

Teacher Introduction to Activities

This web site includes two possible introductory messages to students, as well as grade-appropriate field trip activities, pre- and post-visit activity ideas (some activities may include additional general information) and Quick Fact Animal Cards. Activities can be photocopied for individual students or for group use. Quick Fact cards were designed to be cut into separate, index-size cards and used as a reference by teachers or group chaperones while at the zoo. A couple of laminated sets of Quick Fact cards are also available at the ticket booth.

We hope that you find the materials beneficial and that they add to the experience you and your students have at the zoo. The field trip activities were developed to complement concepts being taught at the designated grade levels. Available activities are as follows:

Picture This . . . (K-1st)
Zoo Bingo (K-1st)
Hunting for Natural Treasurers (2nd-3rd)
Track Detective (2nd-3rd)
Adaptation Match (4th-5th)
Landmarks and Lifestyles (4th-5th)

General information regarding adaptations is covered below as well as under "Preparing for a Zoo Visit" materials. It is provided for teachers wishing to review this concept with students either before or following their fieldtrip. An activity designed to get students thinking about one of their own adaptations is also attached.

GENERAL INFORMATION – ADAPTATIONS

Animals come in a huge variety of shapes, sizes and colors. They also engage in a variety of lifestyles. There is good reason for the variety of physical and behavioral characteristics found among living organisms. Over time, changes in physical or behavioral characteristics have helped animals adapt to their particular environment.

Not all physical characteristics are adaptive, but many are. Body shape and size, skin covering, foot pattern, presence of a tail, and teeth type are only a few. Behavioral characteristics can include patterns of migration, mating habits, or food choices.

It is important to understand that living organisms are found where they are suited to their environment. Once students understand this concept, they can ask interesting questions about animals they observe in nature and make predictions about other characteristics of



Dear Students:

This letter covers several things we thought you should know before your visit to the zoo. We look forward to seeing you and hope that your fieldtrip is both an enjoyable and educational experience for you.

1. **Most of the animals in the Pocatello Zoo are either native to Idaho or to North America.** Native means that the species originated in an area and is well adapted to living there. Most of the zoo's animals were born and raised in captivity and were traded from one zoo to another. The Idaho Fish and Game Department or the U.S. Fish and Wildlife Service contributed others. These animals were born in the wild then were orphaned, injured, or created problems that made it impossible for them to survive in the wild.
2. **Many zoo visitors assume animals in captivity long for the freedom that their wild relatives have.** In reality, wild animals must first meet basic survival requirements so are not free to go "wherever they want". Their movements are determined by the seasons, the availability of food and water, threat from predators, and loss of habitat and territory due to human activities. If food, water, and shelter are available in a small area, many wild animals will not waste the energy required to wander over a large area.
3. **How you handle yourself at the zoo is very important.** Remember, you are visiting the home of someone else, the zoo animals, so it is important to behave in a way that is respectful to them. Remember, they are watching you too! Some of the animals will move to the back of the exhibit if disturbed by loud noises or frenzied activity. You will get your best view of the physical characteristics and behaviors of the animals if you use "classroom voices" and "walking feet". Please show the zoo animals the respect they deserve by not teasing them and keeping your hands on the outside of the exhibits. Also, please stay with your chaperone and remain on designated paths.

The Pocatello Zoo offers you the opportunity to see wild animals up close. Learning about the animals and their habitat, watching their behavior, and thinking about what makes them successful in the wild helps connect humans with the natural world. It is that connection that we want to nurture, because people have to connect in order to care.

Sincerely,

Cory Coffman

PREPARING FOR A VISIT TO THE ZOO

HOW WILL I KNOW WHEN I GET THERE?

- Let students and chaperones know what to expect ahead of time.

Tell them where, when and how the day will go.

Let them know what time they will arrive at the zoo, go to lunch, leave, etc.

(Research indicates that students who know the basic schedule for their field trip are more apt to gain educational benefit from the trip. Providing this information should also free you from having to answer the same questions many times.)

