Traveling Treasures Exhibit

Collecting the Past for the Future

Information, Activities, and Resources for Utah Classrooms

Presented by

ZIONS BANK
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NATURAL HISTORY MUSEUM OF UTAH
UNIVERSITY OF UTAH
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## Curriculum Correlations:

### Utah Common Core

#### Grade 3
- Science Standard 2 Organisms and Environments
- Social Studies Standard 1 Environments
- Social Studies Standard 2 Culture and Community

#### Grade 4
- Science Standard III Earth’s Rock and Minerals
- Science Standard IV Fossils
- Science Standard V Utah Ecosystems and Adaptations
- Social Studies Standard 1 Utah’s Physical Geography
- Social Studies Standard 2 Utah’s Cultural History

#### Grade 5
- Science Standard 2 Earth’s Surface
- Science Standard 5 Organism Traits

### Secondary Social Studies Standard
- UT Strand 1: Native Innovations and Adaptations
Utah Elementary K-5 Science Core Curriculum
Adopted by Utah State Board of Education

Science is a way of knowing, a process for gaining knowledge and understanding of the natural world. The Science Core Curriculum places emphasis on understanding and using skills. Students should be active learners. It is not enough for students to read about science; they must do science. They should observe, inquire, question, formulate and test hypotheses, analyze data, report, and evaluate findings. The students, as scientists, should have hands-on, active experiences throughout the instruction of the science curriculum.

Collecting Our Past for the Future Introduction:

The Natural History Museum of Utah and Zions Bank partner every year for a Traveling Treasures exhibit highlighting exhibits from the museum with 11 moves to banks throughout the state of Utah. The Natural History Museum of Utah is home to a collection of over 1.6 million objects. In celebration of the Museum’s 50th anniversary, the 2018 Traveling Treasures exhibit explores the fascinating stories of the scientists and collectors who gathered and preserved these objects. Journey around Utah and the world with a geologist to collect dazzling minerals. Ride on horseback with an archaeologist through canyons in Southern Utah to unearth ancient artifacts. Discover fossils found in downtown Salt Lake City, and learn how curators preserve fragile specimens to be studied for years to come.

How to use this Booklet:

This curriculum and activity booklet is meant for all Utah educators as a supplemental resource specialized for grades 3-5. Though this booklet is accompanying the Traveling Treasures exhibit, it can also be used throughout the year as it covers a wide range of Utah Natural History topics.

-Sarah Allen
Natural History Museum of Utah
Community Outreach and STEM Education
Traveling Treasures Exhibit Overview 2019

Case 1- Archaeology

Ancient textile making featuring objects collected by Byron Cummings in the early 1900s.

Archaeologists Jesse Jennings preserving the past with artifacts collected before the Glen Canyon Dam project.

Case 2- Ethnography

Connecting cultures with European oxford shoes and Northern Ute beading artists Jane Pale Lily.

Lifelong collecting and dedication to Native American art with Utah high school teacher Tony Taylor donated collection.

Case 3- Herbarium

A plethora of plants pressed and catalogued by botanists Albert Garrett the namesake of the museum’s Garrett Herbarium.

Plants and collections by the Natural History Museum’s first female curator, Lois Arnow, and author of Flora of the Central Wasatch Front.

Case 4- Minerals

Worldwide minerals collection from Alfred Buranek donated in the 1970s.

Stones shaped and collected by dentists Arthur Leroy for Utah’s early mining days.

Case 5- Paleontology

Utah’s Clevland-Lloyd Dinosaur Quarry discoveries with Utah’s first state paleontologist William Lee Stokes.

Pioneer paleontology with Ice Age Muskox fossils found near Temple Square in the 1870s.

Case 6- Vertebrates

Study skins and animals collected by zoologists William Behle and Stephen Durant collected in Utah in the 1900s.

