Classification

Ivory Hilliard

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This unit is geared toward students in a tenth grade Biology classroom. It is intended as an introduction to both the concept of classification and the system of taxonomy. The Minnesota Department of Education Standards that will be covered in this section are as follows:

IV. LIFE SCIENCE: B. Diversity of Organisms

> 5. The student will use the characteristics of an organism to identify the kingdom to which it belongs.

Day 1: Introduction to concepts of classification and taxonomy

- General classification activity
- Introduction to taxonomy
- Introduction to binomial nomenclature

Day 2: Taxonomy project

- Recap of previous lesson
- Splitting into groups
- Introduction of taxonomy project

Day 3: Group work on project

- Group work

Day 4: Presentations

- Group presentations

Day 1: Introduction to concepts of classification and taxonomy

Objectives:

Students will:

1. Understand the importance of classification.
2. Explain and apply conventions of biological taxonomy.
3. Explain and apply conventions of binomial nomenclature.

Materials:

Objects/pictures for classification

Youtube videos

1. Planet Bob
2. Taxonomy, from Lifetime: A science Oratorio

Powerpoint presentation

Mnemonic devices worksheet

Procedure:

1. Classification activity
   - Assemble objects/pictures at front of classroom
   - Allow students to create their own categories
   - Discuss:
     1. What is classification?
     2. What are different types of classification systems?
2. Taxonomy
   - Planet Bob video (2:46)
   - Discuss: What is taxonomy?
   - Taxonomy, from Lifetime video
   - Mnemonic worksheet
3. Kingdoms
   - Animal
   - Plant
   - Protista
   - Monera
   - Fungi

4. Binomial nomenclature
    - Linnaeus
    - Writing conventions

Day 2: Taxonomy project

Objectives:

Students will:

1.Outline defining characteristics of the different Kingdoms

2.Identify specific characteristics of organisms in the different Kingdoms

Materials:

Worksheet: Kingdoms Project

Organism slips

Procedure:

1. Review important points from previous lesson.
    - Taxonomy
    - KPCOFGS
2. Outline Kingdoms Project
    - Split class into five groups
    - Each group selects five organisms, one from each of five unknown categories
    - Answer questions about each organism
        1. What kingdom does it belong to?
        2. What is its common name?
        3. Where can it be found?
        4. What are two interesting things about it?
    - Create a presentation for each organism

Day 3: Group work on project

Objectives:

Students will:

1.Work on their projects as a group

Materials:

Worksheet: Kingdoms Project

Internet/reference material

Procedure:

1. Allow students to work on the Kingdoms Project
2. Answer any questions that students may have

Day 4: Presentations

Objectives:

Students will:

1.Present their own findings

2.View the findings of their classmates

3.Draw conclusions about the different Kingdoms

Materials:

Student presentations

Procedure:

1. Groups will present their findings for each organism
2. Class discussion on each of the five categories
    - Determine which Kingdom is represented by each category
    - Identify common characteristics

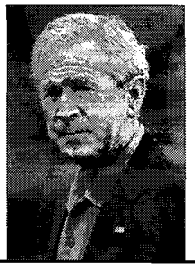
Classification

Taxonomy

Kingdom: Animalia
Phylum: Chordata
Class: Mammalia
Order: Primata
Family: Hominadae
Genus: Homo
Species: sapiens

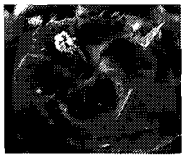
Binomial Nomenclature

Genus: *Homo* + Species: *sapiens*
= *Homo sapiens*



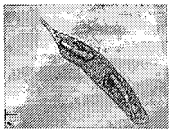
Kingdoms


Animal


Plant


Fungi


Monera


Protist

Biological Taxonomy Mnemonic

Make a mnemonic device for remembering the different levels of biological taxonomy (Kingdom, Phylum, Class, Order, Family, Genus, Species)

Do not copy the example!

Name:

K _____

P _____

C _____

O _____

F _____

G _____

S _____

Example:

Kings
Play
Chess
On
Fine
Grained
Sand

Kingdoms Project

The class will be split into five groups. Each group will chose five organisms on which to report. These organisms will be chosen from each of five different groups (Kingdom 1, Kingdom 2, etc). For each of these organisms the group will answer the following questions:

What kingdom does it belong to?

What is its common name?

