

Fossils, Rocks and More! The Game

Created by: Miss deBoth

Date: November 25 2015

<p>Content: (Topic)</p> <ul style="list-style-type: none"> ● Students will explore how paleontologists figure out how old a fossil is. ● Students will recap the information that they have been learning about in the Rocks and Minerals Unit. 	<p>Instructional Strategies: (Specific)</p> <ul style="list-style-type: none"> ● Group Work ● Interactive Learning ● Modified Jeopardy Game
<p>Outcome(s):</p> <ul style="list-style-type: none"> ● RM4.1 Investigate physical properties of rocks and minerals, including those found in the local environment. ● RM4.3 Analyze how weathering, erosion, and fossils provide evidence to support human understanding of the formation of landforms on Earth. [CP, SI, TPS] 	<p>Indicator(s):</p> <ul style="list-style-type: none"> ● Discuss how fossils and the fossil record provide evidence of Earth's history, including the formation of various landforms.
<p>Prerequisite Learning:</p> <ul style="list-style-type: none"> ● Types of Fossils ● How Fossils are made ● Properties of Rocks and Minerals 	
<p>Content Background:</p> <ul style="list-style-type: none"> ● Fossil Record Information 	
<p>Adaptive Dimension:</p> <ul style="list-style-type: none"> ● This activity could be adapted easily for the students learning, by having different questions asked. ● Students could also do this in pairs with chalkboards and write their answer on the chalkboard when they have figured it out. 	
<p>Preparation: (Equipment/materials/set-up)</p> <ul style="list-style-type: none"> ● Computer ● Projector ● Pre-Made Jeopardy Game ● Jeopardy Questions and Answers ● 30 Fossil Dating Handouts 	



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<ul style="list-style-type: none">● Make 3 pre-determined groups for the game● Pre-set up the game with projector off	
<p>Set: (10 Minutes)</p> <ul style="list-style-type: none">● Hand out Science Duotangs● <i>We are going to finish up our Fossil Unit today. We are going to learn about how paleontologists know how old a fossil is.</i>● <i>I am going to hand out a sheet to you that has some information on it. It is very important that this sheet ends up in your science duotangs.</i> Hand out information sheet.● Go through the information on the handout. <p>Development: (30 Minutes)</p> <ul style="list-style-type: none">● <i>Make sure that you keep your science duotang handy for the next portion of this lesson as we are going to play a game.</i>● Break students into three pre-determined groups.● Explain the game:<ul style="list-style-type: none">○ <i>We are going to play a game of jeopardy. Now this will be a little bit different as every group will get to answer. Your job for this activity is to listen to or read the question and then as a group, work together to figure out the answer to the question. Make sure that you do not say it out loud until it is your turn. When you have come</i>	<p>Student Engagement/Classroom Management Strategies:</p> <p>1-2-3 Eyes on Me If you can hear me...</p> <p>Spokesperson hold up their hand when you have an answer. Select a different spokesperson each round.</p>



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up with an answer please raise your hand.

- Set up the game:
- Ask a question and give a few moments for the students to figure out an answer. Allow each group to answer.
- Continue until all the questions have been asked or time is up.

Closure: (5 Minutes)

- I want to thank you all for participating in this activity. I hope that you have learned a lot about rocks, minerals and fossils in this unit.
- Please help me put the desks back as they were before so that we can continue with our day.

Resources:

- <https://www.superteachertools.net/jeopardyx/>

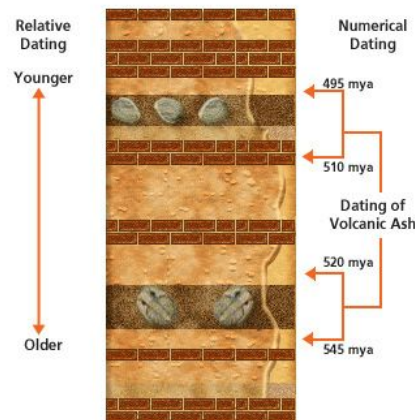
How do Paleontologists Figure Out How Old A Fossil Is?

Paleontologists have multiple methods to figuring out how old a fossil is. As technology and science develops, the ability to understand how old fossils are is increasing. Currently paleontologist complete the following practices to uncover the age of a fossil.

Relative Fossil Dating:

Relative fossil dating is a comparison of a fossil to another fossil by looking at how many layers of sedimentary rock are on top of it. This creates an estimate of how old the fossil is. The rule is that the further down in the sedimentary rock the fossils are the older they must be.

