Evolution of the Earth and Life
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Discussion on posted questions

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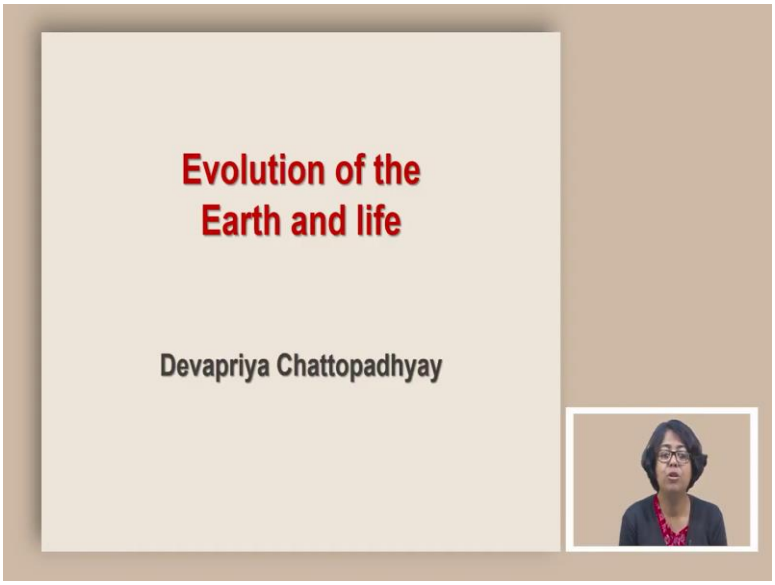

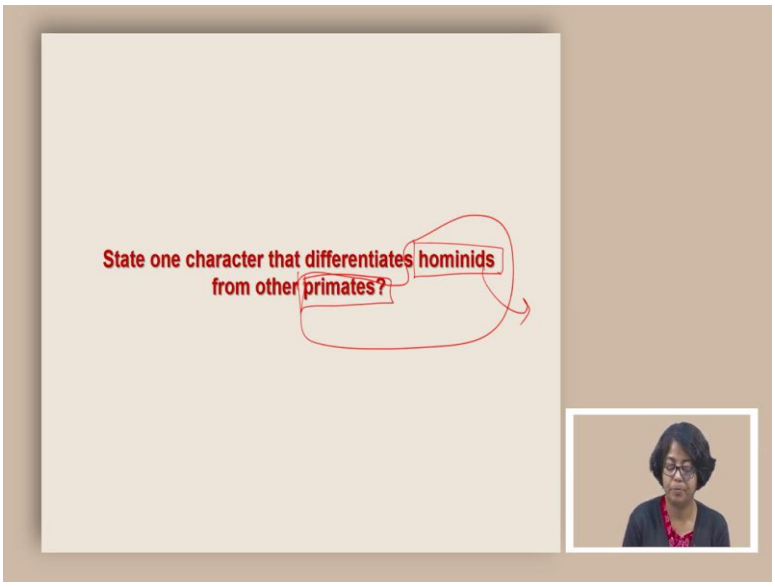

Welcome to the course, Evolution of the Earth and Life. Today I am going to discuss the questions that I posted. State one character that differentiates hominids from other primates? So, we define primates as the group which has opposable thumbs, and therefore, they can use the thumb and the other fingers in two different directions to grab things, to grab branches, to pick up stuff.

Hominids are part of this primates but they have certain more characters which other primates do not have and that is the ability to walk upright and stand on two legs. So, standing on two legs makes the Hominid different from other groups of primate.

