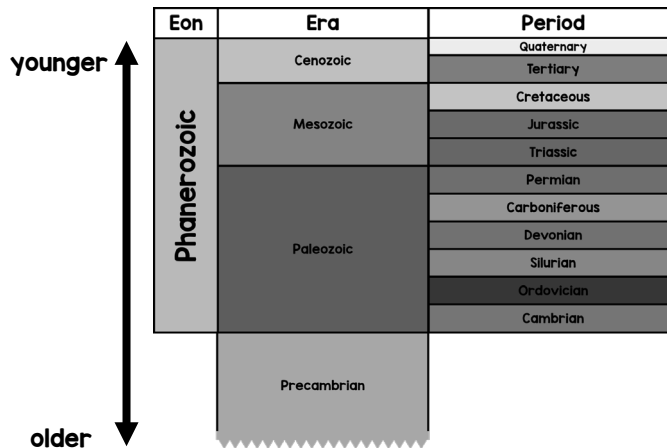


Geologic Time Scale



In the spaces below, in the 1st Column, write what you already **KNOW** about the geologic time scale. In the 2nd column, write what you **WANT** to learn about the geologic time scale. The last column will be completed at the end of the lesson (what you've learned).

K

W

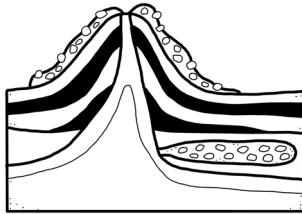
L

Geologic Time Scale

Determining the Age of Rocks, Fossils, and Events

There are many _____ and ideas on how old our Earth is, but currently, **geologists believe that the Earth is approximately 4.6 billion years old.**

Their _____ is based on evidence they have gathered by the **methods they use to date rocks and fossils.**

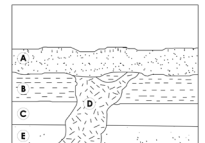


By determining the _____ of rocks, fossils, and events, scientists can **better understand how the Earth has changed over time, how different species change over time, and how past events have molded the planet.**

- **relative dating:** looking at _____ in the rock record

Examples:

- older rocks are on bottom layers
- index fossils



- **absolute dating:** using _____ to determine the exact age

Examples:

- radioactive dating
- dendrochronology



Circle the correct answer.

Absolute dating uses techniques such as index fossils to determine the age of rocks, fossils, and events.

True

False

Geologic Time Scale

Geologic Time Scale

Based on their evidence, scientists have created a system used to represent Earth's history. This is the Geologic Time Scale.

Divided into:

-
- eras
- periods
- can be divided further into epochs and ages

younger

older

Eon	Era	Period
Phanerozoic	Cenozoic	Quaternary
		Tertiary
	Mesozoic	Cretaceous
		Jurassic
		Triassic
	Paleozoic	Permian
		Carboniferous
		Devonian
		Silurian
		Ordovician
		Cambrian
	Precambrian	



Circle the correct answer.

The Geologic Time Scale is a system used to represent Earth's layers.

True

False

Terms to Know

eons: largest division of time; lasts hundreds of millions or billions of years

eras: second-largest of geological time; lasts tens to hundreds of millions of years

periods: third-..... division of geological time; lasts tens of millions of years

epochs: fourth-largest division of geological time; millions of years

ages: smallest division of geological time; lasts of thousands to millions of years

Geologic Time Scale



Draw arrows to match the geological time division with its definition.

eons	second-largest division of geological time; lasts tens to hundreds of millions of years
eras	smallest division of geological time; lasts tens of thousands to millions of years
periods	largest division of geological time; lasts hundreds of millions or billions of years
epochs	third-largest division of geological time; lasts tens of millions of years
ages	fourth-largest division of geological time; lasts millions of years

Each _____ of the time scale represents a different span of time and significant biological and geological events.

It can become extremely _____.

- In this lesson, the focus will be on the Precambrian Era, Paleozoic Era, Mesozoic Era, and the Cenozoic Era.