In the picture below, you can see that the fossils further down in the rock are older than the one on top. How old would you estimate that the bottom fossil would be? How old would you estimate the top on would be?



Absolute (Numerical) Fossil Dating:

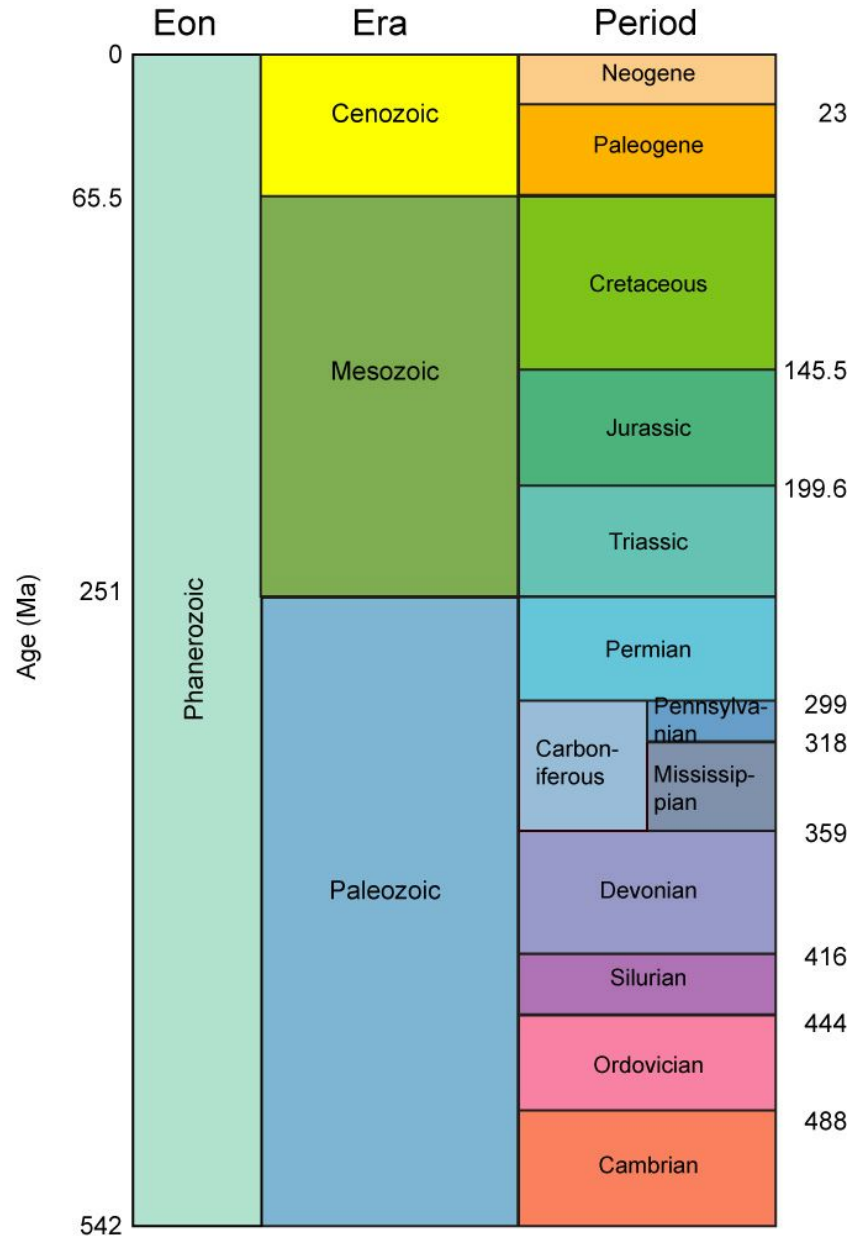
Absolute fossil dating is The actual age or amount of years since the fossil was formed. This can be compared to rings in a tree, but with layers of sedimentary rock instead. Also involves looking at the decay and make up of the fossil itself.

The picture above is labelled to show how the layers of volcanic ash help scientists understand the exact time period that a fossil came from. This shows an absolute dating of the fossil's age.

