

NOTES FOR LAST TEST!!!

History of Earth
 Evolution
 Natural Selection/Adaptation
 Selective Breeding/Genetic Engineering
 Taxonomy/Dichotomous Keys/Cladograms

Apr 26-7:42 AM

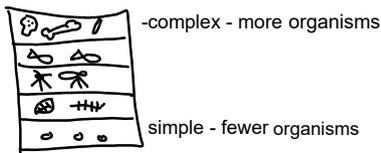
Evolution: process that changes a species over a long period of time.

Fossil Record: positions of fossils in layers of sedimentary rock.

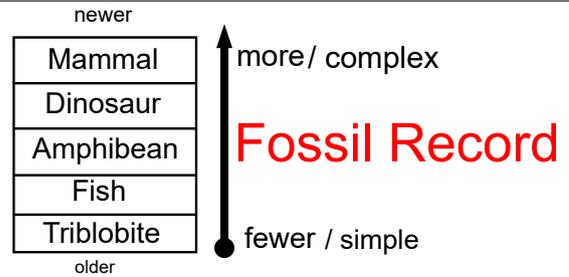
Fossil: -trace remains of organisms from the past.

Apr 26-8:17 AM

Sedimentary Rock: Sandy gravel layers of rock hardened over time. Where fossils are found.



Apr 26-8:22 AM



Apr 26-10:12 AM

Geologic Time

= Earth is divided into large sections of time measured in millions of years. (**Era**)

Extinction = when a species has died out.

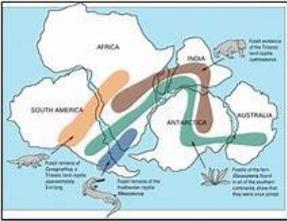
Apr 26-10:16 AM

History of Earth is divided into large sections of time measured in millions of years. (ERAS)

Precambrian, Paleozoic, Mesozoic, and Cenozoic.

This timeline is called Geologic Time

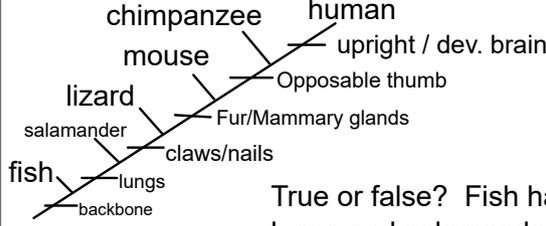
Apr 29-7:06 AM



Fossils of the same organism were found in west coast of South Africa and east coast of South America. What does this tell us about the continents?

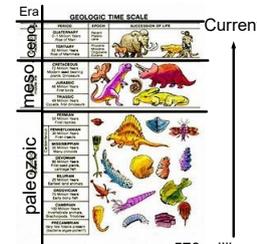
They were once connected.

Apr 29-7:07 AM



True or false? Fish have lungs and salamanders do not.

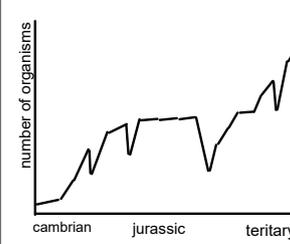
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This geologic timeline shows us how much life has changed over 570 million years!

What Era did the first dinosaur fossil appear?

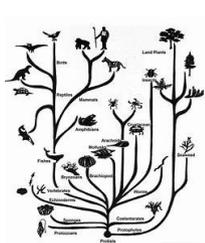
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What period of time shows the greatest biodiversity?

How do "mass extinctions" show on this graph?

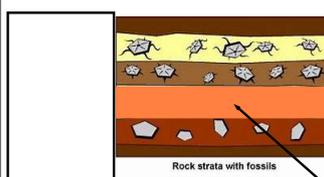
Apr 29-7:21 AM



An evolutionary tree shows:

- How animals and plants have changed a lot over time.
- How animals and plants have changed at the same time.
- How they all have evolved from protists.

Apr 29-7:27 AM



Mass extinctions occur when you see a void layer of sedimentary rock of all fossils.

Apr 29-7:29 AM

If you were to find shark teeth on flat low land that now has grass and low vegetation on it you can assume the area was once covered by salt water. If these teeth are found on top of a mountain, you can assume the plates of Earth have uplifted from the ocean.

