Museum Fun!

(Self-Guided Tour Grades K-2)

Students will enjoy this museum tour guided by you! This activity is meant to engage them in a visual and verbal way. As the tour guide, you may follow the order of the exhibits as they appear below, or you may let the children guide you through the exhibits they would like to see. For a shorter tour, feel free to pick and choose the exhibits you'd like to visit.

(NOTE: Around the museum are orange tiles called "FUN FACTS". They mark cool extra facts about different exhibits. Read them out-loud as you find them. Can you find them all?)

GO INSIDE MUSEUM TO THE FAR RIGHT SIDE TO THE **FLOURESCENT MINERAL** DISPLAY (BEHIND THE BLACK CURTAIN):

Have the children move in front of the black screen, facing the display of rocks and minerals. Push the button and the rocks and minerals will glow. Have a few children share their favorite rock or mineral in the display. Try to pronounce the rocks and minerals names as best as possible (some are really tricky!).

Explain to the children that those rocks and minerals that glow are **fluorescent,** and the ones, or parts of the rocks, that don't are not florescent. The fluorescent rocks will glow under a special kind of light – Ultraviolet light (UV light). The ultraviolet light in the display comes from a special lamp that gives off this special light. We can't see UV light; it is the same kind of light that gives us sunburns if we are out in the sunlight for too long. The purple light that we do see is a violet light close to the Ultraviolet light; we are able to see this purple light because it is within our range of vision. But do not mistake it for the Ultraviolet light, which cannot be seen.

MOVE LEFT TO THE **ALLOSAURUS** DISPLAY:

Ask the children if they know what animal this fossil is. Tell them it's an *Allosaurus*. These animals lived in western America, including Utah, millions of years ago before humans were around. Ask them if the *Allosaurus* was a plant-eater or a meat-eater. (*Meat-eater*) What do we call a meat-eater? (***Carnivore***) Technically the *Allosaurus* was a dinosaur called a **carnosaur** (one of the groups of theropod meat-eaters). How can the children tell this animal would eat meat? (*Sharp teeth*. *Plant-eaters have smooth teeth to grind plants*.) Look at the dinosaur's long tail. What would it be used for? (*Keep its balance*. *Fight enemies*.) Would an *Allosaurus* make a good pet? Why or why not?

FOSSILS:

These are records of ancient organisms (animals, plants, etc.). What is a fossil? *(Allow kids to answer in their own words.)* A fossil is not the actual animal. Read the different ways that fossils are made. **(Refer to sign)** Did they hear what is the most common way that fossils are made? Ask them to find a fossil of a fish. Can they find the Bivalve (clam)? Reptile? Ask them to find their favorite fossil. See if they can pronounce the name of the fossil.

PETRIFIED WOOD:

What do we call wood that has been turned into rock? *Petrified wood*. It is made much like fossils are; the process is called **petrification.** There are the three things needed to make petrified wood: wood, water, and mud. *You can read the process of petrification from the sign*. After petrification the wood is no longer wood, it is rock.

Petrified wood comes in different colors because of the different minerals that are in the water during petrification. What is your favorite colored piece? What mineral made the petrified wood that color? **(Refer to sign on the inside of museum display for list of minerals)**

MINERALS:

Minerals are the building blocks of rocks. Not everything can be a mineral. What are the **5** requirements for a substance to be a mineral? **(Refer to the big blue signs)** Did you know that ice is a mineral? It fulfills all the requirements to be a mineral. However, water is not a mineral because it is a liquid. (Remember minerals must be solids!) Who can find silver? What mineral group is it in? What are the different mineral groups? What group is the mineral Topaz in? What is so special about Topaz? (*Along with other things – refer to sign – it is Utah's state gem*.) What is your favorite mineral, and what group is it in? Can you find the largest mineral in the museum? **(There are many large minerals; however, the largest one is Rose Quartz in the square glass display)**

Different minerals can be hard or soft. Can you tell me what the hardest mineral is? (*A list is found on the **Moh's Hardness Scale** sign*.) How many minerals on the hardness scale can you find in the museum? (*Have the children look for the different minerals*.) How does the hardness scale compare to objects in everyday life? **(Scale for ordinary objects is found on the outside of the museum on opposite side of the Hardness sign.)**

ROCKS:

Geology is the study of the earth. The earth's crust is made up of all kinds of different rocks. Rocks are put into one of three groups. Does anybody know what those groups are? Find the names on the signs! ***(Igneous, Sedimentary, Metamorphic)*** Different processes make different kinds of rocks. Show the kids the Rock Cycle, and explain it to them. How does an igneous rock become a metamorphic rock? How does a

Sedimentary rock become an igneous rock? How does a metamorphic rock become a Sedimentary rock? An Igneous rock? (*Have kids follow arrows on rock cycle*.) What is your favorite rock? Tell me about it (How was it made? What kind of rock is it? What color is it? Is there any other information given about it?).

