

FOREST OF UCO

Zoo Activities



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Forest of Uco Scavenger Hunt Grades K – 3

As your class travels to The Phoenix Zoo, engage students in predictions about what they will see. Encourage students to hypothesize about the animals and plants that they might encounter in the Forest of Uco.

AT THE ZOO

Divide students into small groups, keeping in mind that all children must be accompanied by an adult at the zoo. Distribute a copy of the Scavenger Hunt handout and a pencil to each small group. Remind students that they will be “hunting” for objects that fit the listed categories. Emphasize that when they find a category match, they should only write or draw their answer. They are not to physically collect any objects. Tell students that there is no one right answer to the clues and that the adults with their group can help them record an answer if needed.

As your class proceeds through the exhibit, make sure that each group is recording items that fit each category. (Younger students can select just two or three clues.) Encourage students to use their imaginations when looking for answers.

Following are some examples of answers that students might contribute for the Scavenger Hunt clues.

These are only examples. Students’ answers will vary.

A Place to live

Spectacled bear’s nest
Bird’s nest
Romero’s farm house
Dr. Zotz’s base camp
Native people’s hut
Spider’s web
Soil
Tree

Nature’s designs

Spider web
Veins in a leaf
Spectacled bears’ distinctive eye markings
Bromeliad leaves that form a cup to catch water
Coloration in an animal’s fur
Patterns in the rows of Romero’s crops

Something to eat

Insects
Fruit
Bromeliads

Something to eat, cont.

Animals
Birds
Reptiles
Fungus

Things that hide

Spectacled bear
Birds, insects, animals, and reptiles that use protective coloration or camouflage
Native people living in the forest

Messages

Pictographs painted on stones
Petroglyphs carved in stones
Animal sounds
Animal tracks

Tools that help

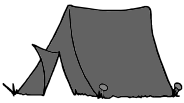
Sticks
Instruments in Dr. Zotz’s base camp
Clara san Martin’s archaeological tools in the lost city
Farming implements

RETURNING HOME

During the trip back to school, have students take turns telling about their favorite part of the experience. Have them think back to their predictions about what the Forest of Uco would be like. Were they accurate? What surprises did they encounter? Ask about the items they discovered during the scavenger hunt. Did anyone find something unique?

Forest of Uco Scavenger Hunt

Grades K-3



A PLACE TO LIVE



NATURE'S DESIGNS



SOMETHING TO EAT



THINGS THAT HIDE



MESSAGES



TOOLS THAT HELP



Forest of Uco Scavenger Hunt Grades 4 and up

DURING YOUR VISIT

Distribute the Scavenger Hunt to students when you arrive at the zoo, along with pencils. Since loose papers are easily lost or ripped, students should bring spiral notebooks or another type of notepad to record their answers.

Tell the students that they are to use words, phrases, sentences, or drawings to record their answers. They are not to collect any actual items from the exhibit. Some students may need a lot of guidance from you initially. You can help them by pointing out some obvious answers and then by encouraging them to find answers that are not so obvious. Remember, an adult must accompany all children at all times as they explore the exhibit.

Following is a Scavenger Hunt key for you to use to help students as they explore the Forest of Uco, and in the classroom after your trip. This key offers only a few examples of the kinds of responses students may contribute. Remember that students' answers will vary. There is no one correct answer for any of the items.

1. Something that depends on something else

The entire rain forest is made up of endless numbers of interconnections among plants, animals, fish, birds, insects, people, and ecological systems.

2. Something destroyed

Answers might include the guaqueros' dig site, a bear carcass, destroyed plant life, land parcels that have been slashed and burned by farmers, and the rain forest itself.

3. Something hanging around

Answers might include the howler monkey, boa constrictor, leaves, pail for rubber tapping, or forest vines.

4. A story teller

Answers might include the native people or any of the other "characters" in the forest, pictographs, petroglyphs, animal tracks, or charts and graphs in Dr. Zotz's camp.

5. Something good at hiding

Answers might include the reclusive native people, or insects, animals, reptiles, fish, and birds, that use protective coloring, or camouflage.

6. Evidence of a bear

Answers might include claw marks, dung piles, tracks, tree nests, signs of hunters, or Dr. Zotz's tracking equipment.

7. A seed spreader

Answers might include animals, insects, birds, wind, people, and water.

8. A water trap

Answers might include the roots of rain forest trees, plants, or the entire forest itself which traps and recycles moisture.

9. Something in danger

Answers might include the spectacled bear, the native people, or the entire rain forest ecosystem.

10. Something about the forest that you never knew before

Answers will vary.

11. A measurement

Answers might include any of the information on graphs or charts found in Dr. Zotz's camp and listening post.

12. A message of hope

Answers will vary.

13. Something lost

Answers might include the native people's culture, artifacts, the pristine quality of the rain forest, and the bear's natural habitat.

14. A pattern or a design in nature

Answers might include veins in leaves, seed arrangements, drops of water, coloration in animals' fur or birds' beaks, sticks in a nest, or ant colony formations.