Apr 29-7:33 AM

chimpanzee human
mouse
lizard
salamander fish
backbone
lungs
claws/nails
Fur/Mammary glands
Opposable thumb

What is the order in which the organisms appeared on Earth from first to last?

What is the "simplest" animal on this list?

Apr 29-7:35 AM

chimpanzee human
mouse
lizard
salamander fish
backbone
lungs
claws/nails
Fur/Mammary glands
Opposable thumb

What does the mouse, chimpanzee and human have in common?

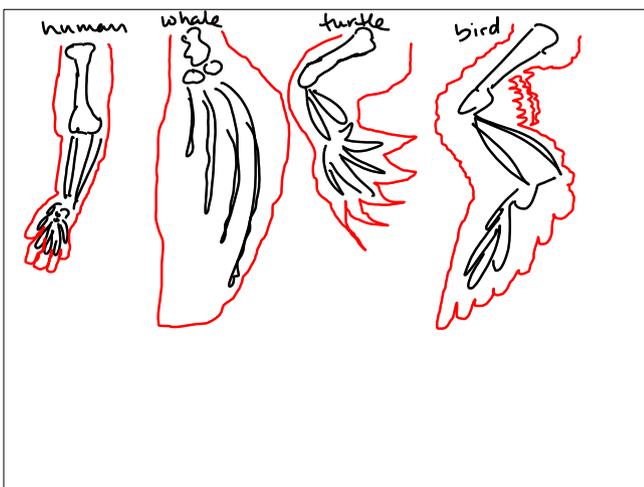
What organism does not have lungs?

Apr 29-7:40 AM

Anatomical Comparisons:

-when scientist use bone structures to look for common ancestors.

Apr 29-8:25 AM



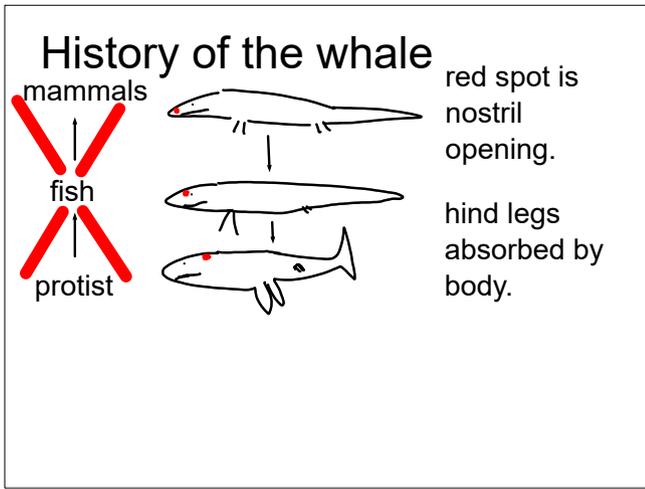
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bird, bat, pteradactyl = all common ancestors!

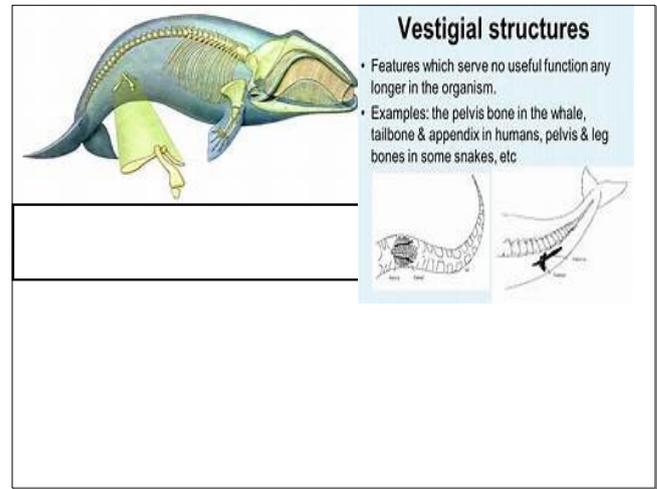
insect - bird - bat

Which two are more closely related?

