Elementary School Educator’s Activity Guide
Dear Educator,

We hope you are excited about your field trip to ZooTampa at Lowry Park, recognized by the State of Florida as a center for wildlife conservation and biodiversity, and also as a center for education and endangered species conservation. The Zoo is an environmental learning center that provides an exciting and interactive location in which all students can make observations, draw conclusions, and nurture their genuine interest in the natural world around them.

This guide is set-up to provide a variety of activities designed to meet your pre-zoo objectives, as well as to be used during your visit. In order to maximize your visit, please note the Next Generation Sunshine State Standards and FCAT 2.0 readiness skills have been integrated into each lesson. Also note that lessons are organized by areas within the Zoo for path planning purposes.

We hope that you will find this guide a useful tool in preparing for your trip to ZooTampa at Lowry Park and to help us achieve our mission of un forgettable natural connections.

Please check out our web links to see the amazing things that are happening at the Zoo!

https://zootampa.org/conserve/conservation-education/
https://zootampa.org/media-room/

For information on our field trips, visit the below website:

https://zootampa.org/field-trips/

For more information, or to schedule a field trip, please contact Jamie Elkington using the contact information below.

Email: jamie.elkington@zootampa.org
Phone contact: (813) 935-8552 ext. 4268
Please leave a voicemail to cancel/postpone a field trip.

Enjoy learning,

ZooTampa at Lowry Park
Education Staff
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Planning a Zoo Field Trip Checklist

The below list is designed to make your trip to ZooTampa at Lowry Park goes smoothly.

___ Pre-Zoo activities completed in the classroom
   Activities connect with the Next Generation Florida Sunshine State Standards and provide appropriate background for students to explore the Zoo.

___ Students can be identified by nametags/school shirts/other

___ Marked maps for each chaperone to coordinate meeting times and key locations
   Maps can be downloaded at https://zootampa.org/ under “Visitor Info”
   Most groups plan to meet up at the Manatee Fountains located at the front entrance. This is where your group will be arriving and departing.

___ Chaperones have a list of students’ names

___ Cell phone number exchange with chaperones

___ Copy of field trip activities for chaperones

___ Download Interactive Scripted Stories to set your students up for success. Scripted Stories can be downloaded at https://zootampa.org/visitor-info/

___ Writing utensils

___ Discussed lost child plan with students and chaperones

___ Reviewed Zoo safety rules for students
   · Stay on the paths
   · Please no loud voices or yelling
   · Walk instead of run
   · Stay with your chaperones
   · Keep hands, bodies, and objects away from animal enclosures

___ Snacks/beverages brought from school. Must be consumed outside of the Zoo.

___ Lunches pre-ordered through ZooTampa at Lowry Park
   $6.00 Boxed Lunches
   Orders must be placed at least 3 business days before field trip date.
   To order, please call 813-935-8552 ext. 3271 or email Bethany.field@zootampa.org

___ Lunch will be eaten in the picnic area located near the Lowry Park band shell

___ Lunch will not be eaten during the field trip

___ Gift Shop or restaurant purchases will/will not be allowed

___ Pre-ordered Gift Bags arranged
   $5.00 Gift Bags
   Students can purchase souvenirs without shopping in the Gift Shop, which can be picked up at the main Gift Shop the day of your visit! Gift Bags include: ZooTampa at Lowry Park pencil, postcard, and a surprise (could be keychain, small toy, stickers)
   If you would like gift bags that feature a specific animal theme, or want to include a plush animal, this is available at an additional fee.
   For more information regarding pricing and available plush animals, or to order your Gift Bags, call 813-935-8552 ext. 3243.
### Field Trip Evaluation Form

Your opinion matters! Please complete this form so that we can improve our education programs.

| Your Name: ____________________________ |
| Name of Group: __________________________ |
| Address: ____________________________________ |
| City: __________________ State: _____ Zip: ________ |

**Return Information to:**
ZooTampa at Lowry Park, Education Reservations
1101 West Sligh Ave
Tampa, FL 33604
Fax: 813-933-7949
*Or turn in to the front gate of the Zoo*

Please circle the level of satisfaction for each of the following areas of your program:

<table>
<thead>
<tr>
<th>Online registration was convenient</th>
<th>Strongly disagree</th>
<th>Unsure</th>
<th>Strongly agree</th>
</tr>
</thead>
<tbody>
<tr>
<td>The reservationists were professional and informative</td>
<td>Strongly disagree</td>
<td>Unsure</td>
<td>Strongly agree</td>
</tr>
</tbody>
</table>

**The day of your visit, did you have any problems with:**

<table>
<thead>
<tr>
<th>Admission lines</th>
<th>Strongly disagree</th>
<th>Unsure</th>
<th>Strongly agree</th>
</tr>
</thead>
<tbody>
<tr>
<td>Payment services</td>
<td>Strongly disagree</td>
<td>Unsure</td>
<td>Strongly agree</td>
</tr>
<tr>
<td>Pre-ordered box lunches (if applicable)</td>
<td>Strongly disagree</td>
<td>Unsure</td>
<td>Strongly agree</td>
</tr>
</tbody>
</table>

