

**Title:** Intergalactic Zoo

**Purpose:** Design an alien environment complete with climate, plants and animals in order to improve students' understanding of the relationships between organisms and their environments.

**Objectives:**

1. Students will identify and include basic characteristics used to differentiate between land biomes; i.e. annual precipitation, mean high and low temperatures, etc.
2. Students will identify various adaptations that enable organisms to live in specific biomes.
3. Students will be able to use an Internet web site to find information.
4. Students will create a multimedia presentation to demonstrate their knowledge of biomes.

**Grade Level:** 4-6

**National Science Education Standards Alignment**

**Grades K-4**

Science as Inquiry:

Abilities necessary to do scientific inquiry

Understandings about scientific inquiry

Life Science:

The characteristics of organisms

Life cycles of organisms

Organisms and environments

Diversity and adaptations of organisms

Science and Technology:

Abilities of technological design

Understandings about science and technology

**Grades 5-8**

Science as Inquiry:

Abilities necessary to do scientific inquiry

Understandings about scientific inquiry

Life Science:

Regulation and behavior

Populations and ecosystems

Diversity and adaptations of organisms

Science and Technology:

Abilities of technological design

Understandings about science and technology

**Time Required:** Four-five class periods (45-50 minutes)

**Brief Description:**

The teacher engages the students by beginning with a concept map about different land biomes and their characteristics using Kidspiration. Students will take virtual field trips to the different land environments in the computer lab. After the students have done their research, they will revisit the original concept web and make changes based on their findings. Their mission will then be to design a fictitious environment complete with animals, plants, and weather conditions

in order to demonstrate their understanding of the relationships between organisms and their environments. These animals and plants will have specialized adaptations to fit their fictitious alien environment.

### **Including All Students:**

- This activity is designed for students to work cooperatively in pairs. Both of the students will have the opportunity to search the Internet sites and record the information. Together, they will create a multimedia presentation.
- Students with special needs may need to be grouped with an individual who can help them with the assignment.
- Teacher uses screen and LCD projector to explain how to do a Hyperstudio stack and locate the web sites on the Internet.

### **Safety:**

1. Students practice responsible use of the Internet.
2. Explain to students that they must use only the web sites that are listed.

**Materials:** computers, Internet access, Kidspiration, Treasure Hunt worksheet, HyperStudio planning sheet

### **Questions to Ask Along the Way:**

1. What is a biome?
2. What are the different kinds of biomes, and what kinds of life are found in each biome?
3. Why would different kinds of life be found in different biomes?

### **Preparation and Procedure:**

- 1. Engage:** Give each student a picture of a biome. Then place pictures of different animals (or stuffed animals) around the room and see if students can match them with their biome. Have them stand by their picture or animal and explain why the animal is able to survive in that environment.
- 2. Explore:** Brainstorm with the students either using a **KWL** chart or Kidspiration to create a concept map explaining what the 6 land biomes are and their characteristics. Example: Make a KWL chart on the computer. Ask students: What do you think you know about the 6 land biomes and their characteristics? What would you like to know? The L section should be completed after the research has been completed.
- 3. Explain:**
  - Pass out Web Site Treasure Hunts. You may want to bookmark URLs to save time.
  - Students will work cooperatively in pairs to find the information on the web and then create one project in HyperStudio.
  - Tell students that we will revisit our first concept map to make any adjustments to it in order to rule out any misconceptions.  
**See Attached Handout: Treasure Hunt**
- 4. Propose Intergalactic Zoo scenario.** You are the head zookeeper at the world's only Intergalactic Zoo. You have employees whose jobs are to search the galaxy for new creatures to add to the zoo. They will be bringing these creatures back from different

planets. It is your job to create a fictitious animal and an environment, which is similar to the one they came from so they can thrive in captivity at the Intergalactic Zoo.

### **5. Elaborate:**

- Students will work in pairs to answer their questions on the Treasure Hunt form about the different biomes.
- With their partner, students will create a five-card HyperStudio stack that includes a student-generated fictitious animal and the environment necessary for it to survive and thrive.
- Students must complete the planning pages and have the teacher's approval before creating their stack on the computer.

**See Attached Handout: Planning Sheet**

### **6. Evaluate:**

- Revisit the concept map to address any misconceptions.
- Students create a five-card Hyperstudio stack.
- Students present their stack to the class.
- Ask students how they know if their animal would survive in their fictitious environment. One way to do this would be to introduce a different animal to each group's biome and have the group rate its chance of survival based on the characteristics of their biome (rainfall, temperature, etc.). Another way would be for students to trade creatures and do the same sort of rating exercise, "testing" whether a different creature could survive in their biome. Their explanation of why/why not will reflect understanding of the concepts. Have student groups trade creatures at least two times to deepen the testing/analysis.

### **Suggestions for Assessment:**

Have the student answer this scenario.

The head zookeeper needs to give his employee a list of items to bring back from the planet that would be absolutely necessary to replicate the new creature's environment at the zoo. If the correct items are not brought back, the animal will not survive in its new home. What would you bring back in order to make sure the creature will survive in that habitat. Remember to include all the necessary factors that would make up that particular environment.