BIRDS OF UTAH:

What animals have adapted to fly? (*Birds!*) What special adaptations enable birds to fly? (*Feathers, lightweight bones, etc.)* Do they recognize any of the birds on display? (*Perhaps they've seen California Gulls or Magpies before*.) Who knows what Utah's state bird is? (*It's on display! It's the California Gull*.) Some birds, like the Ring- necked Pheasant is originally from Russia, but was brought to many places in the world, including Utah, or sport.

MOVE LEFT TO **MARSH LIVING IN THE GREAT BASIN** DISPLAY:

Here are some special artifacts made by the Puebloan Indians (also known as the Anasazi). Does anyone know anything about the Puebloan Indians? Do they know where they lived? They lived in Southern Utah, in the four corners area. Have them pick an artifact – what do they think that artifact was used for? (*Refer to signs*)

Point out the big rock grinder. This large stone and the smaller one next to it were used to ground corn into flour. How would grinding corn with a rock make flour? (*Grind – or make by crushing – the corn into smaller and smaller pieces until it becomes a powdery flour*.) The Puebloans used flour to make tortillas, which they used for bread. They didn't have bread like the loaves we do today. Look at the pottery. What do they think they were used for? *(Mostly to cook with and carry water.)* What do they think they are made out of? (*Clay*) How are these pots different than ours today, and what are our pots and pans made out of today?

MOVE LEFT TO THE **FREMONT AND PUEBLON CULTURES** DISPLAY:

Ask the students what is on the wall. These images are called **petroglyphs**. Removing parts of the rock surface by carving, incising, pecking, and abrading created petroglyphs. Petroglyphs are different than pictographs. Pictographs are ancient drawings or paintings on rocks while petroglyphs are images carved into the rock. Petroglyphs are thought to be used for many things including communicating, telling stories, maps, astronomical markers, and showing landforms and geographical features. These ancient Native American peoples perhaps also had other reasons for using these rock images that we don't know about. Feel free to discuss the signs about the pottery, figurines, or where the Fremont and Puebloan peoples lived.

CONTINUE LEFT TO THE **MARSH LIVING AT WILLARD BAY: LITHIC TOOL AND MISCELLANEOUS ARTIFACTS** DISPLAY:

What are these sharp rocks? (*Arrowheads*) How were they made? *Using a harder rock to strike against the other, the Native Americans could take pieces off until the*

intended rock was the correct size and shape. What do the students think they were used for? *Used as weapons and knives, and applied in many different situations. As weapons, the arrowheads were attached to the end of shafts of wood to be used as arrows or spears*. What are some other artifacts or items and what were they used for? (*Refer to signs*)

TURN TO **SABER-TOOTH TIGER** DISPLAY:

What is the name of this ancient animal? *Saber-tooth Tiger*. What family does it belong to? (*Cat family, also called Felidae, which is where "feline" comes from*.) How big are their teeth compared to your hand? Your head? Would you ever want to meet one? Do we see them alive today? *Sadly no. They have gone extinct*. What does it mean to go extinct? *There are no more animals of that species alive in the world anymore. We know they existed because of their fossilized skeletons*.

MOVE TO THE **COW** DISPLAY ON THE END:

The scientific name of the cow is the *Bos taurus* ("Boss Toar-us"). Have the kids try to pronounce it with you. Have the students look at the bone size and structure of the cow. How is this cow's skeleton bigger than a human skeleton? Why is their rib cage so large? *Cows have large digestive systems. You can read the sign to the kids about how many compartments the cow's stomach has*. Cows can digest hay. Can humans? *No. We cannot digest the cellulose that is in plants. But cows can because they have special microbes in their stomach that break it down for them. We humans don't have these kinds of microbes*.

LIMB SPECIALIZATION:

Why do all of these animals' arms look similar to each other? (Refer to sign: key word is ***Homologous.***) These animals are all vertebrates and have evolved from a common ancestor. Humans also have the same bones as these animals do, even though they might look different. Have the children look and identify the fingers of each of the forelimbs. Now have them try to find the elbow, now the wrist. Where are these features on their own arm? What is so special about the bones of birds? (Refer to sign: **lighter weight)** Why might lighter bones be important for flying birds? (They *don't weigh as much so they can get airborne easier*.)

TOOTH DIVERSITY:

What do most animals use to eat their food? (*Teeth*) What kind of teeth do **herbivores** have? (Refer to sign: *flat teeth for grinding plants*) What kind of teeth do **carnivores** have? (Refer to sign*: sharp pointy teeth for grabbing and tearing*.) What **omnivores** eat? (*Both meat and plants.)* "Omni" means "everything" or "all." What kinds of animals are omnivores? (*Raccoons*.) Can they find a skull of a carnivore? Of an herbivore? Of an omnivore? Point out the types of teeth each of the skulls has. Are humans omnivores? (Hint: Do we eat plants and meat?)

