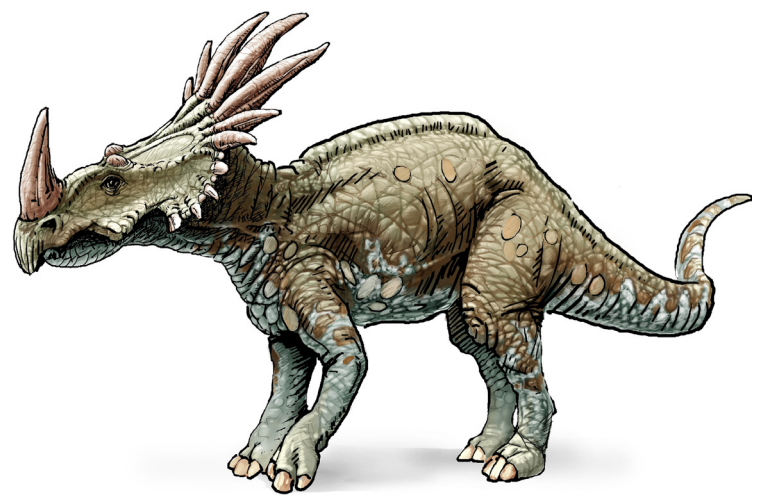
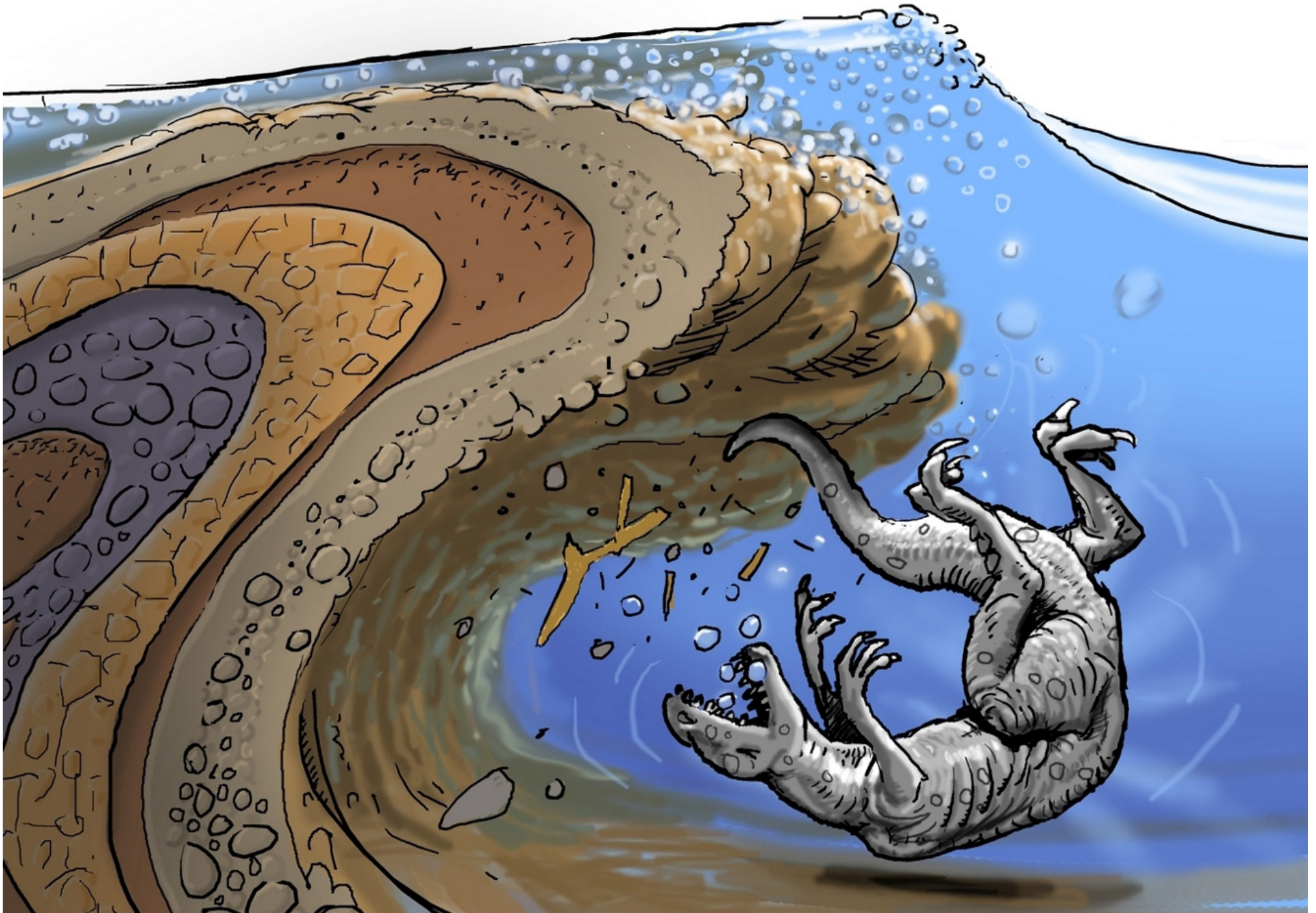