Which of the following is NOT a part of the Phanerozoic Era?
(bubble in answer):

- | | |
|---------------------------------------|------------------------------------|
| ☐ Precambrian Era | ☐ Mesozoic Era |
| ☐ Paleozoic Era | ☐ Cenozoic Era |

Geologic Time Scale

Precambrian Era

first of time

- 4.6 billion years to 541 million years ago
- broken into eons
 - Hadean
 - Archaean
 - Proterozoic

younger

older

Eon	Era	Period
Phanerozoic	Cenozoic	Quaternary
		Tertiary
		Cretaceous
	Mesozoic	Jurassic
		Triassic
		Permian
	Paleozoic	Carboniferous
		Devonian
		Silurian
		Ordovician
	Precambrian	Cambrian

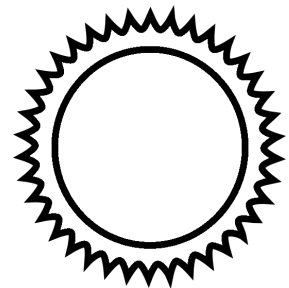


Which of the following was the first era of time?
(bubble in answer):

- | | |
|---------------------------------------|------------------------------------|
| ☐ Precambrian Era | ☐ Mesozoic Era |
| ☐ Paleozoic Era | ☐ Cenozoic Era |

What do believe happened in the first era of time?

- formation of Sun and light
- creation of
- creation of the atmosphere
- creation of the oceans
- of life



Describe some things that scientists believe occurred in the first era of time.

Geologic Time Scale

Precambrian Life

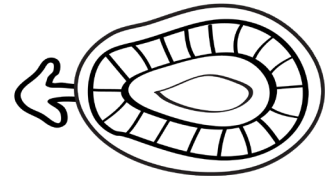
- life: bacteria and simple algae
- rise of simple organisms: sea and jellyfish (toward the end of the era)



Stromatolites



Charnia



Kimberella

..... fossils in this time due to lack of hard structures in organisms



List 5 facts you learned about the Precambrian Era.

Paleozoic Era

Age of

- 541 million - 252 million years ago
- most aquatic - most of the Earth covered in shallow water

younger

older

Eon	Era	Period
Phanerozoic	Cenozoic	Quaternary
		Tertiary
	Mesozoic	Cretaceous
		Jurassic
		Triassic
	Paleozoic	Permian
		Carboniferous
		Devonian
		Silurian
		Ordovician
		Cambrian
	Precambrian	

Geologic Time Scale



Circle the correct answer.

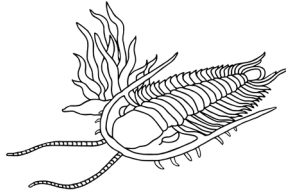
Most of the animals in the Paleozoic Era lived in water.

True

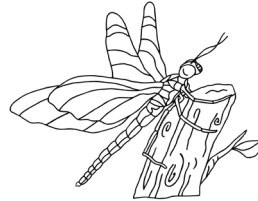
False

Paleozoic Life

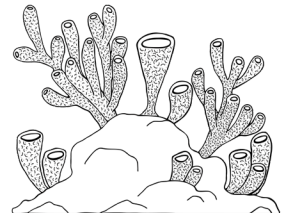
- rise of _____ marine invertebrates - trilobites, brachiopods, etc.
- vertebrate _____ began to appear
- first amphibians, _____, and insects appeared
- early _____ plants - simple mosses, ferns, cone-bearing plants



Trilobite



Giant Dragonfly



Sponges



Circle the correct answer.

Humans were dominate in the Paleozoic Era.

True

False



- _____ formed at the end of this era.
- There was a mass extinction at the end of this era!
 - wiped out about 90% of marine species

Geologic Time Scale



Describe the most interesting thing you learned about the Paleozoic Era.



Dates of eras are slightly different on various Geologic Time Scales. Explain why there may be an inconsistency.