**On your next group visit, would you be interested in...** (check as many as apply)
- [ ] Self-Guided in-Zoo Activities
- [ ] Scavenger Hunt
- [ ] Sleepover
- [ ] Other suggestions for programming ____________________________

**Additional comments/feedback/suggestions for future themes:**

______________________________________________________________________

______________________________________________________________________
Animal Fast Facts

Birds

- There are almost 10,000 species of birds.
- Birds are warm-blooded vertebrates (have a backbone).
- Birds have feathers and a beak.
- Birds live in a variety of habitats around the world.
- Birds eat a variety of food.
- Birds reproduce by laying eggs.

Reptiles

- There are over 9,000 species of reptiles.
- Reptiles are cold-blooded vertebrates.
- Reptiles have dry skin covered by scales.
- Reptiles are found in most regions (except cold regions and high mountains).
- Most reptiles reproduce by laying eggs.
- Reptile groups include: snakes and lizards, tortoises and turtles, crocodilians and alligators, and tuataras.

Mammals

- There are close to 5,500 species of mammals.
- Mammals are warm-blooded vertebrates.
- Mammals have fur and mammary glands.
- Mammals are found in all regions of the world.
- Most mammals reproduce through live birth (except the echidna and platypus which lay eggs).
Animal Fast Facts

Fish

- There are over 30,000 species of fish.
- Fish are cold-blooded vertebrates (have a backbone).
- Fish have scales for protection, and use their tail for propulsion and their fins for steering.
- Fish live in water and breathe through gills.
- Most fish reproduce by laying eggs (some sharks have live births).

Amphibians

- There are over 6,000 species of amphibians.
- Amphibians are cold-blooded vertebrates.
- Amphibians have thin, scale-less skin with a mucous covering.
- Amphibians begin their life in water, undergo a metamorphosis, and are adapted for life on land (but most return to the water for breeding).
- Amphibian groups include: frogs and toads, newts and salamanders, and caecilians.

Insects

- There are estimated to be between six and ten million species of insects!
- Insects are invertebrates - they have an exoskeleton.
- Most insects have two pairs of wings and can fly.
- Insects have six pairs of legs, and have antennae.
- Insects have three body sections: Head, Thorax and Abdomen.
- Insects have a life cycle that includes different stages (metamorphosis).
WALLAROO STATION
Living/Non-living Things

Objective: Students learn to understand the differences between living and non-living objects


Vocabulary: Non-Living: lacks or has stopped displaying the characteristics of life
Two categories: Never part of a living thing, (eg. rock); or once part of living things (eg. paper or jelly)
Living: having life, having the characteristics of living things; all living things need food, air, water and shelter to survive.

7 Characteristics of Living Things:
1. Need to feed
2. Internal, and often also external movement
3. Breathing or respiration
4. Excretion (removal of waste)
5. Growth
6. Sensitivity (reaction to changes)
7. Reproduction

Materials: Magazine pictures, construction paper or tag board, glue, scissors

Recommended Resources:
What’s Alive? (Let’s Read and Find Out, Science 1) by Kathleen Weidner Zoehfeld
Living and Nonliving (Nature Basics), by Carol K. Lindeen

Pre-Zoo Lesson:
1. Gather various magazines. Prepare ahead by cutting out living and non-living objects. Glue the pictures on construction paper or tag board to make them sturdy for sorting.
2. Begin a discussion with the students. Ask them, “How do you know if something is alive?” Accept all answers.
3. Show the students the prepared answers one by one. Ask them if the object in the picture is alive. Have the students sort the pictures in two piles. Introduce the terms living and non-living.
4. Make a T-chart (see example on the following page) and list the attributes of each.
Living/Non-living Things

In-class Assessment:

1. To evaluate the students’ understanding of living and non-living, have them create their own T-Chart. Label the chart “Living” and “Non-Living.” Allow students to draw objects identified at the Zoo and/or distribute magazines to the students and instruct them to cut out pictures of objects and glue them under the appropriate heading.

2. Have the students compare the number of living to non-living items. Students may orally express equations, such as ‘there are two more non-living things than living things,’ or ‘the number of living is less than___,’ etc.

Post-Zoo Assessment:

3. Have students share what they determined was living/non-living at ZooTampa at Lowry Park and explain how they drew this conclusion.

<table>
<thead>
<tr>
<th>Living</th>
<th>Non-living</th>
</tr>
</thead>
<tbody>
<tr>
<td>Requires food, water, shelter, space</td>
<td></td>
</tr>
</tbody>
</table>

Example T-Chart
**Is It Living or Non-living?**

**Directions:** Put an “X” next to each item to identify if something is living or non-living. Give a reason for how you know.

