

## Making a Timeline Rope

### Background:

Your timeline rope invites students to focus on recent periods of geologic time. This rope demonstrates four periods and seven epochs, beginning with the Jurassic Period in the Mesozoic Era, in the Phanerozoic Eon, and ending at the present time, in the Holocene Epoch, in the Quaternary Period of the Cenozoic Era, in the Phanerozoic Eon.

### Standards:

SC.D.1.2.3	SC.D.1.2.5	SC.D.1.3.1	SC.D.1.3.2
SC.D.1.3.3	MA.1.G.5.1	MA.1.G.5.2	MA.2.G.3.4
MA.2.G.3.1	MA.3.G.5.2	MA.4.G.3.3	MA.6.A.5.1
MA.8.A.1.3	SC.912.E.5.3	SC.912.E.6.4	SC.912.E.6.5
SC.912.N.3.1	SC.912.N.3.5		

### Objectives:

- Analyze how specific geological processes and features are expressed in Florida and elsewhere
- Describe the geological development of the present day oceans and identify commonly found features
- Understand the function of models in science, and identify the wide range of models used.
- Compare, contrast, and convert units of measure

### Vocabulary:

*Geologists and paleontologists give names to spans of many years. Spans are approximate; they relate more to fossil age ranges than to absolute years. Experts use a common vocabulary.*

**Eon:** Largest division of geologic time. Each eon contains several periods and can last for hundreds of millions to billions of years. Some experts identify four eons. (Example: Life on earth has been abundant during the Phanerozoic Eon, as well-preserved fossils prove.)

**Era:** Shorter than an eon. Includes several periods. Generally lasts for tens or hundreds of millions of years. An era is named after the types of fossil remains linked to it. (Examples: Mesozoic Era, the time of “middle life,” and the Cenozoic Era, the time of “recent life.”)

**Period:** Most commonly used unit of geologic time. There are two to seven periods in each era. Each period can last for 30 million to 80 million years. (Examples: Jurassic Period, Cretaceous Period, Tertiary Period, Quaternary Period).

**Epoch:** A subdivision of a period. Usually refers to parts of Tertiary and Quaternary periods, only. (Examples: Miocene Epoch, Pliocene Epoch, Pleistocene Epoch, Holocene Epoch).

**Materials:**

- Rope, 100-feet in length
- Markers in four colors
- Adhesive labels
- Clear tape
- Retractable tape measure
- Scissors
- (Optional) colored pencils or crayons

**Procedure:**

1. Use the following scale

Scale:

6 inches = one million years (1,000,000)

1 foot = two million years (2,000,000)

2. Mark different colored lines on a rope to indicate the different periods. Write and tape labels to it, to represent when epochs began and to show how time spans relate to each other.

The Jurassic Period	195 mya to 141 mya	(first color)
The Cretaceous Period	141 mya to 65 mya	(second color)
The Tertiary Period	65 mya, including	(third color)
The Paleocene Epoch	65 mya to 54 mya	
The Eocene Epoch	54 mya to 38 mya	
The Oligocene Epoch	38 mya to 24 mya	
The Miocene Epoch	24 mya to 5 mya	
The Pliocene Epoch	5 mya to 1.8 mya	
The Quaternary Period	1.8 mya, including	(fourth color)
The Pleistocene Epoch	1.8 mya to 10,000 ya	
The Holocene Epoch	10,000 ya to present	

**Marking Suggestions:**

1. On a 100-foot rope, one end indicates the beginning of the Jurassic Period, which experts place at 195 to 208 million years ago. (100 feet = 200 million years). Mark the end with a colored line.
2. Measure 28 feet in from the Jurassic end, or 72 feet from the unused end, to show the beginning of the Cretaceous Period, 141 million years ago. (28 feet = 100 feet minus 72 feet, for 144 million years). Mark this point with the second color.
3. Measure 33 feet from the unused end and tape label to show the beginning of the Paleocene Epoch, 66 million years ago. (33 feet equals 66 million years). Mark this point with the third color.
4. Measure 29 feet from the unused end and tape label to show the beginning of the Eocene Epoch, 57 million years ago. (29 feet equals 58 million years).
5. Measure 18 feet from the unused end and tape label to show the beginning of the Oligocene Epoch, 36.6 million years ago. (18 feet equals 36 million years).
6. Measure 12 feet from the unused end and tape label to show the beginning of the Miocene Epoch, 24 million years ago. (12 feet equals 24 million years).
7. Measure 2 feet, 6 inches from the unused end and tape label to show the beginning of the Pliocene Epoch, 5 million years ago. (2.5 feet equals 5 million years).
8. Measure 11 inches from the unused end and tape label to show the beginning of the Pleistocene Epoch, 1.8 million years ago. (1 inch equals 166,666 years; 11 inches equals 1,833,000 years). Also mark this point with the fourth color.
9. The Holocene (or Modern) Epoch began 10,000 years ago. It is represented by the end of the rope farthest from the Jurassic.

Wind the rope loosely into a ball with the Jurassic end protruding so that it may be pulled from the center

**Teachers Notes:**

Going Further- using problem solving skills

Add “trinkets” to the rope.

Cut-outs of major events, organisms, and other visuals

Students color them; use the scale they have been given to figure out where the trinkets belong

*\*Dates are approximate*

**200 mya Pangaea**

**197-190 mya Ichthyosaurus, Plesiosaur, Allosaurus, and Stegosaurus lived**

**140 mya flowered plants appeared**

**65 mya T-Rex lived**

**55 mya Champsosaur lived**

**30 mya Global expansion, many evolutionary changes**

**24mya Continental drift, Antarctica develops ice caps**

**12 mya Volcanic activity**

**3.5 mya Mollusks, mastadonts, camels, deer, rhino lived**

**2.5mya current "Ice Age" begins**

**1.5mya Modern continents at present position**

**1.5mya Mammoths and glyptodonts lived**

**13,000 ya Paleo-Indian entered American Continent**

**Modern man**

**350 ya Dodo became extinct**

**\_\_\_\_ ya You were born**

### **Analysis/Conclusion**

**\*questions that demonstrate understanding of this activity**

**\*math component- how did they figure out where the trinkets went**

**\*critical thinking- create their own trinkets to the end (or modern day TODAY) of the Holocene**