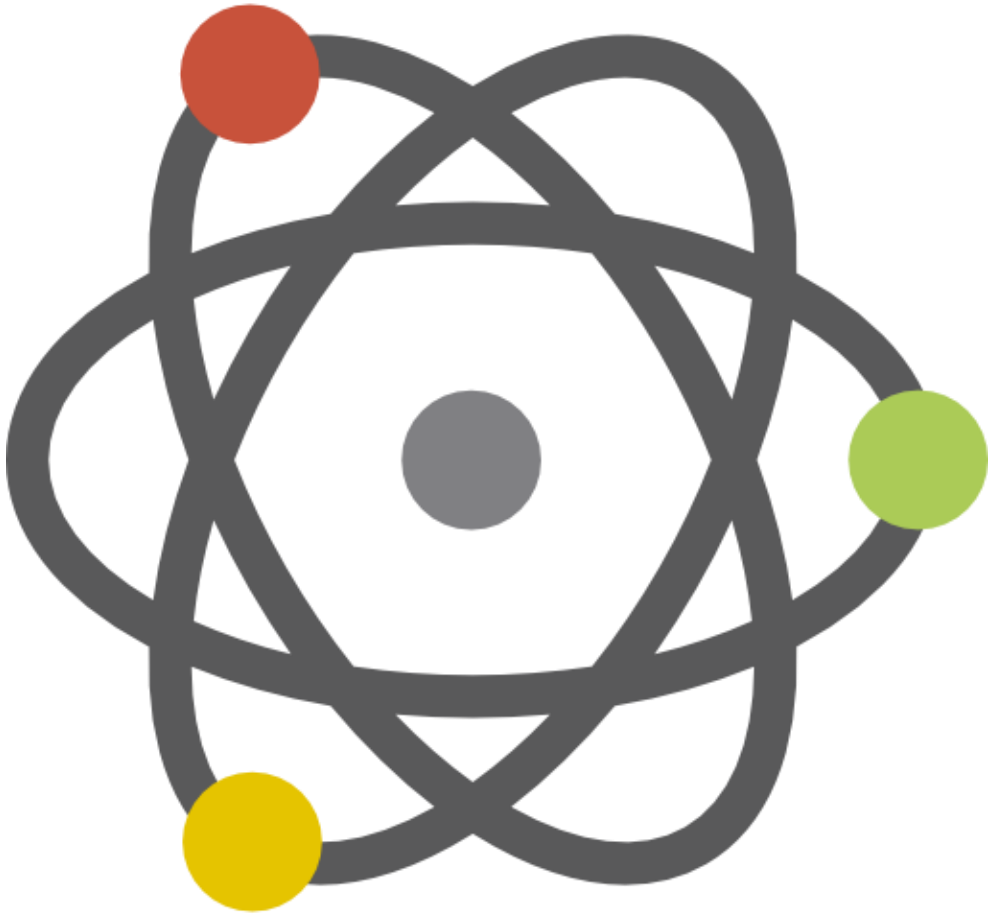
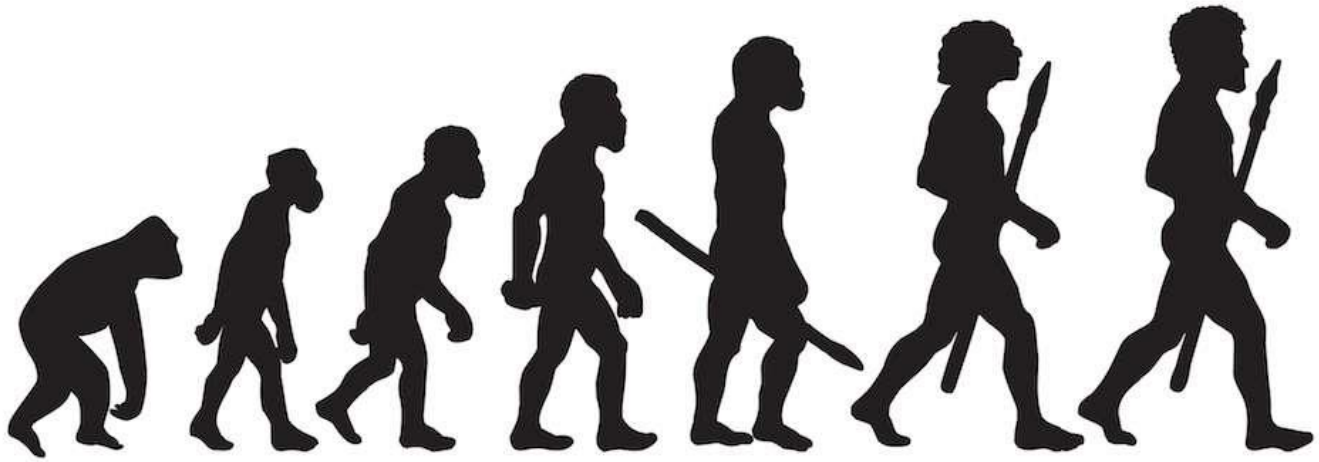


