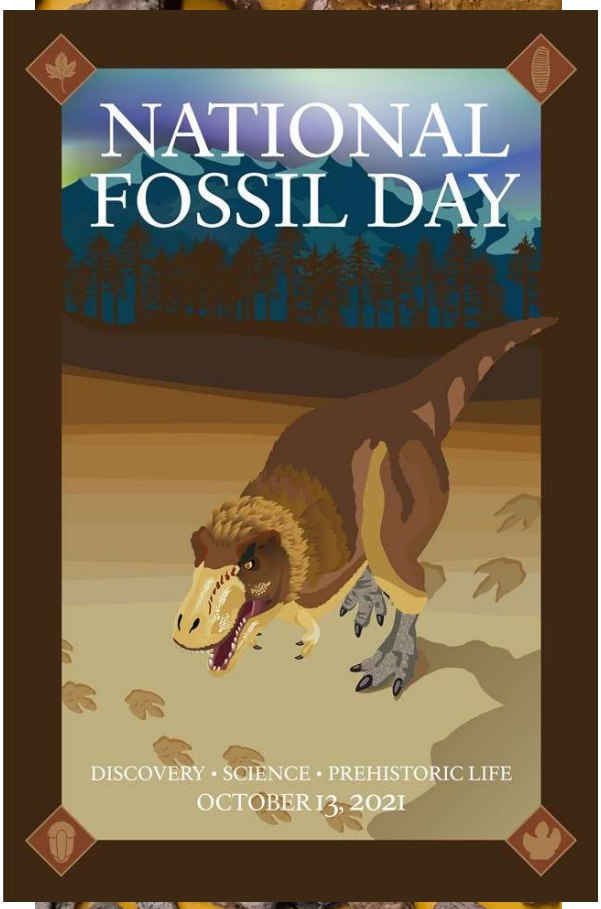

Fossil Find

A Take and Make Kit
Celebrating National Fossil Day 2021

Dallas Public Library is proud to be an official Partner of the National Park Service:

dallaspubliclibrary

Introduction:

Dallas Public Library is proud to join the National Park Service as one of 7 Libraries in the nation chosen as an official partner for **National Fossil Day™ 2021**. We hope this kit will inspire you to explore, learn about, and protect our fossil resources. In it you'll find all the tools to investigate fossils like a paleontologist. We hope you enjoy learning, exploring, and sharing about what you learn with your family and friends.

What is National Fossil Day? National Fossil Day began in 2010 as a collaborative effort within the National Park Service. Parks from across the country put on programs and celebrations to help people explore, learn about, and protect the phenomenal fossil heritage of the United States. A brand new, Jr. Paleontologist program was created so that participants can learn and explore and earn a very special badge. Today the NPS, other government and non-profit agencies, and partners across the nation work together to facilitate programs across the country in celebration of National Fossil Day.

Learn more about National Fossil Day, including links to other free resources and programs for all ages at https://www.nps.gov/subjects/fossilday/index.htm

Kit Contents:

- 1 – Bag of Fossil Matrix
- 1 – Sorting Stick
- 1 – Paint Brush
- 1 – Magnifying Glass
- 1 – National Park Service Jr. Paleontologist Book
- 1 – Set of Instructions with links to resources*

*a digital download of this booklet is available on the event webpage.

About the Fossil Matrix:

What is it? A fossil's matrix is the substance in which it is found. In our kit it is fossiliferous limestone gravel from the Jasper Creek Formation, located in Wise County, Texas. This limestone is from the Pennsylvanian Era, which means it was formed 330-298 MYA [Million Years Ago]. We chose this matrix because it was collected ethically and available for use for education purposes like this one. It was also chosen because of its proximity to Dallas.

Remember, **never** take fossils out of the place we find them without permission. The best thing to do is to take pictures and notes and then ask – in Dallas you can contact the FBI, no not *that* FBI, the Fossil Bureau of Investigation. They will come out and determine what needs to be done. Some very significant finds have been made by young paleontologist in North Texas. Maybe you will be the next to make a grand discovery!

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You can contact the Fossil Bureau of Investigation [FBI] at DallasPaleo.org

Vocabulary:

Paleontology: The study of ancient life and how life has changed over time.

Paleontologist: a Scientist who specializes in the field of Paleontology.

Geology: The study of rocks and minerals how they are formed and change over time.

Geologist: a Scientist who specializes in the field of Geology.

Archeology: The study of past human cultures and the things they left behind.

Archeologist: a Scientist who specializes in the field of Archeology.

Anthropology: the study of human cultures and societies and how they develop and change over time.

Anthropologist: A Scientist who specializes in the field of Anthropology.

Geologic Time Scale: a system of chronological measurement that relates stratigraphy to time, and is used by geologists, paleontologists, and other scientists.

