



◀▶ Education Program Packet—7th Grade ▶◀

Zoo Atlanta Education Programs:

Zoo School Classroom: Forests of Africa and Asia

Zoomobile Outreach: Creature Connections

NightCrawler Overnight: Biodiversity Explorers

GEORGIA PERFORMANCE STANDARDS: For program information and Georgia Performance Standards for each program, click http://www.zooatlanta.org/education_school_programs.htm and follow the links to the program(s) you registered for.

Activity Packet

◀▶ **Subject/Course:** Art, Language Arts, Social Studies, Science, Technology

◀▶ **Grades:** 7

Activity Packet: Stage 1-Desired Results

Packet Established Goals:

- **S7CS1.** Students will explore the importance of curiosity, honesty, openness, and skepticism in science and will exhibit these traits in their own efforts to understand how the world works.
- **S7CS2.** Students will use standard safety practices for all classroom laboratory and field investigations. **b.** Demonstrate appropriate techniques in all laboratory situations.
- **S7CS4.** Students will use tools and instruments for observing, measuring, and manipulating equipment and materials in scientific activities. **b.** Estimate the effect of making a change in one part of a system on the system as a whole.
- **S7CS9.** Students will investigate the features of the process of scientific inquiry. Students will apply the following to inquiry learning practices: **a.** Scientific investigations are conducted for different reasons. They usually involve collecting evidence, reasoning, devising hypotheses, and formulating explanations. **e.** The ethics of science require that special care must be taken and used for human subjects and animals in scientific research. Scientists must adhere to the appropriate rules and guidelines when conducting research.
- **S7CS5.** Students will use the ideas of system, model, change, and scale in exploring scientific and technological matters. **a.** Observe and explain how parts can be related to other parts in a system, such as predator/prey relationships in a community/ecosystem.
- **S7CS6.** Students will communicate scientific ideas and activities clearly. **c.** Organize scientific information using appropriate simple tables, charts, and graphs, and identify relationships they reveal.
- **S7L4.** Students will examine the dependence of organisms on one another and their

environments. **a.** Demonstrate in a food web that matter is transferred from one organism to another and can recycle between organisms and their environments. **b.** Explain in a food web that sunlight is the source of energy and that this energy moves from organism to organism. **c.** Recognize that changes in environmental conditions can affect the survival of both individuals and entire species. **d.** Categorize relationships between organisms that are competitive or mutually beneficial.

- **S7CS10.** Students will enhance reading in all curriculum areas by: **c.** Building vocabulary knowledge: Demonstrate an understanding of contextual vocabulary in various subjects. Use content vocabulary in writing and speaking. Explore understanding of new words found in subject area texts.
- **ELA7R2** The student understands and acquires new vocabulary and uses it correctly in reading and writing.
- **ELA7RC2** The student participates in discussions related to curricular learning in all subject areas.
- **ELA7RC3** The student acquires new vocabulary in each content area and uses it correctly.
- **ELA7RC4** The student establishes a context for information acquired by reading across subject areas.
- **ELA7W1** The student produces writing that establishes an appropriate organizational structure, sets a context and engages the reader, maintains a coherent focus throughout, and provides a satisfying closure.
- **ELA7W3** The student uses research and technology to support writing.
- **ELA7W4** The student consistently uses the writing process to develop, revise, and evaluate writing.
- **ELA7C1** The student demonstrates understanding and control of the rules of the English language, realizing that usage involves the appropriate application of conventions and grammar in both written and spoken formats.
- **ELA7LSV1** The student participates in student-to-teacher, student-to-student, and group verbal interactions.
- **ELA7LSV2** The student listens to and views various forms of text and media in order to gather and share information, persuade others, and express and understand ideas.
- **SS7H3** The student will describe major developments in Africa since independence.
- **SS7G1** The student will be able to describe and locate the important physical and human characteristics of Africa.
- **SS7G2** The student will discuss the impact of government policies and individual behaviors on the African environment.
- **SS7G3** The student will explain the impact of location, climate, physical characteristics, natural resources and population size on African countries.
- **SS7G5** The student will be able to describe and locate important physical and human characteristics in southwestern Asia (Middle East).
- **SS7G6** The student will evaluate the impact of government policies and individual behaviors on southwest Asia's environment.
- **SS7G7** The student will explain the impact of location, climate, physical characteristics, natural resources and population size on various southwestern Asian countries.
- **SS7G8** The student will describe the diverse cultural characteristic of the people who live in southwestern Asia.

