

Thursday, May 2, 2019

Your Learning Goal: SWBAT share prior knowledge, observe fossils and describe similarities and differences to discuss how diversity of life came about.

The Fossil Record - 46L + R

Catalyst 46 L:

- What is an organism? List a minimum of 5 different organisms.
- What is SIMILAR about these organisms? What is DIFFERENT?



Homework:

Digital Post Condor 'Quiz'
Due Sunday Night 5/5



Agenda:

- Living Organism Slideshow
- Fossil Observations
- Earth Timeline

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<u>Date</u>	<u>Assignment</u>	<u>Pg #</u>
4/23/19	Condor Genetics	45L + R
5/2/19	The Fossil Record	46 L + R

Catalyst:

- What is an organism?
- List a minimum of 5 different organisms.
- What is SIMILAR about these organisms? What is DIFFERENT?

LEAF:

46L

5/2/19

The Fossil Record

Glossary Of Terms

46R



Deep Sea Anglerfish

Linophryne arborifera



Pink Fairy Armadillo

Chlamyphorus truncatus



Sea Pig

Scotoplanes globosa



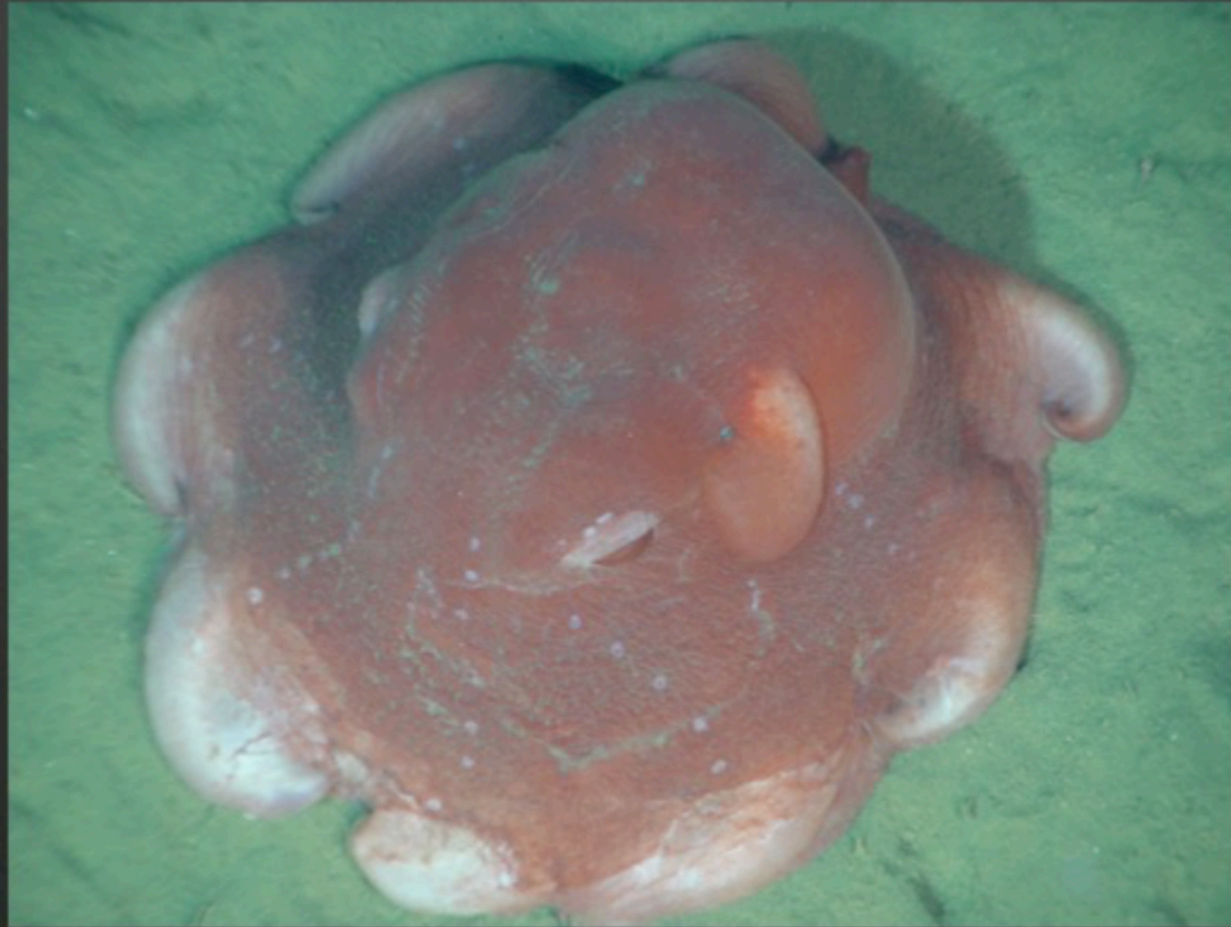
Dog-Vomit Slime Mold

Fuligo septica



Gerenuk

Litocranius walleri



Dumbo Octopus

Grimpoteuthis



Bleeding-Tooth Mushroom

Hydnellum peckii



Panda Ant

Mutillidae



Nudibranch

Gymnodoris



Hairy Bush Viper

Atheris hispida



Water Bear (Tardigrade)

Hypsibius dujardini



Thorn Bug

Membracidae



Saiga Antelope

Saiga tatarica



Potoo Bird

Nyctibius griseus

Let's Discuss

- 1.** How can we explain why there is so much diversity of life on Earth today?
- 2.** How did it come about?

Glossary

Organism: A living thing

Biodiversity: The variety of life in the world or in a particular habitat or ecosystem.

Create an 8 Square Sheet

1	2
3	4
5	6
7	8

Let's Observe Some Fossils

1. Make 1 written **observation** for each fossil
2. Make 1 written **inference** for each fossil
3. Complete a quick sketch
4. When the timer sounds, pass to the next group



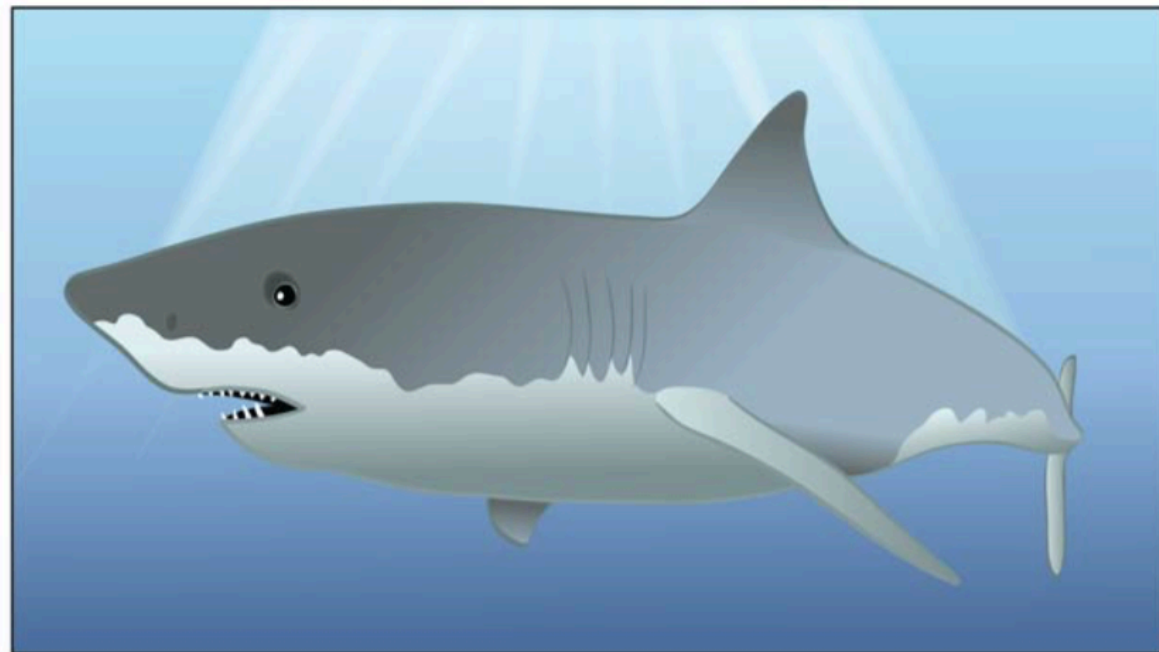
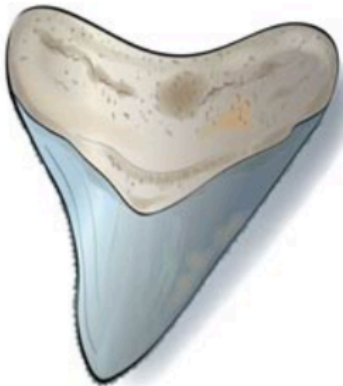
Glossary

