Interpretation Guide

"The main goal of the interpreter is to translate the technical language of experts to the 'everyday' language of the visitor."
- John Veverka

An educational activity which aims to reveal meaning and relationships through the use of original objects, by firsthand experiences, and by illustrative media, rather than simply communicate factual information.
- Freeman Tilden, Interpreting Our Heritage (1957)

Interpretation is a communication process that forges emotional and intellectual connections between the interests of the audience and the inherent meanings in the resource.
- National Association for Interpretation (2000)

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How we teach matters

When the Zoo is successful in its mission, visitors leave with knowledge and enthusiasm to act for conservation. Endless lists of facts or lectures or signs won’t do that. Signs decorate, people educate. People interacting with visitors in thematic activities and having experiences is an effective way to inspire our visitors to create a better future for wildlife.

“We Learn . . .
10% of what we read
20% of what we hear
30% of what we see
50% of what we see and hear
70% of what we discuss
80% of what we experience
95% of what we teach others.”

- William Glasser
Introduction to Interpretation

Goals of Interpretation

Provoke
Grab on to your audience by stimulating their thoughts, curiosity and feelings

Relate
Help the visitor relate the importance of our message(s) to their everyday lives

Reveal
Give visitors the answer, or the "big picture"

Objectives of Interpretation

∙ To increase the guest's understanding, awareness, and appreciation of animals and nature
∙ To communicate meaningful messages
∙ To involve guests through personal experience
∙ To affect the behavior and attitudes of guests
∙ To provide an enjoyable and meaningful experience for our guests

Elements of a Successful Interpretive Program

Three elements contribute to making a successful interpretive program. Your program needs to be:

∙ Organized
∙ Relevant
∙ Enjoyable

Organized
Like every other kind of presentation, a successful interpretive program needs to be well organized. When concepts are presented in a logical sequence, it is easier for the audience to remain focused. In addition, several studies have shown that most humans are not able to retain more than five separate concepts at one time. A successful interpretive program, then, will present no more than five concepts linked to each other in logical succession.

Look at the following sequences. Which one is easier to count, A or B?

A. + + + + + + + + + +

B. + + + + - - - - - -

Even if B has the same amount of information than A, it is easier to sort out because it is ORGANIZED into two categories.
**Relevant**

Visitors are much more likely to enjoy, and to retain, information if it is presented in ways that are relevant to their own personal experience. Link your presentation to something the audience knows and cares about. For example, if you are interacting with guests in front of the lion exhibit, do not launch right away to a description of lion natural history. Instead, ask your audience questions like: "Are lions similar to your house cat?" "In which ways?" "How are they different?" In this way, your visitors will be able to draw comparisons between lions and animals with which they are much more familiar, like their own house cat.

Another method is to ask the visitor what they already know or what experience they have with an animal and go from there with your interpretation. For example, in front of the bear exhibit, you can ask them if they have ever encountered a bear or heard stories of others’ bear encounters and use that as your starting point of interpretation.

**Enjoyable**

One of the essential qualities of interpretation is that it is entertaining. Our visitors are interested in the animals but not in dry lectures. Our job as interpreters is to convey information in ways that enable the visitors to have fun while they are learning. These are some tips to make your interpretive programs enjoyable:

- Use a conversational tone
- Avoid reading from notes
- Incorporate humor, music, sounds, two-way communication
- Incorporate objects (biofacts)
- Use comparisons, analogies, metaphors
Introduction to Interpretation

Effective Communication

Body Language

"Nonverbal communication is a basic, primitive form of conveying information from one person to another. It has been estimated that in a normal conversation between two people, only one-third of the meaning is transmitted on a verbal level, and nearly two-thirds on a nonverbal level." (N. T. Brill, Working With People, 1973, p. 36.)

Posture

Be relaxed, but stand up straight! This will give you self-confidence on grounds. Who wants to approach someone slouched over a railing? Also avoid rocking back and forth (the Jay Leno style!). Good posture projects a positive image of personality and leadership. Standing up straight will also allow you to improve your voice quality since your rib cage will be elevated slightly.

Eye Contact

Eye contact is probably one of the most important and influential factors in establishing rapport with an individual or group. When welcoming a group, try to make eye contact with each person right away by slowly moving from one person to the next. Direct eye contact should occur in question and answer situations.

Careful: some students and individuals from other cultures may be discomforted by direct eye contact, so use your judgment; make them feel comfortable.