<table>
<thead>
<tr>
<th>Living</th>
<th>Non-living</th>
<th>How do you know?</th>
</tr>
</thead>
<tbody>
<tr>
<td>Spray Fountains</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Petting Farm Goats</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Emus</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Flying Bananas Ride</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Plants</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Ponies</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Tiger Coaster</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Trees</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Koi Fish</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Now find three more things in Wallaroo that are **Living** or **Non-living**!

<table>
<thead>
<tr>
<th>Living</th>
<th>Non-living</th>
<th>How do you know?</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>3.</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Domesticated/Exotic Animals

Objective: Students will distinguish the difference between domesticated and exotic animals


Vocabulary: Exotic: In original, or natural state; not domesticated
Domesticated: Tamed to live with humans

Materials: Domesticated vs. Exotic Animal Cards

Pre-Zoo Lesson:
1. Introduce the words “exotic” and “domesticated.” Have the class work together to come up with definitions.
2. Have students sort the animal cards into three piles - one for animals that are EXOTIC, one for animals that have been DOMESTICATED to live with humans, and one for animals that are EXOTIC but have sometimes been DOMESTICATED.
3. Go through the pictures with the students and discuss whether the animals are exotic, domesticated, or can be domesticated. Discuss whether or not exotic animals make good pets, and why.

Post-Zoo Assessment:
1. Have the students identify one animal they found at the Zoo. Write why the animal should be, or could be, (or should not or could not) domesticated. Include what a human would need to provide in order to take care of it.
2. Have students complete the word search. After they have found all of the words in the puzzle, have them sort the words into the EXOTIC/DOMESTICATED/SOMETIMES DOMESTICATED Chart.
### Domestic/Exotic Animal Cards

<p>| | | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td><img src="zebra.jpg" alt="Zebra" /></td>
<td><img src="dog.jpg" alt="Dog" /></td>
<td><img src="parrot.jpg" alt="Parrot" /></td>
</tr>
<tr>
<td><img src="leopard.jpg" alt="Leopard" /></td>
<td><img src="horse.jpg" alt="Horse" /></td>
<td><img src="goldfish.jpg" alt="Goldfish" /></td>
</tr>
<tr>
<td><img src="iguana.jpg" alt="Iguana" /></td>
<td><img src="giraffe.jpg" alt="Giraffe" /></td>
<td><img src="baboon.jpg" alt="Baboon" /></td>
</tr>
</tbody>
</table>
Domesticated or Exotic?

<table>
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<tr>
<th>F</th>
<th>N</th>
<th>U</th>
<th>T</th>
<th>N</th>
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<th>F</th>
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<tr>
<td>W</td>
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<td>I</td>
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<td>B</td>
<td>G</td>
<td>H</td>
<td>H</td>
<td>K</td>
<td>G</td>
</tr>
</tbody>
</table>

horse       koala       goat       dog
pony        chicken     pig        turtle
wallaby     emu          cockatoo   parrot

Now find the animals from the puzzle in Wallaroo Station and classify them below!

<table>
<thead>
<tr>
<th>EXOTIC</th>
<th>DOMESTICATED</th>
<th>SOMETIME DOMESTICATED</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
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</tbody>
</table>
Primate World
Exploring with Senses

Objective: Students will use their sight, hearing, smell, and touch senses to explore the Primate World area of ZooTampa at Lowry Park


Vocabulary: Sight: the ability to see using the eyes
Hear: to perceive or be able to perceive sound
Smell: to detect or recognize something by means of sensitive nerves in the nose
Touch: to put a part of the body, especially the fingertips, in contact with something so as to feel it

Recommended Resources:
My Five Senses, Margaret Miller
The 5 Senses (Let's Learn About), Nuria Roca
Animal Senses: How Animals See, Hear, Taste, Smell and Feel, Pamela Hickman
Animal Talk: How Animals Communicate through Sight, Sound and Smell, Etta Kaner

Pre-Zoo Lesson:
1. Read a trade book to review how people use their five senses.
2. Use a KWL (Know, Want to Know, Learned) chart to determine which zoo animals use specific senses for survival.
3. Use field trip activity to compare and contrast what senses the students use and what senses they see the animals using.

Post-Zoo Assessment:
1. Complete KWL chart.
2. With a partner, or small group, have students create a chart/graph to identify the most important sense each animal uses.
Exploring Primate World with My Senses

In Primate World, I...

**SEE**
1. 
2. 

**HEAR**
1. 
2. 

**TOUCH**
1. 
2. 

**SMELL**
1. 
2. 

<table>
<thead>
<tr>
<th>Animal</th>
<th>Circle the sense you observe this animal using.</th>
<th>What were they using the sense for?</th>
</tr>
</thead>
<tbody>
<tr>
<td>Chimpanzee</td>
<td>See</td>
<td>Hear</td>
</tr>
<tr>
<td>Orangutan</td>
<td>See</td>
<td>Hear</td>
</tr>
<tr>
<td>Siamang</td>
<td>See</td>
<td>Hear</td>
</tr>
<tr>
<td>Mandrill</td>
<td>See</td>
<td>Hear</td>
</tr>
<tr>
<td>Lemur</td>
<td>See</td>
<td>Hear</td>
</tr>
<tr>
<td>Squirrel Monkey</td>
<td>See</td>
<td>Hear</td>
</tr>
<tr>
<td>Colobus Monkey</td>
<td>See</td>
<td>Hear</td>
</tr>
</tbody>
</table>
Primate Observation Log Activity

For each of the eight primates, students should record data that will be useful for a post-Zoo visit classroom exercise. Below is a brief description of each of the categories included on the Primate Observation Log.

