

Topic 9: Ecology – 9b. Biodiversity

9b1. Wanted Poster

Resources: Miller, K., Levine, J. (2004). *Biology*. Boston, MA: Pearson Prentice Hall. 22 May 2009.

Top New Species of 2008 [Internet]. Mongabay. Cited 4 Aug. 2009.
Available from: http://news.mongabay.com/2009/0522-new_species.html

Building on: This activity is very open-ended. It can be used in lots of different places within the biology curriculum. It can be used to introduce one of the kingdoms such as animals or protists. It could be used to introduce organs and organ systems. Here it is used to distinguish functional rolls of creatures within ecosystems. The teacher can choose a couple of ecosystems such as a pond, a coral reef, a deciduous forest, and a desert. For each ecosystem specific *producers, consumers and decomposers* could be assigned. The teacher might not tell the students which ecosystem their organism is targeted for, but let the students see which posters are dependent on each other after they have all been displayed. They can “put together” the different ecosystems. The emphasis is on the *niche* of each organism. How the niche of one organism affects other organisms should become apparent. From the other angle, the students could be assigned an ecosystem and a *trophic level* in that ecosystem, and they have to go and find an organism that occupies that level and make a wanted poster for that creature. Each ecosystem could display their posters together, arranging them to reflect the *interdependence* of the niches.

Links to Chemistry and Physics:

Organization of information
Presentation of information

Stories:

Students think that all the living organisms on earth have been found and classified. It is important for them to understand that this is hardly the case. According to the International Institute for Species Exploration at Arizona State University, 18,516 new species were identified in 2007 alone. Of those species, 75.6% were invertebrate animals, 11.1 % were vascular plants, 6.7% were vertebrates, and the remainder were mostly protists and bacteria.

You might think that all of these newly discovered organisms were small and obscure, but a 2-foot-long insect was discovered during 2008 in Malaysia. It looks a lot like a walking stick and is classified as *Phobaeticus chani*. Another organism, the ghost snail *Selenochlamys ysbryda*, was discovered in a densely populated area of Wales in England.

Small creatures were also found including the tiniest species of sea horses ever discovered. They are only .54 inches long at maturity and were found off the coast of Borneo. They were named *Hippocampus satomiae*. Interestingly, their genus name, *satomiae*, came from Miss Satomi Onishi, who was the diving guide for the expedition that found the sea horses.

Part of the reason it is important to maintain habitats throughout the world is because we just don't really know what is out there.

The following URL will take you to the website with photos of the top 10 species discovered in 2008: http://news.mongabay.com/2009/0522-new_species.html

Materials for the Activity:

- Computers
- Reference books
- Paper

Notes to the Teacher:

You could assign this for poster board, but I have found that the assignment can be constructed on 8½ " X 11" plain white paper and there should be the space needed for the information. I have the students put the bibliography on the back of the page. This saves the students the expense of poster board and a trip to the store. Besides, the wanted posters in the post office are generally smaller.

You could develop a search activity where students have to go around the posters and identify which are producers, which are consumers, and if consumers, at which trophic level they are most commonly found. You could have them read the posters and then put together their own food web looking for relationships between the ecosystems.

I have included an example poster and an example bibliography that can be used so that the students get the idea of what is expected of them.

Biology

Organism Wanted Poster

Phylum assigned: _____

Poster due date: _____

Value: 20 points

Assignment:

1. You must pick a specific member of the phylum you were assigned.
2. Determine the scientific classification of that organism including its binomial name.
3. Find a picture of the organism.
4. Develop a description of the organism that would help to distinguish it from other organisms in its phylum.
5. Learn the type of environment that is best for finding this particular organism.
6. Find out the names of several other organisms that might also be found in that environment.
7. Determine what niche (occupation) your organism carries out in its environment.
8. Include any special concerns to address when looking for your organism.
9. Find at least three interesting facts about your organism.
10. Using the above information, construct a “Wanted” poster for your organism. It must include:
 - a. The **common name** of the organism. (1 pt.)
 - b. The genus and species name of the organism (**Also known as**). (1 pt.)
 - c. The scientific classification of your organism from kingdom to species (**Classification**). (2 pts.)
 - d. A description of the environment where the organism lives (**Last Seen**). (3 pts.)
 - e. Several (at least 3) other organisms that occupy the same environment (**Known Associates**). (2 pts.)
 - f. A description of your organism that could be used to identify it (**Description**). (3 pts.)
 - g. Information about its function in the environment and things to consider when trying to catch the organism (**Modus operandi**). (3 pts.)
 - h. **Interesting Facts** (at least 3). (2 pts.)
 - i. **Contact information** if found (your name and e-mail address).
 - j. A **bibliography** using NoodleTools and including at least three sources. (3 pts.)

Wanted

Honeybee

Also known as

Apis mellifera

Classification

Kingdom: Animalia

Phylum: Arthropoda

Class: Insecta

Order: Hymenoptera

Family: Apidae

Genus: Apis

Species: mellifera



Interesting Facts

- Not native to N. America
- All drones are males.
- All workers are females.
- Pollen provides proteins and other nutrients for the bees.

Last Seen

- Environments with many flowering plants; particularly fruit trees
- Live in hives with an average of 50,000 bees per hive.
- Hives inactive in winter, but bees cluster to maintain internal hive temperature of 93 °F regardless of the outside temperature.

If found, contact: *name here*

Known Associates

- Bumble Bees
- Sweat Bees
- Mites found on bees or in their hives

Modus operandi

- Armed with a stinger
- Responsible for the pollination of about 130 different kinds of crops in the U.S.
- 30% to 60% reduction in number on the west coast of the U.S. due to Colony Collapse Disorder

Description

- Compound eyes
- 2 pairs of wings
- Fly at up to 20 miles per hour.
- Dance to inform other bees of desired pollen locations.
- 6 legs
- Yellow/black-striped abdomen
- 3 forms including queen, drones, and workers

Bibliography

Backyard Beekeepers Facts [Internet]. Backyard Beekeepers Association. Cited 2 Feb. 2008.
Available from: www.backyardbeekeepers.com/facts.html

Barrionuevo, A. Colony Collapse Disorder. *New York Times* [Internet]. 27 Feb. 2007. Cited
2 Feb. 2009. Available from: www.nytimes.com/2007/02/27/business/27bees.html

Honeybees [Internet]. Texas A&M University, Department of Entomology, College Station, TX.
Cited 2 Feb. 2009. Available from: www.honeybee.tamu.edu