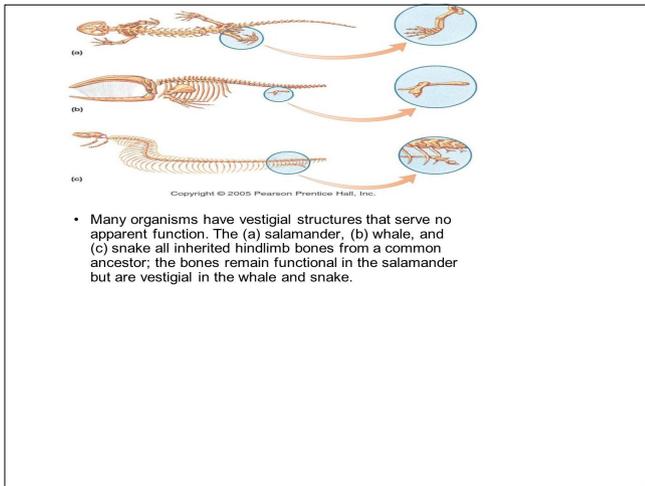
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Apr 29-8:33 AM



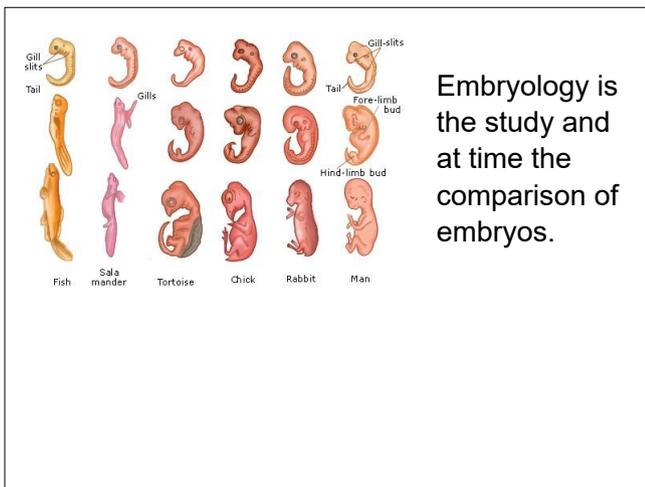
Apr 29-9:12 AM



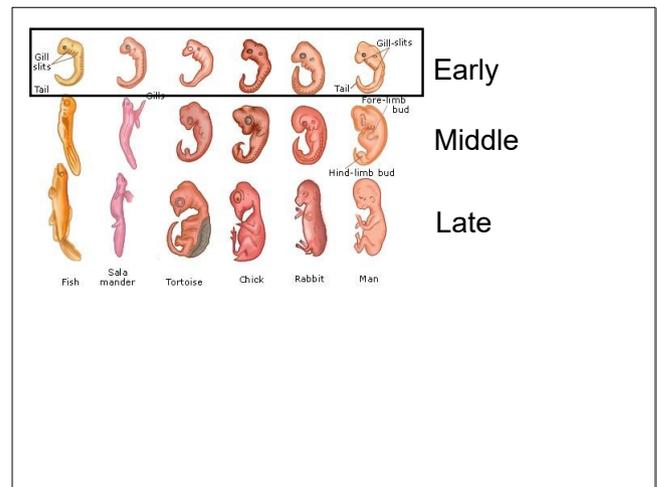
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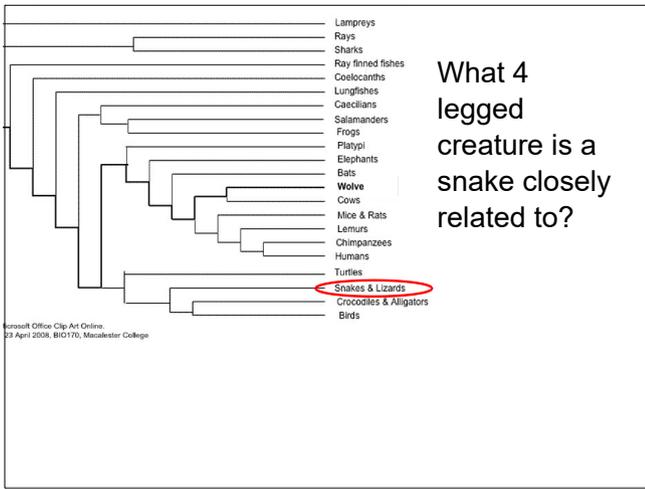
Apr 29-9:15 AM



Apr 29-9:18 AM



Apr 29-9:19 AM



Apr 29-9:21 AM

Why would a penguin and duck have more similar embryos than that of a bat?

Because a penguin and a duck are both birds and therefore have more similar genetics from earlier ancestors than a bat (which is a mammal - not a bird).

