

Geologic Timeline

Change Over Time Learning Target: *I can show evidence for changes in Earth's organisms over time.*

In this project, we will be trying to learn a sense of scale for the 4.6 billion year age of the Earth. You will build a scaled geologic timeline out of a strip of paper and use it to examine the major events in Earth's history including the development of life, the atmosphere, mass extinctions and other events that have had an effect on present-day life on Earth. If we are to build a geologic timeline for the entire 4.6 billion year age of the Earth using the scale of **1 millimeter = 1 million years**, your timeline will end up being 4.6 meters long.

Materials

- ◆ paper register tape (5.0 m)
- ◆ Geologic time scale - CPO Earth Science p. 216
- ◆ meter stick, ruler, measuring tape
- ◆ pencil and marking pen (like an ultra-fine point sharpie)
- ◆ markers / colored pencils

Instructions

1. Roll out your 5.0 m piece of register tape.
2. On the right end of your paper, draw a vertical line exactly 1.0 cm from the edge of the paper. Write **PRESENT DAY** (vertically) inside this 1.0 cm space at the right edge of your paper tape. That line will represent present day and you will begin your measurements from that vertical line.
3. **Measuring from the bottom**, make a horizontal line at 5mm and 10mm (1 cm). Make this line from your present day line to the left end of your timeline. Take your time on this and use a ruler / meter stick. Start with light pencil.
4. Using the scale of **1 millimeter = 1 million years**, 100 million years is equal to 10 cm. Measuring from the PRESENT DAY line, make a small mark on your center line every 10 cm along the entire length of tape.
5. **You are just setting up the timeline, so label in pencil at this point.** At every 10cm, make a 1.0 cm vertical line and label each mark you made (use mya for millions of years ago). Each of your 10 cm marks represents 100 million years, so count backward from present day.

6. Calculate, using simple subtraction, the total time in millions of years for each era shown below. Then, using the scale of **1 millimeter = 1 million years**, calculate the length in centimeters for each era.

Geologic Era	Time Range	Total Time (in millions of years)	Timeline Length (in centimeters)	Color
Cenozoic Era	65 mya—present			
Mesozoic Era	251—65 mya			
Paleozoic Era	542—251 mya			
Precambrian Era	4570—542 mya			

7. In the bottom 5mm space, use a different color to shade each geologic era. Use the table above as your guide. Shade lightly and use colors that are different from one another.

8. In the top 5mm space, use a different color to shade each geologic period. Use the timeline in the book to guide you. Shade lightly and use colors that are different from one another.

9. Use a marking pen to label all of the eras and periods.