Preserving soft tissues in ethanol jars with zoologists Angus Woodbury and John Legler in the 1930s and 1970s.
CHAPTER 1

ANTHROPOLOGY
An Introduction to Anthropology

How do we learn about people in the past? Scientists and other experts do different types of research to uncover what life was like hundreds and even thousands of years ago. The study of history helps humans understand who we were and who we are today. Experts use ideas and imagination, shared knowledge and a lot of hard work to put together the puzzle pieces of history.

Some of these experts are called anthropologists. Anthropology is the study of human societies and culture. Anthropologists study both old and new societies to learn about how humans have changed over time.

Though anthropology may be easy to define, it can be hard to describe. What anthropologist will study ranges in topics from the specific star folklore of the Australian aborigines, the evolution of language, the music of African tribes, ancient Rock Art in Utah or the culture of a paper company in Pennsylvania.

Since anthropology covers many topics, there are four different types of anthropology. These are cultural anthropology, linguistic anthropology, biological anthropology and archaeology. Each of these types of anthropology study humans and human interactions in a different way.

Vocabulary:
Anthropology- the study of human societies and cultures

Society- an organized group of people with things in common

Culture- a group of people's ways of life including their beliefs, languages and art

Evolution- the theory that all the kinds of living things that exist today developed from earlier types. The differences between them resulted from changes that happened over many years.

Linguistic anthropology- the study of language and how words are a part of culture

Biological anthropology- the study of how the human body changes over time

Archaeology- the study of ancient human history with remains from the past
Scientist Spotlight

Jesse Jennings
1909-1997

Jesse Jennings was an archaeologist, anthropologist, and the first director of the Natural History Museum of Utah. He is known for his explorations of Danger Cave in 1949, when he was a professor at the University of Utah. For thousands of years the dry cave had preserved artifacts such as textiles, tools, animal bones, and remnants of 68 plant species that still grow in the area today.

In 1958, as Glen Canyon Dam was beginning construction on the Colorado River, Jennings led the Upper Colorado River Basin Archaeological Salvage Project, which was a scramble to study the artifacts in Glen Canyon before the canyon was flooded.
The Fremont People

Although a few Fremont sites are found in the surrounding states, Utah was the homeland of the Fremont people. The Fremont lived in Utah from 1,600 to 750 years ago and inhabited the area of Utah north of the Colorado River. The Fremont adapted to many different locations in Utah. They lived near the marshes in Utah river valleys, in farming communities, and for part of the year in caves near the Great Salt Lake.

The Fremont people made gray pottery coiled in the shape of bowls and narrow-necked jars. About 1,300 years ago, their pottery began to change and the people started to make pottery painted with beautiful black geometric designs on a white or gray background. Much of the Fremont rock art featured human figures in headdresses, necklaces and earrings.

Pithouse villages, with only four to five houses, were common among the Fremont people. The houses were difficult to build and constructed of mud and plant materials. Most of these dwellings had only one or two rooms with a central hearth and a hole in the ceiling that acted as ventilation and a light source.

Although the Fremont grew corn, beans, and squash, archaeological evidence shows that many of them were still hunters and gatherers. The bones of deer, mountain sheep, bison, antelope and rabbits as well as plant parts are often found at Fremont sites. Insects, especially grasshoppers and crickets, were also eaten since they were nutritious and easy to gather.

Archaeologists do not find Fremont artifacts less than 750 years of age. The fate of the Fremont people is one of the major questions that archaeologists are trying to answer. Did the Fremont move from the area due to a widespread drought that made it impossible to farm? Did they leave because other groups moved into the area and forced them out? Or did the Fremont and these new arrivals marry and mix cultures, becoming unrecognizable in the archaeological record?
Make Your Own Fremont-Style Pottery

Roll a piece of clay into a long coil about 12 inches long and as thick as your finger. Make ten or so of these coils and cover them with a damp paper towel.

Using one coil, create the bottom of your pottery vessel by spiraling it around itself on a flat surface. Join the clay strips by pressing firmly and smoothing with your fingers. Turn the clay spiral over and repeat the joining process on the opposite side.

