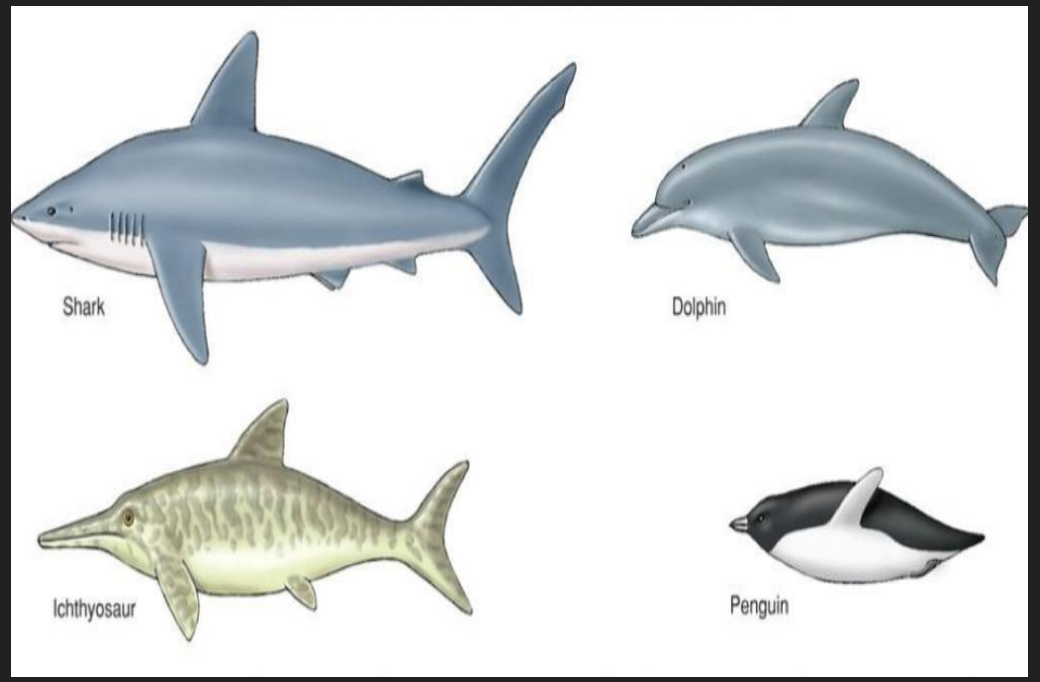
DIVERGENT EVOLUTION

- 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 may occur as a response to changes in abiotic factors, such as a change in environmental conditions, or when a new niche becomes available.