- Review the objectives of your zoo visit with both students and chaperones in advance.
- Use an activity from the zoo's web site or develop a list of questions to be answered or a list of things to look for. This will help focus student attention.
- Come armed with animal songs, short stories, jokes, or fast-and-easy games to fill-in gaps in time or regain student attention. The zoo's web site provides some ideas.
- Consider focusing your fieldtrip on one part of the zoo rather than visiting all of the exhibits. Center the visit on a topic such as:
 - Zoo herbivores
 - Zoo carnivores
 - Members of the dog family
 - Members of the cat family
 - Zoo animals that migrate
 - Winged meat eaters

ALL ON THE SAME PAGE - CONCEPTS TO REVIEW

- **Living vs. non-living things**

Living things reproduce, nonliving things cannot (this is the primary difference).

Living things grow, move and take in nutrients that they use to make energy. Crystals grow, wind and water can move and the sun can make energy but they do not convert nutrients into energy or reproduce. Therefore, they are not living things.

- **Careful Observation is a Skill**

There is more to be learned about living things than meets the eye. Developing good observational skills and viewing each organism as a mystery to be solved can make learning more fun.

- **Adaptations**

Adaptations are inherited behavioral or physical characteristics that help a living organism survive and reproduce in its natural environment. Examples of adaptations that students might recognize are:

- Grasping tail of monkeys
- Sweating as a cooling mechanism in humans
- Opposable thumbs in humans

Annual migration or hibernation of some mammals and birds
Sharp claws and/or teeth in carnivores

Not every behavior or physical feature of an organism is an adaptation

Adaptations do not appear because they are needed; they occur by chance. Random changes in DNA over time sometimes result in characteristics that give organisms “a competitive edge” over organisms that do not possess the modified characteristic.

An example of a physical adaptation is one that allows an organism to run or swim faster. Running or swimming faster may make the organism better at avoiding predators or at capturing prey and surviving to pass its genes to the next generation.

An example of a behavioral modification is remaining motionless when danger is sensed. If remaining motionless helps an animal avoid predators, it may have a better chance of surviving to pass its genes to the next generation.

The following is a fictional illustration of how, over time, organisms having a particular adaptation become more common than those not having the adaptation.

Some people are born with greater musical ability than others. If playing the flute well was the only way to keep predators away or to attract prey, the people with musical ability would be more likely to survive and have children. If their children inherited that musical ability, those children would also be more likely to survive and have children. Over many, many generations there would be more people with musical ability and fewer without musical ability.

Developing the Skill of Observation

Meet a Tree Activity/Questionnaire (grades 3-6)

Materials:

Meet a Tree questionnaires

Clipboards or cardboard rectangles

Pencils

Objectives

To help students improve observational skills.

To help students understand that there are many questions you can ask about an organism and how it fits in its environment.

Divide students into small groups or pairs. Give each team/pair a questionnaire and clipboard. Assign a tree to each group or allow groups to select a tree within set boundaries (if completing this activity on school grounds, you may want to revisit this activity in the winter). Allow 10 minutes for students to complete the questionnaire. Gather students together to compare findings and share their "interview" questions.

Meet a Tree Questionnaire

Do you think your tree is young, grown up, or old?

Can you reach the lowest branch? _____ How high do you think the lowest branch is? _____

Do your arms reach around the tree? _____ If not, how many students holding hands does it take to reach around the tree? _____

Stand back from the tree. What is its shape (tall & slender, tall & rounded, short and rounded, etc.)? _____

Are the leaves flat and broad _____, or narrow and needle-like _____ or are they like scales stacked end-to-end _____?

Are there leaves/needles on the tree? _____ What color are the leaves? _____

What color are the smallest twigs? _____

Is your tree standing alone _____, near other trees _____, or as part of a forest _____?

Are the trees nearby taller _____, shorter _____, or about the same height _____?

Are there seeds or fruit on your tree? _____ Flowers? _____

Look for plants growing under or on your tree. Record what kinds (mosses, lichens, mushrooms, grasses): _____

What is special about your tree? _____

If you could interview this tree, what one question would you like to ask it?

Source: *Hands-On Nature – Information and Activities for Exploring the Environment with Children* Edited by Jenepher Lingelbach and Lisa Purcell. Published by Vermont Institute of Natural Science 2000. Page 133

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Encourage students to wonder about the relationship between an animal’s ‘build’ and what it does in order to live. Ask them to think about the relationship between physical and/or behavioral characteristics and their function when they look at an animal. Promote the idea that every animal is a puzzle or mystery to be solved. Mentioned below are a couple of exercises to help students start thinking about their own adaptations and how those adaptations help them function.