Build up the sides of your vessel by placing a coil along the outer edge of the base. Press it into place and smooth with your fingers on both the inside and the outside. When you have made a complete circle of clay around the base of the vessel, cut off the excess clay and join the two ends.

Repeat this process with the other coils until your vessel is the size you want it to be. To make a curve in your vessel's profile, you will need to vary the size of your circles. If the circles are larger, the vessel will spread out; if they are smaller, it will become narrow.

Finish your vessel by smoothing it inside and outside. Add decoration to personalize if desired.

From: *Intrigue of the Past*
CHAPTER 2

BOTANY
An Introduction to Botany

One of the world’s oldest sciences is botany, the study of plants. “Plants,” to most people, means a wide range of living organisms from the smallest bacteria to the largest of living things - the giant sequoia trees. By this definition plants include: algae, fungi, lichens, mosses, ferns, conifers and flowering plants. Without plant life on earth we would not exist.

More than 12,000 years ago before there were science classrooms and laboratories, early humans studied plants to identify which plants they could eat, which could be used for medicine, and where or how plants could be grown. Ethnobotany is the study of how people interact with plants. Due to the curiosity of early humans studying plants, this led to one of the biggest changes agriculturally in human society that allowed humans to start creating permanent civilizations.

There are many types of plant biologists and different careers in this field. Botanists interested in ecology study interactions of plants with other organisms and the environment. Other field botanists search to find new species or do experiments to discover how plants grow under different conditions. Some botanists study the structure of plants and others use microscopes to study the most detailed structures of individual cells. Many botanists do experiments to determine how plants convert or process chemicals. The work of botanists can also cross over to other types of studies like fossilized plants with the study paleobotany and solving crimes with forensic botany. Studying plants today is just as important for mankind as it was thousands of years ago.

Vocabulary:
Botany- the study of plants
Ecology- study of the interactions of organisms and the environment
Ethnobotany- the study of how people of a particular culture or region use native plants
Field botanist- working in the natural environment instead of a lab or office
Forensic botany- the use of plants as evidence in a criminal trial
Paleobotany- the study of extinct or fossilized plants
Plants- living organism divided into flowering and non-flowering
Plant Pathology- the study of plant diseases
Scientist Spotlight

Lois Arnow
1921-2014

Lois Arnow, the first female curator at NHMU, was a passionate botanist and gardener. She wrote the *Flora of the Central Wasatch Front*, which is one of the first complete books on wild plants in the Salt Lake area. In her honor two different types of grasses from Utah were named after her. Before she received her master’s degree in Botany, Arnow served as a nurse with the US Public Health Service in Egypt and Greece during World War II. She met her husband while she was attending Columbia University and they passed on their love for nature to their twin sons.
Make Your Own Plant Press

Plant presses are designed to dry and flatten leaves and flowers. Presses were used by early explorers for identification and preservation of new species they encountered on their journey.

Materials Needed:

- Two boards of equal size (no smaller than 4”x4” and no larger than 18”x18”)
- Cardboard (corrugated) at least 5-10 pieces
- Box cutter
- Scissors
- Newspaper
- Belt or canvas strapping for tie downs
- Leaves or flowers to press. *Never collect leaves from private property or parks. Be sure to investigate collections procedures/rules at sites before obtaining leaves. *

Directions: Cut the two boards the same size. Trace the shape of the board onto the cardboard. Cut out the pieces with a box cutter. Begin with four pieces and cut more as needed. The cardboard will allow air flow to the plants you are pressing. Trace a stack of four or more sheets of newspaper with the board shape. Cut them out with scissors. These will absorb the moisture from the plants.