The Fossilization Process Flip Chart



Step 1



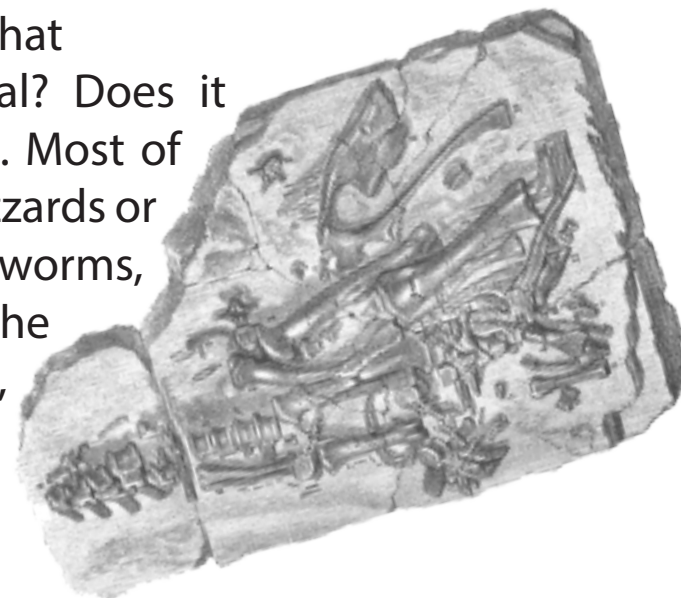
Step 1

What are fossils?

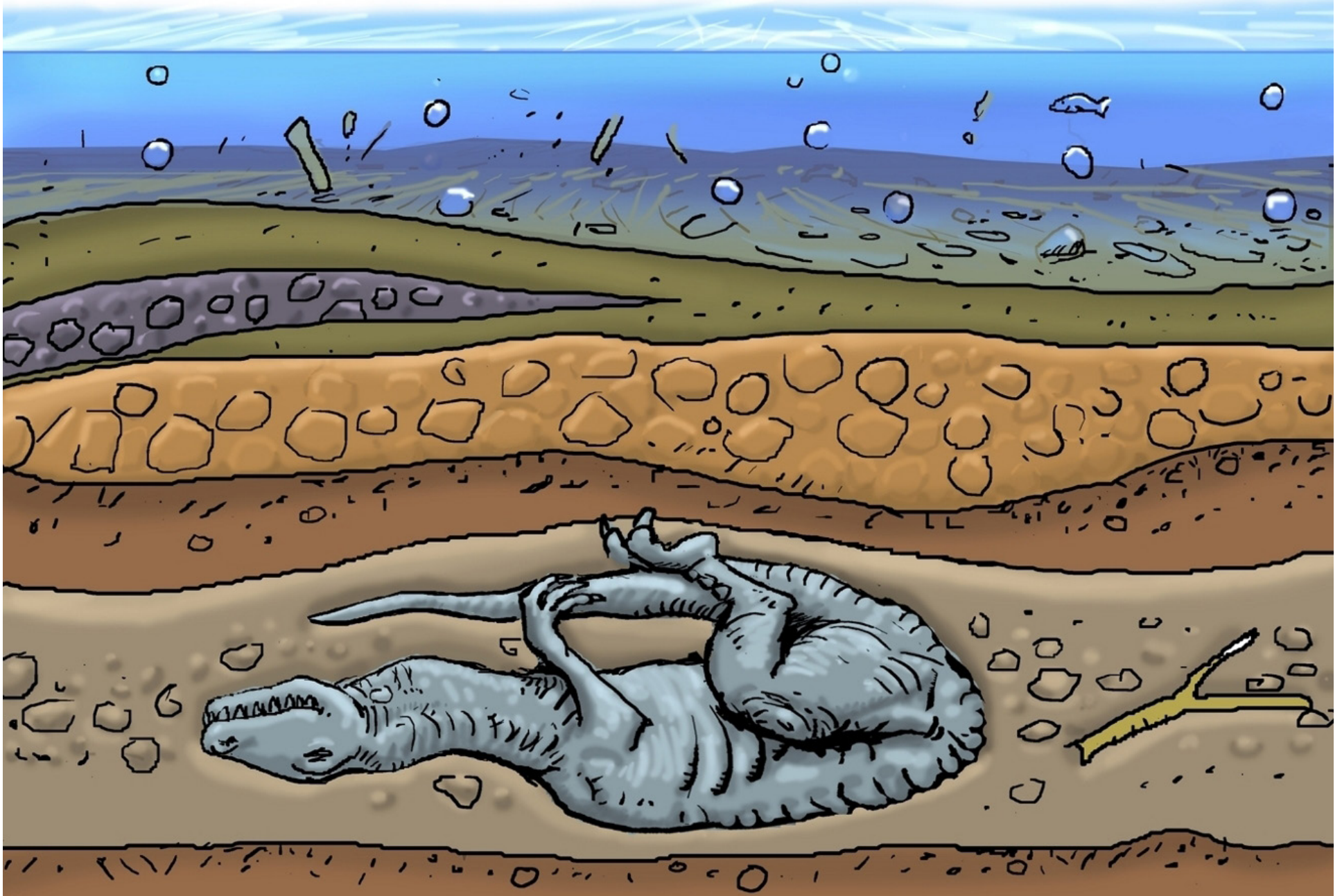
A fossil is any trace left by something that lived in the past. Animals, plants, and humans have all left many fossils. Some of the most famous fossils are those of the dinosaurs.

How are fossils formed?