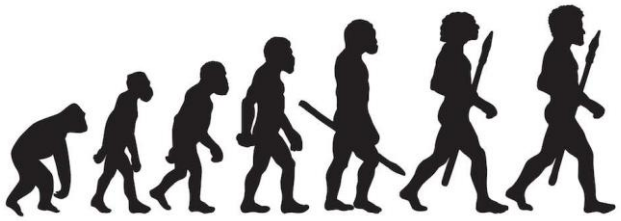


Science: Evolution

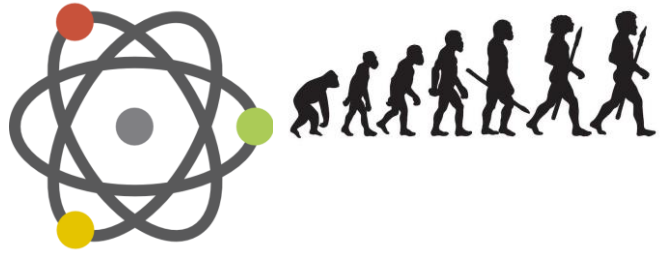
Friday 10th July 2020
LO: to know what evolution is

Success Criteria

- I know that living things change slowly over time
- I understand the term evolution
- I can explore the reason that some people do not believe that evolution happened
- I can explain the term evolution

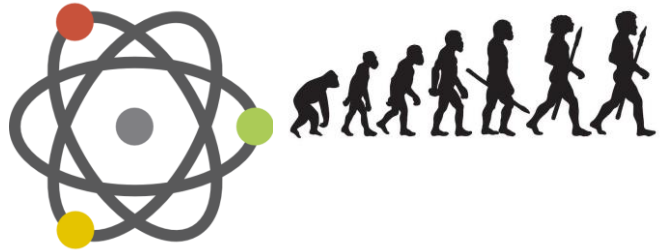


Think task



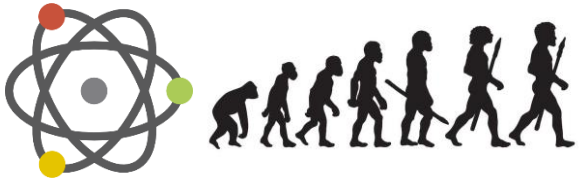
Note down what you can remember about evolution:

Creation stories



- Read the creation stories on the next two slides.
- Identify three similarities and three differences between the creation stories.

Viking creation story



In the beginning there was a great abyss or gap so large that nobody could imagine it. On one side of the abyss was the land of Niflheim, full of cold, ice, mist and darkness. In Niflheim there was a huge spring with twelve large rivers flowing from it. As the waters flowed into the cold abyss, great blocks of ice formed and filled one side of the gap. On the opposite side of the abyss was Muspelheim, a land filled with fire, warmth and brightness and guarded by a flame giant whose sword sent great showers of sparks into the gap.

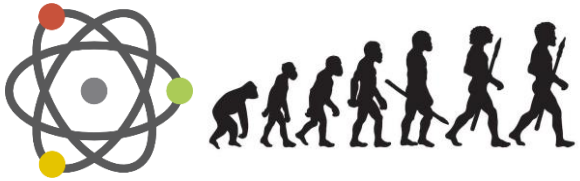
After many long years the fire of Muspelheim and the ice of Niflheim regions came together in the abyss. A mist rose from the gap and froze to create an ice giant named Ymir. An enormous cow was also created to nourish him. From a salty ice block licked by the cow, the first god, Buri emerged. Soon more and more giants and gods were born.