Stratigraphy: geology concerned with the order and relative position rock and soil layers and their relationship to the geological time scale.

Fossil: The preserved remains of ancient life and is at least 10,000 years old.

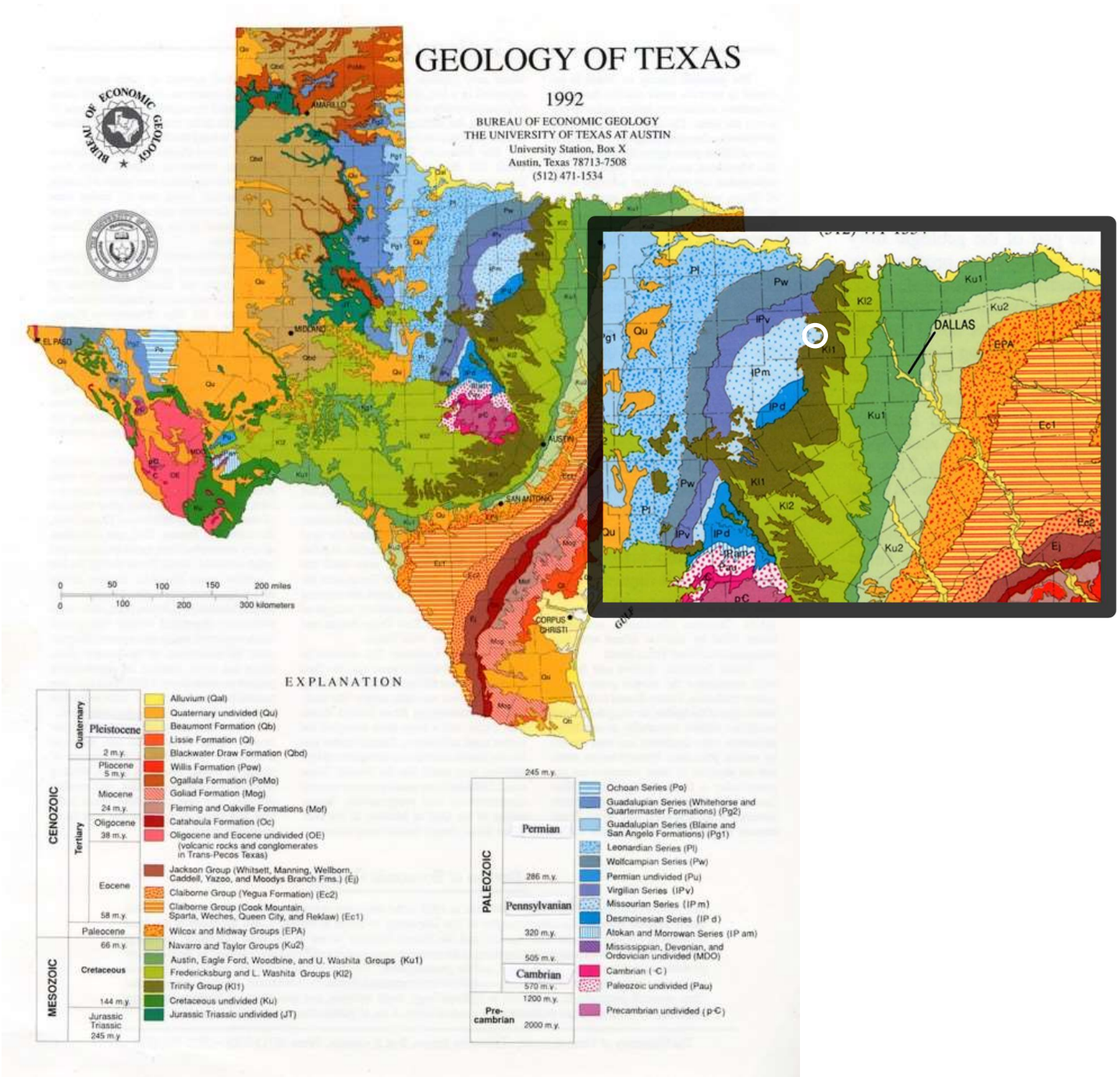
Fossilization: The process of how something become a fossil.

Fossiliferous: a rock type or formation that contains many fossils.