1. **Locomotion** - Many of the primates are both bipedal (walking upright on the hind legs) and quadrupedal (using all four limbs to move). Encourage the students to watch carefully the positions for the hands and feet as the primate walks. Some primates, such as the siamang, are most at home when swinging from branch to branch (brachiating) through the trees.

2. **Arm Length** - To help the student evaluate the relative proportions of the limbs of primates, have each students measure the length of the primate’s legs. The arms will be greater than (>), less than (<), or equal to (=) the length of the legs. As a post-Zoo visit exercise, you could relate the relative length of the arms with the primary mode of locomotion.

3. **Tail** - The presence or absence of a tail signifies if the primate is an ape or a monkey.

4. **Status** - Most primates are either endangered or threatened, note the symbol on each of the signs at the Zoo signifying the status of that species. The symbol has the skull of a “generalized antelope” on it identifying an endangered specifies. (Official symbol of the American Association of Zoological Parks and Aquariums)

5. **Reason for Status** - Most species become endangered because of destruction of their habitat. Point out to your students the reason for the habitat destruction (clear-cutting of forests for wood products, clearing the land for agricultural purposes, etc.)

6. **Observed Behavior** - In order to estimate how primates allocate their time, students will observe an individual (of one or several special, whatever time allows) for a predetermined amount of time (at least a few minutes). Students will make a tally in the appropriate behavior box based on what their individual is doing every ten seconds (these intervals will be called out by the instructor). At the end of the observation period, the students will have an estimation of amount of time spent on each behavior based on frequency.

**Analysis**: Back in school (post-visit), select one or two species (those that were most active on the day of the visit), to illustrate an “activity histogram.” Sum the total tallies for each behavior and plot these on a bar graph (histogram) to help students visualize how much time was spent on each behavior. As an addition display method, percentage of time spent on each specific behavior can be calculated by adding up tallies (representing ten seconds of time each) compared to the total observation time. These percentages can be displayed as a pie chart.
### Primate Observation Log

<table>
<thead>
<tr>
<th>Animal</th>
<th>Sitting</th>
<th>Grooming</th>
<th>Feeding</th>
<th>Playing</th>
<th>Other</th>
<th>Observed Behavior</th>
<th>Status</th>
<th>Reason for Status</th>
<th>Preliminary Tall</th>
<th>Am Length</th>
<th>Location</th>
</tr>
</thead>
<tbody>
<tr>
<td>Monkey</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Wolf</td>
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**Chart Symbols**
- **+** Greater Than
- **-** Less Than
- **F** Frustrated

**Observer:**

**Date:**

**Time:**

**Student Handout**
Primate Vocabulary

Objective: Students will use new vocabulary terms to help them complete a fill-in-the-blank activity


Vocabulary:

- **Arboreal** - living in trees (not aquatic, aerial, or terrestrial)
- **Arm span** - the length from fingertip to fingertip of an animal’s outstretched arms
- **Communicate** - to share information, thoughts, or feelings; communication can happen through sound, sight, smell, or many other methods
- **Genes** - the strands of DNA in a living thing that controls the way it grows and its characteristics
- **Mature** - completely grown or developed
- **Predator** - an organism which eats other organisms
- **Prehensile** - with the ability to grasp or hold
- **Scent** - the odor or smell of an animal
- **Terrestrial** - living on or in the ground (not aquatic, arboreal, or aerial)
- **Territory** - an area inhabited or defended by an individual or group of animals

Pre-Zoo Lesson:

Discuss/introduce the above vocabulary with students, explaining how context can be useful in determining what new words mean, as well as by comparing the words to other words which may be familiar. Use the “Primate Fill-in-the-Blank” activity while at the Zoo to further develop context cues and proper usage of the vocabulary terms. Discuss how science uses specific terms when classifying animals.
Primate Fill-in-the-Blank

Use the information on the signs in front of the animal exhibits in Primate World to answer the questions below.

**Bornean Orangutan**

The Bornean Orangutan has very long arms which helps them to climb. Their arm span is __________ long which means that they have a greater arm span than body height.

Our **genes** are like blueprints or directions for how our bodies grow. Do you notice some similarities between the bodies of humans and orangutans? That is because we are __________ % genetically identical. That means we share a lot of the same DNA, which is what makes up our genes.

**Chimpanzee**

Chimpanzees are a protected species and are listed by the CITES organization. CITES stands for C__________ on I__________ T__________ in E__________ S__________. This organization helps to make sure that wild plants and animals are not threatened by trading them to other countries.