Does every living animal or plant turn into a fossil when it dies? No, every living thing does not become a fossil. In fact, it is very rare for an animal or plant to be fossilized. Let's think about this for a minute. If you see a dead animal on the side of the road, what usually happens to that animal? Does it turn into a fossil? No, it doesn't. Most of the time, scavengers such as buzzards or opossums carry it off. Also, bugs, worms, bacteria, and enzymes cause the animal to rot and decay so that, eventually, no trace of it remains.



Step 2



Step 2

The Burial

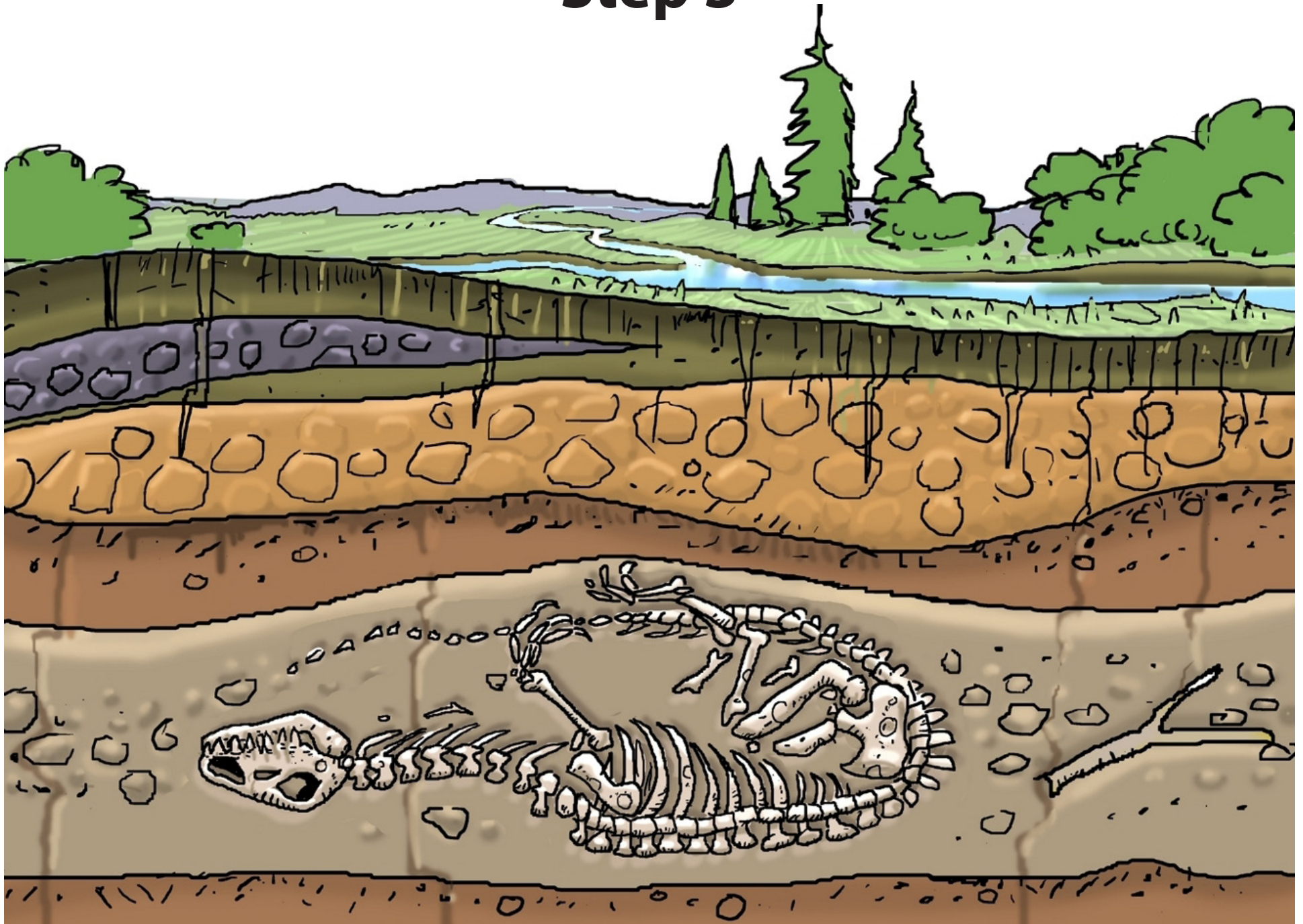
However, that is not always the case. In some instances, an animal or a plant gets buried very quickly. No scavengers can find it, and oxygen, which is a major cause of decay, cannot get to it. Even in this protected environment, much of the soft tissue (such as fur and skin) decays. But the harder structures (like bones and teeth) last longer.



After the animal is fully buried, the soft tissue such as skin, muscle, and organs begin to decay, just like they normally would. However, the hard bones don't decay as fast, which allows water that contains minerals, such as silica, to gradually seep into the bones and teeth.