Arms, Hands and Gestures

Arm movements should be used naturally. Hold your hands and arms either at your side or just in front of your body. Crossing your arms may convey discomfort or disinterest in the visitor. Putting both hands in your pockets often displays nervousness. If you must put your hands in your pockets, only put one in at a time; this conveys relaxation. Occasionally point to the animal or exhibit you are interpreting, but maintain a focus on the visitor.

Laughter

Laughter breaks down barriers. Children laugh easily; adults often need coaxing. However, choose humorous anecdotes or jokes carefully. Avoid prejudicial, sexist or derogatory statements or jokes. Be careful not to use cynicism with children; they often do not understand it.

Voice

Enunciation

Enunciation is important in interpretation so that your visitors are able to hear and understand what you are saying. Depending on the size of your group, you will need to alter the strength of your voice. Vary your speaking rate for emphasis and feeling. Practice enunciating words clearly by reading something out-loud.

Sentence Structure

The best sentences are the short ones. Specific, clearly stated sentences are the easiest to interpret by visitors. Practice speaking without using “ums” and “uhhs.”
Introduction to Interpretation

Interpretive Techniques

Observation

Most visitors only see what they want to see or think they can see. Observation is a tool to help visitors use all their senses to engage their learning; for instance, learning how to find an animal that may not be visible in its exhibit. By observing an animal's actions or features, we can apply further methods to interpreting the animal and its habitat. Help visitors understand that we can learn about animals by using our eyes, ears and noses. Suggested ways to provoke a visitor:

"There is an African animal in this exhibit called a warthog. Do you see it? No? Well, it's there... use your eyes a little more and see if you can spot the warthog. You found it? Great! Do you know why it was hard to find the animal at first? Well, it's called camouflage, which means..."

"Do you smell that musky odor? That's the porcupine. Why do you think it smells like that? Well it's an adaptation..."

Using Objects to Teach (Representation)

An object is anything other than verbal teaching, such as a biofact, picture or any other tangible material. Using objects helps the visual and tactile learner. It allows the learner to understand a concept by putting it into real-life meaning. People remember what they experience. Objects give spice to your interpretation; they change the pace of a simple verbal interpretive setting, and they heighten curiosity. Examples of objects include:

- A gummy bear to show the size of a baby wallaby when it is born
- Eye glasses with large eyes put on them to show the size of an owl's eyes in relation to the size of their head to demonstrate the adaptation for seeing better in low light
- A sieve to help demonstrate how some birds, like a flamingo, use their beaks to filter small crustaceans from the water
- Pictures of natural habitats to show visitors what the animal's natural habitat looks like (or to show habitat destruction with older audiences)
- Puppets to help engage younger visitors
Interpreting Biofacts

Demonstrating or interpreting biofacts to visitors is included in many Interpretive Programs and interactive exhibits. Using biofacts with the guests allows us to do the following:

- Appeal to their curiosity, attracting them so you can serve as a resource.
- Give them the chance to experience an animal otherwise dangerous or unapproachable.
- Offer visually-impaired guests the opportunity to gain a broader sense of our animal collection.
- Increase the likelihood our visitors will remember more of what we are presenting.
- Attract the learners that are not going to read the graphics/listen to a narrator.

When you are presenting a biofact to the visitors, they may ask you, "What is it?" Avoid automatically telling them the answer. Instead, ask questions and give them clues to aid their discovery. You may be asked, "Where did you get it?"

Answer truthfully and share how we can honor the animals in our care by continuing to learn from them after their deaths.

Be mindful that most of our biofacts came from our collection and were once living things. Treat them with respect. Most biofacts were expensive to prepare and are irreplaceable, so handle them carefully, return them in the original packaging and always keep them protected from theft.

Compare and Contrast

One way to help visitors understand the diversity of the animal kingdom is to guide them with comparing similar characteristics in animals, as well as contrasting their differences. For example, you can compare two different animals - "How is a bird like a bat?" - in order to allow visitors to better understand similar characteristics in different classes or animals, and then ask them - "How are birds and bats different?" - in order to help you teach the visitors about the differences between birds and mammals.

Analogies

Analogies allow a learner to understand a new concept by putting it into terms with which they are already familiar. For example, ask students if they have ever seen a bald eagle carrying a fish in the air. A 14 pound bald eagle lifting a 4 pound fish out of the water would be like a 150 pound human lifting a 43 pound item. Another analogy: How high can a snow leopard jump? (up to 20 feet) Almost as high as 5 of you stacked on top of each other!