Organism: A living thing

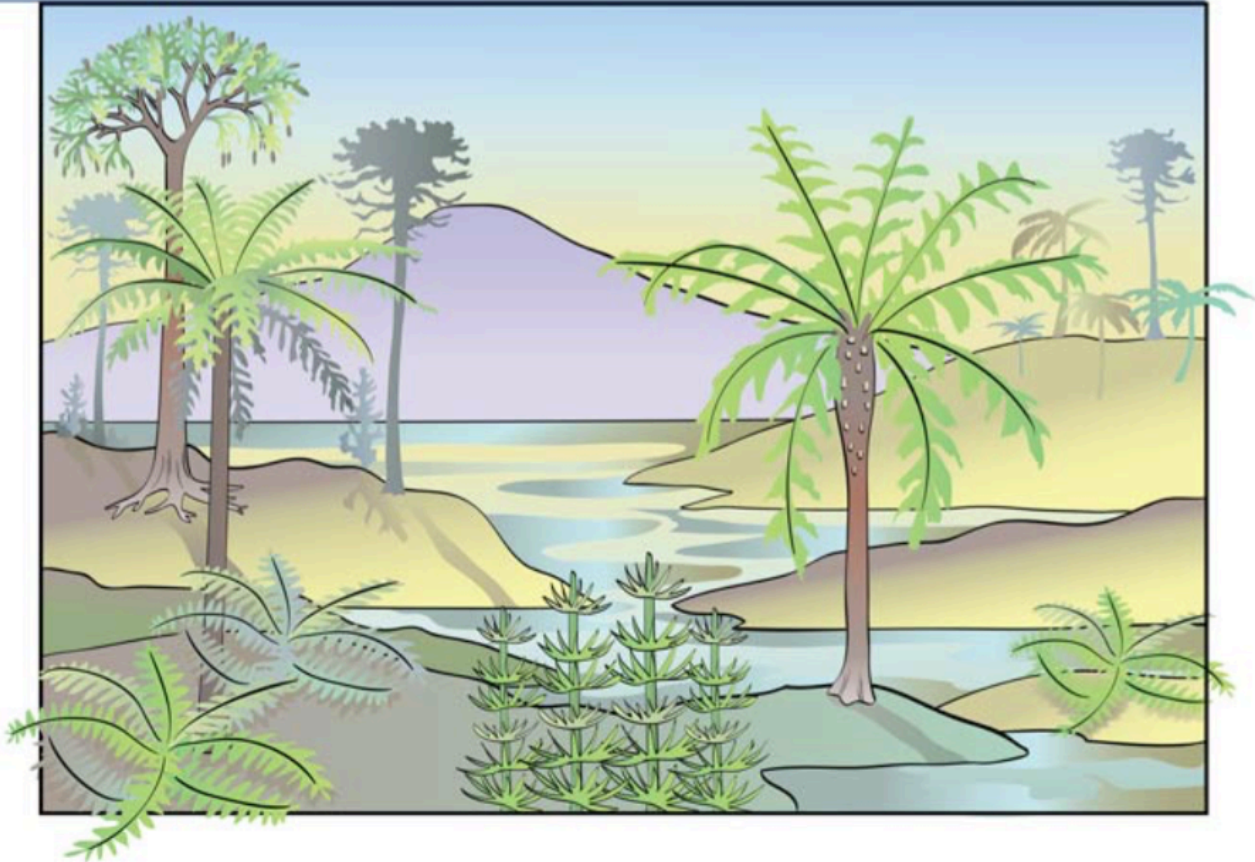
Biodiversity: The variety of life in the world or in a particular habitat or ecosystem.