Step 3



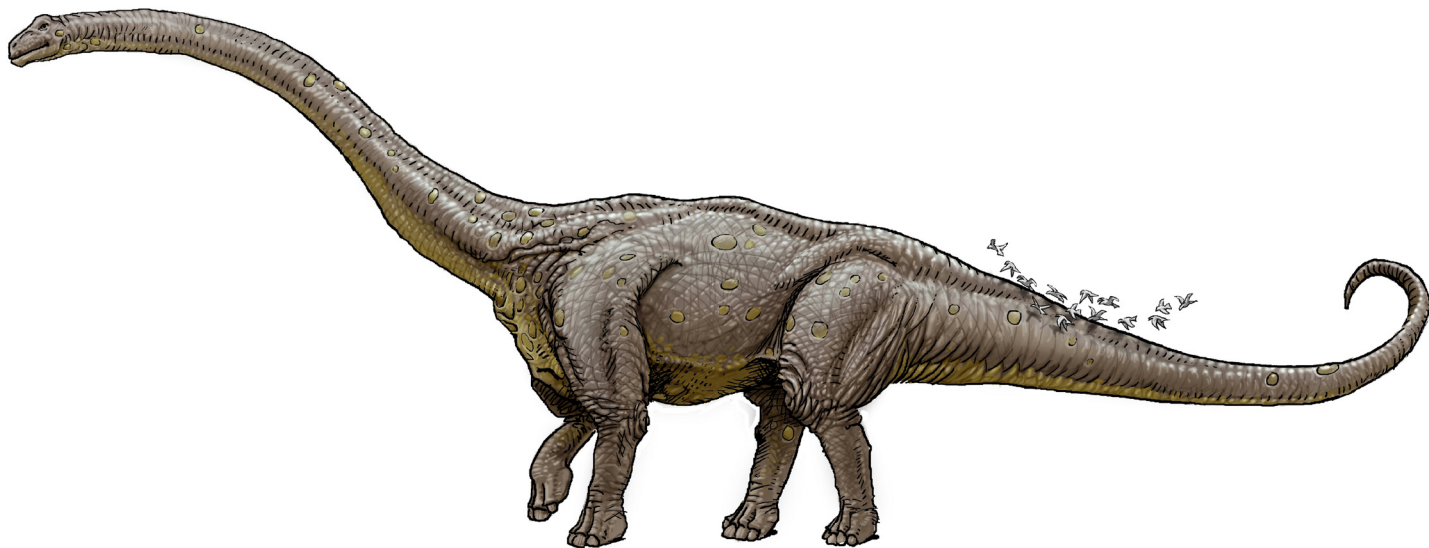
Step 3

The Bones Decay

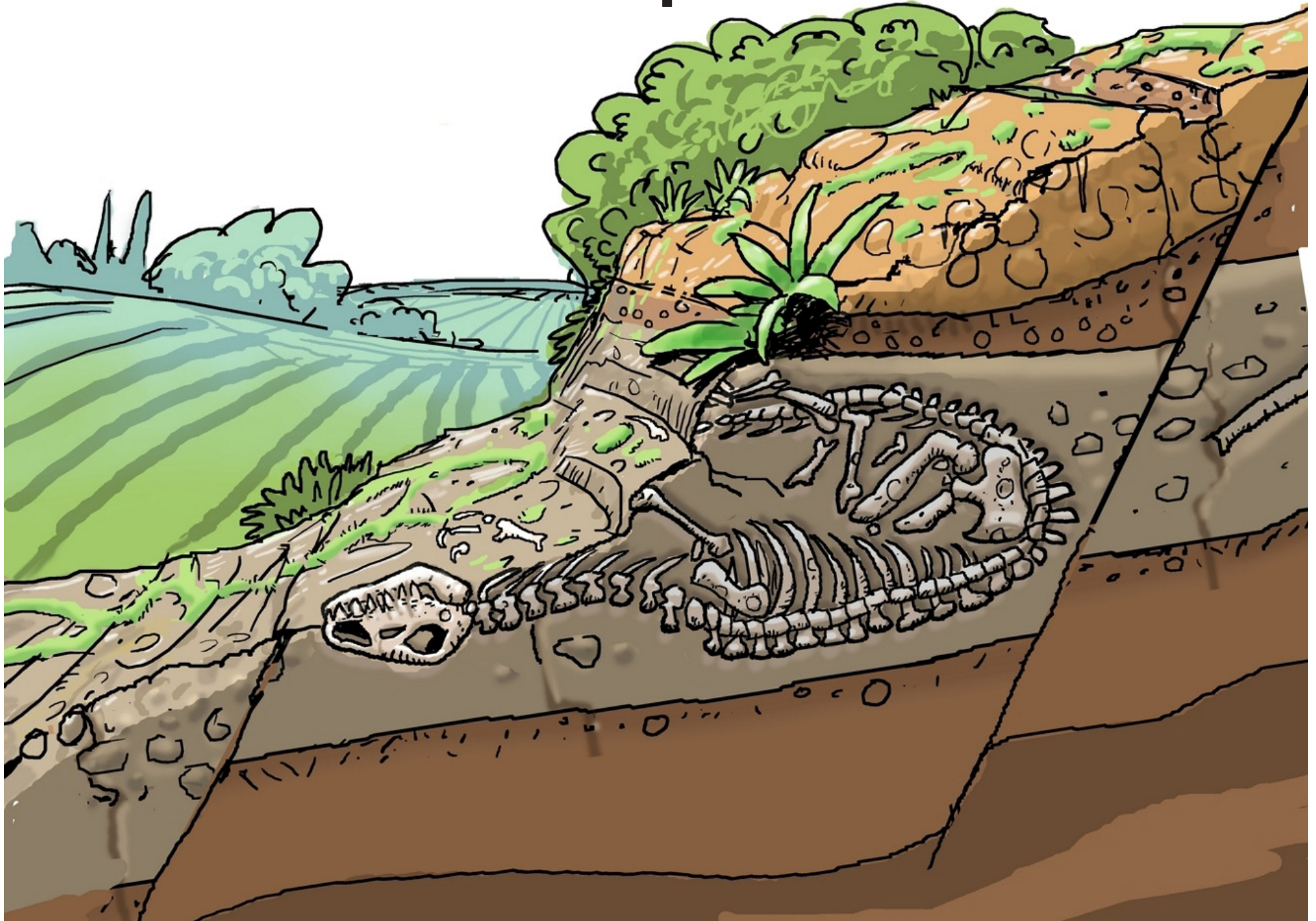


The animal's bones and hard parts decay as well, but more slowly. As they decay the minerals in the water start to fill in the decaying areas. Eventually, minerals replace the entire bone or tooth. When the fossil is discovered years later, the original bones have turned into mineralized rock. This is one of the ways fossils are formed.

In some cases, the animal is buried and decays entirely, but when it does, it leaves a hollow mold that preserves the shape and size of its bones. Another type of fossilization occurs when insects like mosquitoes or flies get trapped in tree sap called amber.



Step 4



Step 4

The Fossil is Uncovered

The dirt that once covered the animal eventually erodes away, leaving small fragments exposed. This is when scientists discover the fossils and begin uncovering (“excavating”) it. Some people think that the process of fossilization must take thousands or even millions of years, but that is not the case. In fact, a