The Great Opposable Thumb

Ask students to think about how much they use their thumbs without thinking about it. As a group, brainstorm and list some simple tasks that would be more difficult to accomplish without thumbs. Thumbs are an example of a human, physical adaptation. Gorillas, chimpanzees and orangutans also have opposable thumbs. These great apes are primarily tree dwelling. Ask students to think about how they use their thumbs when climbing monkey bars or other structures. Do they think that not having opposable thumbs would change their ability to climb? The great apes’ diet includes fruit and insects. How might having opposable thumbs help them acquire food?

To illustrate our reliance on opposable thumbs, have students complete the **Finger Challenge** activity (if time is limited, select finger combinations as a class then have two or three groups of students complete the activity in front of the classroom). After completing the activity, ask students to report their results. Which combinations were more successful? Which combinations resulted in the fewest successes? How might not having opposable thumbs affect the things they do each day? Suggest to students that they try to write, hold a book, open a door, brush their hair, or get dressed without using their thumbs.

Finger Challenge

Things you will need

Two partners (one to pass the penny to and one to count passes and keep time)

A penny

- First, working in groups of three, use the finger key below to label the fingers on both hands pictured (thumb, index, middle, ring, and pinkie).
- Next, choose four of the six finger combinations and write those choices in the spaces provided. Now you are ready to test the finger combinations you have chosen.
- To test each finger combination, pass the penny between two people using only the two fingers mentioned in the combination. The person keeping time will count the number of passes made in one minute. A pass made without dropping the penny is a successful pass. Write that number down under Number of Successful Passes. Test all four finger combinations.

Your Finger Combinations	Number of Successful Passes
1. _____	_____
2. _____	_____
3. _____	_____
4. _____	_____

(Adapted from Finger Challenge activity (pg 51) in How Nature Works, Wildlife Conservation Society, 1995)

GENERAL ACTIVITY SUGGESTIONS

PRE-VISIT

- Create a mural with pictures showing living things on one side and nonliving things on the other side. Include plants, bacteria, insects, mammals, birds, reptiles, etc. Help children divide the living things into the five kingdoms.
- Collect pictures as a class and decide which group they go in.
- Work in small groups to create collages or posters showing a single kingdom or organisms representative of each kingdom.
- Make zoo notebooks to bring to the zoo. Staple lined paper to a rigid paperboard or cardboard backing. Punch two holes at both top edges and add a loop of string so that the notebooks can be worn around the neck. Decorate the covers with animal wallpaper prints, pictures, etc.

POST-VISIT

- Bring a one-use or digital camera to the zoo. Assign someone to take pictures, another to take notes, etc. Add the pictures to a class scrapbook or use on a “While We Were Away” bulletin board.
- Present a summary of your visit to another class. Include what you saw and did as well as new things that you learned about the animals (habits, needs, etc.)
- Draw a picture of your favorite zoo animal. Draw arrows to features of the animal that could be considered adaptations then label them. Describe the adaptation and how it helps the animal (i.e. fur-helps keep the animal warm, long legs-help the animal run to look for food or avoid predators, antlers-help attract females and might be use to fight or protect).

READABLE RESOURCES

Are you looking for great books to augment coverage of animal-related topics? If you are, this page is for you. The following books are both informative and entertaining. They are listed under topics such as Migration, Seasonal Changes and Animal Homes but some could easily fit into more than one category. Each entry includes a short description of the book as well as the lending source.

*****ADAPTATIONS*****

All About Turkey by Jim Arnosky (unpaged)

Description: A fun picture book about the physical and behavioral adaptations of wild turkeys.

Application: Species: Adapt/Success

Location: ISU Library – Section – Juvenile Literature (behind the computer lab on the 2nd floor)/Call #OL 696 G27 A75 1998

*****ANIMAL HOMES*****

Title: *Animal Architecture* by Jennifer Owings Dewey (72 pages)

Description: The topic of this nonfiction book is home building . Author/illustrator Jennifer Dewey describes how a variety of animals build homes using their own bodies and the natural materials around them. The end result is a home that is exactly suited to the needs of the homeowner. Older students will find this book entertaining as well as informative.