Eventually, there was a struggle between the giants and the gods. The struggle continued until the birth of Odin and his two brothers who were born from the god Buri and a frost giant mother. Together with their father, the three brothers killed Ymir. His blood gushed into the abyss, drowning all but two of the frost giants who escaped the deluge in a boat.

From Ymir's corpse, Odin and his brothers created the universe. First Odin fashioned the earth, Midgard from Ymir's flesh and, using his eyebrows, built a protective wall to encircle it. From Ymir's bones, they created mountains and from his teeth the rocks, boulders and stones. His blood was used to make the sea and lakes. From his skull, they created the endless expanse of the sky and supported its corners with four dwarfs (Nordi, Surdi, Austri, Westri) from whose names we get the four main points of the compass; North, South, East and West. Ymir's brains were turned into clouds and from the sparks of Muspelheim, they created the sun, moon and stars to give light to the world. The stars were fixed in one place but the sun and moon were put in golden chariots. Two riders named Day and Night were charged with guiding the sun and moon on their daily journey across the sky. They were pursued by a wolf who was intent on devouring them and this kept them running all the time so there was always day and night.

From a branch of an ash tree they created a man named Askr and from the branch of an elm tree, they created a woman named Embla . They were both placed in Midgard and from the human race grew. Because Odin cared for his human creations, future generations of their offspring were watched and protected by the gods.

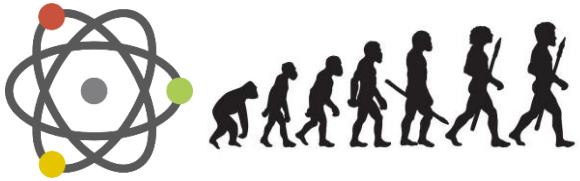
Christian creation story



In the beginning, God created the universe. At first the earth was shapeless and covered in darkness, and God's spirit hovered over the waters. God said, "Let there be light", and there was light. God divided the day from the night, naming them 'day' and 'night'. This was the first day and God saw that it was good. On the second day God made the heavens to separate the water from the earth and on the third day he raised the dry land up from the waters below the heavens and commanded the earth to bring forth all plants. God then made the greater light for the day and the lesser light for the night. This was the fourth day. On the fifth day God commanded the waters to fill with living creatures and the air to fill with birds. And he was pleased with what he saw. On the sixth day God commanded the earth to bring forth all kinds of living creatures and he saw that it was good. God then said, "Let us make man in our own image". So God created man and woman in his own likeness and gave them authority over all living things. God looked at everything he had made and was very pleased. On the seventh day, God rested.

Now the first man, Adam, was created by God out of soil and given life by God's breath. Adam named all the animals and birds that God had made, But Adam had no companion of his own so God caused him to fall into a deep sleep and created a woman - Eve- from one of Adam's ribs. God told them that together they could live in the Garden of Eden eating whatever they wished except the fruit of the tree of knowledge of good and evil. But the most cunning animal, which God had made -the serpent -, tempted Eve to eat the forbidden fruit. So Adam and Eve both ate and suddenly saw what they had done ant that they were naked. Covering themselves with fig leaves they tried to hide from God. But God knew of their sin and called out to them. Then he cursed the serpent and Adam and Eve, and in shame they were driven from the beautiful Garden. God told Adam he would now have to toil and sweat to work the very soil from which he had been created. Then God blocked the entrance to the Garden with a great fiery sword so that no one could enter in.

Creation stories



Similarities

1. _____

_____

2. _____

_____

3. _____

_____

Differences

1. _____

_____

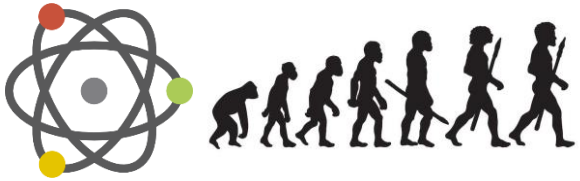
2. _____

_____

3. _____

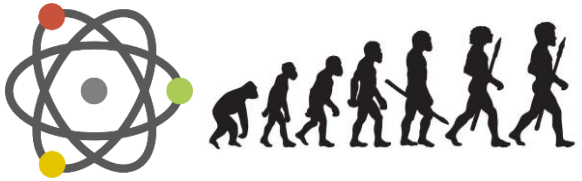
_____

What is evolution?