Assembling Plant Press:

- Bottom of press is one of the boards.
- Place one piece of cardboard on top of bottom board.
- Place a couple of pieces of newspaper on top of the cardboard.
- Place your collected plants to be pressed on top of newspaper. (Note: take time to position plants as you wish for them to be pressed; once dry they are brittle. Succulent plants (large & chunky) do not press well.
- Place a couple of pieces of newspaper on top of the plants.
- Place a piece of cardboard on top of newspaper.
- Continue layers (newspaper, specimen, cardboard and repeat).
- Once you have filled your press, place the other board on top.
- Wrap the belt around the press and cinch it tight
- Put press in a dry, well-ventilated area.
- Specimen should be pressed in about three days.

Label Your Pressings- Location collected, name of plant (common and scientific), date collected, name of collector(s). Special notes (flower or fruit color, soil/geology, Regional Ecosystem, GPS coordinates, abundance.
Flower Anatomy

stamen
makes pollen

pollen
makes seeds when combined with a flower’s eggs

pistil
makes eggs that grow into seeds

petal
attracts insects to the flower for pollination

Images of flower pollen under a very intensified microscope!
CHAPTER 3

GEOLOGY
An Introduction to Geology

How do we learn more about the ground beneath our feet or how mountains are formed or where an earthquake might occur? **Geology** is the study of the Earth, what it is made of and how the Earth has changed over time. Geologists investigate earth materials from the smallest of crystals to the largest worldwide **natural disasters**.

For thousands of years early human civilizations have wondered and asked questions about the Earth. Native American tribes, the ancient Maya, the Romans and every civilization around the world has passed on stories to explain the origins of the Earth and land formations. As human civilizations grew and changed, this tradition of trying to understand the world around us has stayed with mankind. Many contributions to geological science that we know today came from the 1800’s, but modern day technology has made huge advances that has quickly changed the field of geology.

Why is studying geology or rocks and minerals so important to modern human civilization? Understanding the world around us, scientists can better predict and analyze natural disasters such as earthquakes with their knowledge of **tectonic plates** and **fault lines**. Geologists study rocks and minerals for human use and extraction for different types of mining. It is important to understand the ground beneath you before building structures or buildings. Geology also crosses over into other fields so scientists can better understand sites and time periods where fossils or archeological artifacts are found. Studying geology provides important information in learning about the geological past of the Earth and how human civilizations interact with the Earth today.

**Vocabulary:**
- Geology- the study of Earth, what it is made of and how it changed over time
- Fault Line- a break or fracture that occurs when Earth’s tectonic plates shift or move
- Mineral- naturally occurring and made of a single element or a combination of elements
- Natural disaster- a major event resulting from natural activities of the Earth such as floods, earthquakes, volcanic eruptions and tsunamis
- Rock- made of different minerals into the categories of igneous, metamorphic and sedimentary
- Tectonic plates- pieces of the Earth’s crust
Scientist Spotlight

1873-1960

Arthur Inglesby worked as a dentist in Utah’s early mining camps for over 25 years. “Doc” traded with miners by fixing their teeth in exchange for interesting stones they had collected. With his interest in minerals it was inevitable that well-known collectors and scientists soon came to seek and consult about minerals with Doc Inglesby. Through these associates he supplied collectors, museums and scientists with many marvelous rocks and minerals. Doc also traveled extensively all over Utah and became a widely known photographer of the West. The Utah State Historical Society has over 200 photographs taken by Doc Inglesby.
**Rock or Mineral?**

**Rock:**

All rocks fall into three main classes:

**Igneous**- formed from melted liquid rock that has cooled and solidified.

**Metamorphic**- formed while deeply buried within the Earth’s crust with heat and pressure.

**Sedimentary**- formed at the surface of the Earth and layered with rocks, minerals, animal or plant material.

Rocks are made of different minerals and many different naturally occurring substances. A rock’s structure is never exact.

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**Mineral:**

Minerals occur naturally either made from a single element or a combination of elements.

