

Best Practices of Technology Integration

Title: A Study of Vertebrates ¹

Subjects(s): Science

Intended Grade Level(s): 4

Description:

The purpose of this project is to introduce students to the world of vertebrates. By the end of their study, students should know vertebrates are animals that have backbones as part of their skeletons and skull bones for support and protection. Students will know where various vertebrates live, what they eat, how they reproduce, and why they are an important part of the environment.

They will know there are seven main vertebrate groups. Students will know the characteristics of each vertebrate group.

Fish live in water and are the simplest vertebrate group. The three groups of fish are the jawless fish, cartilage fish, and bony fish. Fish are cold blooded, have scales, gills, and a heart with two chambers. Most fish have fins.

Amphibians live part of their life in water and part on land. They are cold-blooded, have moist skin, no scales, and most young breath with gills and live in the water. They change into adults gradually (metamorphosis) and breathe with lungs. They have three heart chambers, and lay their many eggs in water.

Reptiles live mainly on land and are more complex than fish or amphibians. Reptiles are cold-blooded, have dry, scaly skin, most (excluding snakes) have two pairs of legs with five toes on each leg. They breathe with well-developed lungs, have hearts with three chambers, reproduce by laying eggs with tough, protective shells. Reptile babies resemble reptile adults. Reptiles include turtles, lizards, alligators, and snakes.

Birds are vertebrates with feathers and wings, and they are warm-blooded. Birds' hearts have four chambers. Most birds have wings, build nests in which to lay hard-shelled eggs, and they care for their young until they can find food and survive on their own.

Mammals are the most complex group of animals. They have body coverings of hair or fur, are warm-blooded, have hearts with four chambers, have more complex brains than other animals, more complex body systems. Most mammals give birth to live young, and females have special organs that produce milk to feed their young.

Once students have learned about vertebrates and recorded their learnings in a science journal, students will be divided up into seven groups and each group will produce a Hyperstudio presentation about their vertebrate group. Once the Hyperstudio presentation is completed, the final project will be presented to the rest of the class using the LCD panel. It will also be saved on the computer to be used for science night and future students who need reteaching in a manner other than traditional teaching methods.

Curriculum Benchmarks:

[MI.SCI.III.2.EL.1](#)

Compare and classify familiar organisms on the basis of observable physical characteristics

[MI.SCI.III.2.EL.2](#)

Describe vertebrates in terms of observable body parts and characteristics

[MI.SCI.III.2.EL.3](#)

Describe life cycles of familiar organisms

[MI.SCI.III.2.EL.4](#)

Compare and contrast food and environmental needs of selected organisms

[MI.SCI.III.3.EL.1](#)

Give evidence that characteristics are passed from parents to young

[MI.SCI.III.4.EL.2](#)

Explain how physical characteristics of organisms help them to survive in their environments

Technology Benchmarks:

[MI.WP.EL.4](#)

File Menu, open, close, save as, edit menu undo, copy, cut, paste, select all, font type and size

[MI.DP.EL.3](#)

Picture menu,

[MI.DP.EL.4](#)

Access template, know optional border and color

[MI.OLT.EL.](#)

Access through signing on and off, learn acceptable communication

[MI.MM.EL.3](#)

Create text, image, and record sound

[MI.MM.EL.4](#)

Organize and arrange information for a multimedia presentation, create and import images from a variety of sources, create and use sound from a variety of sources, knowledge of currently available software

Materials/Hardware/Software:

To complete this project, the students should have access to the following:

Computer, either PC or MAC

HyperStudio software program for Windows or MAC, Roger Wagner, Pub.

Various trade and text books, CD's dealing with science topics, a science journal, pencil

Teacher with knowledge of above materials

LCD Panel and overhead projector

Access to the Internet for research

Group of students to work together

Patience

Some Internet resources:

Vertebrate Pests home Page: <http://web.css.orst.edu/topics/pests>

Vertebrate/index.html: <http://www-med.stanford.edu/creatures/infoframes/vertebrates>
<http://www.ucmp.berkeley.edu/vertebrates/vertintro.html>

Teacher Preparation:

Prior to the HyperStudio project beginning, students will have extensive instruction in the area of vertebrates. Using their science journals, students will take accurate notes and be prepared to discuss these notes with their class as the instruction progresses. These notes will also be used in review work prior to the start of each day's presentation. A teacher aide will work with students to find articles or information about different types of vertebrates.

Prerequisite Student Skills:

Knowledge of HyperStudio®.

Activities/Procedures:

Students will be divided up into seven groups to design a HyperStudio® presentation for each vertebrate group. The groups may be divided by having each student write down two groups they would like to be involved with, or the teacher may select to do co-operative group selection, making sure a leader, a follower, a scripter, and some supportive, encouraging student is in each group.

Next, the students, who are already familiar with HyperStudio® from third grade work done on that software, will sit down and discuss how they want their final part of the project to look. Each group will take a turn on the computer working on their project. The first group will do their presentation on the jawless fish, then the cartilage fish group will put their work onto a stack, followed by bony fish, amphibians, reptiles, the bird group and finally the mammal group. Once finished, the entire presentation will be shown to the group using the LCD display board. This presentation will be carefully saved and will be pulled out for open house, teacher conferences, or science night. It will also be made available to other classrooms, should they wish to observe our learning.

Assessment/Evaluation:

A final evaluation will be administered to students using the district's outcome test for vertebrates. At least 90% of the students should pass the test, but for those that don't, this presentation can be viewed by those students for reteaching. Once they feel they are ready for retesting, an aide will give them the retest.

Follow-up Activities:

This presentation on vertebrates can be a station at science night, can be shown at parent teacher conferences, or at open house activities. It may also be shown to the Parent Teacher Organization at one of their meetings, as they love this type of activity and for even more publicity of what fourth grade students can accomplish, this presentation could be shown to the School Board when they meet in our building. (Our school board meets at the Middle School for most of their meetings, but they do rotate through all five buildings in our district and when they are in your building, what is happening in our school is really stressed. They would love seeing how we used technology since they have recently made a big commitment to technology.)

Submitted By:

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