miner’s hat has been found that had been totally fossilized (turned into rocky mineral) in a matter of decades. Also, a western boot was found that had a bone inside it that had fossilized. The boot, however, had not fossilized, which shows that some materials, such as bone, fossilize better than other materials, like leather or animal skin.

What could have buried them so quickly?

When we find fossils of dinosaurs, we often find them in huge piles all jumbled together. These large piles of dinosaurs must have been buried very quickly. What do you think could have buried many huge dinosaurs at the same time all around the world? One good answer would be the Flood of Noah. If local floods today can cause whole roads and houses to be buried, just imagine what a worldwide Flood could do! When we look at the “record of the rocks,” we find that fossils do not take millions of years to form, and that the Flood of Noah’s day could easily have created many of the fossils we see today.



Step 5

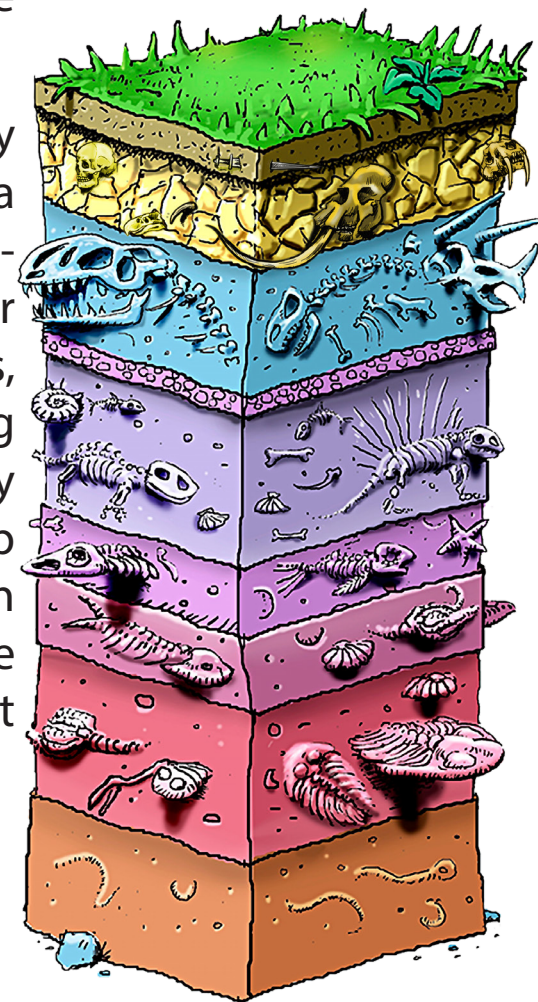
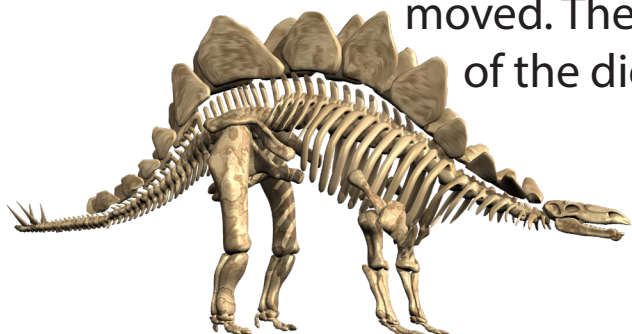