Fossil Matrix: *The rock material that fossils are contained within.*

Learn More: *Check out the "Road to Fossilization" Game on Page 3-4 of your Jr. Paleontologist Book.*

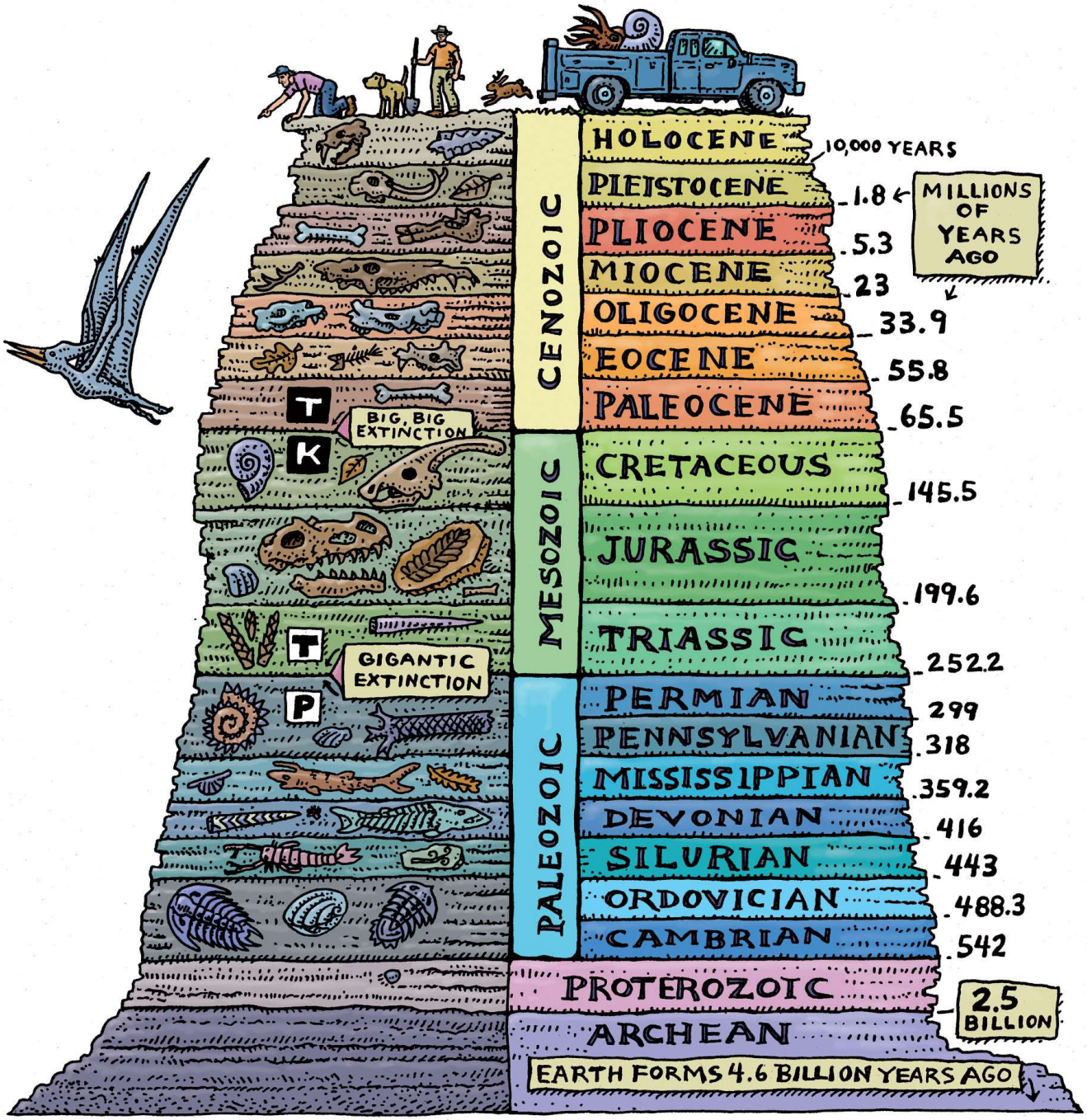
Geology of Texas:



Pictured: Map of the Geology of Texas [Left] and North Texas [Inset]. UT Austin.

Can you spot the yellow in the picture on the right? That is Wise County, Texas. Inside the circle is approximately where the fossil matrix in your kit came from. What can you learn about it from the key? Notice that not all the rock layers are visible in every place. How do scientists know which type is which?

Geologic Time Scale:



The Geologic Time Scale shows how all the layers of earth's rocks relate to one another over time. This allows scientists like Paleontologists and Geologists, to look at all the layers of time in one place which helps to date the fossils and rocks that they find.

Learn More: *Check out the Geologic Time and Relative Dating activities on Pages 9-10 of your Jr. Paleontologist Book.*

Procedure:

1. Pick a clean spot to spread out your Fossil Matrix [This is the bag of dirt, rocks, and fossils you got in your kit].
2. Use a popsicle stick to sort through the bigger and smaller pieces.
3. Pick them up, examine them up close sort the fossils from the gravel. Make sure to put all fossil shapes that are alike together.
4. Using the paintbrush carefully clean off each fossil sample.
5. Go back to your piles and examine them closely with a magnifying glass. Compare them to the Fossil ID Sheet. Write down what you find.
6. Go online or check out a book to learn more about the fossils you found!

