

## The toilet roll of time

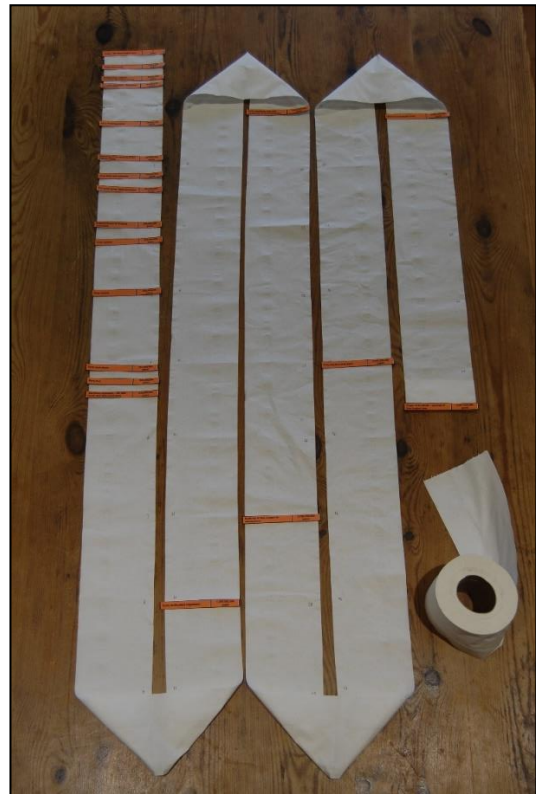
### Make a geological timeline to take home

Ask the pupils to make their own geological timeline, as follows.

- Each group should collect a strip of toilet paper exactly 46 sheets long (so that each sheet can represent 100,000,000 years – one hundred million years).
- They should use a felt tipped pen to number each sheet from 0 to 45 with small numbers.
- They should mark the 4,600,000,000 year point on the final sheet, and cut off or fold under the remaining paper.
- Meanwhile another member of the group should cut out the timeline markers for the table below, as individual strips:

<b>Origin of the Earth – geological time begins here</b>	<b>4,567,000,000 years</b>
--	----------------------------

- They should lay out the strip of toilet paper in a suitable space, preferably one where the strip can be laid out as one long length
- Given that each perforated sheet of toilet paper is 100,000,000 (one hundred million) years, they should add the timeline markers in the correct places.
- It should be clear that most of the significant events in geological time have happened in the last 600 million years (last six sheets).
- They could glue or staple the timeline markers in place and take their toilet roll of time home to amaze their friends and family.



The toilet roll of time. (Chris King)

To emphasize the point that most of the 'action' on Earth happened relatively recently, show the pupils the 'Evolution of life in 60 seconds' video at: [http://www.earthlearningidea.com/Video/Evolution\\_60s.html](http://www.earthlearningidea.com/Video/Evolution_60s.html)

### The back up

**Title:** The toilet roll of time

**Subtitle:** Make a geological timeline to take home

**Topic:** A pupil activity to make a geological timeline.

**Age range of pupils:** 9 – 18 years

**Time needed to complete activity:** 15 - 30 minutes, if the group works collaboratively.

**Pupil learning outcomes:** Pupils can:

- describe key events during geological time;
- put these in the correct order;
- give an idea of the extent of geological time and that key events happened mainly in the past 600 million years.

**Context:**

This activity has been devised to address the common lack of knowledge about geological time. Research has shown that many people have no idea of the great length of geological time nor of

the order of the key events during the geological history of the Earth.

You can find many more dates to add to the timeline on this website: <http://www.nthelp.com/eer/HOAtimetp.html> (although the activity described on the website uses a much longer toilet roll). Be wary of the dates in the list on the website though, as some have changed since this list was published. You can find the latest most accurate dates on the internet.

**Following up the activity:**

Try to give the pupils an idea of how long a million years is by using the 'How many for a million' Earthlearningidea activity (<http://www.earthlearningidea.com/>).

**Underlying principles:**

- Geological time is the length of time for which the Earth and the solar system have existed and is around 4.6 billion years long.
- A number of key events have occurred during geological time, and those affecting life on

Earth have mostly occurred only relatively recently in geological time.

**Thinking skill development:**

Understanding the duration of geological time and the timing of key events requires the development of skills of thinking in the time dimension.

**Resource list:**

- 46 sheets from a toilet roll
- the timeline marker sheet (see below)
- a felt-tipped pen
- scissors
- a means of attaching the timeline markers to the toilet roll (e.g. glue, staples)

**Useful links:**

Try using some of the other Earthlearningidea geological time-related activities listed at: [http://www.earthlearningidea.com/home/Teaching\\_strategies.html](http://www.earthlearningidea.com/home/Teaching_strategies.html)

**Source:** Based on an idea by Pete Loader.



© **Earthlearningidea team.** The Earthlearningidea team seeks to produce a teaching idea regularly, at minimal cost, with minimal resources, for teacher educators and teachers of Earth science through school-level geography or science, with an online discussion around every idea in order to develop a global support network. 'Earthlearningidea' has little funding and is produced largely by voluntary effort. Copyright is waived for original material contained in this activity if it is required for use within the laboratory or classroom. Copyright material contained herein from other publishers rests with them. Any organisation wishing to use this material should contact the Earthlearningidea team. Every effort has been made to locate and contact copyright holders of materials included in this activity in order to obtain their permission. Please contact us if, however, you believe your copyright is being infringed: we welcome any information that will help us to update our records. If you have any difficulty with the readability of these documents, please contact the Earthlearningidea team for further help. Contact the Earthlearningidea team at: [info@earthlearningidea.com](mailto:info@earthlearningidea.com)

**Timeline markers**

Event	Geological time (years ago)
Today – the future begins here	0 years
Oldest stone tools	3,300,000 years
India/Eurasia collision – Himalayan Mountains formed	50,000,000 years
K-Pg (K-T) mass extinction – dinosaurs became extinct	65,000,000 years
Early flowering plants	130,000,000 years
Beginning of the opening of the Atlantic Ocean	190,000,000 years
Early birds	160,000,000 years
Early mammals	220,000,000 years
The 'great dying' mass extinction	251,000,000 years
Supercontinent of Pangaea assembled	300,000,000 years
Early reptiles	315,000,000 years

<b>Early amphibians</b>	<b>370,000,000 years</b>
<b>Early insects</b>	<b>400,000,000 years</b>
<b>Early land plants</b>	<b>430,000,000 years</b>
<b>Early fish</b>	<b>530,000,000 years</b>
<b>'Cambrian explosion – life with shells and other hard parts</b>	<b>545,000,000 years</b>
<b>Early multicelled organisms</b>	<b>2,000,000,000 years</b>
<b>Early organisms with cells containing nuclei (eukaryotes)</b>	<b>2,100,000,000 years</b>
<b>Build-up of free oxygen in atmosphere</b>	<b>2,700,000,000 years</b>
<b>Early bacteria and algae</b>	<b>3,500,000,000 years</b>
<b>Oldest known Earth rocks</b>	<b>4,000,000,000 years</b>
<b>Origin of the Earth – geological time begins here</b>	<b>4,567,000,000 years</b>