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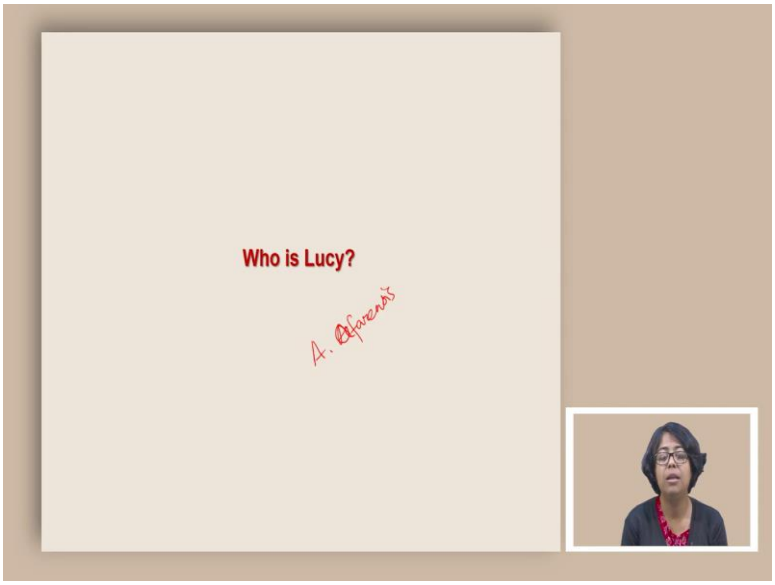

Who is Lucy? So, Lucy is the common name that was given to the first discovered specimen and complete specimen of Australopithecus afarensis. Now, this Australopithecus afarensis was discovered from the Afra province of Africa and it is an interesting fossil because it is a fossil which shows our ancestry. It was a female animal. So, it was an Australopithecus, which is female and it was given the name Lucy.

Now, the characters that we find in this particular form had some ape characters where her hands were quite big and the big toe was slightly bigger than a normal human being. On the other hand it also has very human character, for example, the pelvis, the shape of the pelvis was human-like. It also had a complete bipedal ability and the legs show that, and that indicates that it was an ape which has a cranial volume comparable to a chimpanzee, but it can walk upright.

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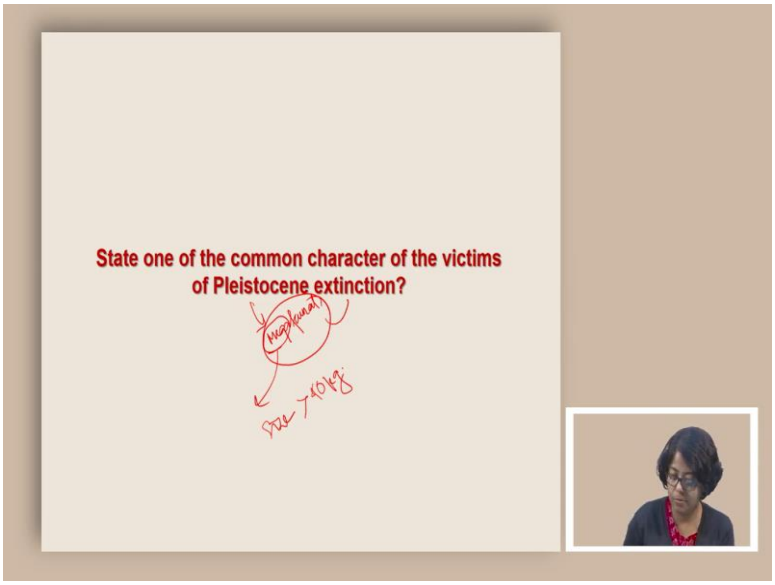

State one of the common characters of the victims of Pleistocene extinction. Now, Pleistocene extinction is also called the megafaunal extinction. Now, this megafaunal extinction the word itself tells you that it has something to do with the size. So, all the common groups that went extinct during this time around fifteen thousand years ago they were primarily big organisms. All of them were more than 40 kilos.

And this shows the selectivity of extinction, which is a very interesting part of this megafaunal extinction it included the Wooly rhinos, it included different types of elephants, including Mammoth, Mastodon, straight-tusked elephant, it also includes giant armadillos, it included giant kangaroos, sloths, all variety of organisms, but all of them were big and that is what is one of the common characters of this late Pleistocene extinction.

