**Adaptation and Behavior**

**Lesson #13:** **Research Project on Animal Adaptations**

**Time Frame:** Varying amounts of class time over one week (or more)

**Learning Standards:**

*Science*

Life Science: Plant (and Animal) Structures and Functions

1. Give examples of how inherited characteristics may change over time as adaptations to changes in the environment that enable organisms to survive, e.g., shape of beak or feet, placement of eyes on head, length of neck, shape of teeth, color.
2. Describe how organisms meet some of their needs in an environment by using behaviors (patterns of activities) in response to information (stimuli) received from the environment. Recognize that some animal behaviors are instinctive (e.g., turtles burying their eggs), and others are learned (e.g., humans building fires for warmth, chimpanzees learning how to use tools).
3. Recognize plant behaviors, such as the way seedlings’ stems grow toward light and their roots grow downward in response to gravity. Recognize that many plants and animals can survive harsh environments because of seasonal behaviors, e.g., in winter, some trees shed leaves, some animals hibernate, and other animals migrate.

*English / Language Arts*

Oral Presentation

1. 3.8 Give oral presentations for various purposes, showing appropriate changes in delivery and using language for dramatic effect.
2. 3.9 Use teacher-developed assessment criteria to prepare their presentations.

Nonfiction

1. 13.13 Identify and use knowledge of common textual features.
2. 13.14 Identify and use knowledge of common graphic features.

Writing

1. 19.16 Write brief research reports with clear focus and supporting detail.

Research

1. 24.3 Apply steps for obtaining information from a variety of sources, organizing information, documenting sources, and presenting research in individual and group projects.

**Student will be able to:**

1. Research different types of animals and create a poster and a give a presentation to the class describing the habitat of the animal and how the animal is physically and behaviorally adapted to its environment.

**Resources and Materials:**

|  |  |
| --- | --- |
| **Item** | **Amount** |
| Science journals |  |
| Adaptation research project description and instructions | (in binder) |
| Adaptation research project poster rubric | (in binder) |
| Adaptation research project presentation rubric | (in binder) |
| Books and articles about animals\* |  |
| Access to computers with Internet\* |  |
| Materials to make posters (poster board, construction paper, computers, printers, copiers, glue, art supplies, etc.)\* |  |
| PowerPoint\* |  |

\***Materials not provided**

**Focus Activity:** Ask the students to address the following in their science notebooks. Compare and contrast a poster and a written report.

**Introduction:** Introduce the animal adaptation research project and explain the importance of creating a visually appealing poster that can be effectively used to present information to the class. (If computers are available students may create a PowerPoint presentation instead of a poster or use PowerPoint slides to make a poster.)

**Activity:**

1. Pass out the project description and the project rubrics to each student. Discuss the project and the rubrics as a class and explain the importance of using the rubrics to prepare the posters and presentations.
2. Ask the students to work individually or in small groups and ask each group to choose a type of animal to research. Ideally, each person (or group) will research a different type of animal.
3. The research part of this project can occur in a variety of ways depending on the resources available. The list of animals should be tailored to the books and materials available. Here are several options:
	1. Provide books and other materials in the classroom that the students can use to gather information.
	2. Go to the library as a class and the students can find their own books and resources.
	3. Use the computer to research the different types of animals. Students can print and use the information that they find.
4. Discuss the importance of references when researching a topic and tell the students how you want them to provide references. Then, give your students time to conduct their research.
5. Students will use the information they find and the grading rubrics to construct a poster. You may ask students to create a design for the poster first so that you can give feedback before it is completed.
6. Discuss the key parts of a good class presentation and give the students time to prepare and plan their presentation using their poster and the grading rubric.
7. Students will present their findings to the class using their poster. Give the other students time to ask questions at the end of each presentation.

**Closure:** Discuss the following questions with the class. What did you learn about animal adaptations? How are different animals adapted to similar environments? Why do most animal eat a different food source?

**Assessment:** Science notebooks responses, posters and presentations on animal adaptations

**Animal Adaptations: Research Project**

Animals change over time as inherited traits are passed from parents to offspring. Choose a local animal (found in Williamstown / North Adams) to research. Describe its environment and habitat (including needs for food, water, and shelter), and explain how it is both physically and behaviorally adapted to its environment. Create a poster to present to the class. Choose an animal from the list below or think of another type of animal on your own.

Animals in Williamstown / North Adams

Black bear

Beaver

Otter

Mink

Mole

Shrew

Bat

Snowshoe Hare

Cottontail (rabbit)

Chipmunk

Woodchuck

Gray squirrel

Mouse

Porcupine

Coyote

Fox

Weasel

Raccoon

Skunk

Bobcat

White-tailed deer

Moose

Salamander

Newt

Toad

Frog

Turtle

Garter snake

Rattlesnake

Wild Turkey

Mallard Duck

Red-tailed Hawk

Owl

Woodpecker

Cardinal

Goldfinch

**Animal Adaptation Poster Grading Rubric**

|  |  |  |  |
| --- | --- | --- | --- |
| **Poster Component** |  | **Possible Score** | **Your Score** |
| **Group work** | Use of timeWorking with others | 55 |  |
| **Content** | Description of the animal habitat (3-5 sentences)Explanation of 3 different ways your animal is physically adapted to its environmentExplanation of 2 different ways your animal is behaviorally adapted to its environment | 101510 |  |
| **Creative and clear graphics (drawings and pictures)** | Graphics(s) representing the key features of the habitat/environmentGraphic(s) of your animal demonstrating the 5 ways (both physically and behaviorally) it is adapted to its environment | 1020 |  |
| **Overall effect of the poster** | Neat and attractive | 5 |  |
| **Organization**  | Titles and labelsFlow of material | 55 |  |
| **Grammar** | Correct punctuation, spelling, and word usage | 5 |  |
| **References** | Documents sources used according to the guidelines provided | 5 |  |

**Total Points: \_\_\_\_\_ / 100**

**Grade:** A B C D F

**Comments:**

**Animal Adaptation Presentation Grading Rubric**

|  |  |  |
| --- | --- | --- |
| **Presentation Component** | **Possible Score** | **Your Score** |
| Volume | 10 |  |
| Eye Contact | 10 |  |
| Clear Speech | 10 |  |
| Complete sentences and effective word choice | 10 |  |
| Enthusiasm | 10 |  |
| Preparedness | 15 |  |
| Explanations of the content and graphics of the poster | 20 |  |
| Listens to other presentations | 15 |  |

**Total Points: \_\_\_\_\_ / 100**

**Grade:** A B C D F

**Comments:**