Fossil: The remains of an organism from the past preserved in rock.

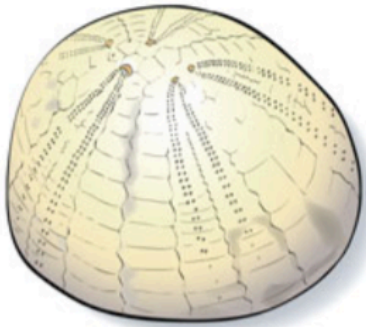
Fossil No.	Name	First Appears in Fossil Record	Life Environment
1	Giant shark tooth	23 mya	Sea



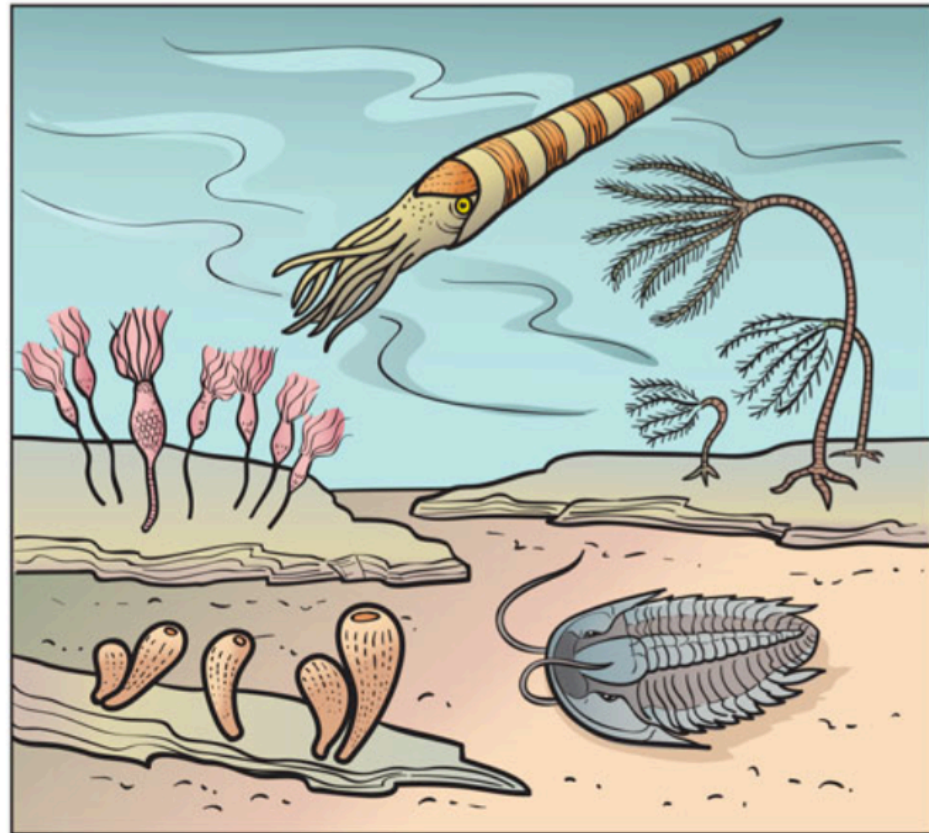
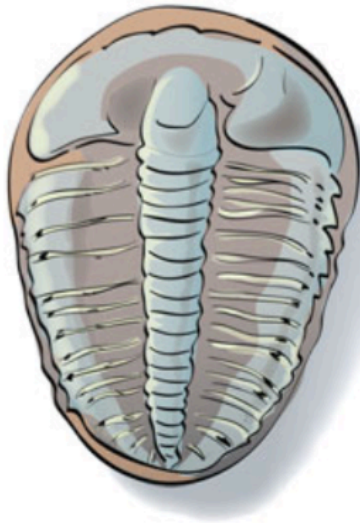
Fossil No.	Name	First Appears in Fossil Record	Life Environment
2	Leaf Imprint	350 mya	Forests, near freshwater