Games

Games allow for your group to explore a concept while having fun. Oftentimes, games may become a bit "chaotic" and must be used with discretion and supervision. Guessing games, riddles and word associations are not physical, and therefore may not physically "energize" your visitors as much as movement-based games. With small children, you may have them move or sound like a certain animal. Most young children are not afraid to act silly. Older students or visitors usually respond well to verbal games.
Using Props

Props: any object which illustrates concepts included in your interpretive presentation.

Why are props good to use?

1. People pay attention to and are attracted to things they are curious about. Props are a great hook to bring people into your presentation.

2. Props also give you credibility. They create a sense of expertise and they build trust in the audience that you know what you're talking about.

3. Props set the scene for your theme showing people what your presentation is about.

4. Props provide an activity for visitors to do and an opportunity to touch something, compensating for not getting to touch the animals.

The most effective props are...

1. ...the ones that people can touch or manipulate themselves.

2. ...that are directly related to the animal you’re presenting, i.e: a tiger pelt and/or whiskers while at the tiger exhibit.

3. ...the next best props are active, letting people do something: stick something on, take something off, pick it up, move it from one spot to another, or just holding it up for you:
   - show how the jaw hinge works by moving it up and down
   - poke a stick into a model of a termite mound
   - pour water on a model of a field to show erosion
   - build a model to show the parts of a habitat
   - add the parts of a food web one by one onto a felt board

Examples of Props:

Real objects: pelts, bones, skulls, feathers, keeper's or vet's tools, food samples, shells, mounted specimens.

Models: oil/water mixing jar, felt cut-out of a fruit bat wing, anatomical model of an animal (anemone, snake head), home-made slime, flexible backbone, a string the length of an animal's leap.

Graphics: signs in the zoo pictures, books, map of the animal’s country, chart showing a species population decline
Guidelines for using props

1. Know and follow the biofacts use guidelines.

2. Make sure everyone can see it.
   a. If it's small, have several. (bag of penguin feathers)
   b. Hold the prop high.
   c. Stand close to your audience, turn left and right, pausing to give everyone a chance to see.

3. When pointing to a part of the prop, point for a fairly long time.

4. When showing a general area, make big slow movements.

5. Don't talk to the prop, maintain eye contact with the audience.

6. Use props as analogies; fill a can with balls until it overflows showing carrying capacity, use a flashlight to show the sun’s energy.

7. Use all the senses: smell food samples, listen to a recording of a wolf howl, feel sandpaper or silk, taste seaweed treats.

8. Animate the prop (in appropriate ways), make it move, mimic the animals movement, slowly open a jaw as you describe how a grizzly catches a fish.

9. Know the exhibit signs in your area and use them as props, answer questions by directing the audience to the signs, incorporate the sign into your activity or direct the audience to them following your presentation.

10. If you're using a large diagram, map or photo, prop it up on an easel or attach it to a wall so you don't have to hold it.

11. Plan how you will introduce and conclude use of the prop.

12. Practice how you'll manage using your prop.

Don’t forget the most important prop: The Animals!!!
Using Questioning Strategies

We don’t want to talk at our audience, we want to engage in a conversation with them and engage them in our presentation. This can be done by asking them questions. Good questioning starts broad and become more focused as you progress. This creates a conversation between you and your audience.

I. OPEN ENDED QUESTIONS
Anyone can answer, every answer is right, good way to warm up your audience, let them know this is non-threatening, not a quiz.
- What’s the first thing you noticed when you walked in?
- What does this exhibit make you feel like?
- What are you thinking about?
- What do you see...
- What do think of when I say?

II. FOCUS
Zero in on specifics, focus on details, more detailed, make comparisons or contrast two or more things, direct attention to...
- What do you see in this habitat? What color pattern do you see on the tiger?
- Where can the animal find each required part of a habitat in this exhibit?
- How would you describe what the animal is doing?
- What is different about this exhibit?

III. INTEGRATING
Integrates information rather than just recalling or describing, applies observations, allows audience to discover their own conclusions.
- What do the tracks tell you about the zebras’ movement?
- How is this exhibit different from or similar to other exhibits you’ve seen?
- How are these animals related to others you’ve seen?

10 Tips for Questioning
1. Address questions to the whole group
2. Wait for an answer (count to 5)
3. Ask different people questions
4. Help the person answering
5. Redirect wrong answers
6. Rephrase questions if no one can answer
7. Direct questions to children; adults will automatically help them
8. Ask why, what, and how questions (not yes/no)
9. Vary the type of questions
10. Give answers that you know are accurate and true, If you don’t know, say: “I DON’T KNOW”!!!
Developmentally Appropriate Practice
(The following section was adapted from the Denver Zoo Docent Training materials.)