Even though many primates spend a lot of time in trees, chimpanzees are terrestrial, which means that they live and spend most of their time on the ground. Even though they don’t climb trees often, they still live in tropical __________, which have many trees and plants.

**Ring-tailed Lemur and Collared Lemur**

Do you notice that lemurs have long noses compared to other primates? Lemurs use **scent** to communicate and mark their territory. Ring-tailed lemurs will rub their tails with their own scent and will have “__________-fights” with others in their group.

Because they are small, lemurs have to constantly watch for predators. In order to warn others in the group of a predator, Collared Lemurs will **communicate** with sounds. For aerial predators, they will use an “alarm __________” and for ground predators they will use “__________ and tail wagging.”
Primate Fill-in-the-Blank (continued)

*Siamang Gibbon*

Siamangs can be very loud when they make their calls. Pairs of siamangs will often sing several times a day to communicate their territory to other animals within hearing range. Because of their calls, they are called the “__________ apes.”

With their incredible, long arms, they will swing between branches to travel. Another way to say that they “arm-swing” is to say that they __________.

*Red-tailed Guenon and Wolf's Guenon*

Guenons have special __________ pouches that they can use to store food so that they can take food with them to eat in another area. The skin that makes up the cheek pouches on a guenon is stretchy and they can store almost as much food as they can keep in their stomach.

When their cheeks are full, they can climb to hard to reach places such as treetops where they will be safe from large predators. One of their predators in the wild is another primate that we have at the Zoo which is the __________.

*Angolan Colobus Monkey*

The Colobus Monkey eats mostly leaves, while most primates tend to eat a lot of fruits. Because of their special diet they need a special enlarged __________ to help them digest their food.

The fur of the Colobus Monkey has a very unique black and white pattern, which helps them to see others in their group. The babies are born completely __________ in color, and will eventually look like their parents when they mature, or grow up.

*Golden Lion Tamarin and Bolivian Gray Titi*

Golden Lion Tamarins are an arboreal primate which means they spend very little time on the ground, and most of the time in trees. They will sleep in tree __________ which help them stay warm and safe.

When a baby Bolivian Gray Titi is born, they will spend most of the time with the male parent. They will go back to the female parent to nurse. A pair of titis will __________ their tails, which means that they wrap their tails together.
**Primate Fill-in-the-Blank - Answer Key**

**Bornean Orangutan**

The Bornean Orangutan has very long arms which helps them to climb. Their arm span is _8 ft____ long which means that they have a greater arm span than body height.

Our genes are like blueprints or directions for how our bodies grow. Do you notice some similarities between the bodies of humans and orangutans? That is because we are _97____ % genetically identical. That means we share a lot of the same DNA, which is what makes up our genes.

**Chimpanzee**

Chimpanzees are a protected species and are listed by the CITES organization. CITES stands for Convention____ on International____ Trade____ in Endangered____ Species_____. This organization helps to make sure that wild plants and animals are not threatened by trading them to other countries.

Even though many primates spend a lot of time in trees, chimpanzees are terrestrial, which means that they live and spend most of their time on the ground. Even though they don’t climb trees often, they still live in tropical _rainforests____, which have many trees and plants.

**Ring-tailed Lemur and Collared Lemur**

Do you notice that lemurs have long noses compared to other primates? Lemurs use scent to communicate and mark their territory. Ring-tailed lemurs will rub their tails with their own scent and will have “_stink____-fights” with others in their group.

Because they are small, lemurs have to constantly watch for predators. In order to warn others in the group of a predator, Collared Lemurs will communicate with sounds. For aerial predators, they will use an “alarm _bark________” and for ground predators they will use “_grunting_______ and tail wagging.”
Primate Fill-in-the-Blank - Answer Key (continued)

Siamang Gibbon

Siamangs can be very loud when they make their calls. Pairs of siamangs will often sing several times a day to communicate their territory to other animals within hearing range. Because of their calls, they are called the “singing______ apes.”

With their incredible, long arms, they will swing between branches to travel. Another way to say that they “arm-swing” is to say that they _brachiate______.

Red-tailed Guenon and Wolf's Guenon

Guenons have special _cheek_____ pouches that they can use to store food so that they can take food with them to eat in another area. The skin that makes up the cheek pouches on a guenon is stretchy and they can store almost as much food as they can keep in their stomach.

When their cheeks are full, they can climb to hard to reach places such as treetops where they will be safe from large predators. One of their predators in the wild is another primate that we have at the Zoo which is the _Chimpanzee______.

Angolan Colobus Monkey

The Colobus Monkey eats mostly leaves, while most primates tend to eat a lot of fruits. Because of their special diet they need a special enlarged _stomach_____ to help them digest their food.

The fur of the Colobus Monkey has a very unique black and white pattern, which helps them to see others in their group. The babies are born completely _white_____ in color, and will eventually look like their parents when they mature, or grow up.