15. A colorful warning

Answers might include the scarlet macaw and the messages told with pictographs and petroglyphs.

16. Evidence of energy

Answers might include examples of light, sound, heat, water, wind, and electric energy sources. (Evidence of the sun's energy can be seen in all living things.)

17. A problem not yet solved

Answers might include how to stop rain forest destruction; how to stop hunting of the bear; how to keep the forests alive and economically viable, how to stop species loss, or how to stop the climate from changing.

18. An idea expressed without words

Answers might include pictographs, petroglyphs, the beauty of the forest, the culture of the native people, and animal communications.

19. Something found in the forest that can be renewed

Answers might include any renewable resources such as pharmaceuticals in the laboratory, rubber tapped from trees, fruit, spices, chicle, rattan, and nuts.

20. Something found in the forest that can't be replaced once it is used up

Answers might include ancient artifacts, burial mounds, and products that come from destroying trees, plants, and animals.

21. Something extraordinary

Answers will vary. Encourage students to think of one thing that most intrigued them in the Forest of Uco.

Forest of Uco Scavenger Hunt

Grades 4 and up

Directions

Find at least one example for each of the clues shown below. To record your answers, write words, phrases, or sentences, or make drawings. If you discover more than one answer to any clue, record them all. Remember, there is no one right answer to any of the clues. Think carefully and be creative.

Try to think of examples that nobody else will find.

1. Something that depends on something else.
2. Something destroyed
3. Something hanging around
4. A story teller
5. Something good at hiding
6. Evidence of a bear
7. A seed spreader
8. A water trap
9. Something in danger
10. Something about the forest that you never knew before
11. A measurement
12. A message of hope
13. Something lost
14. A pattern or design in nature
15. A colorful warning
16. Evidence of energy
17. A problem not yet solved
18. An idea expressed without words
19. Something found in the forest that can be renewed
20. Something found in the forest that can't be replaced once it is used up
21. Something extraordinary

Garbage bag lunch

Objective:

Students will learn how everyday lunches affect the rainforests and how alternatives can replace and/or conserve wood-based and oil-based products.

Materials:

- Ⓢ Blank index cards
- Ⓢ Marker pen
- Ⓢ Reused/scrap paper (minimum 1 sheet per 2 students)
- Ⓢ Pencils (1 per student)

Lunch Items:

- Ⓢ paper lunch bag
- Ⓢ Plastic yogurt cup
- Ⓢ Plastic sandwich bag
- Ⓢ Paper napkin
- Ⓢ Plastic spoon
- Ⓢ Styrofoam cup
- Ⓢ Banana
- Ⓢ Aluminum soft drink can

Set-up:

Put all the lunch items in the paper lunch bag. On one side of an index card, write the words listed below (one per card) – with the origin of the product on one side and the name of the item itself on the other. Put these cards aside until later.

Item:	Source:
Banana	rainforests
Paper napkin	tree
Paper lunch bag	tree
Aluminum can	bauxite that is mined from rainforests and other places
Plastic spoon and cup	petroleum extracted from rainforests and other places
Styrofoam cup	petrochemical product

Presentation:

Ask the students what's in their lunches today. Upon hearing all the marvelous responses, act as though you are famished, exaggerating as much as you like. Reveal your special bagged lunch. Pretend to eat and drink, relishing your lunch and tossing the trash leftovers on the ground as you chat with your audience. By this time, students should have commented about your litter. If not, ask them "What's wrong with this picture?" to evoke a response regarding the litter.

After picking up the litter, divide the students into groups of 2-3. Bring out the index cards and have the students match the lunch items with the appropriate natural resource. When they are ready, review the natural origins of all the objects, reminding them how over-consumption of wood-based and oil-based products contributes to destruction to the rainforests and their inhabitants. This is a good opportunity to discuss landfills, conservation, preservation, and tree-free paper.

Invite the students to think of alternatives they can use for their lunch that would put less demand on the rainforests. Challenge them to come up with three days' worth of lunch bag menus, emphasizing the types of containers to be used.

Have each group share their ideas with the class. Congratulate them on coming up with these ideas and wise choices that will help temperate and tropical rainforests, and encourage them to bring rainforest-friendly lunches to school.

Rainforest – Friendly alternatives for lunches

Instead of using ...	use:
Plastic sandwich bag	reusable container
Aluminum foil	reusable container
Aluminum cans	canteen, thermos, sport bottle
Styrofoam cup	reusable cup
Paper napkin	cloth napkin
Yogurt cup	reusable container
Convenience size foods	bulk items in reusable container
Paper bag	cloth bag

Extension

Create a display for the school. Make signs that show which products are taken from which natural resources, and include alternative products and ways to conserve. Put the display in school halls.