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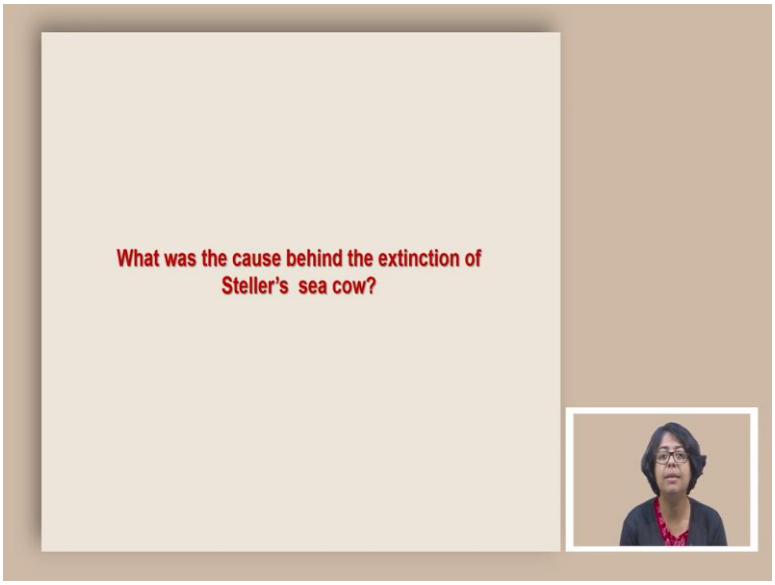

What was the cause behind the extinction of stellar sea cow? So, as we mentioned that stellar sea cow was a marine mammal and it used to graze in the kelp forest, it was a shallow marine it used to live in shallow marine area and spend significant amount of time floating around near the surface of the ocean. And because they were large animals they were also related to manatees, dugongs, they are part of this family sirenia.

They had a lot of fat. They were slow, they were sluggish, they were fat, they had meat, they had fat and they were also easy to hunt, because they were near the surface all the time. And that is one of the reasons that the sailors, the European sailors, who were trying to cross the Pacific Ocean to settle in different islands and other continents, they used them as the major food source during this sea voyage and they were basically hunted down to extinction by this direct hunting of the sailors.

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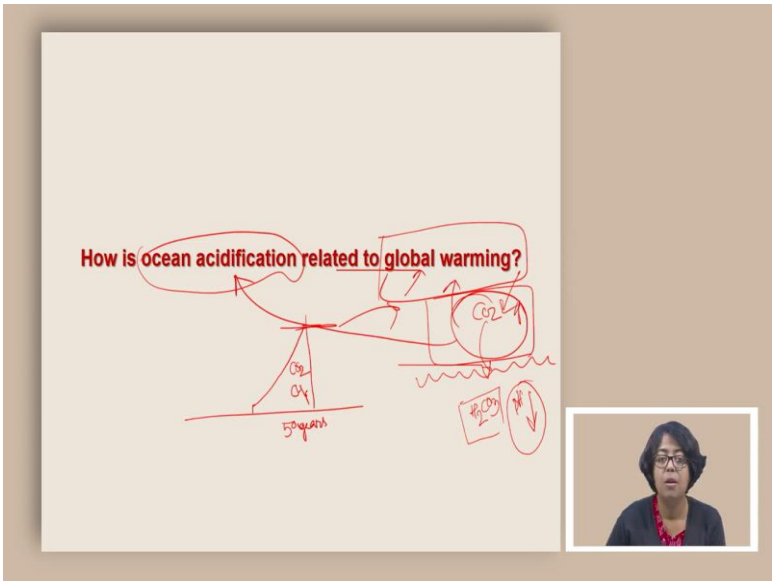

How is ocean acidification related to global warming? Now, we know that global warming, today's global warming is primarily caused by the increase concentration of greenhouse gases like carbon dioxide, methane. Over the last let us say 50 mili, 50 years. And this increase is also leading to global warming, because increased carbon dioxide in the atmosphere, basically traps sun energy and makes the atmosphere go very warm.

And that is the primary reason for global warming, of today's global warming. Now, the carbon dioxide concentration, if it increases in the atmosphere there would be a point, where the concentration of the ocean water will also start to take this carbon dioxide. Once carbon dioxide mixes with water it is going to make carbonic acid and this carbonic acid will bring the pH lower, so, that will make the ocean acidic.

So, this is what ocean acidification means. So, it is basically the carbon dioxide, increase in carbon dioxide which is causing both global warming as well as ocean acidification. So, that is all for today's discussion. Thank you for joining us, bye.