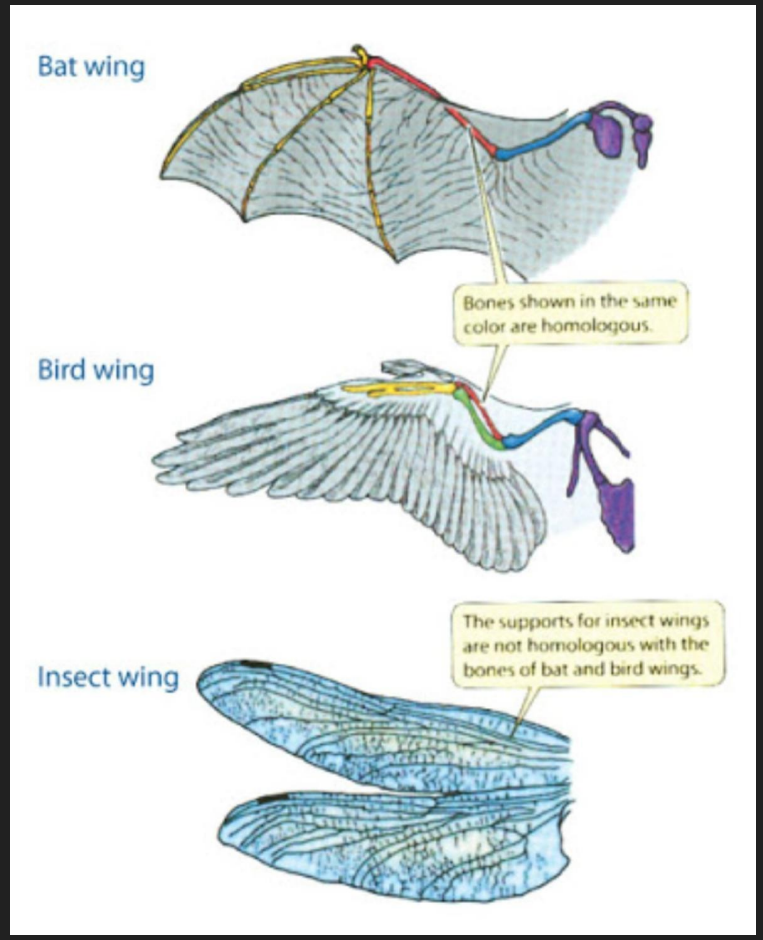
CONVERGENT EVOLUTION

- Convergent evolution is the independent evolution of similar features in species of different periods or epochs in time. Convergent evolution creates analogous structures that have similar form or function but were not present in the last common ancestor of those groups.



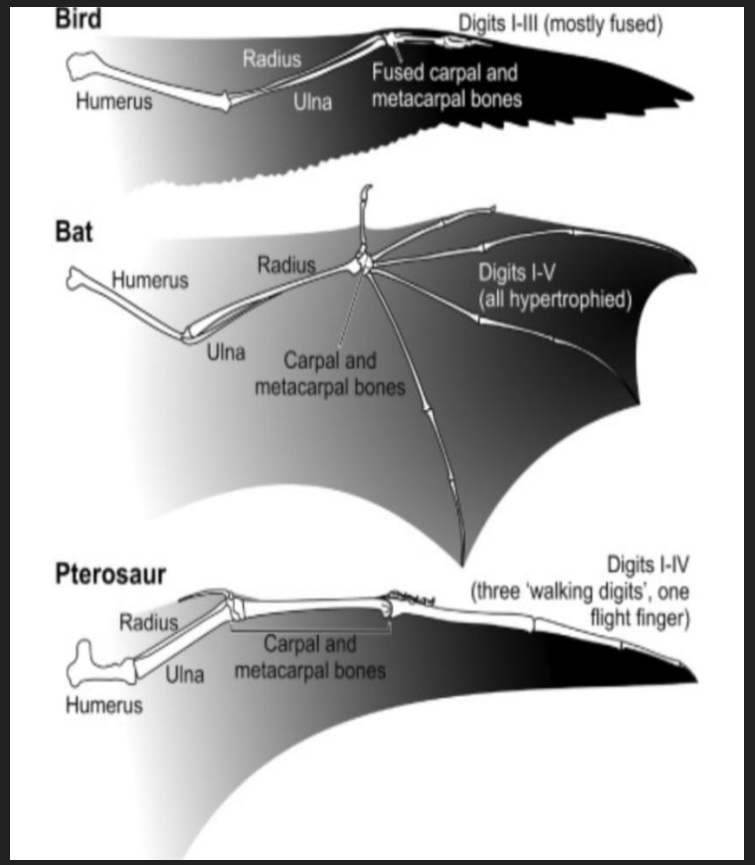
PHYLOGENESIS OF CHORD AVIAN SKIN COVERING

- Birds have a thin and delicate epidermis, or skin, compared to other vertebrates.
  Their skin produces specialized structures called feathers, which is one of the unique characteristics of birds. Feathers are made up of keratin, a flexible protein that also forms the hair and fingernails of mammals.