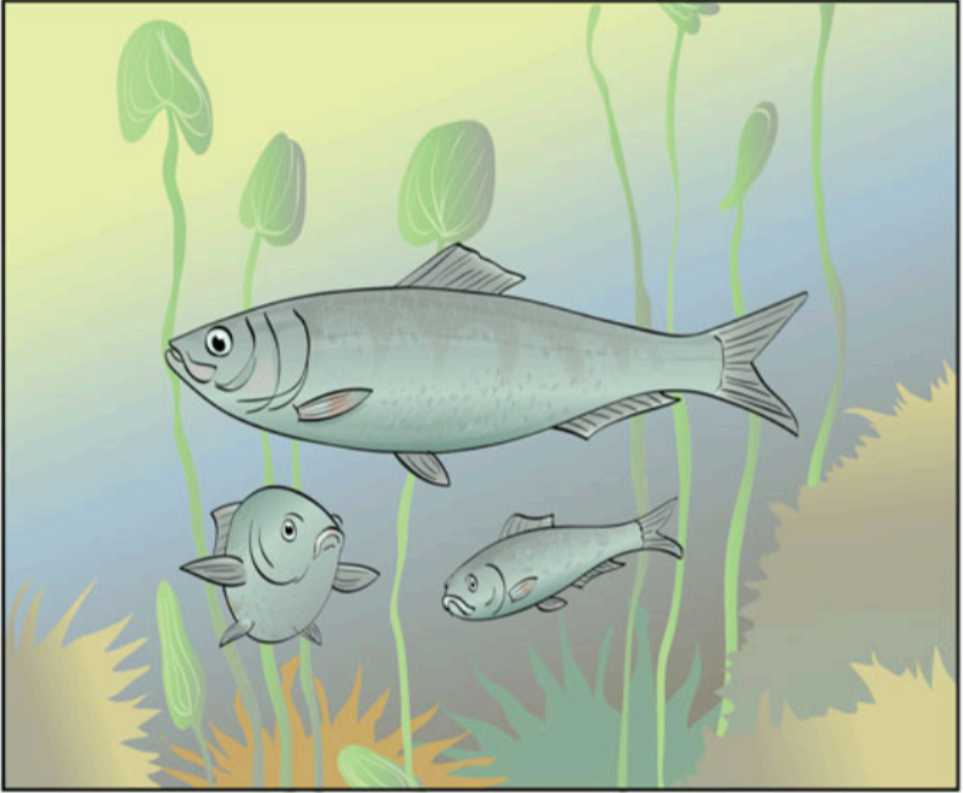
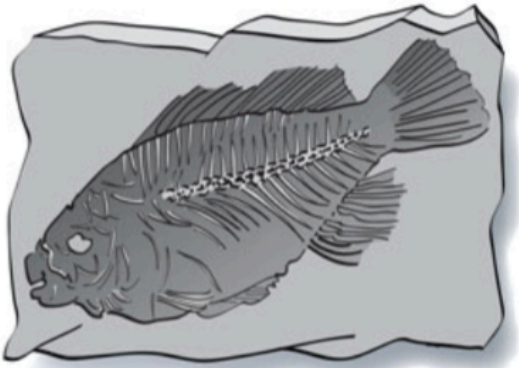
Fossil No.	Name	First Appears in Fossil Record	Life Environment
3	Echinoid	150 mya	sea



Fossil No.	Name	First Appears in Fossil Record	Life Environment
4	Trilobite	525 mya	Sea floor



Fossil No.	Name	First Appears in Fossil Record	Life Environment
5	Fish (freshwater)	56 mya	lakes