Are you demonstrating DAP?
Developmentally Appropriate Practice (DAP) matches the learning environment a presenter creates (the physical set-up, materials, schedule, information and teaching methods) to the developmental levels of their audiences. If you are demonstrating DAP, then your station will be a much bigger hit!

If you use DAP:
- Children have better comprehension and retention.
- There are fewer struggles to get children to engage in the program.
- Children and adults can learn together.

Why don’t we all use DAP?
- We tend to use the teaching style with which we are most comfortable. Sometimes relying on props, skits or visual aids is not developmentally appropriate while allowing for more personal discovery and interaction is.
- We tend to focus more on sharing facts about nature than on the process of learning—something that is very important, especially in young children.

Age Groups typically Encountered in Zoo programs
- 0-5    Infant to Preschool
- 6-11   Elementary
- 12-14  Middle School
- 15+    High School to Adults (not separated for this particular purpose but they are different)

Strategies Appropriate for ANY Age or Developmental Stage
- Provide lots of eye contact
- Say “Hello” and invite them to join you
- Use animation, facial expression and gestures
- Use of visual aides
- Use of objects (photos, biofacts, etc.)
- Elicit prior knowledge
- Be inquisitive—ask lots of questions!
- Provide sufficient wait time for reflection and response
- Be fun and engage your audience
- “Read” your audience by watching for behaviors that indicate interest, alarm, desire for more, or desire to move on.
Children Under the Age of 6

This age group is one of explosive development. We can begin to impact children at this age, especially the 3-5 year olds.

- They think differently than we do
  - Concrete thinkers – no concept of time, appearance is reality, cannot think abstractly, think inanimate objects have feelings/thoughts, can only think of a few things at a time.
  - What they see, whether on TV and videos or in their environment, is believed to be real.
- Everything is about ME – Egocentric
  - Think everyone thinks, feels, and acts like they do
  - Rigid sense of equality and fairness
  - Unable to distinguish between intentional and unintentional
- When in doubt, they make it up
  - Construct their own knowledge on how the world works
- They CAN do it themselves
  - Learn best when they can decide for themselves what, when, and how to do things (play).
- They are learning about EVERYTHING, all at once, ALL THE TIME
  - They are capable of learning and are actively searching out new experiences.
  - They are beginning to understand shapes, colors, patterns, and matching objects.
  - Teach to the whole child – social, cognitive, physical, emotional
- They make sense of their world through play
  - Their “world” is focused on their home and what’s around them.
  - They learn experientially – by doing things. Playing is learning.
  - Like to pretend to be animals, superheroes, and other real and pretend beings, Dramatic play and imaginary play are regular activities
  - The preschooler is empathetic toward animals and often protective of them

Interpretation for this age group

- BIG welcomes can be effective. Some preschoolers can put on a shy act around a caregiver, but usually an adult being silly or dramatic is an engaging and interesting person. If they’re in a stroller, bend or squat down to their level.
- Plush animals or puppets can be used to engage the children and help connect them to the living animals. The puppets can be useful tools when asking questions about observing the animal. Exhibit animals are often too far away or not very visible for this age group.
- Simple questions that have simple answers will capture their attention and tune into you and your topic. Yes or no questions work for this age group – especially the younger ones.
- Just touching and feeling is a BIG deal. Let them experience the prop or biofacts (as appropriate) – what do they FEEL like? Most children this age would like to touch a skin or skull but do not have the cognitive development to understand or link them to the real animal.
- Pretending to be like or move like and animal are way to connect to these kids. Silly
actions and dramatic voices engage them. “Look at this animal. Imagine you’re a [that animal]. Let’s pretend you’re that animal. What color are you? [inquire about other physical characteristics, hairy or smooth, big or little, spots or stripes, etc.] What do you do? How do you move? [pretend along with them] What would you sound like? [Make that sound with them] Where would you live and find your home? [underwater, tress, snow, grass, city park?] • Compare their physical characteristics to that animal. How many toes do they have? How many does the fish have? “That’s silly, isn’t it!? Fish don’t have toes!” Are the animals bigger or smaller than the child? Do they live alone or in a family? • Encourage them to act something out. It’s OK to play! Puppets, hands-on experiences, stories and songs are great techniques to engage this audience. • Stick to 2-3 facts ONLY. Keep it short. • When the caregiver is present, don’t ignore them. Give them something to think about and share later with the child. Encourage them to continue the observations about animals after they leave your program and after they leave the zoo. • Remember: After visiting stations in the zoo, most children in this age group, especially the younger ones, are not going to walk away knowing the theme of your program – and that’s OK. You want them to have a positive experience with you. You will be able to get across a few, simple, concrete ideas or facts to the four or five

