

The Toilet Paper TIMELINE

A History of the Earth ...
One Square at a Time



The earth is over 5 billion years old. Life first originated in the oceans 3.4 billion years ago. The dinosaurs died out 65 million years in the past. Human recorded history stretches back 10,000 years in time.

These numbers are too large to visualize, and difficult to compare. Here's an easy way to put time in perspective, and actually visualize different eras in the earth's history. You'll need a **roll of toilet paper**, a **long hallway**, and some **sticky notes**.



Unroll the full roll of toilet paper down the hallway. We found that our roll contained 400 squares, and each square was slightly over 11 cm long.

The earth is about 5 billion years old. That makes each toilet paper square equivalent to 12.5 million years; each billion years of earth's history takes up 80 squares of toilet paper.

On this scale, one year is represented by 0.00000088 cm ... a width too tiny to see. But we can certainly visualize the past 10,000 years of recorded history on this scale, and compare it to the other events in earth's history.

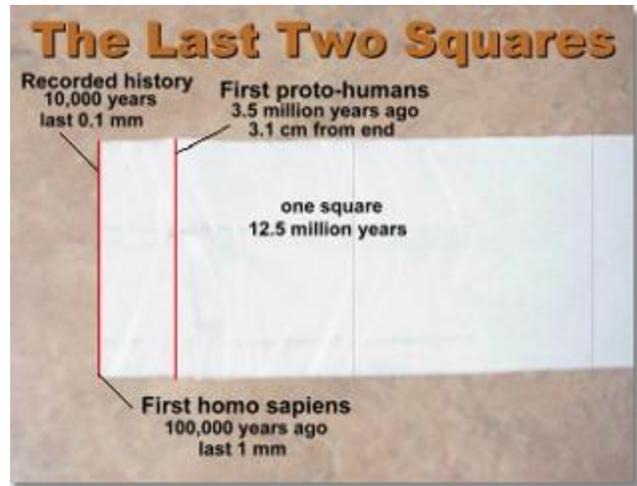
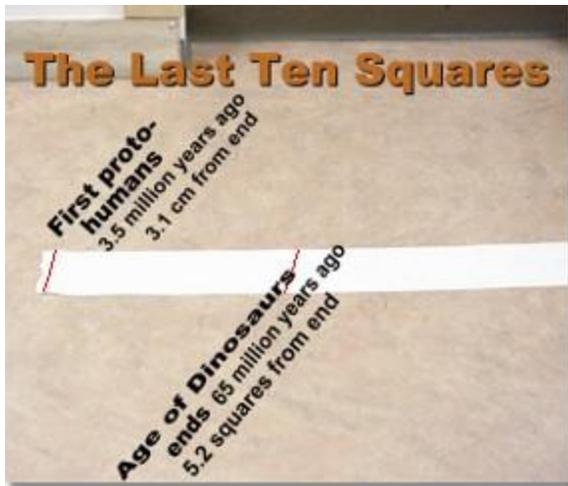
Once the paper is completely unrolled, you can mark these important events in earth's history at the appropriate points:

- **5 billion years ago:** earth is formed, along with the other planets
- **3.7 billion years ago:** earth's crust solidified (square 104)
- **3.5 billion years ago:** first life appears in oceans (square 120)
- **3.25 billion years ago:** photosynthesis begins in oceans (square 140)
- **2.4 billion years ago:** oceans contain significant amounts of oxygen (square 208)
- **1.9 billion years ago:** first cells with nuclei appear in oceans (square 248)
- **0.65 billion years ago:** first multicellular organisms appear (square 348)
- **0.5 billion years ago:** first land plants with inner vessels (square 359)
- **250 million years ago:** mass extinction of 99% of all life (square 380)
- **245 million years ago:** Age of Dinosaurs begins (square 380)
- **150 million years ago:** Supercontinent breaking up; continents drifting apart (square 388)
- **65 million years ago:** Age of Dinosaurs ends, with mass extinction of 70% of all living things (square 394)
- **3.5 million years ago:** First proto-humans appear, in what is now Africa (last square, 3.1 cm from end)
- **100,000 years ago:** First Homo sapiens appears (last square, 1 mm from end)
- **10,000 years ago:** Recorded human history begins (last square, 0.1 mm from end)



Here are some photos to give you an idea of what you will see when you lay out this timeline. It will be very evident that earth's history is long, and humans make up only a tiny part of it.





The idea for this demonstration is not our own ... we first read about it many years ago, and came across it again recently in a magazine; we just had to try it out ourselves, as it makes a very dramatic statement about the history of the earth.

You can also see the earth's complete timeline visually on our [Earth Timeline](http://www.worsleyschool.net/science/files/toiletpaper/history.html) page.
(Source: <http://www.worsleyschool.net/science/files/toiletpaper/history.html>)