Biological Sampling Activity

Goals

- Examine a sample taken in the Forest of Uco
- Create a field journal
- Learn how to use a field guide

Materials

- Phoenix Zoo sampling kit (contains: one white bed sheet and 36 magnifying lenses)
- Various field guides of plants and invertebrates (*see below for suggestions*)
- Paper or notepads (enough for each student or small groups)
- Pencils (enough for each student or small groups)

Getting started

When scientists want to determine the type of life that exists in a particular part of the rainforest or in a certain tree, they take a sample of that area using many different methods. One way that they find invertebrates and plant matter is by gently shaking the contents of a tree onto a sheet or into a bucket. They then take detailed notes and use field guides and other resource to identify what they have found.

Discuss this process with the students before you start. Talk about field guides and field journals.

At the Zoo

As a class, look for a tree that has low easy to reach branches and a lot of foliage. Lay the sheet on the ground below the tree and gently shake the branches of the trees so that loose objects fall onto the sheet. You may want to have a chaperone shake the tree or do it yourself. Before you shake the tree have the students help you look around the branches to make sure you won't be knocking down any nests or disturbing some insects that could be dangerous (bees or wasps).

Look for any live invertebrate that may have fallen onto the sheet and have the students help you point them out to each other. Take a minute to have a discussion about respecting the animals and not hurting them. If you are unsure whether or not an insect is dangerous it is best to take a stick and gently remove it from the sheet. Explain to the children that you don't want anyone to get hurt so you're going to remove it.

Have the students work by themselves, or in pairs or small groups, to examine the contents of the sample and take notes on paper. Tell the students that they will be looking in field guides when they get back to the classroom to determine what they have found so they need to record as much detail as possible. They should make a sketch of the items and write a detailed description. You may want to have each student choose two or three items to journal about. Allow the students some time to share their findings with each other. Ask questions to help them form some hypotheses about what they find.

When everyone has taken notes, gently shake the sheets so that everything is left on the ground at the base of the tree. Any invertebrates that you have found will be able to return to the tree or find someplace else to go.

Wrapping it up

Back at school, allow the students some time to go through field guides and identify what they found. If they can't find any information in a field guide, discuss as a class what it may be that they found and why it may not be in a guide. (They may find remnants of a plant that is not easily identifiable). Talk about the difficulties scientists have in trying to identify organisms in the rainforest.

Suggested Field Guides

Peterson Field Guides. Houghton Mifflin.

www.enature.com Online field guides

Tropical Plants of the World. Rohwer, Jens G. Publisher: Sterling; (April 1, 2002)

Plants of Arizona. Epple, Ann. Publisher: Falcon; Reprint edition (March 1, 1997)

Animal Observation

Goals

- ④ Understand the science process of observation.
- ④ Synthesize material learned from classroom observations.
- ④ Analyze data
- ④ Report findings

Materials

- ④ “Behavioral Observations” activity
- ④ Pencil
- ④ Paper
- ④ “Animal Observations” handout

Getting Started

One of the most valuable tools for learning about an animal or species is behavioral observation. Through close observation, an observer can learn much about an animal including diet preferences, activity patterns, habitat preferences, and more. When little is known about an animal, scientists will simply observe to find out more. When a greater amount of information is known about the animal, often the scientist will go into the field to do observations with a particular question in mind that he/she would like answered.

In this activity, students will practice making behavioral observations in the classroom, use their experience to formulate behavioral questions about a zoo animal, and then observe the animal in its zoo habitat to answer the questions.

In the classroom

- ④ Complete the Behavioral Observations activity in the classroom
- ④ Have a discussion with students. Ask them what they can learn about an animal through observation.
- ④ Divide students into small groups or pairs. As a group, the students should decide on three general questions that they would like to learn about an animal at the zoo (ex. What does it eat? When is it active? Where does it prefer to spend time in its exhibit?) Have them write these questions down.

At the Zoo

- ④ In the Forest of Uco (or on the Tropics Trail) have each group pick an animal to observe.
- ④ Pass out the “Animal Observations Guide” and allow them time to complete the questions on the guide.

Follow up

Back in the classroom, each group should use the observations made at the zoo to try and answer the three questions they had written down. Some may not be able to answer their questions. As a class, discuss what a scientist would do in that situation (talk to other scientists and compare data, go back and do more observations).

Forest of Uco Animal Observation

1. Write down the questions that you and your group came up with in the classroom, that you would like to answer after this exercise.
2. Describe the animal in detail. Draw a picture if you'd like.
3. Describe the habitat detail. Draw a quick map of the exhibit.
4. Observe the animal for about three minutes and write down everything you see it do (walk, eat, etc.).

5. Write down each thing you saw it do in one of the boxes of the chart below. You can create more boxes if you run out of room.

6. Observe the animal for three more minutes and make a tally mark in the appropriate box each time you see the animal do that behavior. Place a tally mark at each location on the map each time it visits that location.

7. Answer the questions below.

Which parts of the exhibit did the animal visit the most?

What were the main behaviors you saw the animal do?

Did anything happen inside or outside the exhibit that the animal responded to? (Example: a loud noise, a visitor running by). What happened? How did the animal respond?

What behaviors did you see the least?

What else would you like to remember about your observations?