The Earth is made up of thousands of different minerals. All minerals have very unique characteristics and belong to **six crystal groups**:

-Cubic, Hexagonal, Rosette, Botryoidal, Monoclinic, Foliated
Building the Rocky Mountains

Powerful geological forces transformed rocks and gave rise to the Rockies. Many of the rocks in the Middle Rocky Mountains—Utah’s Wasatch and Uintah ranges—formed along the ancient coastline and on the floor of ancient seas. There, layers of sand, silt, and mud were compressed into sandstone, limestone and shale. Later, as the Earth’s tectonic plates collided, the crust buckled and the rocks were thrust upward as the towering mountains we see today!

Natural phenomena such as earthquakes, mountain formation, and volcanoes occur at plate boundaries. Mountains are usually formed at what are called convergent plate boundaries, meaning a boundary at which two plates are moving towards one another. Let’s check out the four main types of mountains. Can you name a few examples for each of these types of mountains?

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Dome:
- Formed due to a great amount of melted rock (magma) pushing its way up under the earth crust.
- Without erupting onto the surface, the magma pushes up overlaying rock layers. And the magma cools to form hardened rock.

Examples:
La Sal Mountains

Volcanic:
- Formed when molten rock (magma) deep within the earth, erupts, and piles upon the surface.
- Magma is called lava when it breaks through the earth’s crust. When the ash and lava cools, it builds a cone of rock. Rock and lava pile up, in layers.

Examples:
Mount St. Helens

Fault-Block:
- Formed when faults or cracks in the earth’s crust force some materials or blocks of rock up and others down.
- Instead of the earth folding over, the earth’s crust pulls apart and breaks up into blocks or chunks.

Examples:
Sierra Nevada Mountains

Folded:
- The most common type of mountain and the world’s largest mountain ranges.
- Formed over millions of years when two plates collide head on, and their edges crumbled, much the same way as a piece of paper folds when pushed together.

Examples:
The Rocky Mountains
CHAPTER 4
PALEONTOLOGY
An Introduction to Paleontology

**Paleontology** is the study of the history of life on Earth. Paleontologists use fossil remains to understand different aspects of extinct and living organisms and their environment. **Fossils** are evidence of past life on earth and are the remains of plants, animals, fungi, bacteria, and single-celled living things. Throughout human history, these remains have been used, studied, and understood in different ways.

Fossils show how an organism lived and are formed many different ways. For example, **amber** is hardened, fossilized tree resin. As the sticky sap dripped down a tree trunk, it trapped air bubbles, small insects and some organisms as large as frogs. Amber can preserve material as delicate as dragonfly wings. Another type of fossil is **mineral replacement** which is formed when water and minerals completely or partially replace the hard structure of a plant or animal. **Trace fossils** are formed by impressions in sediment. These include footprints, teeth marks, track, trails, body outlines, and burrows.

Paleontology is divided into multiple fields of study. Paleontologists can focus on a specific fossil type or a specific aspect of the Earth, such as its climate. **Vertebrate paleontology** studies animals with backbones and is especially important in showing the evolutionary history of animals and birds. On the other side is **invertebrate paleontology** which studies animals without backbones and the majority of these come from aquatic environments. Though we may think of paleontologist studying enormous dinosaur fossils they also study the tiniest of organisms such as pollen with **palynology** and seeds or ancient plants with **paleobotany**. Paleontology can teach us about ancient life and the origins of how the world came to be.

**Vocabulary:**
- Amber- transparent yellow-orange tree resin that has hardened and fossilized
- Fossils- the remains or evidence or ancient organisms
- Invertebrate- animals without a backbone
- Mineral Replacement- Water and minerals replace the structure of a plant of animal
- Paleontology- the study of the history of life on Earth
- Paleobotany- the study of extinct or fossilized plants
- Palynology- the study of pollen both living and fossilized
- Trace Fossils- s fossil that shows activity of an animal or plant
- Vertebrate- animal with a backbone
Scientist Spotlight