- **SS7G9** The student will be able to describe and locate important physical and human characteristics in southern and eastern Asia.
- **SS7G10** The student will evaluate the impact of government policies and individual behaviors on southern and eastern Asia’s environment.
- **SS7G11** The student will explain the impact of location, climate, physical characteristics, natural resources and population size on southern and eastern Asian countries.

Understandings:

Students will understand that...

- The stability of ecosystems depends upon the interdependence of organisms. Relationships include producer/ consumer, predator/prey, and parasite/host organisms.
- All organisms have adaptations, inherited characteristics that enhance their ability to survive in their natural environment. However, the more variations there are within a species, the better chance the species has of survival in a changing environment.
- Changes in ecosystems, such as habitat destruction, introduction of new species, or climate change, can result in the endangerment or extinction of individuals and indigenous species.
- Good citizens have the responsibility of safeguarding the natural environment and the living things within it.

Essential Questions:

- How do anatomical features reveal the way of life of an organism?
- How do you affect animal survival?
- Why should you promote biodiversity in all areas of the Earth?
- How does the extinction of a species impact you?

Students will know...

- A community is all of the populations inhabiting a particular place.
- Organisms interact in three main ways: competition, predation, and symbiosis.
- Organisms compete with one another for shared resources that are limited.
- Predator/prey relationships consist of a predatory consumer, and a prey that may be a lower level consumer or a producer.
- Organisms evolve characteristics that enable them to more efficiently obtain energy and raw materials.
- Symbiosis is the close relationship between two or more species. Parasite/host and mutualist/host are two examples of this

Students will be able to...

- Keep honest, clear and accurate records in science.
- Acquire new vocabulary and use it correctly in reading and writing.
- Read across subject areas.
- Demonstrate competence in a variety of genres.
- Develop, revise, and evaluate writing.
- Use Internet resources.

kind of relationship.

- The survival of animals in their natural habitats is enhanced by the characteristics, called adaptations, which they have inherited from successful parents.
- The natural selection of these adaptations involves many interacting, complex factors, both living (biotic) and non-living (abiotic).
- When humans alter the abiotic factors within the habitat, the biotic factors are impacted.

Stage 2-Assessment Evidence

Performance Tasks:

- Reading and recording comprehensions
- Collecting and organizing data and recording conclusions
- Writing and revising
- Drawing
- Reporting research information
- Role-playing

Key Criteria

- In the following sections, there are suggested activities for students that allow them to study animals. The products of these studies will provide evidence of student understanding in the listed disciplines.

Other Evidence

- Using standard safety practices
- Categorizing relationships
- Researching and evaluating
- Participating in student-to-teacher, student-to-student, and group verbal interactions

Stage 3-Learning Plan

Learning Activities

Pre-visit Classroom Activities

What are Adaptations?

Science – researching adaptations

Language Arts – writing across the curriculum

Technology – Internet research – human adaptations

- The survival of animals depends heavily on their own adaptive characteristics that have evolved over a long time period. The development of adaptations involves evolution by natural selection, whereas, in each generation, the best suited animals for a particular environment are more likely to survive and reproduce. Over time, the characteristics of a

species change with changes in the environment. The forests of Africa and Asia are unique habitats that are impacted by human activities. The environmental pressures applied to the animals that live in these forests are affecting their ability to survive. Many animals are becoming threatened or endangered because the changes in the environment occur more rapidly than adaptations can occur.