Step 5

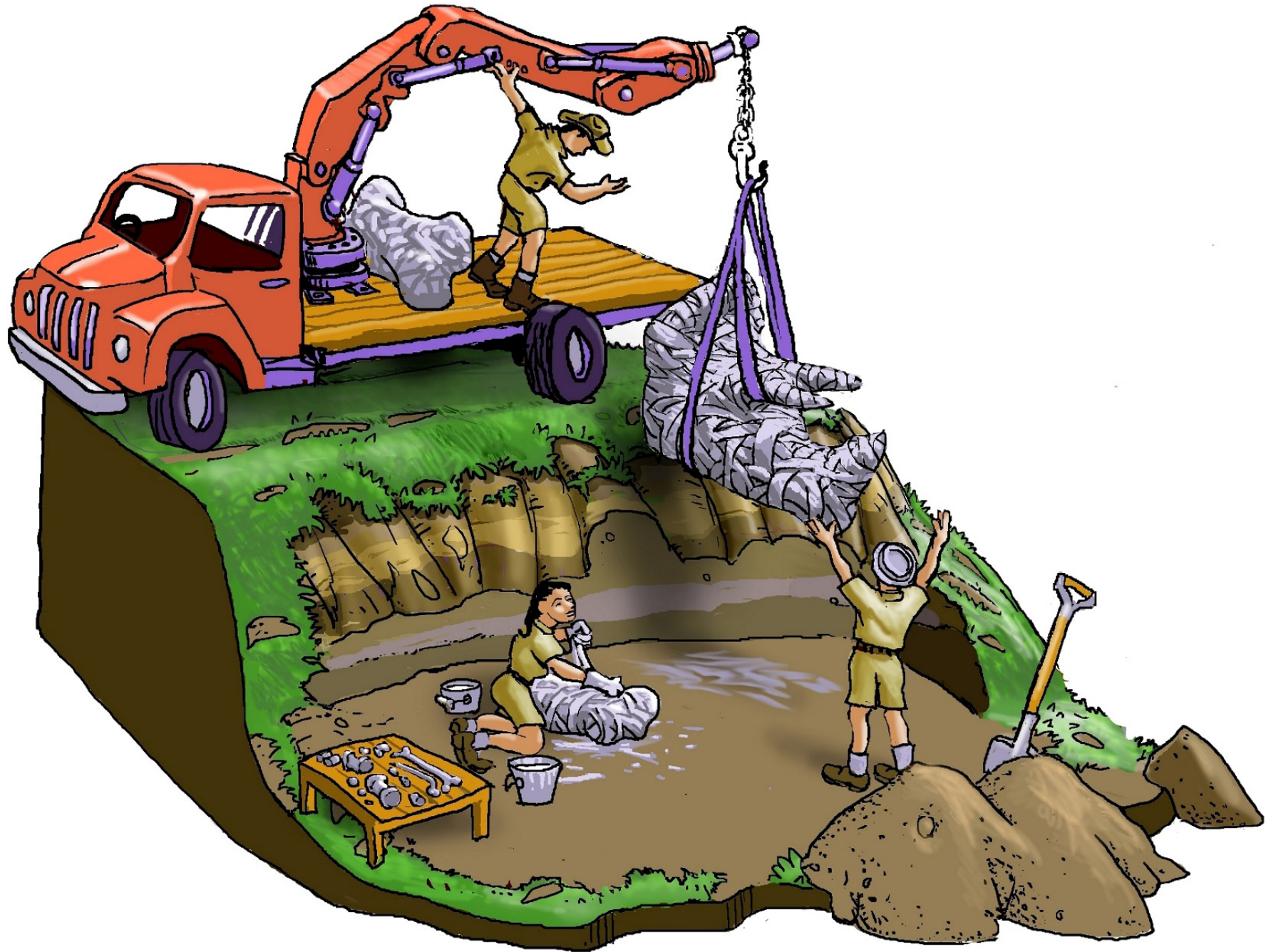
The Excavation Process

Once a fossil is discovered, there are many things that must be done in order to make sure that it is dug up properly. In fact, scientists known as paleontologists are trained to know exactly how to remove fossils from the ground. Paleontology is the study of ancient life (*paleo* comes from the Greek word meaning “ancient” or “old,” and *ology* means “the study of”).

Paleontologists take their job very seriously—and they work very slowly and carefully. When fossils are found, the location is marked on a map. Then, the scientists begin to take pictures of the entire area. Sometimes, huge bulldozers are used to remove large mounds of dirt. Other times, the fossils are embedded in rock layers. Paleontologists use picks, hammers, and chisels to chip away at the rock around the fossils, being very careful to protect the actual fossil. Digging up fossils can take many years. In some cases, the fossils are covered with a type of glue to keep them from falling apart. If the fossils are very large, the researchers often put plaster casts around them in order to protect them when they are moved. Then, large cranes can be used to lift them out of the dig site.