William Lee Stokes
1915-1994

For 32 years William Stokes worked at the University of Utah as a professor and head of the Geology Department for 13 of those years. William had degrees both from Brigham Young University and Princeton. He helped create Utah’s first complete geological map and is known most importantly for his work at the Cleveland-Lloyd Dinosaur Quarry. The Quarry has recovered over 10,000 dinosaur fossils! To honor his work eight fossils specimens were named after him, including the Stokesosaurus.
The Cleveland-Lloyd Dinosaur Quarry in Utah contains the remains of at least seventy dinosaurs. Of these dinosaurs, forty-six are *Allosaurus* fossils. This is an incredibly high number of carnivorous dinosaurs buried at one site and it has fascinated scientists since its discovery. To solve mysteries like this, paleontologists use *taphonomy* which is like a prehistoric forensic science. They look at clues in fossilized bones, how the fossils are arranged, and the sediments where they are buried. With this evidence they can piece together different scenarios about the death of these animals from a very long time ago.

What could it have been...

- Were the dinosaurs **poisoned**? Maybe a bacteria in the water killed them.
- Did they **float and bloat**? Maybe there was a flood that caused them to drown and their bodies were washed into the quarry?
- Was there a **drought**? Maybe the last watering hole dried up and this was the only place that dinosaurs could go.
- Was it a **predator trap**? Maybe the predators preyed on animals stuck in a swampy area and they too became stuck in the marsh and died.

Now look at the evidence! What is your hypothesis of what brought these dinosaurs to their ultimate death?
Match the Ancient Remain to the Organism!

A

B

C

D

E

F

1

2

3

4

5

6
CHAPTER 5

ZOOLOGY
An Introduction to Zoology

**Zoology** is the branch of **biology** that studies the members of the animal kingdom and animal life in general. Zoologists study animals and their interactions with ecosystems. They study animal physical characteristics, diets, behaviors, and the effects humans have on them. Zoologists study all kinds of animals, both in their natural habitats and in captivity in zoos or aquariums.

Early humans started interacting with animals thousands of years ago. Early human’s relationship to animals was based on hunting for a source of food. As time went on human’s began **domesticating** animals for things like work, food, and protection. The interactions of humans and animals can be seen in cave art from thousands of years ago and can be heard in endless amounts of folklore and mythology.

Zoology is divided into multiple branches of specialized fields. It can most simply be divided into **vertebrate** animals such as tigers, birds, lizards and snakes and **invertebrate** animals such as starfish, lobsters, and earth worms. Some zoologists work for zoos, wildlife centers, wildlife parks, and aquariums. At these locations they manage the care of animals, breeding programs and the habitat of where these animals live. Other zoologists work in labs and museums doing research on subjects such as genetics, diseases and evolution. The knowledge and research of zoologists is important in preserving animal **habitats** and for humans to better understand the effects of our interactions with animals.

**Vocabulary:**
- Biology - the study of living organisms
- Domestication - to tame and to live closely to humans for many generations
- Habitat - the place where an organism or community of organism lives
- Invertebrate - animal without a backbone
- Vertebrate - animal with a backbone
- Zoology - the study of animal behavior, structure and habits
Scientist Spotlight

Eric Rickart

Eric Rickart, is the current curator of vertebrate zoology at the Natural History Museum of Utah. He has spent more than 30 years studying small mammals all over the world including in the Philippines and right here in the Great Basin and Colorado Plateau. Rickart uses both historical data from museum collections and modern field surveys to document changes in mammal communities over the past century. With these studies he also investigates how climate change and human land use have been causing that change.
While wetlands cover less than 2% of Utah, they’re used by 80% of our wildlife. Marshes around Great Salt Lake are full of life, including plants, fish, frogs, insects, mammals and birds. Humans need wetlands too. Wetlands clean and filter the water flowing through them. Wetlands also slow the flow of runoff which allows water to soak into the ground and replenish our drinking water supplies.

Wetlands are part land and part water, so wetland creatures have adaptations for both. Wetland plants “breathe” through their leaves, but may also have spongy stems that pass air to roots stuck in mud. Some birds swim with webbed feet and others wade on long legs. Let’s meet a few wetland vertebrates! Can you think of a few more adaptations to wetlands or other environments?

