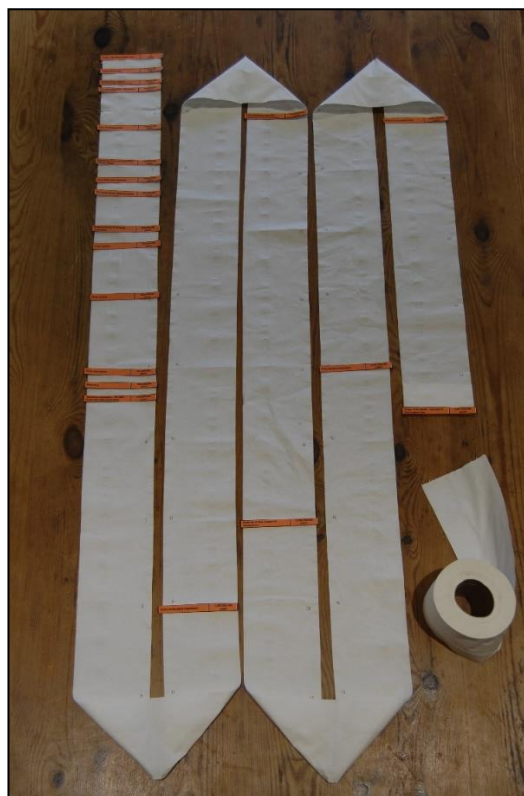# The toilet roll of time
Make a geological timeline to take home

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:

Origin of the Earth – geological time begins here	4,567,000,000 years

- 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 emphasis 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

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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

Source: Based on an idea by Pete Loader.

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**

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