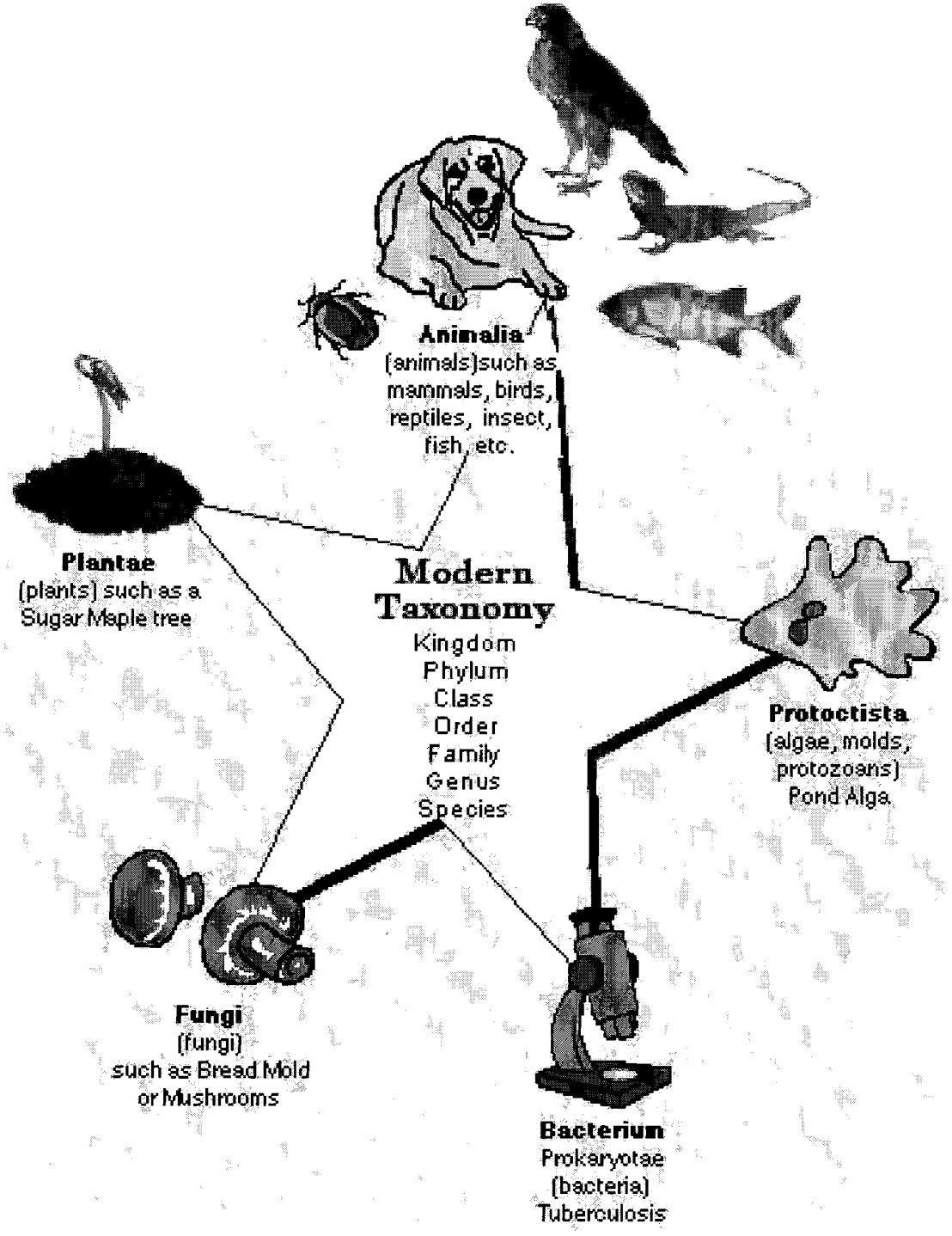
Where can it be found?

What are two interesting things about it?

The students will then create a PowerPoint presentation on these organisms. The organisms will be presented in order, from Kingdom 1 to Kingdom 5, by each group. The PowerPoint presentations must answer all of the questions and provide a picture of the organism. Each group will enter the information that they found into a database. This database will be made available to all the students to study from.

Kingdoms Project

Group:



Directions

- Select five organisms, one each from Kingdoms 1, 2, 3, 4, and 5.
- For each of the organisms answer the questions on the next page.
- Create a PowerPoint presentation.
- You will present the organisms in order. The organism from Kingdom 1 will be first.
- Your PowerPoint presentation must include slides answering each of the four questions as well as a picture of the organisms.
- PowerPoint presentations will be presented to the class.
- Enter your findings into the classroom database.
- Turn in a copy of your presentation along with this packet.
- Make sure that the names of all group members are on the front of this packet.

Species	What kingdom does it belong to?	What is its common name?	Where can it be found?	What are two interesting things about it?
Kingdom 1				1. 2.
Kingdom 2				1. 2.
Kingdom 3				1. 2.
Kingdom 4				1. 2.
Kingdom 5				1. 2.

Protista	Monera	Plant	Animal	Fungi
Ulva lactuca	*Chlamydia muridarum*	*Floydiella terrestris*	*Ascute asconoides*	*Cryphonectria parasitica*
Paramecium caudatum	*Prochlorococcus marinus*	*Takakia ceratophylla*	*Atrichornis rufescens*	*Penicillium roqueforti*
Toxoplasma gondii	*Fusobacterium necrophorum*	*Chamaecyparis formosensis*	*Carcharhinus acronotus*	*Saccharomyces cerevisiae*
Macrocystis angustifolia	*Treponema pallidum*	*Ginkgo biloba*	*Linckia laevigata*	*Tuber aestivum*
Paramecium bursaria	*Sphaerobacter thermophilus*	*Magnolia virginiana*	*Heptathela kimurai*	*Agaricus arvensis*