# Geologic Time Football Field Analogy

1. Use the geologic time scale to the right to find the missing dates and fill in the blanks under the **Approximate Age** column in the data table below. **Be careful to mark down when that event began, not when it ended.**

2. Next, calculate the corresponding distance on a football field that each event represents and fill in the blanks under the “Distance” category.

   *For this activity, 1 yard = 46 million years.*

3. Mark the events on the Geologic Time Football Field on attached to this sheet. Label the top end zone “TODAY” and the bottom end zone “EARTH’S BIRTH.” As you place your events on the football field, pay close attention to which end is which.

   **Example:**
   
   *For calculating events from billions of years ago:*
   
   \[
   \text{Age of event} \div 46 \text{ my/yard} \times 1000
   \]
   
   *For calculating events from millions of years ago:*
   
   \[
   \text{Age of event} \div 46 \text{ my/yard}
   \]

## Geologic Event | Approximate Age | Distance (yards)
--- | --- | ---
Rocky Mountains are formed | 80 million years | 
First known fish | 510 million years | 
Paleozoic Era begins | 
Earliest humans | 2 million years | 
Formation of the Earth | 4.6 billion years | 
First known mammal | 200 million years | 
Proterozoic Eon begins | 
First single-celled organism | 1.2 billion years | 26.1
Columbus discovers America | 
Oldest rock | 3.8 billion years | 
Extinction of the dinosaurs | 65 million years | 
First known plant | 498 million years | 
First known reptile | 325 million years | 
First multi-celled organism | 700 million years | 
Your Birth | 
First known amphibian | 375 million years | 
First known bird | 160 million years | 

Questions (after your football field is complete):

1. What event is almost in the middle of the football field?

2. Find where your birth date would be on the football field. Why is it almost impossible to show a human's life on this scale? Would it be easier if we changed the number of years that 1 yard represents?

3. In what periods did fish, mammals, reptiles, amphibians, and plants appear on Earth?

4. Look at the geologic time scale. Why do you think the Phanerozoic Eon has many more divisions and dates associated with it than the Archean Eon?

5. How many years does the first 10 yards represent? What events are within the first 10 yards of the football field from the TODAY end zone? Explain what this means in terms of expansion of life on Earth.