Apr 29-9:28 AM

From best to worst way to determine in an organism is "related".

1. Comparing/Analyzing DNA
2. Comparing similar anatomical structures
3. embryology

Apr 29-9:31 AM

Dichotomous Key

There are six kingdoms including; animals, plants, fungi, protists, eubacteria, and archaeobacteria.

Both archaeobacteria and eubacteria are single-celled microorganisms, which are usually called prokaryotes. The main difference between archaeobacteria and eubacteria is that archaeobacteria are usually found in extreme environmental conditions whereas eubacteria are found everywhere on earth.

Mar 12-7:48 AM

Dichotomous Rules:

Every number get two statements:
1a, 1b, 2a, 2b, 3a, 3b, etc.

Your numbered sets should be ONE LESS than the number of things you are identifying.

Mar 12-7:55 AM

1a. red...go to 2
1b. not red...go to 3

2a. woody stem...apple
2b. no woody stem...strawberry

3a. yellow...banana
3b. not yellow...orange

Mar 13-11:11 AM

5
3 4
2
1

#	%dna	Physical=5
1	52	no
2	68	yes
3	21	no
4	88	yes

Number fossils 1 - 4 in order from the closest related to #5 to least related to #5.

Apr 29-9:33 AM

Adaptation - a physical feature - a trait - that helps an organism survive or reproduce.

Which will most likely survive and reproduce?
larger ones, more DNA, oldest, well adapted

Apr 29-9:40 AM

Adaptation???

Leaves modified into thorns?	yes
Smaller ears to reduce heat loss?	yes
Webbed feet to swim?	yes
Using sticks to get termites out?	no

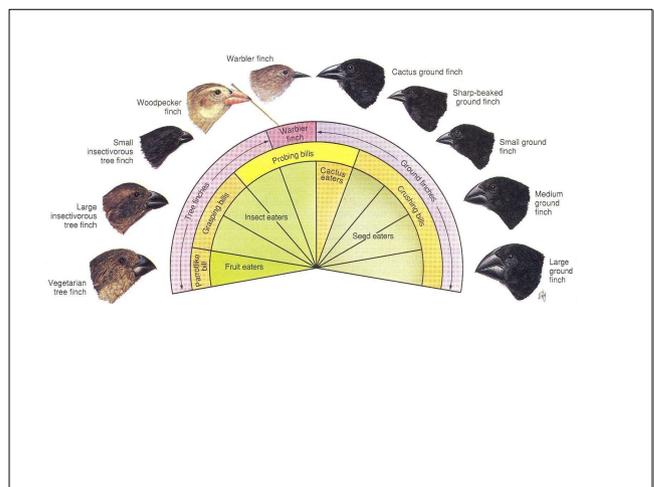
Apr 29-9:51 AM

Mutations and meiosis in sexual reproduction create natural genetic variety needed for natural selection to occur.

Apr 29-9:54 AM

If a bird has a mutation on its beak that allows it to increase its chances to catch and eat certain insects it will be more likely to survive and reproduce with birds that do not have the mutation and the mutation may be passed onto their offspring.

Apr 29-10:55 AM



Apr 30-7:32 AM

Finches

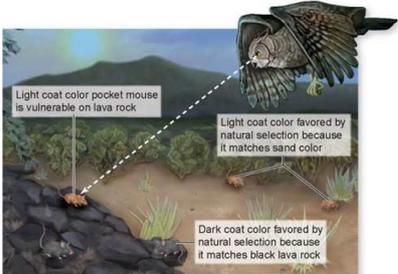


The beaks have changed over time by natural selection and the beaks on certain finches are adapted to certain types of food they eat.

Apr 30-7:35 AM

Natural Genetic Variation - when a species can be a variety of colors. Some times a certain color can become an adaptation to survival. Examples: Peppered Moth and mice.

Apr 30-7:36 AM

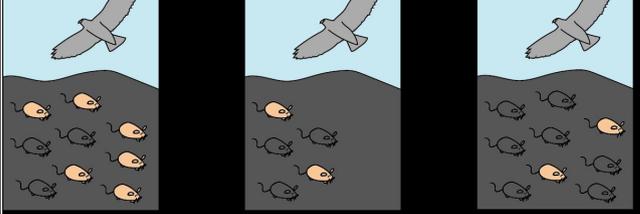


Light coat color pocket mouse is vulnerable on lava rock

Light coat color favored by natural selection because it matches sand color

Dark coat color favored by natural selection because it matches black lava rock

Apr 30-7:38 AM



Over time the grey mice will survive due to having a natural variation that helps it survive and they will pass this colored trait to their offspring - natural selection.