Use a rubric to grade the assessment.

Use a rubric to grade the HyperStudio stack.

**See Attached Rubrics**

### **Where to Go From Here:**

- Plan a field trip to a zoo or aquarium.
- Guest Speakers
- Create a travel brochure to a land biome. Be sure to include animals, plants, and climate/weather.

### **References and Resources:**

“Tramline” <http://field-guides.com/trips.htm>  
“The Classroom of the Future” <http://www.cof.edu/ete/modules/msese/earthsysflr/biomes.html>  
“Utah Education Network” [http://www.uen.org/utahlink/tours/tourFames.cgi?tour\\_id=14051](http://www.uen.org/utahlink/tours/tourFames.cgi?tour_id=14051)  
“University of California Museum of Paleontology”  
<http://www.ucmp.berkeley.edu/glossary/gloss5/biome/>  
“Radford University” <http://www.radford.edu/~swoodwar/CLASSES/GEOG235/biomes/intro.html>  
“SciLinks” <http://www.worldbiomes.com/>  
“Enchanted Learning” <http://www.enchantedlearning.com/biomes/>  
“Sunburst Technology Company” <http://www.hyperstudio.com/>  
“Inspiration Software, Inc.” <http://www.inspiration.com>

**Student Worksheet**

## **Worksheet: Web Site Treasure Hunt**

Your name	Mary O'Leary
Your email address	Maryo56@msn.com
What is the question that students are researching on this Treasure Hunt?	<ol style="list-style-type: none"> <li>1. What are the names of the six land biomes?</li> <li>2. Answer the following questions about each of the 6 biomes. <ol style="list-style-type: none"> <li>a. Animals (list 6 different kinds)</li> <li>b. Plants (list 5 different kinds)</li> <li>c. Soil type</li> <li>d. Average rainfall</li> <li>e. Low and high temperatures</li> </ol> </li> </ol> <p><b>Please answer your questions in your notebooks.</b></p>
<b>Resource #1</b>	
Topic/Title of Resource	Virtual Field Trips to the Temperate Forest, Desert, and Tropical Rain Forest
Web address	<a href="http://www.field-guides.com/trips.htm">http://www.field-guides.com/trips.htm</a>
1-2 sentence description of the resource/site	This site provides free, high- quality virtual field trips for the K-12 classroom. Under Science Field Trips, you'll find links to Temperate Forest, Desert, and Tropical Rainforest field trips.
<b>Resource #2</b>	
Topic/Title of Resource	Enchanted Learning-Habitats/Biomes Explore the Tundra, Temperate Deciduous Forest, Tropical Rainforest, Taiga, and Grasslands.
Web address	<a href="http://www.enchantedlearning.com/biomes/">http://www.enchantedlearning.com/biomes/</a>
1-2 sentence description of the resource/site	Enchanted Learning produces children's educational web sites and games, which are designed to capture the imagination while maximizing creativity, learning, and enjoyment.
<b>Resource #3</b>	
Topic/Title of Resource	The Classroom of the Future™
Web address	<a href="http://www.cotf.edu/ete/modules/mse/earthsysflr/biomes.html">http://www.cotf.edu/ete/modules/mse/earthsysflr/biomes.html</a>
1-2 sentence description of the resource/site	The Classroom of the Future™ (COTF) program is helping to bridge the gap between America's classrooms and the expertise of NASA scientists, who have advanced the frontiers of knowledge in virtually every field of science over the last forty years.

## Planning Pages

# Intergalactic Zoo

**NAMES:** \_\_\_\_\_  
\_\_\_\_\_

**Directions:** Work with a partner to create a stack about your alien creature. Remember that you are the head zookeeper at the world's only Intergalactic Zoo. You have employees whose jobs are to search the galaxy for new creatures to add to the zoo. They will be bringing these creatures back from different planets. It is your job to create an environment that is similar to the one they came from so they can thrive in captivity at the Intergalactic Zoo. All creatures must come from planets other than Earth. Design your animal and explain what adaptations it must have in order to survive in this environment.

### CARD 1: THE COVER

The name of my zoo is: \_\_\_\_\_

### CARD 2: ALIEN ENVIRONMENT

Name of planet: \_\_\_\_\_

Draw a detailed picture of your animal's habitat.

### CARD 3: BASIC ALIEN ENVIRONMENT INFORMATION

Our alien animal is named: \_\_\_\_\_





<b>Criteria</b>	<b>Score</b>				
	<b>Poor</b>		<b>Excellent</b>		
<b>Preparation</b> (Planning Pages)	1	2	3	4	5
<b>Cooperation with Other Students</b>	1	2	3	4	5
<b>Curriculum Content</b> (accurate explanations)	1	2	3	4	5
<b>Writing</b> (clarity, organization, spelling, grammar)	1	2	3	4	5
<b>Visuals</b> (detailed drawings)	1	2	3	4	5
<b>Navigation</b> (buttons, organization of stack)	1	2	3	4	5

**TOTAL SCORE** \_\_\_\_\_

**Comments:**

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