Application: Animals: Homes/Safety/Shelter

Location: Marshall Public Library – Section – Junior Non-fiction/Call#591.564 O

Title: *And so They Build* by Bert Kitchen (unpaged)

Description: “A tailorbird will be safer if she hides her nest and so she builds. . .”. Each page begins in this manner, giving one reason that an animal builds a home. This picture book has a lot to offer to young as well as older students. Young students will enjoy the bright paintings and simple introductory text (as mentioned above). Older students will value reading the short accounts of how and why some animals build homes.

Application: Animals: Homes/Safety/Shelter

Location: Marshall Public Library – Section – Junior Non-fiction/Call#591.564 K

Title: *A House of Leaves* by Kiyoshi Soya (unpaged)

Description: A little girl creeps under a bush to get out of the rain and finds new insect friends.

Application: Animals: Homes/Safety/Shelter

Location: Marshall Public Library – Section – Early Readers under S

*******MIGRATION*******

Title: *Animals that Migrate* by Caroline Arnold (55 pages)

Description: This is a nonfiction picture book (black and white) that describes the migration habits of various animals in a short sentence format.

Application: Seasons: Impact **Species:** Adapt/Success

Location: ISU Library – Section – Juvenile Literature (behind the computer lab on the 2nd floor) / Call #QL 754 A76

Title: *The Flight of the Snow Geese* by Deborah King

Description: This picture book presents the concept of migration (in a simple story and in more detail at the back of the book) as it relates to Snow Geese. It also touches on how the landscape has changed over time.

Application: Seasons: Impact **Species:** Adapt/Success

Location: Pocatello Zoo – Section – Children's books

Title: *The Way Home* by Nan Parson Rossiter (unpaged)

Description: This picture book tells the story of a young farm boy who helps an injured Canada goose recover just in time to join the annual southern migration.

Application: Seasons: Impact **Species:** Adapt/Success

Location: Pocatello Zoo – Section – Children's books

Title: *When Winter Comes* by Nancy Van Laan (unpaged)

Description: This picture book asks what happens to living things as winter comes. It briefly mentions what a variety of organisms do to survive winter.

Application: **Seasons:** Impact **Species:** Adapt/Success

Location: Pocatello Zoo – Section – Children's books

*****SEASONAL CHANGES*****

Title: *Keep Looking* by Millicent Selsam and Joyce Hunt (32 pages)

Description: This story tells about many of the animals you will see near an old house in winter if only you keep looking.

Application: **Seasons:** Impact **Living Things:** Habitats/Compare

Location: Marshall Public Library – Section – Junior Non-fiction/Call #599 S.

Title: *The North American Bighorn Sheep* by Mary Adrian (63 pages.)

Description: This fictional story is told from the bighorn's perspective. Through depiction of daily and seasonal events, it gives the reader a sense of life as a bighorn. Behaviors during different seasons and defense strategies are two of the concepts integrated in the story.

Application: **Seasons:** Impact, **Species:** Adapt/Success, **Ecosystems:** Producers/Consumers

Location: ISU Library – Section – Juvenile Literature (behind the computer lab on the 2nd floor)/Call #JUV LIT QL7 737 U53 V46

Title: *Under Your Feet* by Joanne Ryder (32 pages)

Description: This picture book provides a glimpse into the lives of animals we don't always see during different seasons of the year

Application: **Habitats:** Plants & Animals/Connect

Location: Marshall Public Library – Section – Picture Books/Call #Ryder, J.

Title: *Whitetail* by Robert M. McClung (82 pages)

Description: This story follows Star, a male whitetail deer from birth to ~2 ½ year of age. The day-to-day and seasonal challenges of being a whitetail are woven into the story. A brief history of whitetail deer in America follows.

Application: Seasons: Impact, **Species:** Adapt/Success, **Ecosystems:** Producers/Consumers

Location: ISU Library – **Section:** Juvenile Literature (behind the computer lab on the 2nd floor)/Call #JUV LIT QL 737 U55 M22

Location: Marshall Public Library – **Section** – Junior Fiction/Call #McClung, R.

*******WEB OF LIFE*******

Title: *Once There Was A Tree* by Natalia Romanova (24 pages)

Description: The story of an old tree stump and the interdependence of all the creatures who are attracted to it.

Application: Environment: Changes/How, **Ecosystems:** Change,

Living Things: Habitats/Compare

Location: Marshall Public Library – **Section** – Picture Books/ Call #Romanova, N.