- If you have access to the internet, you can watch a video here (please note that humans and dinosaurs did not live at the same time): https://www.youtube.com/watch?v=cvc8DiHqfUg
- Evolution explains that all living things on Earth come from the same early life forms.
- Gradual changes emerged between organisms due to mutations
- Some of these changes gave organisms an advantage, for example they were better at getting food or could hide from others more effectively and not get eaten.
- E.g. shaggy fur in cold climates allowed some animals to survive (animals with the thickest fur had good protection from the cold, those with thin fur did not and were more likely to die of cold) – this is an advantageous trait
- Advantaged animals survived and reproduced.
- Their offspring had similar characteristics but again the best-adapted (e.g. the animal with the shaggiest fur) had an advantage and was more likely to reproduce.
- This is called the survival of the fittest.
- This video explains the above: https://www.youtube.com/watch?v=0SCjhI86grU

What is evolution?



a. Describe the theory of evolution

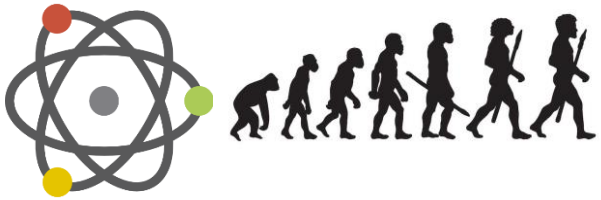
b. How does evolution work?

c. How did Darwin work out his theory?

d. What is meant by the phrase “survival of the fittest”?

e. Why do those characteristics that give an advantage to some animals get passed on more often?

Why is evolution controversial?



Sort the statements in this and the next slide into the views of creationists (people who believe in the literal truth of the holy books) and the views of scientists.

It is insulting to say that we have descended from monkeys. And if we are descended from monkeys why do we still have monkeys as well as having humans? Why haven't they evolved too?

People who do not believe in evolution are ignoring scientific evidence. There is a lot of evidence from fossils and from studies of DNA that shows that evolution is not

Evolution says things happen by chance. How can chance have come up with such a complex world?

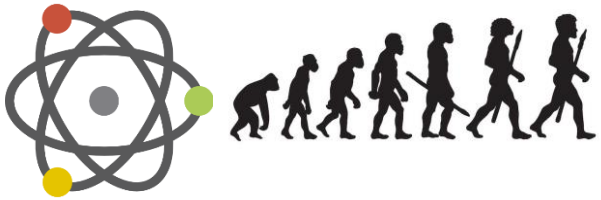
Studying DNA shows that there are so many similarities between species that it is likely that we all came from the same origins. There is only a 2% difference between the DNA of humans and chimpanzees, for example.

Carbon dating shows that the Earth is 4.54 billion years old, not the age suggested in the Bible.

Scientists

Creationist

Why is evolution controversial?



Statements continued

You cannot believe in the word of God as
it is written in the holy books and at the same time believe in evolution. People who
deny the truth of the holy books are

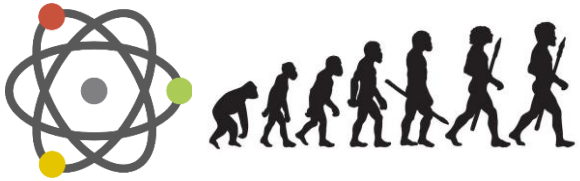
You cannot prove that evolution really happens.

Evolution happens because weaker or less
well adapted animals die out. Although mutations play a part in evolution the survival of the fittest is an important part of
evolution and that is not chance.

Carbon dating is very inaccurate and the results cannot be trusted.

Even if you believe in God you can still accept the theory of evolution. The holy books were written a long time ago and were for a less sophisticated audience. In the modern world the stories of creation in
the holy books do not have to be taken as
literally true but can be interpreted as stories showing the guiding hand of God through all time.

Plenary



Do you agree with the creationists or scientists? Explain why.