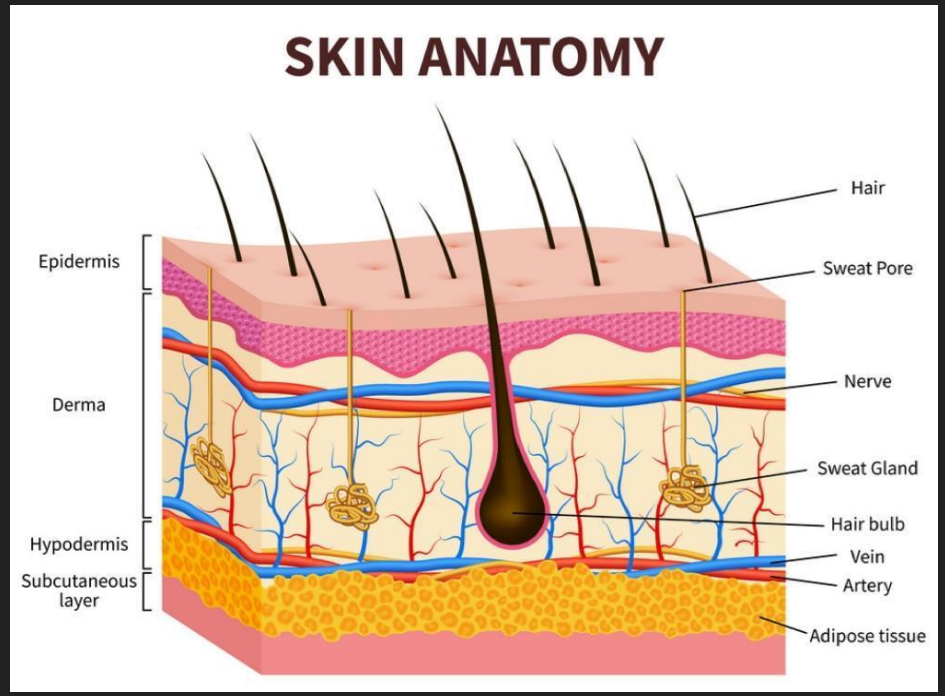
PHYLOGENESIS OF CHORD AVIAN SKIN COVERING

- Avian skin consists of two layers, the epidermis and dermis. The outer layer, the epidermis, is generally very thin and pliable.
- Its epidermis is both keratinized and lipogenic, and the skin as a whole acts as a sebaceous secretory organ. The skin is covered by feathers over most of the body, but many birds show colored bare skin or integumentary outgrowths on the head and neck



PHYLOGENESIS OF HUMAN SKIN COVERING

- Skin is made up of three layers. The outermost is the epidermis. This consists mainly of cells called keratinocytes, made from the tough protein keratin (also the material in hair and nails). Keratinocytes form several layers that constantly grow outwards as the exterior cells die and flake off.
- The skin protects us from microbes and the elements, helps regulate body temperature, and permits the sensations of touch, heat, and cold



DEVELOPMENTAL DISORDERS OF SKIN COVERING IN HUMANS

A congenital disorder is a medical condition that is present at or before birth. These conditions, also referred to as birth defects, can be acquired during the fetal stage of development or from the genetic make up of the parents.

DEVELOPMENTAL DISORDERS OF SKIN COVERING IN HUMANS

- Hemangioma
- Melanosis
- Milia
- Nevus sebaceus

LET'S DISCUSS ABOUT SOME DISEASES

- Hemangioma:Bright red birthmark that shows up at birth and it looks like a rubbery bump and is made up of extra blood vessels.
- Melanosis:A condition of abnormal or excessive production of melanin in skin.
- Milia:A small bump like cysts found under skin.
- Nevus sebaceous:A rare type of birthmark found on neck,face,or scalp.

VIDEO LINKS FOR REFERENCE

- https://youtu.be/RFMP2oDuT-I
- https://youtu.be/a1baV3YYGKk
- https://youtu.be/ALrCSYAE9Mg
- https://youtu.be/oXKRCG-3z9k

THANK YOU FOR YOUR ATTENTION