TIMELINE (OF EVERYTHING)

BANG!!!

13.8–4.6 billion years ago

The Universe unfolds, expanding from a single point in space to form stars and galaxies, including our own Milky Way.

Page 4

OUR HOME IN SPACE

4.6 billion years ago

The Sun and the planets, including our own Earth, are formed and the Solar System takes shape.

Page 6

THE EARLY EARTH

4.5–4 billion years ago

Early Earth evolves from a hot, rocky, uninhabitable planet into somewhere capable of supporting life.

Page 8

LIFE BEGINS

4 billion–500 million years ago

From the very first simple cells to the arrival of fish, early evolution leads to life on Earth.

Page 10

LAND INVASION

500–250 million years ago

Life moves out of the water and takes its first steps on dry land.

Page 12

THE DINOSAUR AGE

250–60 million years ago

Giant reptiles not only roam the earth but also rule the skies and seas.

Page 14

RISE OF THE MAMMALS

60–6 million years ago

Following the extinction of the dinosaurs, plant and animal life recover and mammals begin their takeover.

Page 16

THE FIRST HUMANS

6 million–12 thousand years ago

Our human ancestors evolve alongside other apes, spreading around the globe and establishing new ways of living.

Page 18

SETTLING DOWN

12–6 thousand years ago

People put down roots, building early settlements and beginning to farm crops and breed animals.

Page 20

CITIES, CIVILIZATIONS AND EMPIRES

4,000 BCE–500 CE

Early societies become more sophisticated, with world-changing inventions and the evolution of powerful global empires.

Page 22

SCIENCE, ART AND DISCOVERY

500–1600s

An age of exploration and invention, where adventurers travel afer and art and science flourishes around the world.

Page 24

INDUSTRIAL REVOLUTION

1700–1840s

British industrialisation rapidly spreads worldwide, changing the way people live forever.

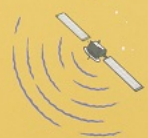
Page 26

TECHNOLOGY

1840s–1940s

Newly revolutionized industry gives rise to a century of innovation, from manned flight to telecommunications and computing.

Page 28



THE MODERN AGE

1940–the present day

Technological innovations shape both the world we live in and the future that we face.

Page 30

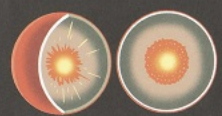
THE EARLY EARTH

4.5 – 4 BILLION YEARS AGO

The Earth didn't start out as the lush blue and green planet we know today. For the first 500 million years of its existence, it had no plants, animals or other creatures. It was a barren, lifeless world. This period is called the Hadean (meaning Hell-like) era.

Like the other planets, the Earth began as matter flying around the newly formed Sun. The matter clumped and stuck together, and the bigger the clump grew, the more powerful its gravity became, sucking in more and more material and pulling the new planet into a sphere.

The young Earth was very hot. Inside it, heavy molten iron sank down into the very centre to become the core. Lighter rocky material formed the outer layer (or mantle). On the outside, rock began to cool into a solid crust. But then, just as the Earth had begun to take shape, a cataclysmic event changed the future of our planet ...



Earth's core
Early in its life, the Earth formed separate layers inside. Iron sank to the middle, surrounded by a molten rock mantle and a hardened outer crust.

Crashhh!

A small planet called Theia, about the size of Mars, smashed into Earth 4.5 billion years ago. The energy of the impact melted and combined the two planets. A massive amount of rock flew off into space, eventually coming together to form Earth's Moon, which orbits at a distance of about 384,400 km.

Watery world

Today, oceans cover just over 70% of the Earth's surface. Where did all this water come from? Firstly, about 4.3 billion years ago, volcanoes poured out gases that included water vapour, and second, Earth was bombarded with many water-rich asteroids and comets. At first, Earth was so hot that the water stayed as gas, but, as the planet cooled, water began to condense into liquid, forming the first oceans.

