

Animals Out of This World

Objectives

- Design a new animal using a key that is provided
- Recognize the importance of adaptation
- Apply your knowledge of biomes to create a habitat
- Create and construct a new animal to live on a different planet
- Report your new animal discovery through a science world news broadcast

Suggested Grade Levels

6-12th Grade

Subject Areas

Biology - adaptation

Environmental Science - adaptation

Ecology - adaptation

Astronomy – life forms on other planets, and terrain of terrestrial planets

Speech/Communication – giving an oral presentation to the class

Art – creating and contrasting your new creature

Language Arts – writing a descriptive and informing speech

Timeline

1 day working on the key

1 day building creature

2 days for presentations (3-5 minutes a student based on 55 minute class and 30 students)

Standards

Science

Unifying Concepts and Processes

Evidence, models, and explanations

Evolution and Equilibrium

Science in Personal and Social Perspectives

Population, resources, environment

Life Science

Structure and function in living system

Regulation and behavior

Diversity and adaptations of organisms.

Earth and Space Science

Earth in the solar system

Language Arts

Students adjust their use of spoken, written, and visual language (e.g., conventions, style, vocabulary) to communicate effectively with a variety of audiences and for different purposes.

Art

Making connections between visual arts and other disciplines Understanding and applying media, techniques, and processes

Background

This lab is being implemented during our environmental unit, specifically when teaching about adaptations to an environment. Students have finished learning about different kingdoms, classification of organisms and using a dichotomous key. Students will be using their prior knowledge to complete this activity. Students have also studied and reviewed their planets and characteristics. A key will be used in this activity to help students randomly create an animal that does not exist. Students should be aware of the different biomes listed under the key, and give you distinguishing characteristics of the biomes. For instance, a rainforest biome should have dense vegetation and a lot of annual rainfall etc...

Helpful Hints

1. It would be helpful to review the biomes before releasing the students to perform this activity. I would also suggest reviewing this on day 1, so if students finished using the dice they are able to begin sketching.
2. I would review the vocabulary that is listed below, so students are aware of the different terms. Especially, spikes vs. horns (this threw a lot of students)

Vocabulary

Exoskeleton, Endoskeletons, Appendages, Segments, Omnivore, Carnivore, Herbivore, Asexual Reproduction, Sexual Reproduction,

Materials

Adaptation Worksheet
Document Camera (ELMO)
LCD Projector
Art Supplies (markers, crayons, colored pencils)
Paper
Dice
Toilet paper rolls
Paper towel rolls
Aluminum foil
Plastic silverware
String, Yarn, Wikki-Stix (waxy-covered yarn)
Pipe cleaners
Hot glue gun
Beads
Scissors
Glue
Buttons

Helpful Hints

1. I listed several ideas above for building materials for your creature. You can use any supplies you would like to have students build their creatures. I would also recommend letting student bring in their own materials on day 2.
2. Since hot glue is hot! Please remind students of safety expectations and rules.
3. If you have multiple classes, set aside a set amount of supplies for each class. If you fail to do that, your last class will have limited supplies.

Pre-Activity Information

Set aside space in your room for students to store their critters. If you are limited on space, you can allow students to work in groups of 2 or 3. Also, speech with your teammates and see if they would be willing to accompany some new “class pets” until they are finished. The art teacher would be a great idea.

Also, have technology equipment turned on and cued up ready for class instruction. This will cut down on the amount of dead time in your class.

Lesson

Day 1

1. As students enter room begin with a warm up question similar to the following, “Given your knowledge on adaptations, give me 3 adaptations you would need to live on Mars. Explain.”
2. Create a short (10 minutes) discussion on adaptations, have students share their ideas.
3. Pass out “Animals out of This World” worksheet/key.
4. Pass out a sheet of computer paper (used for sketching out environment and/or animal)
5. Read over instructions
6. Demonstrate the first several steps in the key, on the document camera. Make sure you roll the dice, and explain how you perceived the number that correlates with the trait.
7. Review any lab instructions that are pertinent to your classroom (i.e. supplies, paper, moving around etc...)
8. Ask students if they have any questions?
9. Give students remainder of class time to work on project

Day 2

1. As students enter the room begin with a warm up question, “Give three characteristics that your creature has that will cause a dilemma to live in his/hers habitat.”
2. Have students share some of their thoughts with the class (5-7 minutes)
3. Go over any safety concerns you have before beginning the constructing process of their creature (i.e. hot glue gun).
4. Allow students to begin constructing their creatures with the materials provided, and/or any objects they brought from home.
5. Give remainder of class to work on project. (Be sure to walk around the entire time to ensure students are staying on task)
6. Last 5 minutes of class, you should remind students that presentations begin the following day.

Day 3 and 4

1. As students enter the room, begin with a warm up question, "Describe the products you used to create your creature. Why did you pick these particular items?"
2. In alphabetical order have students come up present their creature (2-3 minutes per presentation)

Extensions

1. Students could build the habitat to accompany the creature
2. Students could write a descriptive essay

Evaluation/Assessment

1. Students will be assessed on their creativity and relativity to the environment they rolled for.
2. Students will be assessed on their availability to explain the adaptations that were needed to live on their particular planet.

Resources

<http://www.seti.org>

<http://www.nsta.org/publications/nses.aspx>

http://artsedge.kennedy-center.org/teach/standards/standards_58.cfm#04

<http://www.ncte.org/about/over/standards/110846.htm>