Geological Time Scale:

Paleontologists and geologists, or scientists who study rocks, have created a scale that represents the time that the earth has changed and developed over, this is called the Geological Time Scale. This scale is made up of multiple eons. An eon represents a billion years. The eons are broken down into eras which are made up of multiple periods. A period is a set amount of time where a system of rocks is formed. This scale is used to understand and represent which fossils are older and which are younger. An image of the Geological Time Scale can be found on the back side of this paper.

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Vocabulary:

Geological Time - The time of physical formation and development of the earth

Eon - a time period that equals a billion years

Era - a major division of time that is made up of multiple periods

Period - a set amount of geological time where a system of rocks are formed

The Cenozoic Era

The Cenozoic era is the most recent era of the geological time scale. It spans for 65 million years which extends from the cretaceous period or the extinction of dinosaurs until modern day. The Cenozoic era is known as the age of mammals because most land animals at

How do Paleontologists Figure Out How Old A Fossil Is?

this time were mammals. Three periods make up the Cenozoic era: the Paleogene, Neogene and Quaternary periods.

The Mesozoic Era

The Mesozoic era is known as the dinosaur age of the geological time scale. During this era there was a large change to large vegetation or plant life. This era is broken down into the Triassic, Jurassic and Cretaceous period.

The Triassic period is known as the beginning of dinosaurs and it occurred over 250 million years ago. The Jurassic period was a time when large plant eating dinosaurs roamed the land. The Cretaceous period is the period where the larger meat eater or carnivorous dinosaurs appeared. Unlike the movie Jurassic Park, the Tyrannosaurus Rex and Triceratops lived during the Cretaceous period and not the Jurassic period. The end of the Cretaceous period is known as the extinction of dinosaurs.

The Paleozoic Era

The Paleozoic Era is the first portion of the current eon. This period took up over half of the Phanerozoic eon or current eon. During this period a large amount of small creatures were developed. The Paleozoic era is broken into six periods: Cambrian, Ordovician, Silurian, Devonian, Carboniferous and Permian.

Jeopardy Game

Categories:

- Rocks and Minerals
- Paleontologists
- Fossil Types and Structure
- Geological Time Scale
- Prehistoric Life

Rocks and Minerals

1. Hardness, luster, break, streak and color are all _____ of rocks and minerals.
 - a. properties
2. _____ is the hardest mineral.
 - a. Diamond
3. There are _____ different types of rocks.
 - a. 3
4. What type of rock are fossils found in?
 - a. Sedimentary
5. If you rub a mineral against a piece of paper or ceramic you will see the _____ of the mineral.
 - a. streak

Paleontologists

1. What is the name of the Tyrannosaurus Rex that was found in south-west Saskatchewan?
 - a. Scotty the T-Rex
2. Paleontologists use two main tools: a brush and a _____.
 - a. pick
3. What is the name of the Terminusaris that was found outside of the small town of Carrot River in the North East Saskatchewan?
 - a. Big Bert
4. In relative fossil dating, the more layers of sedimentary rock on top of the fossil the older or younger it is?
 - a. Older
5. Absolute fossil dating can be compared to the _____ on a tree?
 - a. rings

Fossil Types and Structures

1. There are ____ types of fossils.
 - a. 4
2. Dinosaur bones are an example of what type of fossil?
 - a. True Form Fossil
3. Fossilized footprints are an example of what type of fossil?
 - a. Trace Fossil
4. A _____ fossil is created when a mold is filled with sedimentary rock.
 - a. Cast Fossil
5. A bug stuck in harden amber or tree sap is an example of what type of fossil?
 - a. True Form Fossil

Geological Time Scale

1. The time of physical formation and development of the earth is known as _____.
 - a. Geological Time
2. An eon is equal to a _____ years.
 - a. billion
3. What era is known as the age of mammals?
 - a. The Cenozoic Era
4. According to your Geological Time Scale, what is the oldest era?
 - a. The Paleozoic Era
5. What era is broken down into the Cambrian, Ordovician, Silurian, Devonian, Carboniferous and Permian periods?
 - a. The Paleozoic Era

Prehistoric Life

1. What movie came out in 2015 that is about a amusement park that has dinosaurs in it?
 - a. Jurassic World
2. Tyrannosaurus Rex and the Triceratops are from what time period?
 - a. Early Cretaceous Period
3. What period end is known as the extinction of the dinosaurs?
 - a. Cretaceous Period
4. What period had large plant eating dinosaurs roaming the land?
 - a. Jurassic Period
5. What era is known as the dinosaur age?
 - a. The Mesozoic Era