Ducks | Long-Necked Wading Birds | Muskrat

The duck’s bill is well suited to its feeding habits, whether the duck is foraging for seeds or dabbling for underwater insects. The duck has thin skin stretched between its toes and its webbed feet allow it to paddle easily through the water.

A wading bird’s elongated neck and bill allow the bird to reach into the water for brine shrimp and other food. Long, lightweight legs help keep its body dry while it wades in the marshes.

Sealing its ears, the muskrat can swim under water for 12 to 17 minutes. A double layer of fur helps it stay warm and keep that heat. The muskrat’s long, flat, scaly tail helps propel it through water. On land, its tail drags along on the ground between its paw prints.
Journaling and Sketching in the Field

Scientists in the field take notes to help remember the specific details of a plant or animals that they are observing. Even in today’s digital world, sketches are sometimes more valuable than photographs because they can include specific data the scientist wants to highlight, as well as the scientists’ observations and questions. When doing experiments, researchers take notes to document exactly what they did so their procedure can be repeated.

A scientific sketch is not about making a pretty picture, but drawing what you see. Check out the criteria below then look at the world around you, go to a museum exhibit, or a zoo and get started on your own field notes!

- An **accurate** sketch describes the true nature of an object – size, shape, texture, etc.
- The sketch should be **big** so that we can see details, rather than squished in one corner of the page, and hard to make out.
- When possible, communicate more information by making your sketch **colorful**
- Use words and drawings to make your sketch as **detailed** as possible. All the little details are what make the specimen you are studying unique from others like it.
- Add labels, questions, and inferences about what you see. These words help to explain your sketch.
NATURAL HISTORY HANDOUTS
Natural History Fun Facts

The smallest known vertebrate in the world is a tiny frog from Papua New Guinea, the Paedophryne amauensis. It was discovered in 2009 and has an average body length of 7.7 mm. That’s about half the size of one of the coins in your piggy bank!

Mammals are warm blooded animals. All mammals have hair, even dolphins and whales that live in the ocean have hair.

No one knows for sure when the first fossils were found, but it is thought that the ancient Greeks and Romans might even have found fossils. Apparently “dragon” bones were found in China over 2,000 years ago, but people believe that these were actually dinosaur fossils.

The word “dinosaur” means “terrible lizard”, and comes from the Greek words “dino” (meaning 'terrible') and “saur (meaning 'lizard').

There are 18 volcanoes in the United States with the potential to erupt again, all of them in Alaska, Hawaii and the West Coast states.

Archaeologists study things as big as pyramids and as little as ancient pollen. Did you know some of the oldest honey discovered is from an Egyptian tomb from 3,000 years ago!

The world’s oldest living tree is thought to be in Sweden. Its root system has been growing for 9,550 years. Now that’s old!

Pando, which is located in Central Utah, is a grove of quaking aspen trees that is believed to be the largest and most dense organism ever found! The clone tree spreads over 106 acres with over 40,000 individual trees.

When paleontologists dig up Ice Age mammals, like a mammoth, these finds are actually bone and not fossils. These ancient bones are around 10,000 years ago, but are still “new” enough that they haven’t gone through the fossilization process yet.

Utah is home to rock art from early hunter gatherers from over 3,000 years ago. The oldest known rock art is over 35,000 years old!
| What I already KNOW? | What do I WANT to know? | What have I LEARNED? |
Across
2. the study of the history of life on Earth
7. study of the interactions of organisms and the environment
8. naturally occurring and made of a single element or a combination of elements
9. remains of plants, animals, fungi, and bacteria that have been replaced by rock material
11. animal without a backbone

Down
1. the study of Earth, what it is made of and how it changed over time
3. the study of human societies and cultures
4. a group of people's ways of life including their beliefs, languages and art
5. the study of living organisms
6. the study of plants
7. the theory that all the kinds of living things that exist today developed from earlier types
10. the study of ancient human history with remains from the past