Crust and plates

4.4 billion years ago the Earth's crust wasn't the way it is today, with continents, mountains and soil. It was a thin layer of rock all over, with volcanic eruptions constantly breaking through it. Over millions of years the crust cooled and thickened. Hot molten rock, or magma, churned underneath it, helping to form the first tectonic plates – sections of crust that constantly shifted and reformed. These early plates were smaller than the huge tectonic plates the Earth has today.

What was it like on early Earth?

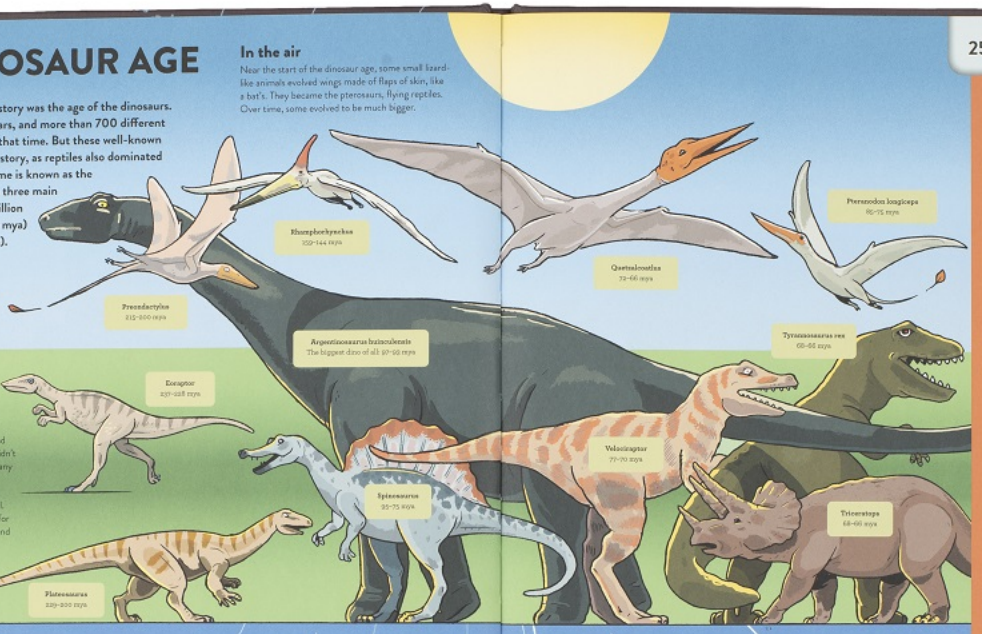
Early Earth was no place for life to exist. It was hot, up to 230°C (446°F). The early atmosphere didn't block any of the Sun's powerful rays, and it contained hardly any oxygen, which animals need to breathe. Earth was also a dangerous place, with frequent impacts from the asteroids and comets that were flying around the early Solar System.

THE DINOSAUR AGE

The most famous era in prehistory was the age of the dinosaurs. It lasted about 185 million years, and more than 700 different dinosaur species lived during that time. But these well-known land reptiles weren't the only story, as reptiles also dominated the skies and the seas. This time is known as the Mesozoic era. It's divided into three main periods: Triassic (251–200 million years ago), Jurassic (200–145 mya) and Cretaceous (145–66 mya).

In the air

Near the start of the dinosaur age, some small lizard-like animals evolved wings made of flaps of skin, like a bat's. They became the pterosaurs, flying reptiles. Over time, some evolved to be much bigger.



On the land

We may think of "the age of the dinosaurs", but, of course, like other animals, different dinosaurs evolved and died out at different times, and they didn't all exist together. They also came in many sizes, and were not all enormous.

Many new plant species evolved as well. The profusion of plants provided food for the dinosaurs, helping them to thrive and grow large as time passed.

In the water

Meanwhile, many types of water reptile evolved in the seas, and some of those also grew to huge sizes.

So, what happened to the dinosaurs?

