Name: _____ (Year_____)

Read the following article about how mammoths affected the environment, and then complete the notes on the opposite page.

DISAPPEARING MAMMOTHS AND CLIMATE CHANGE

Most scientists agree that human activity - like burning fossil fuels - has caused climate change. A report published recently says another type of human activity also affected the climate, over 10,000 years ago! This was mammoth hunting.

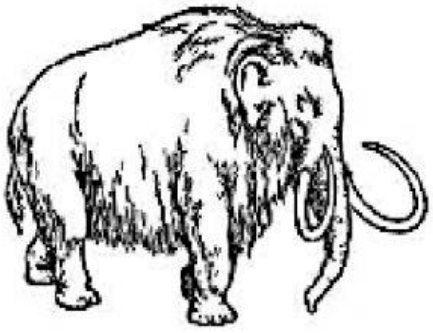
Mammoths were relatives of today's elephants, and thousands of them lived in cold areas of North America, Europe and Russia. However, they disappeared 15,000 to 10,000 years ago.

Nobody knows exactly why mammoths became extinct, but there are three main ideas. One is that they died from a new type of disease. Another is that the plants and trees they ate stopped growing because of sudden climate change. The mammoths could no longer find enough food and consequently died out.

Scientists believe early humans hunted mammoths with stones and spears for their meat. The third and most popular theory about the mammoths' disappearance from Earth is that they were hunted to extinction.

In northern Russia, where the climate is very cold and the ground is frozen all year, some well-preserved mammoth remains have been found. When scientists looked at the contents of the mammoths' stomachs, they discovered they ate a lot of leaves and branches from birch trees.

Scientists also looked at sediment records from lakes in Russia. Sediment is a layer of sand, mud and other materials (such as plants and tiny creatures) that fall to the bottom of a lake. In the sediment studied in the lakes in Russia there was also birch tree pollen. By examining the amount of pollen in different layers of sediment, the scientists worked out how many birch trees were growing at different points in time, thousands of years ago.



The sediment records showed that around 15,000 years ago – when mammoths began to disappear – there was a sudden increase in birch pollen. This shows that when the mammoths began to die out, many more birch trees started growing – because there were fewer mammoths eating them.

The scientists then studied modern-day elephants to work out how many trees they eat or knock down. They used this information about elephants and birch pollen to work out what happened after the mammoths disappeared. They calculated that after the mammoths died out, birch forests increased by 25%.

But how did all of this affect the climate? The leaves of birch trees absorb more heat from the Sun than grass or layers of snow and ice. With more birch forests to absorb heat from the Sun after the mammoths disappeared, the climate got warmer. Scientists believe the temperature in the areas where mammoths lived increased by 0.2°C. This may not sound a lot, but it would have been enough to melt a lot of the ice and snow that covered these regions and change the environment considerably.

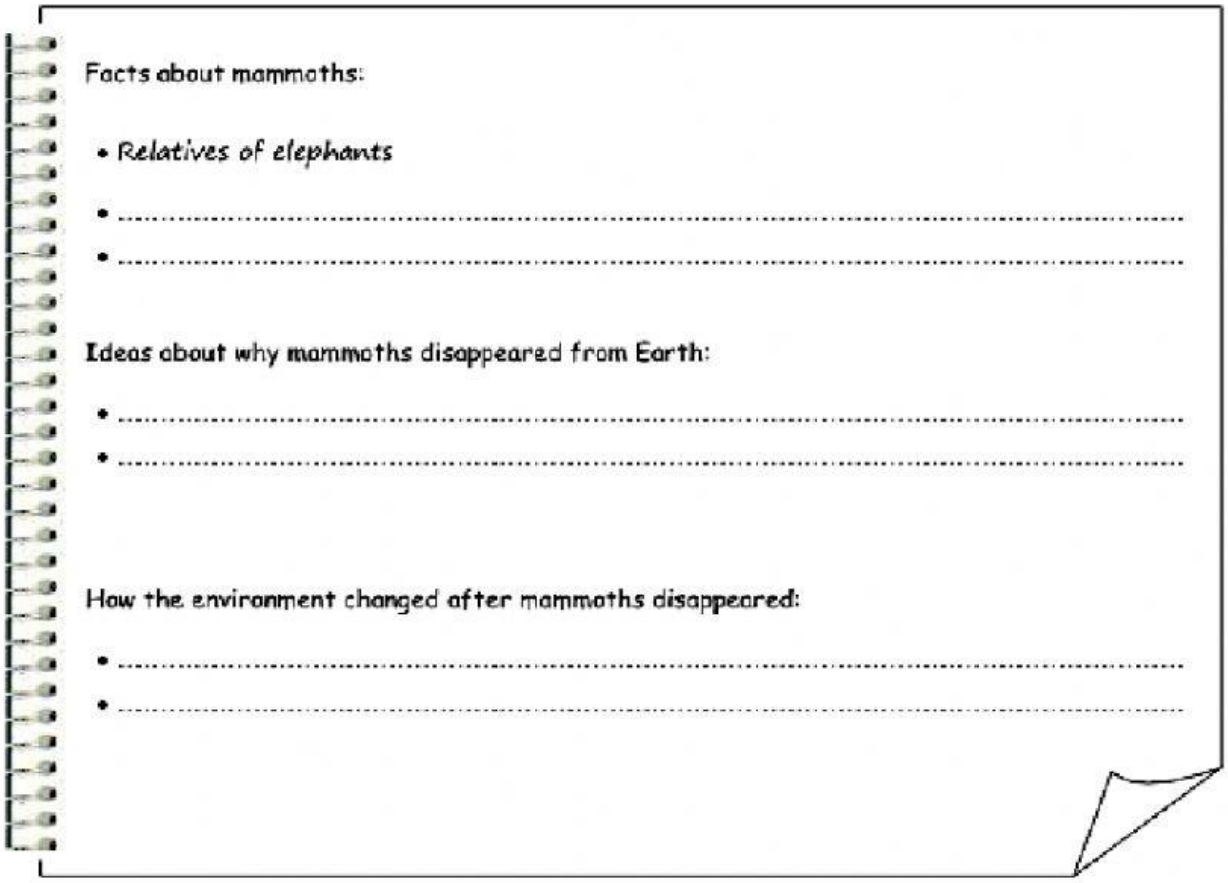
So, if hunting was the cause of the mammoths' extinction, and the scientists are right about the birch trees, then – even thousands of years ago – human activity was causing climate change.



LIVEWORKSHEETS

You are going to give a presentation to your class about how mammoths affected the environment. Prepare some notes to use as the basis for your presentation.

Make short notes under each heading.



PART B: Answer the below questions.

1. Name one human acivity that causes the climate to change.

   _____

2. What happened to the birch forests after the mammoth died out?

   _____

Part C: Identify synonym for the underline words.

1. They **discovered** that they ate a lot of leaves and branches from birch trees.
   - Synonym of ***discovered*** is _____

LIVEWORKSHEETS