Children 6 to 11 Years Old
At this age, reasoning and thought are increasingly important and a regular part of learning.
• **Not everything has to be present for them to think about it.**
  o Abstract concepts are of interest and they are developing in their ability to work out problems and weigh topics in their head.
• **They are increasingly able to compare and contrast things.**
  o Their ability to classify things in nature comes with these skills. Absurdities, crazy comparisons and exaggerations (like world records) are enjoyable.
• **Some activity is good but don’t overdo it.**
  o Physical activity and sensory experiences are important but not the main way most children learn when they’re in this age cohort.
• **Their world is expanding.**
  o The world is opening up to them and they are interested in exploring and discovering information about the world beyond their immediate home. Their knowledge of the natural world is growing beyond individual animals. Systems in nature like food chains and water cycles are something they can understand and appreciate.
• **They are developing their own lives and want to tell you about it.**
  o Children in this age group are developing personal interests, hobbies, and areas of expertise. They are proud of their personal accomplishments and most want to share that knowledge and/or skill.

Interpretation for this age group
• Greet this age group energetically with a prop [poster, biofact, plush is ok too.
• Ask lots of questions. You want to establish what prior knowledge they have so you can either build on it or begin with the basics. This group learns through discovery and questioning helps them connect new information with their existing knowledge. This elementary age group can answer questions that are more reflective and have knowledge to share as well. Observation questions like, “How are this animal’s teeth similar to and different from your teeth?” are open-ended questions and allow for multiple correct answers. Asking, “How does hunting in groups help lions?” allows them to share their knowledge. For younger ones in the group, try fun questions such as “What’s your favorite animal and why?

• Ask kids what they are studying in school and try to relate to what you are interpreting in your program. Students this age are learning about basic animal needs, animal life cycles, responsible interaction with the environment, animals’ physical characteristics, the effects of human actions on the environment, food webs and food chains. Older students in this age group are learning about habitats, ecosystems, physical and behavioral adaptations, changes to a food web and the environment, interdependence, and animal heredity.

• Role-playing can be effective, especially with the earlier grades in this age group. This can tap into their volumes of energy and allow them to use their thinking skills to develop characters or envision the behaviors they can act out. Keep in mind, they still need clear directions for activities.

• Stories are still important teaching tools for this age group and can be more detailed and rich in their complexity and vocabulary. Engage these students with fun stories and anecdotes about the animals or the zoo.

• Objects have more meaning and they can conceptualize an animal from a skin and know that skulls are parts of skeletal systems. They are often the group that asks, “Did you kill it?”

• Clue cards are fun for this age group. Cards can be anything from animals to search for to new vocabulary words.

• Fun, playful interactions are helpful to engage these students and in maintaining their interest level.

• Offer the same summarizing information you did for the younger kids – and involve the adults who are with them. Give them something to think about and discuss later with each other. Encourage them to continue their observations about animals after they leave your program and even after they leave the zoo.

Children 12-14 years old

Children of this age can consider more abstract concepts and are able to express their interests in conservation topics and environmental issues. More in-depth study of an issue is possible.

• Peer pressure is very strong
  o The social pressure to conform is strong for children at this age. Depending on the dominant opinions expressed, they may not share an opinion that is contrary to the group.

• They tend to view issues as right or wrong
Children of this age group are developing their social attitudes and moral codes but are often not flexible in their viewpoint. They are slowly developing the ability to take another’s point-of-view.

- **They are developing a conservation ethic**
  - Conservation action and taking care of animals and environments is important for this group.

**Interpretation for this age group**

- Ask questions. Tap into their concern about animals by asking “what if” questions and encourage them to consider solutions to conservation problems. Ask knowledge questions to encourage them to share their knowledge and help them direct the conversation.
- Objects are still important for learning, but can be offered along with cue cards or questions that allow them to determine what the object or answer is as a group.
- Help them see all sides of an issue; role-playing is an effective tool to encourage a more balanced view of conservation programs.
- Engage these students with fun stories or anecdotes about animals or the zoo. Make them laugh! Humor can be effective with this group.