About 66 million years ago, a massive asteroid hit the Earth, near what is now Mexico, causing huge tidal waves, earthquakes and volcanic eruptions around the world. Large amounts of ash and dust darkened the sky and cooled the climate. The lack of sunlight killed plants, leading to a worldwide shortage of food. Many living things, especially larger ones, died out – an event that is now known as the KT mass extinction. They included all the dinosaurs still around at that time.

Who survived?

Earlier in the dinosaur age, bird-like dinosaurs such as Archaeopteryx had evolved into the first true birds. Some of these early birds survived the mass extinction to become the birds we know today.

Some smaller reptiles also survived, and they have evolved into today's reptiles, such as crocodiles, lizards and snakes.

Fish, squid and lots of other sea creatures survived, including some water reptiles.

Helped by their small size, many insects and other creepy-crawlies kept going, too.

Some small mammals were also able to survive the mass extinction. They emerged afterwards, ready to take over the world ...

THE FIRST HUMANS

Somewhere between 6 and 4 million years ago, the first human-like animals developed. They were a type of ape, part of the primate family of mammals. Humans would go on to dominate the world – but it took many stages for our species to evolve into the humans of today.

There were several species of early human in the past. Humans did not evolve from chimps, as some people think. Instead, humans and the other apes all evolved separately, from much earlier ancestors. Homo sapiens – the humans of today – first appeared between 300,000 and 200,000 years ago. There were actually several different species of human until, about 30,000 years ago, we became the last remaining humans.

Human features

As humans evolved, between 6 million and 200,000 years ago, a number of changes happened that made us very different from most other animals. The illustration below shows what these were.

Family tree

No one knows exactly how all the ape species were related, but this tree shows one possibility.

6 MILLION – 12 THOUSAND YEARS AGO

Spreading across the world

Fossils show that the first humans evolved in eastern Africa and began spreading out into Europe and Asia about 2 million years ago, and into the Americas across a land bridge from the far east of Russia. By 12,000 years ago, modern humans had reached most parts of the planet.

Stone Age life

Stone Age people lived in caves, but also made shelters from stones, branches or animal skins to keep warm, since they were now mostly hairless. Their ability to create fire kept them warm and safe and allowed them to cook their food. They hunted in groups for large animals such as buffalo for their meat and skins.

By 15,000 years ago, people were living with pet dogs, bred from tamed wild wolves.

Women and children were more likely to gather plant food than to hunt.

Human habits

Until about 12,000 years ago, humans probably lived in smallish groups, hunting and fishing for food, and collecting plant food such as nuts, mushrooms and berries. Their big brains and hardworking hands helped them to make tools and other inventions, as well as communicate in spoken language, and create art and music.

Art history

Prehistoric art has been found all over the world, dating far back into the Stone Age.

75,000 years ago
Blombos beads
Shells made into beads, maybe for making a necklace, from the Blombos Cave in South Africa.

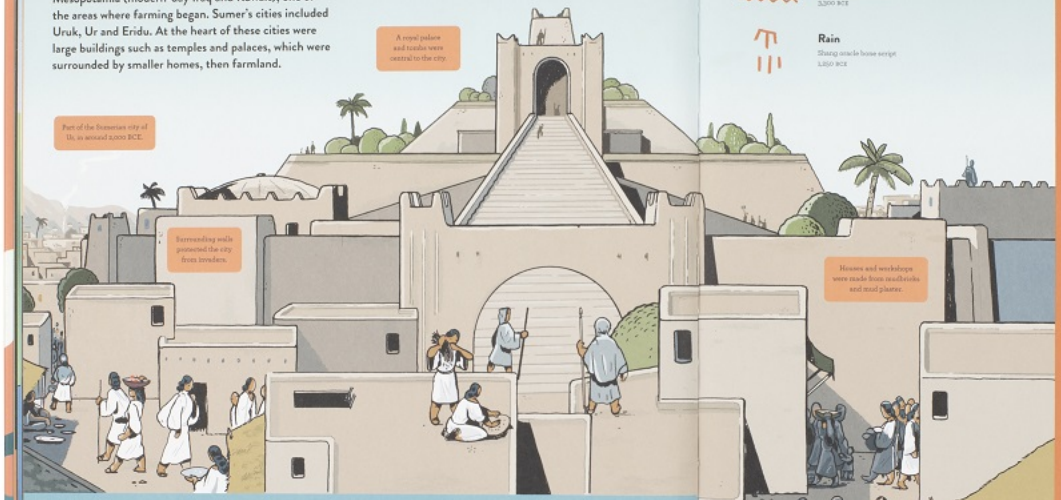
40,000 years ago
Lion-man
A human with a lion's head, carved from a mammoth tusk, found in a cave in Germany.

