

Activity: What can the Fossil Record Tell Us?

Imagine that you are a paleontologist on a team of scientists, working to excavate and interpret a field site in Southwestern Texas. As part of your work, you have already collected several fossils from the location and now want to figure out how these organisms may have interacted when they were alive. What kind of environment did each organism live in? What might they have been doing while alive? Use the information in the power point, and from your teacher, to answer the following questions and create your reconstruction.

Part 1: Your recovered fossils

Look at the images of fossils provided by your teacher and answer the following questions about each one.

Optional: draw reconstructions of what some of these fossils might have looked like when they were alive! What colors do you think they were? Did they have any features that you can't see on the fossil?

Non-vertebrate fossils:

Cupressinoxylon wood (conifer)- This wood was bored by marine bivalves. What type of fossil preservation is this, and how do you think it ended up being bored by marine organisms?

Nelumbonaceae (flowering plants)- What type of environment do you think this flowering plant lived in? What types of animals may have eaten it or pollinated the flowers?

Conlinoceras (ammonite) - How was this invertebrate animal preserved? What are some of its features and how do you think it protected itself?

Exogyra (oyster)- Some invertebrates made up the past reef ecosystems. How do you think this specimen formed a reef and what do you think it ate?

Vertebrate fossils:

Tyrannosaurus rex- What do you think this dinosaur might have eaten when it was alive? What clues did you use to figure this out?

Hesperornis- Looking at the feet of this bird, and knowing that its wings are tiny, where do you think this bird spent most of its time: in the water, or on land? What kind of prey do you think it could catch in its toothy beak?

Mosasaurus- These animals were powerful swimmers; do you think they mostly scavenged for food, or were they active hunters?

Hadrosaur- Paleontologists think these plant eating animals lived in herds. Do you think this would help them protect themselves from predators? Why or why not?

For all of your fossils, take a minute and think about what kinds of information may not preserve during the fossilization process. Are there tissues missing (think about skin!)? How might this make reconstructing the environment complicated? Explain below.

Part 2: Interpreting the environment

Now that you've been able to think about each fossil individually, think about how the organisms you've found in the field site might have interacted with each other. Choose three different pairs of fossils: a pair of non-vertebrate fossils, a pair of vertebrate fossils, and a non-vertebrate and vertebrate pair and describe how they might have interacted when they were alive.

Non-vertebrate pair:

Vertebrate pair:

Non-vertebrate and vertebrate pair:

Part 3: Depict your reconstruction

Show off your interpretation of this Late Cretaceous environment! You can either write a description of what this environment may have looked like, or draw a picture of the scene. Be sure to include at least two of the pairs you discussed in Part 2.