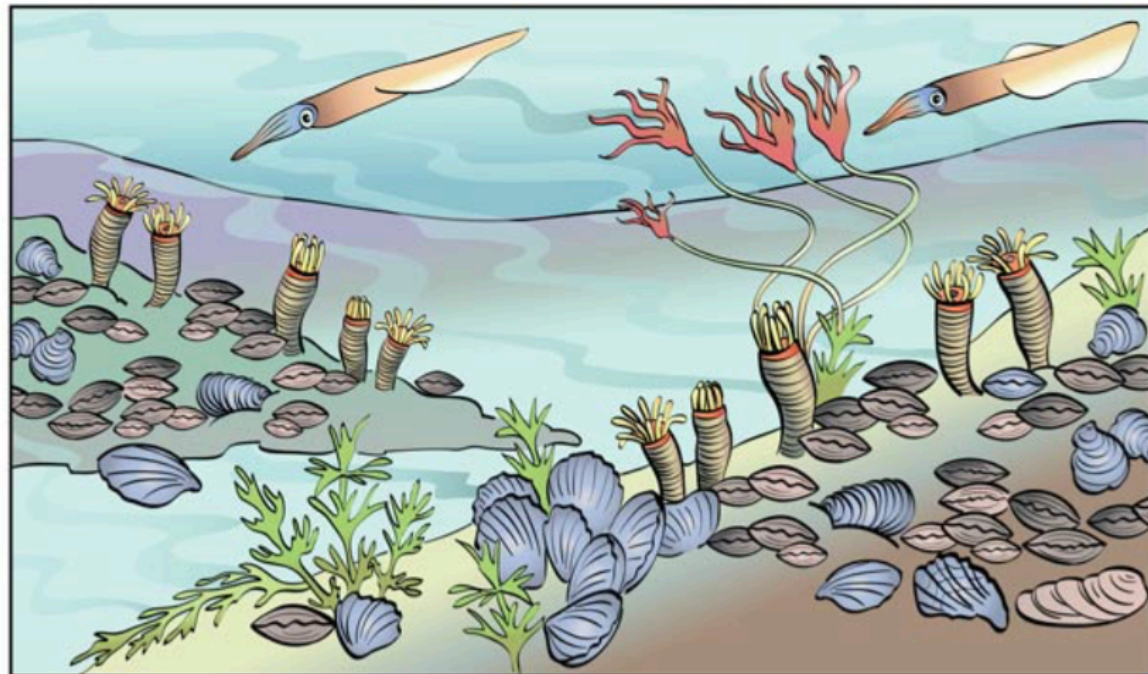
Fossil No.	Name	First Appears in Fossil Record	Life Environment
6	Snail	145 mya	sea



Fossil No.	Name	First Appears in Fossil Record	Life Environment
7	Ammonite	190 mya	sea



Fossil No.	Name	First Appears in Fossil Record	Life Environment
8	Oyster (mollusk)	250 mya	sea



Let's Discuss

1. How do we know the age of fossils?
2. How can we piece together the history of earth?

Earth Timeline

Oldest

Youngest



Let's Convert!

Your
Event
Date
MYA

10 Million
Years

?

1 Inch

4,600 million years ago

Earth forms between 4.5/4.6 billion years ago.

3,950 million years ago

World's oldest rocks form when molten lava rises from cracks in the sea floor.

2,500 million years ago

Breathable air starts to be created by microbes living in the sea.

545 million years ago

Hard shelled molluscs start to appear.

530 million years ago

Earliest vertebrates start to appear.

450 million years ago

Earliest cartilaginous fish evolve.

435 million years ago

Arachnids like spiders and scorpions evolve.

430 million years ago

Plants take root on land.

370 million years ago

Amphibians emerge from the water.

360 million years ago

The single supercontinent of Pangaea comes together.

335 million years ago

Coal forming swamp forests flourish.

300 million years ago

Earliest reptiles appear.

275 million years ago

Reptiles take over Pangaea.

248 million years ago

Planet suffers largest extinction ever.

240 million years ago

Dinosaurs take their first steps.

225 million years ago

Supercontinent Pangaea breaks up.

210 million years ago

Small, furry animals appear.

200 million years ago

Dinosaurs dominate the Earth.

150 million years ago

Birds become airborne.

125 million years ago

Flowering plants begin to bloom.

65 million years ago

Dinosaurs become extinct.

60 million years ago

Mammals diversify and replace dinosaurs.

55 million years ago

Primates appear in the trees.

5.8 million years ago

Hominins descend from the trees.

1.8 million years ago

Ice ages begin to grip the world.