Reference materials:


**Developmental Learning Stages**

**Early Childhood (~ages 2 to 4 years)**

1. Child has working vocabulary of roughly 50-270 words, most of which are directly related to his/her daily experience.
2. Keep programs brief and language simple. Children at this stage are not able to understand classification in our specific terms. They are, however, able to assimilate certain patterns and relative relationships. Keep classification information very general such as big/little, furry/smooth, soft/rough, cold/hot, etc.
3. Language development is crucial at this point. There is certainly an advantage to exposure to a new language. However, comprehension will only be achieved with hands-on learning approach, which meets the learner at his/her proper level of development.
4. The pre-K child cannot relate to conservation and other such universal concepts. Don’t go there with them. Focus on the animal and the natural world. Relate to what they can see and what they know. They are egocentric. Their world is about them.
5. Preschool learners are in many ways eager to learn but not by formal teaching or lecture formats.

This is not the age to fill children with facts unless they ask for them. It is about their experience and generating excitement for wildlife and learning about them.
Hints:
- Limit strictly verbal instruction
- Keep it short and keep it moving
- Let them touch, move and speak

**Lower Elementary (~grades k to 2nd)**

Attention is active consciousness

1. Not until about age 7 does the child become somewhat less egocentric and more able to apply concepts to things other than him/herself.
2. More detailed discussion which imparts greater information is now possible. We are still talking about a short amount of time on each particular subject—perhaps 15 minutes, if that). Use your voice, media, partner and props such as biofacts and be active.
3. Facts will not be retained unless the “Why’s” are answered. Explaining and correlating information so that it makes sense to their world is essential to their recalling that information.
4. Studies show that probably the accumulated time that a student gives full attention per day is less than 20 minutes, which is parcelled out a few seconds at a time! The student is always paying attention to something, but what that is, stays in his/her control. It is our job to help direct their attention toward learning by feeding curiosity, grabbing interest and working to keep it.

Hints:
- Eliminate distractions or deal with them directly
- As in all public speaking, demonstrate eye contact, sufficient volume, inflection, etc.
- Pay attention to their body language. If they’re doing the wave, you are probably running long.
- Use all of the special props at your disposal.
- Make it fun!

**Upper Elementary (~grades 3rd to 6th)**

1. These students should be respected for their more mature cognitive skills, reasoning and problem solving.
2. Having sparked the interest at earlier stages, this is the stage at which we are able to observe true evidence of the positive influence of our programs.
3. These students are capable of understanding cause and effect relationships and they want to know what they personally can do about conservation and endangered species. Feed them with this knowledge in the appropriate manner.
4. Students understand now that they are a tiny part of a greater whole. Discuss life cycles, food chains, predator-prey relationships, etc.

Hints:
- These students need to ask and answer questions
- Use biofacts
- Pose questions requiring deductive reasoning
- Leave a list of suggested activities for further investigation
## Age-Appropriate Topic Suggestions for Educational Programs

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<td></td>
<td>(recycling, reusing, turning off lights, etc.)</td>
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<tr>
<td>8 to 11</td>
<td>• All of the above</td>
<td>• Dire consequences of not using good environmental manners (habitat loss, pollution, endangered species, etc.)</td>
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<td></td>
<td>• Good environmental manners</td>
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<td></td>
<td>(recycling, reusing, turning off lights, tree-planting, habitat cleanup, etc.)</td>
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<tr>
<td></td>
<td>• Ecosystems</td>
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<td>• Physical adaptations</td>
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<td></td>
<td>• Animal habitats and needs</td>
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<td></td>
<td>• Site-specific investigations</td>
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<td>• Cycles (life, water, etc.)</td>
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<td>• Introduce direct, simple (not overwhelming) consequences of not using good environmental manners, such as “If we don’t recycle, we will need more landfill space.”</td>
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<td>12 and up</td>
<td>• All of the above <em>(older kids like to learn fun stuff about animals, too!)</em></td>
<td>Most topics are appropriate if presented in a sensitive manner</td>
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<td>• Behavioral adaptations</td>
<td>Focus on those issues that students have some hope of influencing (whether or not the U.S. should drill for oil in the Arctic National Wildlife Refuge)</td>
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<td>• Consequences of not using good environmental manners</td>
<td>Consider avoiding topics children can do nothing about (affecting the bushmeat crisis in Africa)</td>
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<td></td>
<td>• Ecosystem investigation with concrete experiences</td>
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<td>• Endangered species</td>
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## Interpreting Topics Across the Ages

