**Background:**

The Earth is approximately 4.6 billion years old, but life has only been on the Earth about 3.5 billion years. Humans like organisms have only been around for about 2.5 million years. According to scientists, the Earth has evolved (changed) since its very beginning and is currently evolving. As the Earth changed, each event caused a change that triggered the following events. For example, when oxygen entered the atmosphere the stage was set for organisms that could use oxygen to survive.

In this lab you are going to explore and explain the relative length of time between the events in the Earth’s history. You are also going to explore how these events are all connected. You will explore events that deal with living systems (biotic) and non living systems (abiotic).

**Procedure:**

1. Look at the list of major events in Earth’s history. Mark “B” for any event that is biotic (involves living systems) and mark “A” for any event that is abiotic (involves non living systems)
2. Measure a 5m piece of register tape. This will represent 5 billion years of history. Label the right side of the tape “Today” and the left side of the tape “5,000,000,000 years ago”. Be sure to write small.
3. Now measure and mark each meter. Every meter represents one billion years. (One meter to the right of 5 billion would read “4,000,000,000 years ago”)
4. Within each meter make a slight mark each 20cm. Each 20cm represents 200,000,000 years.
5. Locate and label a point representing the origin of Earth on your timeline. Be sure to write small
6. Now locate and label the rest of your points. Be sure to write **small**.
7. Draw picture of the following organisms when they would have appeared on the timeline.
   1. Dinosaur
   2. Frog
   3. Bacteria
   4. Horseshoe Crab
   5. Rose

**Analysis:**

1. Describe and explain five patterns you see in the timeline.
2. Are these patterns related in any way?
3. Is it crucial that all events occurred in this order?
4. From what you understand, does there appear to be a building process in Earth’s history?
5. What happened to the length of events as you approached the present day?
6. What did the time line model help you understand about the Earth’s history?