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|  | **JURASSIC COAST TIMELINE** | | |
| This section explains the key words Triassic, Jurassic and Cretaceous and links the geological time scale with the understanding of chronology and key words used for time in History. Pupils are likely to find the concept of Geological or ‘Deep’ time challenging, as the numbers are very large, so this section seeks to establish a basic familiarity based on relation to time scales more familiar to KS2 pupils. | | | |
| **Key Stage 2** | **Timing: 2 Lessons** | **Science, Geography, History** | |
| **ACTIVITY** | | **LEARNING OUTCOMES** | **RESOURCES** |
| **Guess what time it is?**  A card sort activity to start off this lesson. Using Worksheet 1, arrange the picture cards in order from the oldest to the youngest. Then organise them into categories using the vocabulary ‘ancient, modern, BC, AD, Century, Decade’.  **Introducing ‘Deep’ time**  Take the pupils to a hall or to an outside space. Organise the pupils into pairs with a card for a period of time or important event. Tell the pupils that they are going to use a roll of toilet paper (or a roll of lining paper) to help see how old the Earth is, how old the Jurassic Coast rocks are, and where human beings fit in. Each piece of toilet paper is equivalent to 12.5 million years.  Ask one pupil to hold the end of the toilet paper: this is the formation of the Earth. Gradually unroll the paper and count the squares, with the pupils placing their cards in the right places. (Worksheet 2). You can use the images in Worksheet 4 to signpost each significant event, with children researching their own to add on.  **A Walk Through Time**  Explain that geologists use clues from the rocks to understand what the Earth was like millions of years ago, and that the Jurassic Coast World Heritage Site is important because it has such a long section of time represented, which tells us such a lot about the Earth’s climate and life in the past. Historians also collect evidence to find out about people and events in the more recent past (the last mm on the last square of toilet paper). Worksheet 3 uses a time spiral to illustrate this. | | * Express simple views and opinions * Undertake simple measuring tasks * Select basic but appropriate information * Use simple scientific vocabulary * Compare and contrast * Reason * Use basic scientific skills with some judgement * Communicate views and opinions appropriately * Lead an enquiry using scientific skills and reasoning * Demonstrate understanding through explanation * Reach well formulated conclusions and make sound judgements based on evidence | Worksheet 1: Card sort activity  One roll of toilet paper (or wallpaper/ lining paper), Time cards,  Worksheet 2: Timeline Guide  ***Using Wallpaper/Lining Paper?*** You will need to recalculate the time line according to centimetres (e.g. 10 or 20cm = 1 million years of geological time).  Worksheet 3: Time Spiral  **Worksheet 4:** Timeline images |

**Worksheet 1**

|  |
| --- |
| All_Gizah_Pyramids.jpg  A  ©2006 Ricardo Liberato  A |
| B  Queen_Victoria_by_Bassano.jpg |

|  |
| --- |
| C  Stone age picture copyright free.jpg |
| ©germa models 1950s.jpg German Federal Archive  D |

|  |
| --- |
| E |
| Henry-VIII-kingofengland_1491-1547.jpg  A = Ancient  B = Century  C = BC  D = Decade  E = Modern  F = AD  F |

**Worksheet 2**

Based on current scientific evidence, the Earth is estimated to be about 4.6 billion years old. To give you an idea of just how big this number is, let's pretend that you wanted to count to 4.6 billion. If you started right now, and counted at 3 numbers per second without ever stopping to sleep and without ever slowing down, you could count to 1 million in just under 4 days. A billion however is 1000 million, so it would take you over 10 and a half years to count to one billion! 4.6 billion would require 50 years of non-stop counting. Now, imagine that every number that you counted is a whole year long!!! Perhaps this gives you a better idea of just how long the Earth has been around, and how much time and change the Earth has been through...

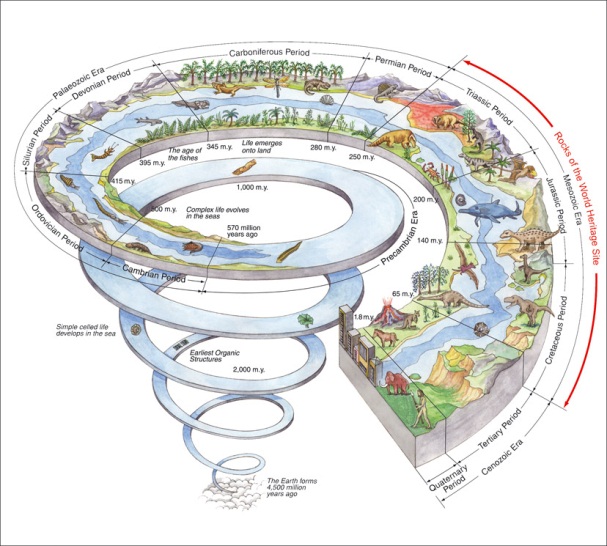
**Toilet Roll of Time (1 sheet = 20 million years)**