Notes:

Fossils:

The Fossil Matrix in your kit is from the Pennsylvania Period and is approximately 323-298 Million Years Old. In it, you'll discover some of the plants and animals that existed at the time. We know from what we've found that the area was covered by a vast ocean where sea lilies, sponges, brachiopods, fusulinids, and trilobites flourished! Learn more about Pennsylvanian Life at https://www.nps.gov/articles/000/pennsylvanian-period.htm

Crinoid Stems:

The of ancient sea lilies. They are relatives of sea urchins, star fish – a family known as echinoderms. These animals appeared in the fossil record 540 Million Years Ago [MYA} and several species still exist today. Photos Courtesy of GeoKansas.

Colonial Sponges: some of the earliest simple animals to ever exist. These filter-feeding animals appear in the fossil record 550MYA and their relatives are still alive today. Photo courtesy of GeoKansas.

Brachiopods: Brachiopods were filter-feeding animals that have two shells and they look similar to clams and other bivalves but feed differently and are mirror imaged across the shell. Photo courtesy of GeoKansas.

Fusulinids: Excellent index fossils for determining ages of rocks. In some places they make up the largest component of the limestone in which they are found. Picture Courtesy of GeoKansas

Photo courtesy trilobites.info

Enrolled Trilobites [Very Rare]: Enrolled simply means a rolled trilobite. We know from the fossil record that these creatures could roll themselves up into a ball-like shape, Similar to the roly-polies you might see on your playground or outside. Learn more at: https://www.trilobites.info/enrollment.htm

Discover More!

We hope this kit has helped to spark your curiosity about and love of our ancient past. Now you're ready to discover even more amazing things about fossils! You can:

Complete your activities and become an official *National Park Service Jr. Paleontologist!*

Visit a Park or Museum:
Remember to follow any rules in place to keep you safe!

Dinosaur Valley State Park - https://tpwd.texas.gov/state-parks/dinosaur-valley
Waco Mammoth National Monument – www.nps.gov/waco
Big Bend National Park – www.nps.gov/bibe
Perot Museum of Nature and Science - https://www.perotmuseum.org/
Fort Worth Museum of Science and History - https://www.fwmuseum.org/

Join a local paleontology group like Dallas Paleontological Society
https://www.dallaspaleo.org/

Download a free digital fossil themed coloring and activity book

Dinosaurs of Texas
Fossil Activity Book

National Park Service
Prehistoric Life Coloring Book

Check out a Book or Movie from the Library!

Booklist:

We hope you'll enjoy this selection of fossil themed books. Some are serious, while others are just plain silly. We hope you have fun and make wonderful memories together.

Aliki, Chiba, S., & Obata, I. (1997). ***Manmosu no nazo.*** *Tōkyō: Asunaro*

Shobō. Aliki. (2000). ***Wild and Woolly Mammoths.*** *New York, NewYork: HarperTrophy.*

Finsley, C. (1999). ***A field guide to fossils of Texas****. Houston, TX: Gulf Pub.*

Grambling, L. G., & Love, J. D. (2012). ***Can I bring Woolly to the library, Ms. Reeder?*** *Watertown, MA: Charlesbridge.*

Grambling, L. G., & Love, J. D. (2014). ***Can I bring Saber to New York City, Ms. Mayor?*** *Watertown, MA: Charlesbridge.*

Stewart, M. (2010). ***How does a bone become a fossil?*** *Chicago, IL: Raintree.*

Surgal, J., & Mathieu, J. (2013). ***Have you seen my dinosaur?*** *Montoursville, PA: Early Moments Press, a division of Sandvik Publishing.*

Surgal, J., Mathieu, J., & Xinyue. (2014). ***Ni jian guo wo de kong long ma? = Have you seen my dinosaur?***

Beijing: Lian huan hua chu ban she. Taylor, P. D. (2005). ***Fossil.*** *London: DK Pub.*

Worth, B., & Haefele, S. (2010). ***Oh say can you say di-no-saur?*** *New York: Random House.*

Worth, B., Ruiz, A., & Mathieu, J. (2014). ***Once upon a mastodon.*** *New York: Random House*

Zoehfeld, K. W. (2011). ***Where did dinosaurs come from?*** *New York, NY: HarperCollins.*

Zoehfeld, K. W. (2012). ***Rocks and minerals.*** *Washington, D.C.: National Geographic.*

Zoehfeld, K. W. (2015). ***Los dinosaurios.*** *New York, NY: Scholastic.*

Zoehfeld, K. W. (2017). ***Prehistoric mammals****. London: Harper Collins.*

Zoehfeld, K. W., & Towne, J. (2019). ***Dinosaurs.*** *Solon, OH: Findaway World, LLC.*

Find more at https://dallaslibrary2.org