<table>
<thead>
<tr>
<th>Age Range</th>
<th>Bald Eagles</th>
<th>Forests</th>
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| **Birth to 3**  
* Sensory | Pretend to fly by flapping arms up and down. | Listen to sounds of the forest and try to make different animal sounds like songbird and frog sounds. |
| **4-7**  
* Sensory  
* Empathy | Role play the first day in an eagle’s life (hatch, stretch, chirp, eat, snuggle against mom, sleep, etc.) | Compare self to forest animals. Compare facial expressions, hands, body height, etc. |
| **8-11**  
* Sensory  
* Empathy  
* Exploration | Discuss eagles’ habitat and life cycle and compare to other birds or to people. | Build a forest model on a wall so kids understand the various layers and animals that live within those layers. |
| **12 and up**  
* Sensory  
* Empathy  
* Exploration  
* Action | Discuss eagle habitat and participate in local river clean up efforts. | Learn about different types of forests and resources we use that come from these areas such as different types of hardwood, coffee, chocolate and metals. Then investigate how purchasing materials that don’t come from these forests can decrease demand on those products. |
What if kids ask about endangered animals?

First, find out what the child has heard and let her tell you the details. Then ask the child how she feels about what she has heard, and empathize with her feelings. Then respond in a way that is appropriate to the child’s age and stage of development. Here are some suggestions:

7 and under:
• Answer questions briefly and honestly: “Yes, tigers are endangered and that’s not good. People are working to protect them but it’s a tough situation.”
• Lift the burden from the child without making him feel powerless: “I know you are concerned about animals. There are grown-ups working hard on this problem. Maybe when you grow up, you can help out too.”
• Reassure him that not all animals are endangered. Point out that other animals like warthogs, deer, and wallabies are doing fine in the wild. You can also note the animals that live nearby: “Some animals have problems finding homes, but many don’t. Robins, squirrels, raccoons and opossums live right around here and they’re doing great!”

8 to 11 year olds:
• Acknowledge the child’s feelings: “Where did you hear about tiger poaching? How did you feel when you heard about the problem? I know it’s a sad story but people are trying to help.”
• Redirect to something more local and concrete: “I know it’s hard to think of what to do to help tigers. What can we do to help animals around here? That’s important too--and it’s probably going to be easier for us!” Suggest an action they can take to help the environment: picking up litter in natural areas, maintaining bat houses and birdbaths, planting native shrubs and flowers, creating brush piles to attract local wildlife, and asking friends to help.

11 to 14 and up:
• Kids in this age group are ready for action! Discuss ways to get involved locally such as adopting an animal at a nearby zoo or aquarium or volunteering at an animal shelter. Suggest contacting the West MI Environmental Action Council (WMEAC) www.wmeac.org, to find out about volunteer projects like restoring nearby prairies or cleaning up creeks and rivers.
• Suggest initiating or helping with recycling programs at school or in the community.
• Put kids in touch with their government representatives. They can call the Federal Citizen Information Center Kids’ page at www.kids.gov to learn more.
• Discuss getting involved with national and international conservation groups such as The National Audubon Society, World Wildlife Fund, Defenders of Wildlife and the African Wildlife Foundation.
• Be a model. Share thoughts about conservation actions you have taken or would like to take.
Dealing with Detours
Getting from “What’s its name?” to “Here’s how you can help.”

Many zoo visitors are well-educated and have a decent understanding of the animal world. Even so, the questions they’re likely to ask are pretty basic:

- How much does it weigh?
- What’s its name?
- Which one is which?

When was the last time you heard:

- What are the relationships between this predator and the other top carnivores that share the same habitat?
- How are cultural practices contributing to the decreases of this species in the wild?
- What are the key design elements of this exhibit that contribute to the well-being of the animals as well as provide an effective interpretive experience for guests?
- What makes a bird a bird and how are birds different from other animals?
- What is the difference between horns and antlers and the functions they serve?
- How do climate, geology, and plant communities present in the African savanna affect the animals that live there?

Visitors use simple questions as a way to initiate dialogue with you as an expert. They can be intimidated by your knowledge and ask “safe” questions to begin the conversation. While they may be interested in this information, they’re more interested in engaging with an expert – YOU!

Once they’ve asked the basic question, how can you steer them toward a broader discussion? How can you turn it back toward your theme or some topic of greater conservation value? Which connections can you make between a zoo animal and its wild cousin? What tips can be offered to take individual zoo animal questions and answer them with species-level content?