EVOLUTION WITHIN THE VERTEBRATES:

What is a vertebrate? It's an animal that has a **backbone**. Are we vertebrates? Look at each of the vertebrate skeletons on display. Ask the kids to recognize each one. What is unique about snakes? **(No limbs)** What are some other animals you can think of that have backbones? Is the cow they saw earlier a vertebrate? Did it have a backbone? Are birds' vertebrates? Are plants vertebrates? Or worms? (*No, neither plants nor worms have backbones*.) What is unique about the turtle skull? (*They have no teeth! They have sharp edges to cut their food*. *This sharp "beak" acts much like the turtle's teeth*.)

CORAL:

Some types of coral live inside hard shelters they make themselves. This group of animals builds reefs in shallow ocean waters. They are very you think they use to build their shelters? (*Let the kids try to guess*. *Then let them know it's out of Limestone, also known as calcium carbonate*.) To survive, the coral live with another organism called **algae**. The algae are what make the coral so colorful. There is another group of animals that live in the oceans and make hard shelters, too. Can they guess what group makes seashells? (Move to Molluscs.)

MOLLUSCS:

Molluscs made all of these beautiful shells. Molluscs include snails, clams, slugs, and even octopi. The three main groups of molluscs are **Gastropods, Bivalves & Cephalopods.** Can they guess which group the octopus belongs to? (*Cephalopoda*.) Do cephalopods have shells? (Refer to sign: *Most have lost their shells*. *The octopus has*.) Do they see the two kinds of shells? (The ones with a hinge and the ones with a spiral shell?) Bivalves have the hinge (Bi = two), and the gastropods make the spiral shells. What is your favorite shell? Is it a gastropod or bivalve? (Hint: Refer to sign – bivalves have two shell halves with a hinge, gastropods have a single spiraled shell)

NATIVE FISHES OF UTAH:

What kind of animal lives in streams, lakes, and oceans and swims very well? (*Fish!*) Where do these fish live? **(Freshwater streams of the Weber Drainage)** What is the difference between freshwater and the ocean? (*The amount of salt in the water*.) These are all native, local fish, many of which are in trouble. Who can find Utah's State Fish? **(Bonneville Cutthroat Trout)** Is it endangered? (*Have them look or read it to them*.) Which is your favorite fish? Tell me about it (Or read some cool facts to them about it).

ICHTHYOSAURUS:

Where is a fossil of a fish-like dinosaur? (Hint: look by the entrance/exit to the museum.) "Ichthyosaurus" means *Fish lizard*. These ancient marine animals lived in the

ocean and looked a lot like today's modern dolphins, except they were reptiles instead of mammals. Do we still have them around today? (*No, they are extinct*.) What are some differences between mammals and reptiles? (*Have them brainstorm some differences. They may include: mammals have hair, live babies, produce milk, and are warm-blooded; reptiles have scales, lay eggs, and are cold-blooded*.)

MOVE LEFT TO THE **MOUNTAIN LION AND GOLDEN EAGLE** DISPLAY:

Have the children look at the display of the mountain lion and golden eagle. Ask them what kinds of animals they are (feline = cat, eagle = bird/raptor). Ask the children what kind of food the mountain lion would eat? The eagle? (*Refer to sign*) What are talons? **Talons** are the large, sharp claws that the eagle has. Only birds of prey (also called **raptors**) have talons. Golden eagles can have talons up to 3 inches long! How long is that compared to your hand? The mountain lion likes to stalk their prey; they are very stealthy predators. Ask the kids to compare how tall the mountain lion is compared to them. How big is the mountain lions' paw's compared to their hands? Have them imagine meeting one face to face. Would they want to meet one in real life? Why or why not?

****There are outer museum displays as well. Feel free to continue the fun by having the kids hunt down the answers to the following questions (all found in the outer exhibits).****

- Where are some pictures of beautiful flowers? How many different species of orchids are known? What type of animal do orchids tend to trick? What is your favorite orchid?
- What is a primate? Where can we look at some primate skeletons? What similar traits do humans and primates have? What are some differences?
- How many compartments does the cow stomach have?
- How do mirrors work? (Hint: look in the kaleidoscope.)
- Why do some pipes have a higher pitch than others? (Hint: Read "Pipes of Pan" sign.) Find a picture of a sound wave.
- Where is the Dimetrodon? Is it extinct?
- What is meant by "faces" of a crystal? How hard is your fingernail compared to the other minerals on the Moh's Hardness scale?
- How can we tell how old a tree is? How many rings do you count on the tree stump? How old does this make the tree?

There are also **"TEST YOUR KNOWLEDGE" questions on the inside wall by the rock display. Can the kids answer all the questions without looking at the answers on the back? (All answers can be found in the Physical Science displays)**