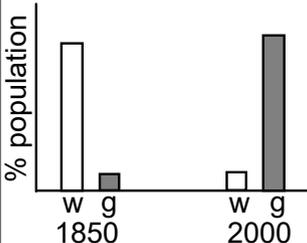
Apr 30-7:39 AM

Iguana traits:

1. short round tail, no webbed feet, and claws.
2. long flat tail, webbed feet, and claws.

If food was found on different nearby islands which traits would you expect to see over time?

Apr 30-7:40 AM



If the amount of snow fall has decreased from 1850 to 2000 then the natural variation of grey rabbits will be passed to the offspring.

Year	w (%)	g (%)
1850	~85	~15
2000	~15	~85

Apr 30-7:47 AM

The "Steps to Natural Selection"

1. Organisms have the genetic variation.
2. Organisms become overpopulated.
3. Organisms compete for food/space/etc. *Envir change.*
4. Survival of the fittest - variations that help are now a benefit.
5. Reproduction and passing of these beneficial traits.

Apr 30-9:36 AM

You can get an increase in a "specific gene" or trait in the overall population by doing the following:

- natural selection
- genetic engineering
- selective breeding

Apr 30-7:52 AM

Natural Selection added variation based on "location" in a short period of time when you look at how different dogs have evolved from a wolf.

Selective breeding gives us "wanted" traits, not based on "location"

Apr 30-7:53 AM

Using extremely small amounts of scorpion venom in cabbage to kill caterpillars is an example of - genetic engineering (using DNA from one species in a totally different species.)

Apr 30-9:40 AM

Having a cow that can live in high heat areas with poor tasting meat breed with a cow that does not do well in high heat areas but has great tasting meat is an example of - selective breeding (hoping to get a cow that does do well in the heat AND has good tasting meat.)

Apr 30-9:42 AM

Explain how the following are all connected: fossil, fossil record, sedimentary rock, and relative age

Apr 30-9:44 AM

Homologous Structure:

The term used by scientists to describe structures that "look" different on the outside, but are actually "similar" on the inside and they have developed from similar embryo tissues.

May 6-7:40 AM

When looking at homologous structures like human arm, horse leg, whale fin, and bird wing you see they have similar bone (just shaped differently due to the job they do), you can assume they share a "common ancestor".

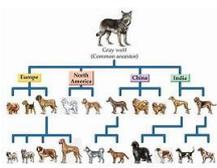
May 6-7:43 AM

Certain animals like whales evolved from land animals that breathed through their nose and had four legs. You can see leg bones that are no longer in use "inside" a whales body.

May 6-7:48 AM

Birds and Bats are more closely related to each other than an insect because they have similar bone structure and an insect has an external skeleton.

May 6-7:49 AM



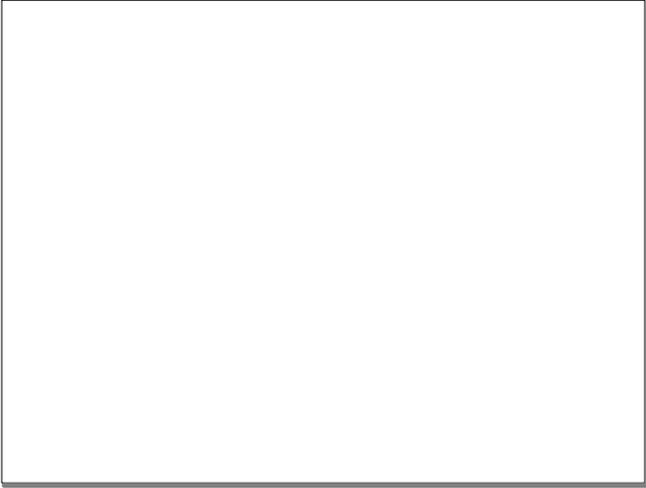
This diagram shows how "selective breeding" has added variation to dogs over a very short period of time.

May 6-7:51 AM

Birds vs (some) Dinosaurs

- have homologous structures in their wings
- share common genes
- have common ancestors

May 6-7:52 AM



Mar 9-10:06 AM