How much does that grizzly bear weigh?
1. What would you guess? Do you know that he weighs more than 600 pounds? That’s about as many as 4 of me (or insert how may it might be for you or the average person in the U.S.) When you weigh as much as a bear, it takes a lot of food to keep you going when you’re active and in preparation for when you’re not. What do you think they eat? What makes you say that? (Now you’ve gotten into a conversation about where they live and the adaptations they have for getting food and eating food. Most people think fish but they actually eat a lot of plants and insects. In Yellowstone National Park, some grizzly bears will eat as many as 40,000 moths in a year.)
2. He weighs over 600 pounds! That’s about as many as 4 of me (or insert how may it might be for you or the average person in the U.S.) Does he look bigger or smaller than the other bear in the exhibit? (You’ve now gotten into a discussion about the difference in size between the different subspecies of Brown Bear. The Grizzly is actually the smallest of the three subspecies – Grizzly, Coastal Brown and Kodiak)
What is that lion’s name?

1. That lion’s name is Doch. Do you think Doch is a boy or a girl (mommy or daddy, male or a female, depending upon the age of your audience)? What made you say that? (You are now into a conversation about the mane of a lion and how that is useful to him)

2. That lion’s name is Doch. What’s he doing now? Just laying around, right? Lions do that a lot. Sometimes in the wild, they will lay around up to 20 hours a day. Do you know why? It’s not because they’re lazy? They don’t eat three small meals in a day. They usually eat a smaller number of large meals instead. They lay around the rest of the day to digest it. What do you think they have for a meal? What made you say that? (now you can have a conversation about the adaptations they have for hunting and use biofacts to show this) ...or you could go down this route instead...Sometimes we put other things out in the exhibit to allow them to look for food and hunt. (you’re now into enrichment if you want to go there)

3. That lion’s name is Doch. Is he your favorite? Yeah, me too. Have you heard him roar or another lion roar? You know, I like them a lot too and like to hear them roar so much that sometimes I put whatever coins I have in my pocket into that machine over there. (referencing the lion roar machine at the exhibit) When you put a coin into it, it roars like a lion and all the money go to help support animal conservation projects.

Which one is which?
We tell them apart by ______/ If you were one of them, how would you tell each other apart? One way is smell. Most animals have a sense of smell many times better than people. It helps them find their family, friends, enemies, and food. (you can go into adaptations/senses for recognition). Is this animal an endangered species? You’re right. Even though they have these great senses for survival they are losing their homes to people. When you come to the zoo, you want to discover something cool about the animals, but we also want to find out ways to help them too... You can help these animals by...
Resources for Learning More

- AZA – Association of Zoos and Aquariums – www.aza.org - The accrediting agency for all zoos and aquariums worldwide
- IUCN - http://www.iucnredlist.org/ - Enter either the common or genus and species names where it says "enter red list search terms here"
- NatureServe - http://www.natureserve.org/explorer/index.htm - Enter either the common or genus and species names in the "Species Quick Search" box
- InfoNatura - http://www.natureserve.org/infonatura/ - This is same as NatureServe but more for Latin American species
- USFWS - United States Fish and Wildlife Service - http://ecos.fws.gov/tess_public/ - Enter either the common or genus and species names in the "Search for a species name" box
- Animal Diversity Web – http://animaldiversity.ummz.umich.edu
- Center for North American Herpetology - http://www.cnah.org/ - Reptiles and Amphibians only
- Defenders of Wildlife – www.defenders.org - Organization dedicated to the preservation of all wild animals and native plants in their natural community. Provides action alerts and information.
- Other Zoos and Aquariums – Many other zoos have great wildlife and conservation information available on their websites.
- National Association for Interpretation Blogs – NAI has a few blogs that provide information about interpretation to those in the field and other interested parties like you.
  - NAI Blog – interpnet.wordpress.com
  - Media Playtpus – mediaplatypus.com
- Seafood for the Future - http://seafoodforthefuture.org/
- Snow Leopard Trust – www.snowleopard.org

A good way to keep in touch with what is happening in the areas of wildlife conservation, zoos and interpretation is to like that organization on facebook or to subscribe to their e-newsletters (often free) or subscribe to their RSS feeds. This will allow you to get information electronically sent right to you at no cost.

Some of the information presented is adapted from materials originally compiled by other zoos including Denver Zoo, Chicago Zoological Society and Oregon Zoo
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