- Students are to research and make a list of five human adaptations. For each, write a description of how the adaptation enhances the survival of humans. For example, humans have evolved to walk upright. Students then create two adaptive characteristics that they would like to have if they could mutate and change in the future. They are to describe how these adaptations would allow them to survive better.

Africa's Natural Resources

Art - displaying illustrations of animals

Science – researching animal conservation and protection; investigating biodiversity in specific habitats

Language Arts – writing across the curriculum

Technology – Internet research – African parks, animals

- The students are to research the national parks of the countries below and the animals that live within the parks. Students then select three of the parks and plan a photographic safari to the parks. They may draw, print, or cut out pictures of the animals that reside in each park. These images are to be positioned onto craft paper and organized into a photo album.

<input type="checkbox"/> <u>Botswana</u>	<input type="checkbox"/> <u>Namibia</u>	<input type="checkbox"/> <u>Uganda</u>
<input type="checkbox"/> <u>Kenya</u>	<input type="checkbox"/> <u>South Africa</u>	<input type="checkbox"/> <u>Zambia</u>
<input type="checkbox"/> <u>Malawi</u>	<input type="checkbox"/> <u>Tanzania</u>	<input type="checkbox"/> <u>Zimbabwe</u>

- Each of the countries listed has one or more national parks for the conservation and protection of the natural environment. The maintenance of these parks is a commitment on the part of these countries to support biodiversity and preserve the natural resources within their borders. One of the problems that the parks must deal with is poaching. Poaching is the illegal killing of protected animals. Because of poaching, only 20% of elephants reach 30 years of age (<http://www.geocities.com/RainForest/Andes/7171/>).
- Many of the animals at Zoo Atlanta are native to one or more of these African countries. Because of conservation and breeding programs at Zoo Atlanta, these animals are surviving and producing offspring.
- Plan a photographic safari to national parks in three countries above. Keep a travel journal to record your safari. Illustrate as above and decorate the outside of your journal to represent your trip.

Post-Program Zoo Activities

- Take a tour of the Zoo. A field notebook is a record of observations taken by a person as he or she experiences animal behavior. In their field notebooks, students are to record the

animal species; a brief description of their habitats; their specific adaptations for their environment; and what we can do to safeguard their continued success.

- Take a tour of the Zoo. At each exhibit, determine if any of the animals present are native to the countries you selected for the safari in the pre-visit activities. Describe the animal and the exhibit. Evaluate the descriptions of the animals and exhibits. Write some observations of the animal's appearance and behavior that are adaptations for survival in its habitat.

Post-visit Classroom Activities

Letters to the Leaders

Science - ecology, animal conservation and protection

Social Studies – governmental policy-making

Language Arts - writing, reading across the curriculum

Technology – research

- Students are to research a specific country in Africa or Asia and determine the environmental issues. Identify the threatened and endangered species within the country. Determine the leader of the country, and write a letter pleading for the protection of endangered species. Emphasis should be placed on the benefits of environmental protection to the people, culture and economy of the country.

Convention of National Parks Directors – role-playing

Science - ecology, animal conservation and protection

Social Studies – governmental policy-making

Language Arts – role playing, presenting, writing, reading across the curriculum

- Students are to divide into nine groups to represent each country listed in the previous chart under pre-visit activities. Each group is assigned a country and national park to research for any problems that might be related to the park. A convention is then organized, with the students performing the roles of national park directors. Each student is to discuss the problems facing his/her park. All students then discuss how these problems can be addressed. Evidence for understanding can be obtained when the students write a conclusion of the major concepts of this assignment.



Suggested Reading

Bischhoff-Miersch, Andrea & Michael. 1995. Do You Know the Difference? North-South, ISBN: 1-55858-371-8.

Blaffer Hrdy, Sarah. Mother Nature: A history of mothers, infants, and natural selection. Pantheon Books, New York. 1999. ISBN 0-679-44265-0.

