Lesson 1.5 A Sticky Lesson

fossilizing: changing into a fossil

excavating: digging up; unearthing

paleontologists: scientists who study life from past geological periods

microfossils: very small fossils, often identified with a magnifying glass or microscope

Ice Age: a period in Earth's history when temperatures dropped and part of the planet was covered in ice

Pit 91, one area of the tar pits, is still being excavated today. For two months every summer, the public can watch fossils being found. The fossils are then taken to a lab where they are cleaned using tools like dental picks, cotton swabs, and toothbrushes. Then, the fossils are identified, labeled, and cataloged.

To identify specimens, scientists compare the parts they find with fossils already in the collection. They can also compare the fossils to the skeletons of modern animals to look for similarities.

Why are the La Brea Tar Pits so important in learning about Earth's history?

Millions of years ago, before the busy city of Los Angeles existed, the area was covered by the Pacific Ocean. Over time, it turned from sea to land. Oil seeped to the surface through cracks in the ground. It pooled in the low-lying areas, which are known today as the *La Brea Tar Pits*.

During warm periods, the oil that oozed from the ground became sticky. The surface of the pools would become covered with leaves, dust, and even water. When animals came to drink, they became trapped. Predators that preyed on the trapped animals often became trapped themselves. The sticky asphalt was perfect for **fossilizing** and preserving the remains of these animals.

Today, the La Brea Tar Pits, which are actually asphalt pits, are one of the best sites for **excavating** fossils. More than three million fossils have been found there since the early 1900s. The larger fossils, which came from animals like mammoths, saber-toothed tigers, and short-faced bears, are the most dramatic findings. But fossils of plants, insects, and smaller animals are also valuable to the **paleontologists** who work in the pits.

These **microfossils** help scientists form a complete picture of what life was like in the area around Los Angeles nearly 40,000 years ago. For example, by examining plant life and even fossilized pollen, they learned that the climate was moister and cooler, but not very different than it is today. This was an important finding because an Ice Age was taking place at the time. The fossils gave scientists a better idea about the range in types of weather during an **Ice Age**.

So how do the experts know how old the fossil remains are? They use a process called *radiometric dating*. Living things contain the element *carbon*. A small portion of the carbon on Earth is an unstable isotope called *carbon-14*. Carbon-14 changes to a stable atom, but this change happens very slowly. It takes 5,730 years for half the carbon-14 to become stable. Then, it takes the same amount of time for half of the remaining carbon to become stable, and so on. Measuring the amount of unstable carbon-14 remaining in a fossil allows scientists to accurately date it. By using carbon dating on the fossils in the tar pits, they found that most were between 8,000 and 38,000 years old. This might seem ancient, but keep in mind that dinosaurs lived about 65 million years ago.

NAME _____

Circle the letter of the best answer to each question below.

1. Why would a scientist measure the amount of carbon-14 a fossil contains?

   a. to find out whether the fossil is authentic

   b. to find out where the fossil was found

   c. to find out what the fossil is made of

   d. to find out how old the fossil is

2. By examining the types of plant life found in the tar pits, scientists learned that during the last Ice Age, the climate in Los Angeles was

   a. very different than it is today.

   b. exactly the same as it is today.

   c. cooler and moister than it is today.

   d. hotter and drier than it is today.

Write your answers on the lines below.

3. Explain how animals became trapped in the La Brea Tar Pits.

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4. Why is it helpful for scientists to study a wide variety of fossils, including microfossils?

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5. What are two common tools that scientists use when cleaning fossils?

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6. What sorts of comparisons do scientists make when they are trying to identify new fossils?

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7. Why do you think it is important for scientists to identify, label, and catalog the specimens they find?

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