190 thousand years ago

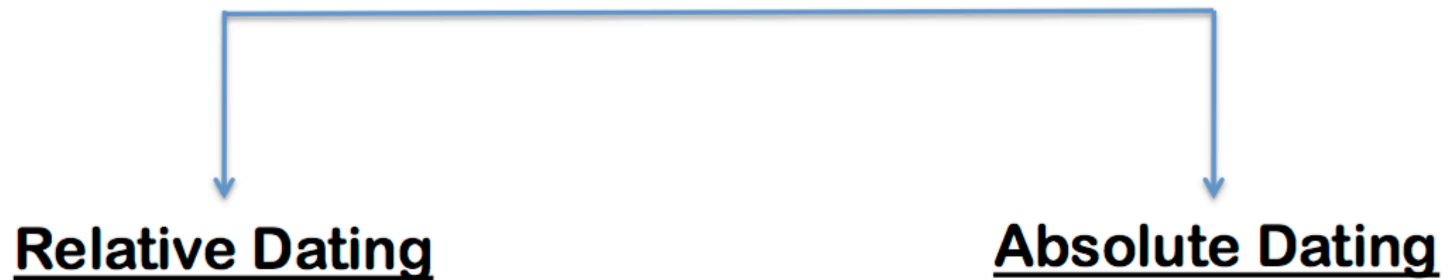
Modern humans are born.