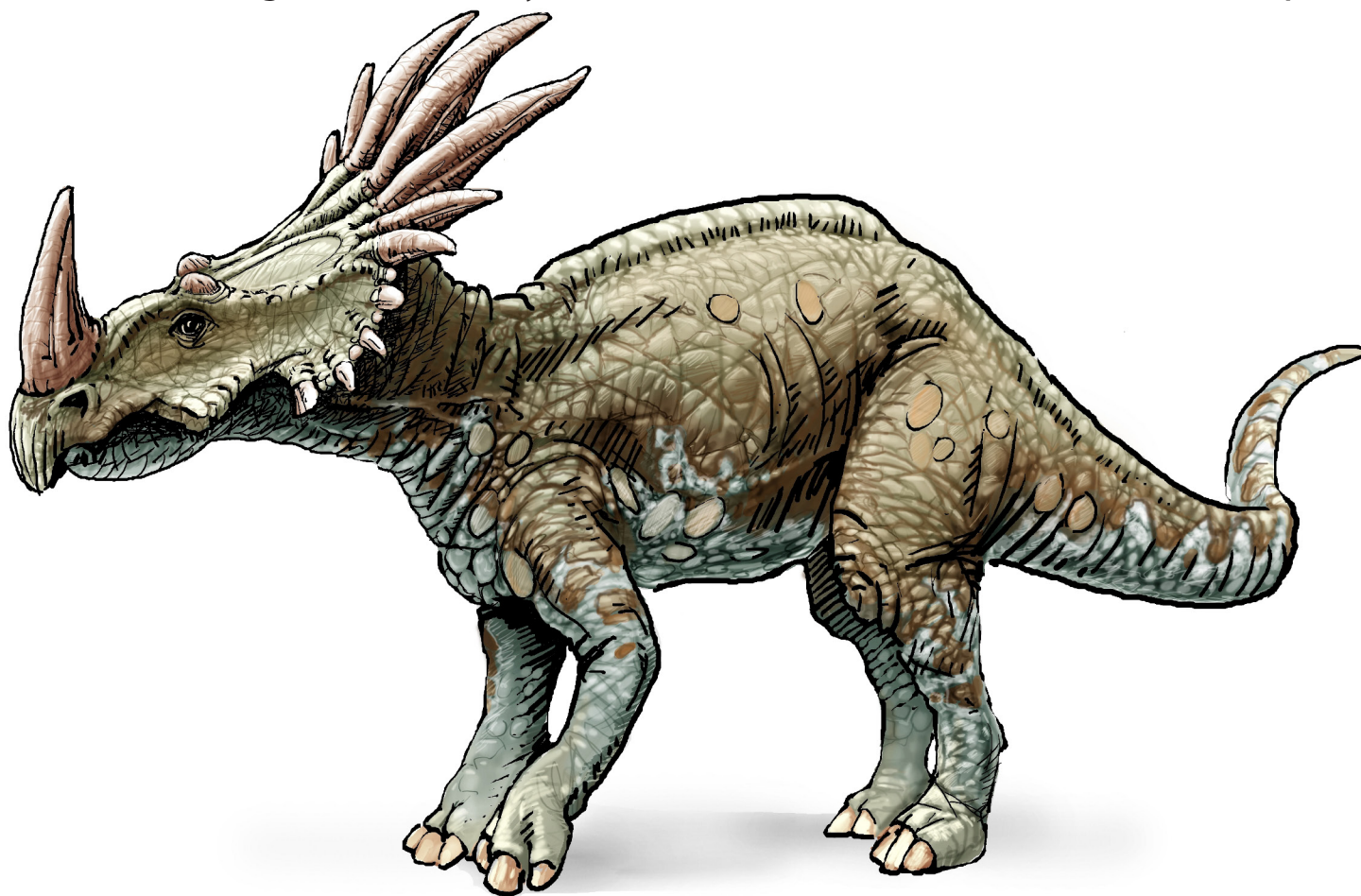
Step 6



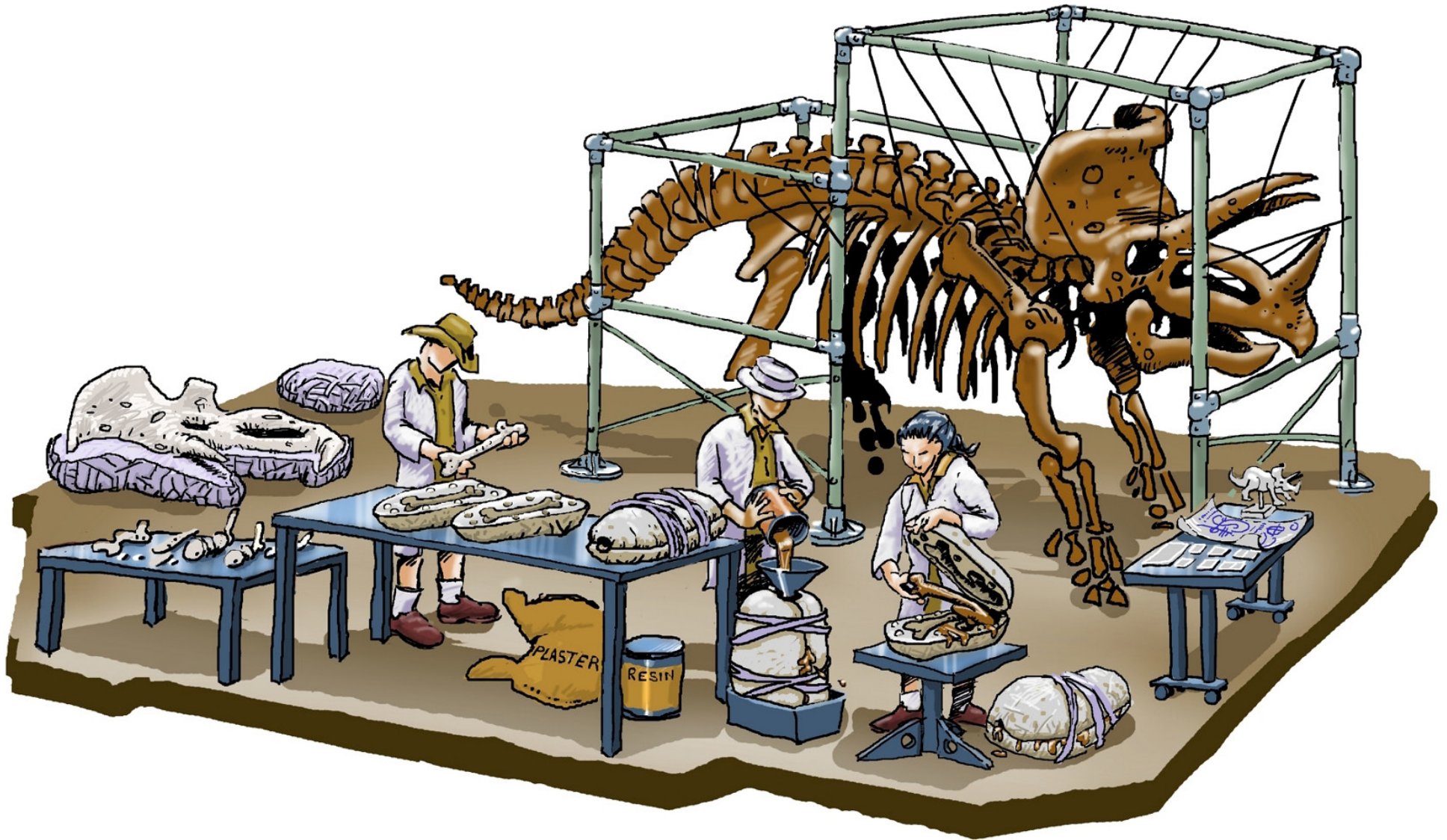
Step 6

The Removal Process

As each fossil is being removed, scientists make careful notes and photographs that show which bones are connected to other bones and their angles/orientations. These photographs and notes are crucial to the outcome of the find. Many times, the bones will be shipped to a busy museum where a skeleton may not be put together for several years. If the notes and photographs were not done right, then many times the skeleton would be almost impossible to assemble.



Step 7



Step 7

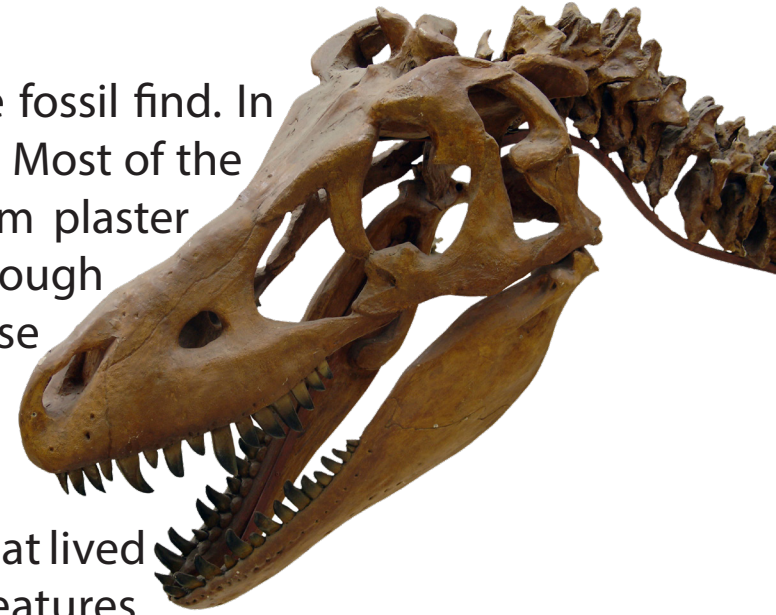
Assembling the Skeleton

Often, more than one museum would like to display the fossil find. In that case, artificial molds of the bones can be made of plaster. Most of the dinosaur skeletons we see in museums today are made from plaster molds and are not the actual fossils. The next time you walk through a museum, remember all the steps that were taken to get those fossils there.

Why are fossils so important?

Fossils are exciting because they tell us about creatures that lived in the past. Dinosaurs are one group of these fascinating creatures. Dinosaurs capture the attention of kids and adults. Scientists learn interesting facts about these animals by studying their fossils. Some dinosaurs ate meat, while others ate vegetation. Some dinosaurs were ten times as big as an elephant, and others were about the size of a dog. From studying dinosaur fossils, we learn where they lived, how big they were, and countless other exciting things.

However, since we find only fossils and a few remains of the dinosaurs, there are many things we cannot know. Much of the information we have about dinosaurs has come from looking at their bones, and trying to decide how dinosaurs would have moved, hunted, eaten, and lived. In the years to come, scientists will probably find more dinosaur fossils, and learn that some of their ideas about dinosaurs were exactly right—while other ideas were wrong. But one thing that will not change is the fact that God created these creatures alongside humans only a few thousand years ago.



Flip Chart Construction Instructions

If you are able to print on both sides of a page, simply print (use the “flip on short side” setting) and slide the pages into clear sheet protectors. Put the sheet protectors in a binder. The teacher can hold the binder horizontally and show the students one side of a sheet while reading to them the material on the back of the sheet.

If you prefer to print single-sided, glue or laminate the printed pictures and text to construction paper and bind the pages together with a spiral spine or purchase a flip chart like the one below. Be sure to glue, laminate, bind, or put the text that accompanies each picture on the back of the next picture. When completed, the flip chart should allow the teacher to show the picture to the students on one side of the chart, while the text for the picture is on the next page, on the back of the chart facing the teacher. This will enable the teacher to read the text that explains the picture while the students are looking at the pictures.



Example of the table flip chart that could be purchased.