Golden Lion Tamarin and Bolivian Gray Titi

Golden Lion Tamarins are an arboreal primate which means they spend very little time on the ground, and most of the time in trees. They will sleep in tree _cavities______, or holes, which help them stay warm and safe.

When a baby Bolivian Gray Titi is born, they will spend most of the time with the male parent. They will go back to the female parent to nurse. A pair of titis will _entwine_____ their tails, which means that they wrap their tails together.
FLORIDA BOARDWALK
Animal Classification

Objective: Students learn to classify animals based on attributes


Vocabulary: Attribute: a quality, property, or characteristic of somebody or something
Classification: the categorization of organisms into defined groups on the basis of identified characteristics.

Materials: 3x5 index cards, crayons, colored pencils, markers, glue, magazines or other resource materials

Recommended Resources:
What is the Animal Kingdom? (Science of Living Things), Bobbie Kalman & Kathryn Smithyman
What are Food Chains and Webs? (Science of Living Things), Bobbie Kalman & Jacqueline Langille
How do Animals Adapt? (Science of Living Things), Bobbie Kalman & Niki Walker

Pre-Zoo Lesson: Choose one of these options to introduce classification.

1. Read a trade book on the topic. While reading, emphasize the attributes of that classification. After reading the book, have the students list the attributes on the board. Then give each student a 3”x 5” index card. Assign a different attribute to each student. Instruct them to write the attribute on the card and then illustrate it.

2. Collect pictures from magazines of animals for a particular classification. Glue the pictures to construction paper or tag board. Show the pictures to the students and ask them to identify the attributes for the animals. You can then use the 3” x 5” index cards, as described in Option 1, to create a bulletin board

Post-Zoo Assessment:

1. Create a class graph comparing attributes with the animals that have them. What are the most common attributes? The least common?

2. In a small group, create a Venn Diagram comparing and contrasting two animals, based on their attributes.
**Animal Classification: Graphing Attributes**

**Directions:** Observe 10 animals in their exhibits on the Florida Boardwalk. Graph their attributes.

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**Which 10 animals did you use for this graph?**

1. __________________________
2. __________________________
3. __________________________
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7. __________________________
8. __________________________
9. __________________________
10. _________________________
Why Are Amphibians So Slimy?

Objective: Students will identify the importance of mucus to amphibians.


Vocabulary: Amphibian: a cold-blooded vertebrate that spends some time on land but must breed and develop into an adult in water. Frogs, salamanders, and toads are amphibians
Mucus: the clear slimy lubricating substance consisting mostly of mucins and water that coats and protects mucous membranes secretion
Vertebrate: an animal with a segmented spinal column and a well-developed brain, e.g. a mammal, bird, reptile, amphibian, or fish

Materials: Play dough (see recipe- has better texture than store-bought), Vaseline
Play dough: 1 cup flour, 1 cup salt, 1 tsp cream of tartar, 1 cup water, 1 tablespoon oil, food coloring
Cook the ingredients on low heat until thick and lumpy. Knead the dough. CAUTION! It will be hot! Store in Ziploc type bags until ready to use.

Recommended Resources:
Tale of a Tadpole (DK Reader) by Karen Wallace
What is an Amphibian? (The Science of Living Things) By Bobby Kalman
A Salamander’s Life by John Himmelman
All About Frogs by Jim Arnosky
Frogs and Other Amphibians, By Kathryn Smithyman & Bobby Kalman

Pre-Zoo Experiment:
1. Make a chart listing the different types of amphibians and what they look like
2. Demonstrate the importance of the mucus coating for preventing the amphibian from drying out by doing following the experiment.
3. Working in small groups, have the students create two of the same amphibians out of play dough.
4. Have them coat ONE amphibian with Vaseline. This will represent a mucus coating. The other should remain uncoated.
5. Allow the dough amphibians to sit out, side by side, for three days
6. Record observations in science journal, or on the data collection sheet.
7. Have students speculate what the results of this experiment would mean to a real amphibian.

Post-Zoo Assessment:
1. Be sure to visit the amphibians in the Manatee Tunnel on the Florida Boardwalk
2. In their journals, have students compare and contrast the amphibians they saw at ZooTampa at Lowry Park with the one they used in their experiment. Have them determine whether or not they noticed the mucus covering.
**Why Are Amphibians So Slimy? - Datasheet**

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**EVALUATE:** How is this experiment similar to what real amphibians experience?
How Do I Know It’s a Reptile?

Objective: Students learn to classify animals as reptiles


Vocabulary: Reptile: an air-breathing cold-blooded egg-laying vertebrate with an outer covering of scales or plates and a bony skeleton, e.g. the crocodile, tortoise, snake, or lizard
Cold-Blooded: describes an animal with an internal body temperature that varies according to the temperature of the surroundings
Vertebrate: an animal with a segmented spinal column and a well-developed brain, e.g. a mammal, bird, reptile, amphibian, or fish
Scale: any of the small, flat, bony, or horny overlapping plates that cover the bodies of fish and some reptiles and mammals. Scales allow warmth to penetrate skin so that internal organs can be warmed, or conversely, they allow the reptile to cool down quickly if necessary.

