ACTIVITY: Trace Fossils

www.nps.gov

Objective: Learners will investigate how trace fossils form and how they can be used to understand past environments and organisms.

Introduction: Trace fossils are preserved evidence of ancient organisms' activities, rather than their actual remains. Trace fossils offer insights into behaviors such as movement, feeding, and dwelling habits, revealing the ancient ecological roles of organisms within their environments.

Have learners:

1. Make trace fossils:
    a. Roll out a piece of play dough that represents land.
    b. Observe the available small animal toys and use one or more of them to write a short story (a few sentences) about the animals' behavior (e.g., a predator hunting its prey, two animals of the same species playing).
    c. "Walk" or move the animals across the play dough to make tracks that match the story from the previous step.
2. Read each other's stories and observe the fossil sites to try to match which story goes with which site.
3. Discuss how the:
    a. play dough will harden over time, much like rocks, and will make a record of the tracks, much like trace fossils.
    b. size, depth, and other features of the trace fossils show evidence of life in the past (e.g., the tracks could help determine the size or speed of the animal).
4. Look at a 3D model of **Felid and Camelid Tracks** from Death Valley National Park, California.
    a. Write a short story about how you think these tracks were made.
    b. These trace fossils were found in an area that has been off-limits to visitors since the 1940s.
        - *Why do you think this area has been made off-limits?*
        - *How can technological advancements, like 3D modeling, help with the preservation of fossil specimens?*

5. View images of trace fossils on the handout and describe what type(s) of animal(s) could have made them.

   a. Discuss what evidence could be used to determine the identity of the animal that made each trace fossil (listed in order to match the images):

      - Dinosaur footprints (tracks) (**additional information**)
      - Worm burrows and trilobite feeding tracks
      - Grasshopper eggs (**additional information**)

   b. Discuss how each of these examples qualifies as a trace fossil.

6. Look at a 3D model of an ***Anchisauripus* track** from Gettysburg National Military Park, Pennsylvania (**more information**).

   a. Make observations of the fossil and describe the foot of this organism. What might this tell you about how it walked, its size, or other information about this animal?

   b. The bottom of the block (from Points 1 to 2) is 17.5 centimeters (~6.9 inches) long. Zoom in on the model so that you are viewing the footprint at its actual size.

   c. Compare the size of the fossil to the length and width of your foot. What might this tell you about the size of the animal that made this track?

   d. Examine **additional *Anchisauripus* tracks**. The size and other features of the fossils are noted in the captions.

      ▶ *Does this collection of images change your thoughts on the size or behavior of the Anchisauripus? Why or why not?*

      ▶ *Why is it beneficial to have more than one fossil of an extinct organism?*

7. Read more about:

   a. **Trace Fossils** (the variety of trace fossils that exist),

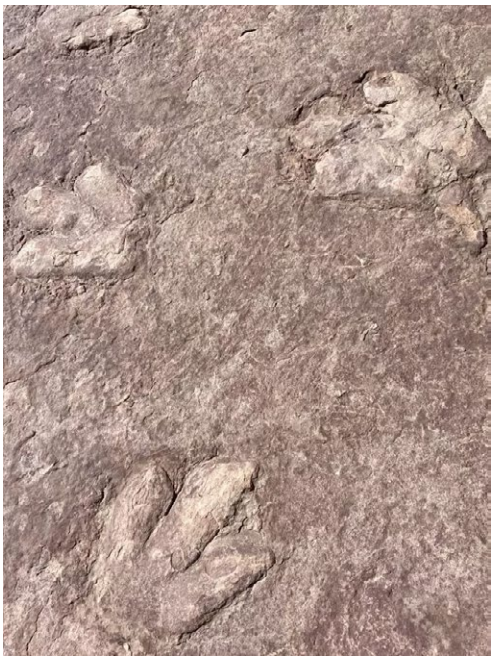
   b. **Utilizing Trace Fossils to Fill in Paleoecological Gaps at Curecanti National Recreation Area**, and

   c. **Ancient Forest Pests** (how paleontologists study plant fossils to determine what types of insects may have fed on them).

HANDOUT: Trace Fossils

www.nps.gov

For each of the following images, describe what animal(s) could have made them and how.



Credit: Kelsey Shores, Glen Canyon National Recreation Area, Arizona and Utah

Credit: Cassi Knight, Grand Canyon National Park, Arizona

- What else might you be able to tell about the organism from the fossils?

Credit: John Day Fossil Beds National Monument, Oregon

- Choose one image to answer this question: What else would you want to know about the fossil or the area around it, and how could this new information help you understand more about the organism that made the fossil you chose?