SUMMER EXPLORERS 2020

WEEK 9:

JOURNEY TO THE PERMIAN

TRAVEL TO A TIME LONG BEFORE DINOSAURS WHEN PERMIAN MONSTERS RULED THE EARTH!

The Permian Period, about 299 to 252 million years ago, was a time interval that occurred before the "Age of Dinosaurs." At this time, most of the continents on earth were linked together in one large supercontinent called Pangaea and surrounded by one large ocean. Many different types of plants and animals evolved during this time, including reptiles. Different groups of early land vertebrates living at this time would become the ancestors to the first mammals and dinosaurs. The Permian Period ended in the largest mass extinction in history. Over 90% of all plant and animal life on Earth went extinct at the end of the Permian due to climate change, especially warming of global temperatures, and volcanic activity. Together, these factors greatly changed ocean levels, temperatures and chemistry, and levels of carbon dioxide and oxygen in the air and water. Survivors of this extinction would repopulate the Earth over time with a different diversity of species. Learning about the Permian Period can tell us about what life on Earth was like in the past and how it changed over time!

DAY 4: PERMIAN OUTDOOR EXPLORATION

The Permian Period was the time period before the age of dinosaurs. The Permian began about 299 million years ago and was a time when the first large carnivores and herbivores dominated the land. The Permian began during an ice age, so the climate was cooler at the beginning, but gradually, the climate warmed and plant and animal life changed dramatically. This period ended in the largest mass extinction in the history of the Earth. Although over 90% of plant and animal life died at the end of the Permian, we can find similar organisms on Earth today. Some animals from the Permian, like Dimetrodon, had features similar to mammals, while other had features like dinosaurs (although actual mammals and dinosaurs did not come about until after the Permian extinction). There were also insects and fish as well as many types of ocean animals. Some Permian plants were similar to ones we can find today including mosses, ferns, and conifer trees (trees that produce cones, like cedar trees). Let's see if we can find things in nature today that are similar to those what could be found in the Permian!

Look at the guide below to discover what kinds of plants and animals lived in the Permian:

- http://www.permianmonsters.com/pdf/Permian_Monsters_Travelling_Exhibition.pdf

Before you start, you should have:

- A place outside where you can explore
- A journal or paper
- Pencil, pen or crayons

Get started:

1. Explore around your house, neighborhood or a natural area. Use the list below to look for some plants and animals that are similar to those that lived during the Permian Period. Draw or write about what you find. (Do an internet search for each of the organisms on the list before you start exploring, if you would like examples of what to look for.)
2. Look for plants. Find as many plants as you can that look similar to the ones below:
   - Moss
   - Fern
   - Conifer tree
3. Look for animals. Ancient animals that lived in the Permian are similar to some animals alive today. Find as many of the following animals as you can:
   - Dragonfly
   - Millipede or centipede
   - Leaf hopper
   - Cicada or cicada shed
   - Mammal
   - Turtle, lizard or snake
   - Amphibian
4. Explore the environment. Permian animals needed food and water to survive, just like animals today. Find as many of the following as you can:
   - Something an herbivore, or plant eater, might eat
   - Something a carnivore, or meat eater, might eat
   - Water
4. Tell someone about what you found! Are there any plants or animals in your neighborhood or park that are similar to the ones that lived during the Permian?

Keep exploring!

- Pick a plant or animal that you found on your journey. Imagine what life would have been like for their ancestors in the Permian Period and write or create a story about them!

More information on the Permian Period:

https://www.nationalgeographic.com/science/prehistoric-world/permian-extinction/

https://uwaterloo.ca/earth-sciences-museum/permian-period

Join Sam Noble Museum educators as they head outside to explore!

https://youtu.be/5xk3KozFTPQ

What did you discover?

Upload a photo or video and tag the Sam Noble Museum on Instagram or Facebook. You can also use the hashtags **#samnoblehome** and **#summerexplorers** to share!