**Let's Go
Outside!**

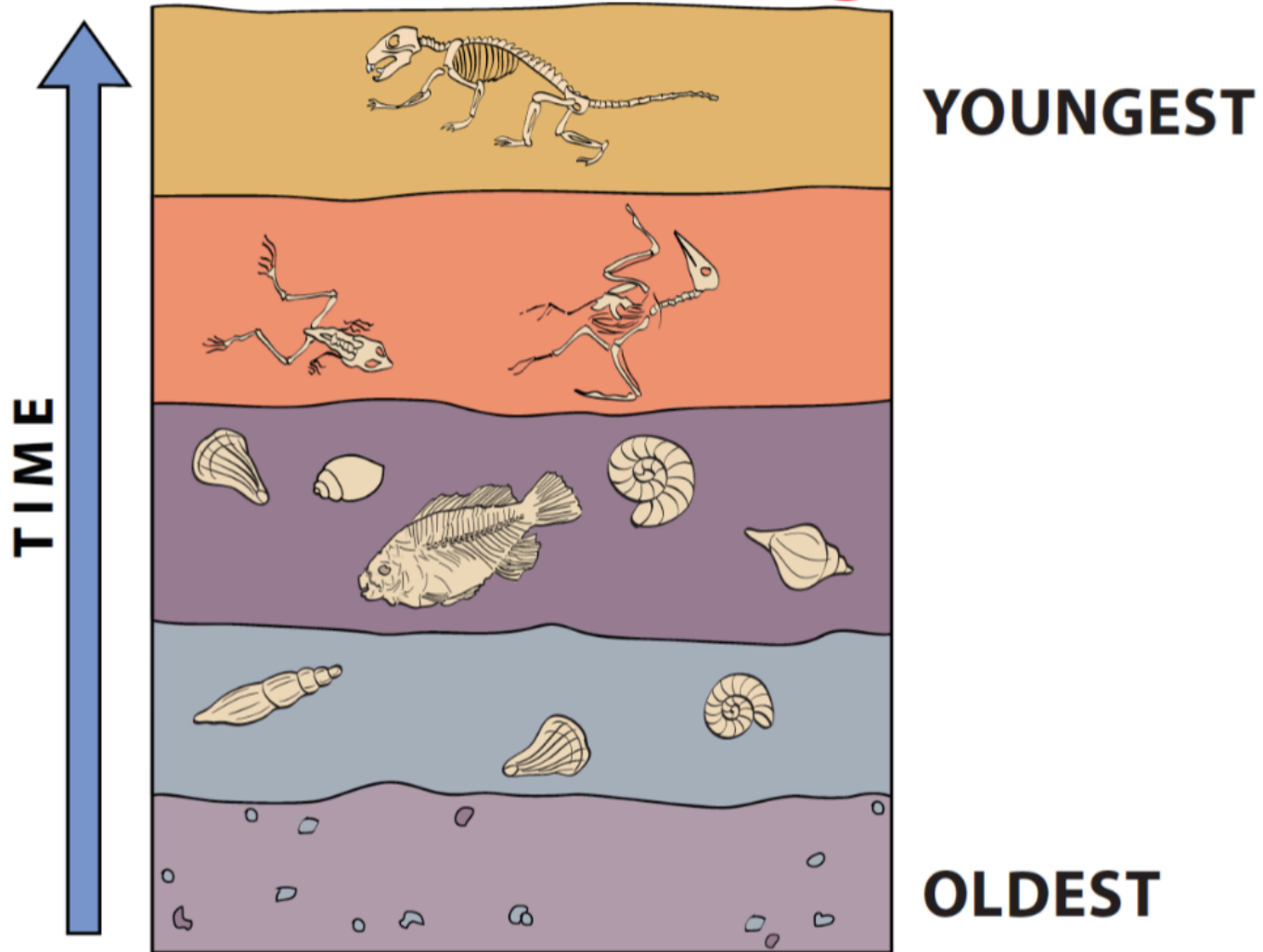
Let's Discuss

1. How do we know the age of fossils?
2. How can we piece together the history of earth?

How do we know the age of rock?



Relative Dating



Glossary

Organism: A living thing

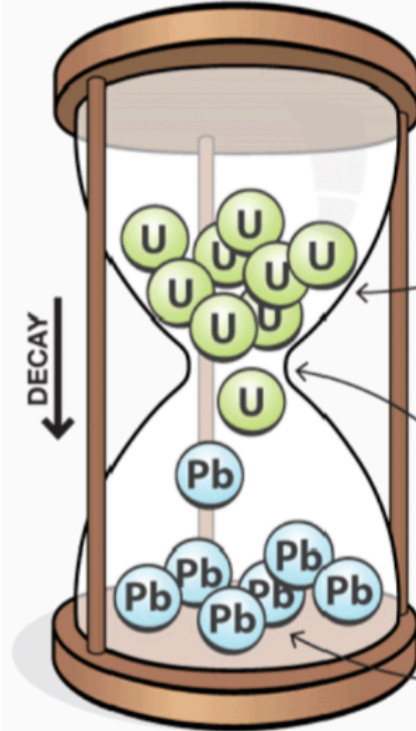
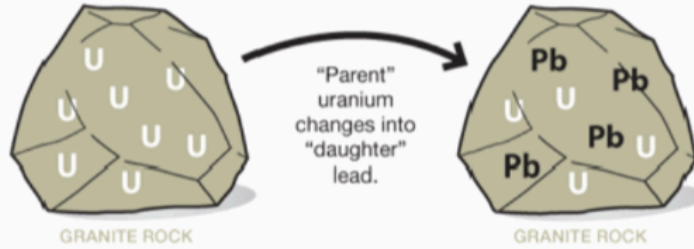
Biodiversity: The variety of life in the world or in a particular habitat or ecosystem.

Fossil: The remains of an organism from the past preserved in rock.

Relative Dating: Making an educated guess on the order of earth events by comparing one object to another

Absolute Dating

Unstable atoms, such as uranium (*U*), eventually change into stable atoms, such as lead (*Pb*). The original version is called a parent atom (or isotope), and the new version is called a daughter atom.



When scientists date rocks, they don't actually observe the atoms changing. They measure the products of the change, which they assume took place in the past. But what if they are wrong about their assumptions?

ASSUMPTION 1: The original number of unstable atoms can be known. Scientists assume how many unstable (parent) atoms existed at the beginning based on how many parent and daughter atoms are left today.

ASSUMPTION 2: The rate of change was constant. Scientists assume that radioactive atoms have changed at the same rate throughout time, ignoring the impact of Creation or changes during Noah's Flood.

ASSUMPTION 3: The daughter atoms were all produced by radioactive decay. Scientists assume that no outside forces, such as flowing groundwater, contaminated the sample.

U Parent atoms (*Uranium*)

Pb Daughter atoms (*Lead*)

Glossary

Fossil: The remains of an organism from the past preserved in rock.

Relative Dating: Making an educated guess on the order of earth events by comparing one object to another

Absolute Dating: Determining the age of rock by calculating the time it takes for radioactive material to break down.

Catalyst:

- What is an organism?
- List a minimum of 5 different organisms.
- What is SIMILAR about these organisms? What is DIFFERENT?

LEAF:

What is the best way to date a rock?

46L

5/5/19

The Fossil Record

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