|  |  |  |
| --- | --- | --- |
| **Millions of Years Ago** | **Numbers of Sheets** | **‘Event’** |
| -20 to 65 | 3.25 | Folding along Dorset Coast (see Lulworth Cove)  Dinosaurs become extinct  Eastern end of Jurassic Coast, Old Harry Rocks |
| 150 | 7.5 | First Flowering Plants  First fossil birds |
| 250 | 12.5 | Western end of Jurassic Coast, Exmouth  Desert Britain (like Namibia) |
| 300 | 15 | England on the Equator  Dense swamps and jungles that will end up forming coal |
| 350 | 17.5 | First fossil reptiles |
| 430 | 21.5 | First fossil land plants and invertebrates |
| 530 | 27.5 | Cambrian explosion of life  First fossils with hard parts |
| 610 | 30.5 | Oldest animal fossils |
| 2000 (2 billion years ago) | 100 | First free oxygen in the atmosphere |
| 3500 (3.5 billion years ago) | 175.5 | First fossil structures |
| 3600 (3.6 billion years ago) | 180 | First evidence of life (chemical fossils e.g. bacteria, single celled organisms) |
| 4600 (4.6 billion years ago) | 230 | Origin of Earth |

**Notes**

* Use good quality toilet roll to prevent breakage during unravelling
* You can also use a wallpaper roll, 10cm = 20 million years? Experiment with what works for your classroom)
* You can stick labels or pictures on the sheets of toilet roll at each event. Or if you are doing frieze in the classroom, children can paste up sketches or ICT research.
* Unravel the toilet roll in a long hallway or playground. Ask pupils to stand at each ‘event’ to get a sense of distance and time.

**Worksheet 3**

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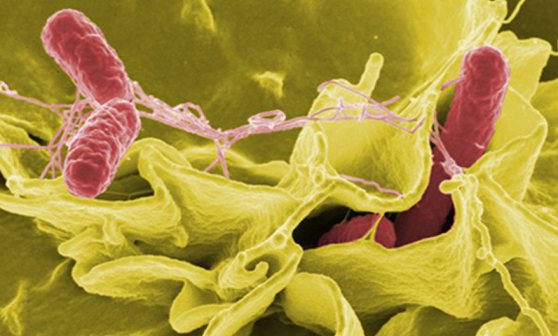
**Worksheet 4: Timeline images**



Origin of the Earth

Precambrian

4.6 Billion years ago



First evidence of life,

Single celled organisms

3.6 Billion years ago



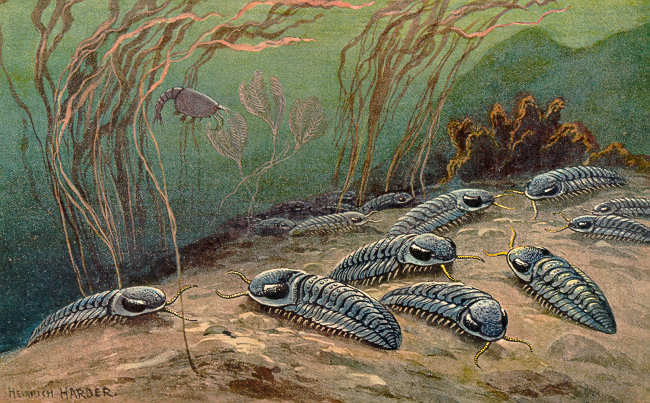
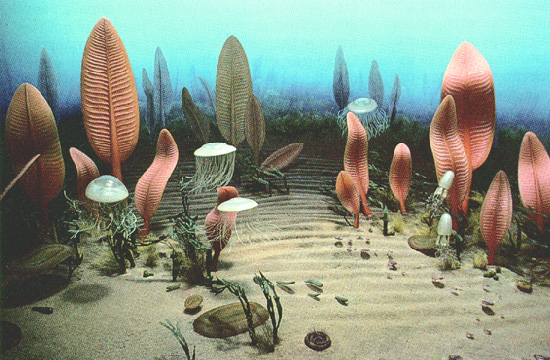
First fossil structures,

Stromatolites in Australia

3.5 Billion years ago

First free oxygen in atmosphere

2 Billion years ago



Oldest Animal Fossils

610 million years ago

Cambrian explosion of life. First fossils with hard parts.