Bolhuis, Johan J. and Jerry A Hogan. The Development of Animal Behavior, Science - 1998 - 352

pages.

Booth, Jerry. 1996. You Animal! Gulliver Green/Harcourt Brace, ISBN: 0-15-200696-6.

Campbell, Bernard. Human Evolution: An Introduction to Man's Adaptations, 4e, 1998.

Curtis, Patricia. 1997. Animals You Never Even Heard Of, Sierra Club, ISBN: 0-87156-594-3.

Grzimek's Animal Life Encyclopedia - QL3 G7813 vol.1-13

Pianka, Eric. Evolutionary Ecology (6th ed.). Addison-Wesley. 512 pp, 1999. ISBN: 0321042883.

Tinbergen, Niko. 1951. The Study of Instinct, Oxford University Press.

Tinbergen, Niko. 1958. Curious Naturalists Country Life, Ltd.

Wilson, E.O. 1992. The Diversity of Life, W.W. Norton & Co, ISBN: 0393310477.

Suggested Websites

<http://www.geocities.com/RainForest/Andes/7171/>

<http://www.world-national-parks.net/>

<http://www.pbs.org/wnet/africa/>

<http://www.africaonline.com/>

<http://www.africaguide.com/>

<http://www.asiasociety.org/>

<http://www.atimes.com/>

<http://www.askasia.org/>

<http://www.channelnewsasia.com/>

<http://hirshhorn.si.edu/education/animals/animals.html>

http://www.ecokids.ca/pub/eco_info/topics/climate/adaptations/index.cfm

http://www.students.dsu.edu/birkela/Science/animal_adaptations.htm

<http://www.nhptv.org/natureworks/nwep1.htm>

Graphic Organizers



What are Adaptations?

Student Name _____

Human Adaptation	Survival Function

Field Notebook Entry

Date _____ **Location** _____

Animal Species—

Description of Habitat —

Adaptations —

Suggestions for Protecting this Animal —



Letters to the Leaders

Student Name _____

Country	Leader	Environmental Issues	Benefits of Protection		
			To People	To Culture	To Economy

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RUBRIC

	Exemplary 4	Accomplished 3	Developing 2	Beginning 1
Tasks	Consistently demonstrates the ability to perform tasks.	Usually demonstrates the ability to perform tasks.	Sometimes demonstrates the ability to perform tasks.	Rarely demonstrates the ability to perform tasks.
Use of Scientific Language	Consistent, accurate usage of terms.	Adequate usage of scientific terms.	Occasional use with few errors.	No terms or frequent errors in usage.
Concepts	Demonstrates full understanding of concepts.	Displays a complete and accurate understanding of concepts.	Displays an incomplete understanding of concepts.	Demonstrated severe misconceptions about concepts.
Teamwork	Assumed leadership role within group; strong contributions.	Participated with good contributions.	Participated with weak contributions.	Did not participate in group discussions.
Application to the Real World	Able to apply learning.	Usually finds practical application.	Occasionally relates to real life skills.	No practical application.
Communication	Uses rich, vivid, and powerful description in a variety of ways to clearly communicate observations, data, and conclusions.	Consistently communicates information effectively through accurately recording and describing observations and conclusions.	Communicates plausible facts but lacks clarity in presenting facts and observations.	Is ineffective in communicating information.
Presentation	Presents information in logical, interesting sequence; demonstrates full knowledge (more than required); Maintains eye contact; Uses a clear voice; pronounces words correctly.	Presents information in logical sequence; Feels at ease with expected answers; Maintains eye contact most of the time. Voice is clear; pronounces most words correctly.	Audience has difficulty following presentation because student jumps around; Student is uncomfortable with information; Occasionally uses eye contact; Voice is low and incorrectly pronounces terms.	Audience cannot understand presentation due to no sequence; Does not have grasp of information; Reads all of the report with no eye contact; Mumbles or incorrectly pronounces terms.