17,000 years ago
Lascaux
Paintings of people and animals, found in the Lascaux cave, France.

CITIES, CIVILIZATIONS AND EMPIRES

From about 6,000 years ago, early societies in some parts of the world became more advanced and complex. They built the first cities, and began to have kings and queens, armies and the first writing systems.

The earliest cities were probably in Sumer in ancient Mesopotamia (modern-day Iraq and Kuwait), one of the areas where farming began. Sumer's cities included Uruk, Ur and Eridu. At the heart of these cities were large buildings such as temples and palaces, which were surrounded by smaller homes, then farmland.



World-changing inventions

This was an age of all kinds of important inventions, and many of them are still around today.

The wheel, first used in Sumer in about 3,500 BCE, was one of the most useful inventions ever.

People probably began using the beans of the cocoa tree to make chocolate drinks in what is now Mexico, about 2,000 BCE.

The first coins are thought to have been made in Lydia, in what is now Turkey, in about 600 BCE.

The first paper appeared in 100 CE in China, and was made from fibres of cloth and bark.

History starts here!

Of course, Earth already had a long history. But, strictly speaking, history means records that are written down – and for that, you need writing. Writing began in Sumer about 5,500 years ago (in 3,500 BCE), but was also invented separately in other places. The earliest writing systems used small symbols and pictures to stand for words.

Sun
Early Sumerian numeform
3,500 BCE

Water
Ancient Egyptian hieroglyphs
3,300 BCE

Rain
Shang oracle bone script
1,250 BCE

4,000 BCE – 500 CE

Power and control

Cities and their leaders often controlled large surrounding areas, and a big city needed a powerful ruler, so the first kings and queens also date from this time. About 4,300 years ago (in 2,300 BCE), King Sargon of Akkad became one of the first leaders to keep a full-time trained army. He used it to conquer a large area, including other cities, which became the Akkadian empire. More empires formed around the world, growing, shrinking or being taken over at different times.

Ancient Egypt

3100 BCE to 500 BCE
In North Africa, close to Sumer, Egypt became a complex ancient empire. It had many cities, and its people were advanced in building, medicine, writing and exploration by sea.

The Minoans

2700 BCE to 1100 BCE
The mysterious Minoans, who lived on the island of Crete, dominated the Mediterranean before the age of ancient Greece. They were brilliant sailors, and they are thought to have practised the ritual of bull-leaping.

Shang dynasty

1600 BCE to 1046 BCE
The Shang is the oldest known Chinese dynasty, ruling a large area of eastern China. They developed brilliant bronzework, war chariots, calendars and writing systems.

The Olmec

1200 BCE to 400 BCE
The Olmec civilization was in present-day Mexico. The name Olmec means "rubber people" – they extracted rubber from the rubber tree, and traded it with other peoples. They're also known for their carved sculptures.

Ancient Rome

800 BCE to 500 CE
This hugely powerful empire was centred on Rome, now in Italy, but took over large areas of Africa, the Middle East and Europe. It's famous for its amazing buildings, complex military and great writers and artists.