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Digital Frog Lesson Plan

Lesson Plan: Ecology and Anatomy of Frogs using Digital Frog 2.5©

Subject/Grade Level: Biology 10, Honors

Topic: How does structure and function of frogs maintain homeostasis?

Time: 1-2 periods

Massachusetts Curriculum Frameworks:

Central Concept: Ecology is the interaction among organisms and between organisms and their environment.

6.2 Analyze changes in population size and biodiversity (speciation and extinction) that result from the following: natural causes, changes in climate, human activity, and the introduction of invasive, non-native species.

Central Concepts: There is a relationship between the organization of cells into tissues and the organization of tissues into organs. The structures and functions of organs determine their relationships within body systems of an organism. Homeostasis allows the body to perform its normal functions.

4.8 Recognize that the body's systems interact to maintain homeostasis. Describe the basic function of a physiological feedback loop.

Objective:

Changes in an organism's environment can result in these organisms making adaptations to survive.
Frogs must adapt to meet their needs in an ever-changing environment.
These adaptations stem from physiological and anatomical changes.

Learning Activity

Define: homeostasis, adaptation, hormones, hibernation, stimulus, poikilothermic, metabolism, amplexus, fertilization, carnivore

Go to Ecology on Digital Frog. Investigate each topic (Life Cycle, Biodiversity, Niches, and Behavior) and complete the work sheet (see attached).

After completing the worksheet, investigate the physiological and anatomical variations that allow the frog to adapt to its environment. By continuing your exploration of Digital Frog, answer the following questions in detail.

What glands affect homeostasis?

How is the skin adapted to meet the needs of an animal that hibernates?
Explain how structure of the mouth affects vocalization in frogs.
What happens to each body system when a frog hibernates?
From the frogs listed in the section Biodiversity, investigate the life history of a particular species. Create a poster to include:
Creative title
Description (include a picture and its scientific name)
Habitat
Range (maps should be included)
Feeding habits
Reproductive strategies
Predators
Any interesting facts
Posters will be graded according to the attached rubric.

Assessment
Vocabulary will be collected and checked for accuracy.
Worksheet will be graded for completeness and accuracy.
Poster will be graded according to rubric.

Homework
Completion of project

GRADING RUBRIC
FROG LIFE HISTORY

Total		5	4	3	2	1
25	**Content (x5)**	All required elements are included.	1-2 elements are missing.	3-4 elements are missing.	5 or more elements missing.	Unaccept
10	**Visually Appealing (x 2)**	All elements presented in colorful manner	Some elements lack visual appeal	Many elements lacking or not colorful	Poster boring and not well presented	Unaccept

5	**Neatness/ (x1)**	Layout of Poster well organized, all elements well presented	Some clutter, some elements not well presented	Poster lacks organization and neatness, cluttered	Poster very cluttered or too much empty space, not balanced	Unaccept
5	**Spelling /Grammar (x 1)**	1-2 spelling or grammatical mistakes.	3-4 spelling or grammatical mistakes.	5-6 spelling or grammatical mistakes.	7 or more spelling or grammatical mistakes.	Unaccept
5	**Creativity (x 1)**	Highly creative presentation	Presentation creative	Presentation acceptable	Presentation lacks any thought	Unaccept

TOTAL : _____/50