Mesozoic Era

Age of Reptiles / Age of

- 252 million - 66 million years ago

- into three periods: Triassic, Jurassic, and Cretaceous

younger

older

Eon	Era	Period
Phanerozoic	Cenozoic	Quaternary
		Tertiary
	Mesozoic	Cretaceous
		Jurassic
		Triassic
	Paleozoic	Permian
		Carboniferous
		Devonian
		Silurian
		Ordovician
		Cambrian
	Precambrian	



Circle the correct answer.

The Mesozoic Era can be broken into three periods.

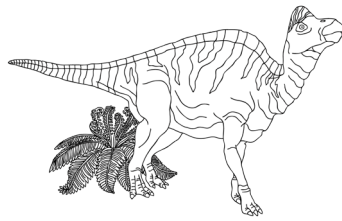
True

False

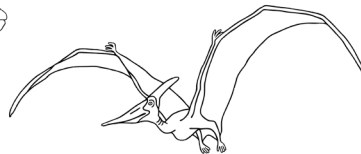
Geologic Time Scale

Mesozoic Life

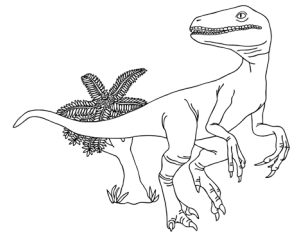
- reptiles
- rise of dinosaur, pterosaurs, and marine reptiles
- were also birds and small
- flowering plants and some mammals increased toward the end
- dominant plant - cone-bearing



Corythosaurus



.....



Velociraptor



The dominant plant in the Mesozoic Era was the:
(bubble in answer):

☐ simple mosses

☐ algae

☐ ferns

☐ cone-bearing

There was another extinction at the end of this era!

It out dinosaurs and other species.



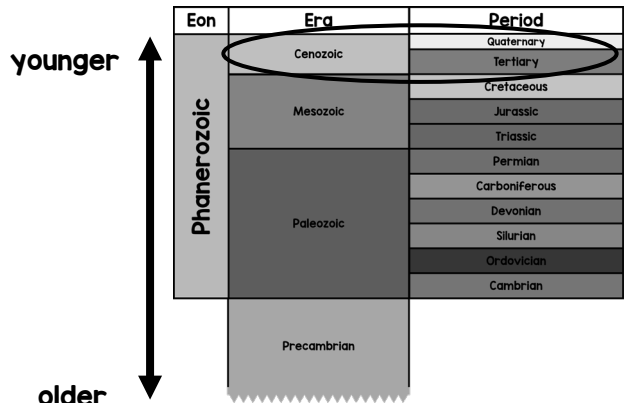
Describe the most interesting thing you learned about the Mesozoic Era.

Geologic Time Scale

Cenozoic Era

- 66 million years ago to present
- _____ is increased

Age of Mammals



Cenozoic Life

- some mammals went extinct while _____ appeared (like humans!)
- flowering plants are most _____



Megaloceros



Megalodon



Woolly Mammoth



Circle the correct answer.

Flowering plants are the most common plant in the Cenozoic Era.

True

False

_____ geological events occurred during this time such as the opening of Atlantic Ocean and the formation of Himalayas.

We are currently in the quaternary period.



Geologic Time Scale



Describe the most interesting thing you learned about the Cenozoic Era.

There are _____ representations of the geologic time scale such as models, pictures, and diagrams. They are created to show the vastness of time and diversity of life over the time span in which scientists believe to have occurred.



Describe why you think eras end.

Geologic Time Scale



Complete the following four corners vocabulary activity.

Using the drawing tools, create an illustration of the geologic time scale. You may also copy and paste an image from another source.	Write a sentence using the term geologic time scale.
Write the definition of the term geologic time scale.	Write some words related to the term geologic time scale.

Geologic Time Scale



DON'T FORGET TO REVISIT THE KWL CHART!

SUMMARY