Materials: Metal cans with ridges (eg: soup can), sections of fishnet nylon stocking to fit over can, basin of water

Recommended Resources:
- Smart Kids: Reptiles, by Roger Priddy
- What is a Reptile? (Science of Living Things) by Bobbie Kalman

Pre-Zoo Lesson: To demonstrate how reptiles have dry, scaly skin and are also vertebrates and cold-blooded, conduct the following experiment.

1. Chill cans so that they are cold to touch (but not wet). Have students judge the temperature of the cans. Discuss ways can would be able to become warmer if it were a reptile.
2. Have student feel fishnet nylon piece – direct them to use words such as dry, scaly, etc.
3. Place fishnet nylon piece over can – ask the students whether or not this piece would be able to warm a can on its own. Discuss this as a characteristic of reptiles.
4. Point out that ridges of can simulate the vertebrae of reptiles.
5. Bring covered can into the sun or under warming lamp. Leave in warmth for about 10 – 15 minutes. Then have students feel the difference in temperature, and record observations in science journals with conclusions including that cold-blooded animals need sun or a warming light (such as in a pet store) to give them energy.
6. Next, place the warmed can in water to cool down. Have students record in journals when and why a reptile might need to submerge itself.
7. Determine if texture of “skin” changes whether cold, warm, or wet.
8. Discuss how the change of seasons may affect reptiles.
FREE FLIGHT AVIARY
**Objective:** To examine bird feathers up close and determine how substances in the environment can affect feathers and the health of birds.


**Vocabulary:**
- **Bird**: a two-legged, warm-blooded animal with wings, a beak, and a body covered with feathers. Birds lay eggs from which their young hatch, and most species can fly.
- **Preening**: to clean, smooth, or arrange feathers with the beak
- **Barbules**: slender filaments attached to the thicker spine barbs on a feather's central shaft and interlocking with others
- **Vertebrate**: an animal with a segmented spinal column and a well-developed brain, e.g. a mammal, bird, reptile, amphibian, or fish

**Materials:** Feathers, magnifying glasses, cooking or baby oil, water, liquid soap, small container, science journals

**Pre-Zoo Lesson:** To demonstrate to the students the effects chemicals can have on feathers, do the following experiment. Students may work in groups, or this can be a demonstration by the teacher.

1. Show the students several different types of bird feathers (found or bought at a craft or educational store). Ask them, “What do you think happens to a feather when a bird rubs up against a branch in a tree?” Demonstrate by pulling some of the feather quills apart and putting them back together. This is called preening.
2. Brainstorm with students other ways they think this may happen to birds’ feathers.
3. Demonstrate how to use a magnifying glass and allow the students to discover the barbules that lock together with hooks to produce a smooth surface.
4. Pour some water in the small container. Dip a feather in the water and observe the feather with the magnifying glass. Allow feather to dry and record observations.
5. Pour oil in the water. Dip another feather in the oil and observe the feather with the magnifying glass. Allow the feather to dry and record observations.
6. Use the liquid soap to clean the feather that was dipped in oil. Allow the cleaned feather to dry and record observations.
7. Discuss with the students the effects of oil and soap on the feathers, and also how ingesting or being exposed to these materials may be unhealthy for the birds.

**Post-Zoo Assessment:**

JOURNAL: You just found out that a local car repair shop is dumping oil in a nearby river. Write a letter to the county and also the car repair shop stressing the importance of protecting the animals in the river’s habitat.
Aviary Identification Activity

Identify each of the following species in the Free Flight Aviary:

1. [Image of bird]
2. [Image of bird]
3. [Image of bird]
4. [Image of bird]
ASIAN GARDENS
How Do I Know It’s a Mammal?

Objective: Students learn to classify mammals by their attributes


Vocabulary: Mammal: a class of warm-blooded vertebrate animals that have, in the female, milk-secreting organs for feeding their young. The class includes human beings, apes, many four-legged animals, whales, dolphins, and bats.
Warm-Blooded: maintaining a nearly constant body temperature, usually higher than, and independent of the environment
Blubber: the insulating fat of whales and other large ocean mammals.
Buoyancy: the tendency of an object to float
Vertebrate: an animal with a segmented spinal column and a well-developed brain, e.g. a mammal, bird, reptile, amphibian, or fish

Materials: Lesson #1: 4 cans, Ice, Plastic wrap, Lightweight material, Furry material
Lesson #2: 1 can of vegetable shortening (e.g. Crisco), 2 gallon-sized freezer bags, Bucket, Ice, Cold Water

Pre-Zoo Lesson #1:

To demonstrate how fur is essential to most mammals, do the following experiment. Wrap a can in each of the following different materials: plastic, lightweight material, furry, unwrapped
1. Add ice to the inside of each can.
2. Allow the cans to stand for a few minutes while you discuss the attributes of each can.
3. Have the students feel the outside of each can to feel the effects of the cold.
4. Have students record their observations in their science journals, or on the accompanying datasheet.