530 million years ago

First fossil land plants and invertebrates.

Silurian Period

430 million years ago

First fossil reptiles

Carboniferous period

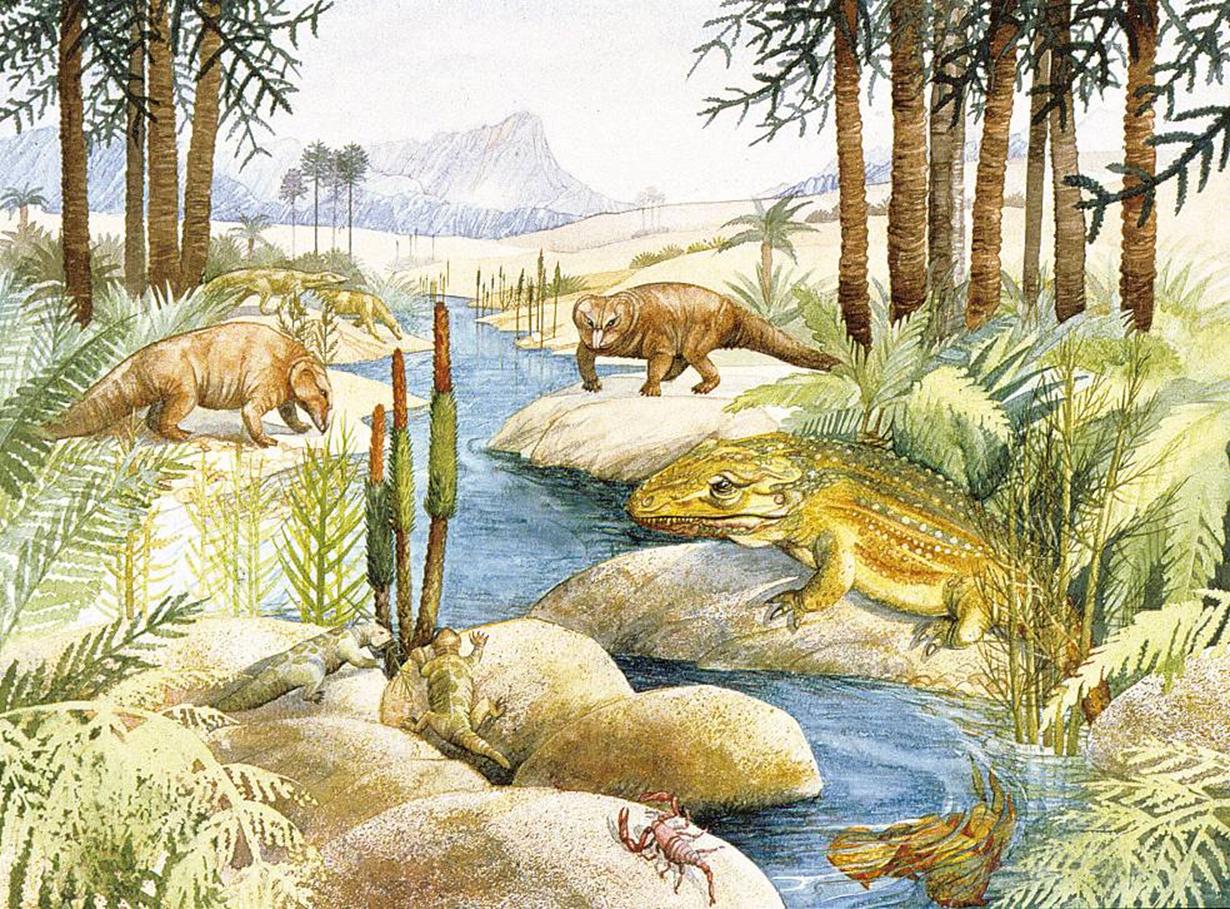
350 million years ago



England on the Equator.

Dense swamps and jungles that will end up forming coal.

300 million years ago



Western end of Jurassic Coast, Exmouth. Desert Britain (like Namibia)

250 million years ago



First Flowering Plants

First fossil birds

150 million years ago



Folding along Dorset Coast (see Lulworth Cove)

Dinosaurs become extinct

Eastern end of Jurassic Coast, Old Harry Rocks

65 million years ago