Pre-Zoo Lesson #2:

To demonstrate the importance of blubber for warmth and buoyancy, fill up bucket with ice cold water – but not so much that it will overflow once the students place their hands into it.
1. Ask students to feel the ice cold water. Discuss how an animal without fur or blubber could survive such cold temperatures.
2. Fill one freezer bag with vegetable shortening. Place another bag in to the shortening-filled bag so that it serves as a glove protecting hands from feeling the shortening.
3. Have students put one hand in the freezer bags and then place hand and bags into bucket of ice water. Ask them to record how they are protected from the water by the “blubber,” and whether their hands are sinking or floating.
How Do I Know It’s a Mammal? - Datasheet

How did each sample feel when touched?
- Can covered with plastic:
  - Can covered with light material:
  - Can covered with furry material:
  - Can with no covering:

Which can was the **coldest** to touch?

Which can is most like a mammal?

Describe how the water felt without insulation.

Describe how the water felt with insulation.

Explain how fur (or winter clothes) and blubber help warm-blooded mammals survive.
Mammals of Asian Gardens

Unscramble the following names of animals found in Asian Gardens. Then find each animal at the Zoo and determine whether or not it is a mammal.

1. MOODOK GARDNO
   _______ _______  __ mammal  __ not a mammal

2. APITR
   ________________  __ mammal  __ not a mammal

3. GRITE
   ________________  __ mammal  __ not a mammal

4. NOANA
   ________________  __ mammal  __ not a mammal

5. LOHTS REAB
   _______ _______  __ mammal  __ not a mammal

6. NOPD TTRULE
   _______ _______  __ mammal  __ not a mammal

7. LCUODDE OLEPADR
   _______ _______  __ mammal  __ not a mammal

8. RABBIRUAS
   ________________  __ mammal  __ not a mammal

9. NIDAIN HNIRO
   _______ _______  __ mammal  __ not a mammal

10. TEEIRKOL
    ________________  __ mammal  __ not a mammal
SAFARI AFRICA
Animal Habitats

Objective: Students will identify animal habitats


Vocabulary: Habitat: the natural conditions and environment in which a plant or animal lives, e.g. forest, desert, or wetlands
Desert: an area of land, usually in very hot climates, that consists only of sand, gravel, or rock with little or no vegetation, no permanent bodies of water, and erratic rainfall
Forest: a large area of land covered in trees and other plants growing close together, or the trees growing on it
Wetland: a marsh, swamp, or other area of land where the soil near the surface is saturated or covered with water, especially one that forms a habitat for wildlife
Grassland: land on which grass or low green plants are the main vegetation
Savannah: large flat area of land covered with grass in a warm part of the world

Recommended Resources:

The Magic School Bus Hops Home: A Book About Animal Habitats, by Pat Relf
The ABCs of Habitats (ABCs of the Natural World), by Bobbie Kalman
A Rainforest Habitat (Introducing Habitats) by Molly Aloian
A Forest Habitat (Introducing Habitats) by Bobbie Kalman
A Grassland Habitat (Introducing Habitats) by Kelley Macaulay
The Arctic Habitat (Introducing Habitats) by Molly Aloian
A Savanna Habitat (Introducing Habitats) by Bobbie Kalman
A Wetland Habitat (Introducing Habitats) by Molly Aloian
The Antarctic Habitat (Introducing Habitats) by Molly Aloian

Pre-Zoo Lesson:

1. Discuss with students the basic components of a habitat: food, water, shelter, and space, using a book on habitats as a resource.
2. Have students identify animals from the previous lessons that live in different environments.
3. As a group, detail on the board, or chart paper each animal’s habitat needs.
4. Record the animal names and adaptations on slips of paper. Place the slips of paper in a bag or box. Then place students in pairs or groups. Have each pair or group choose an animal from the bag and then use one of the options below to create a habitat for that animal.
5. Bring class outside to determine what habitats are near your school, or in your town.
Animal Habitats

Option 1: **Habitat Drawing:** Students draw and label the key needs in a picture of their animal’s habitat.

Option 2: **Habitat Bag:** Students will need a paper grocery bag, scraps of construction paper, and any other craft supplies available. Students need to cut up the front of a grocery bag so that they can open the flaps like two doors. Inside the bag, students create their habitat for the zoo animal they chose. They may create their zoo animal with paper, play dough or any other items available.
Safari Africa Habitats

Find each of the listed animals in Safari Africa at the Zoo. Draw a line from the name of each animal to the type of habitat in which they live.

Okapi

Southern White Rhino

Pygmy Hippo

Southern Ground Hornbill

Giraffe

Red River Hog

Kenyan Impala

Bay Duiker

Kenyan Impala

Dense Rainforest

Savanna

Wetlands (swamp, river, marsh)