

Biology

Core Activity

Standard # 3520-05 Students will understand concepts of biological diversity. Objective # 3520-0501 Classify organisms using a key. ILOs: Develop and use categories. Understand natural/human produced systems in science. Science produces a systematized body of knowledge.	Topic: Diversity and Evolution 3520-05
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Description of Activity

Activity Title: Creature Categories

Activity Overview: Students will sort twenty different animals eventually into individual categories in order to create their own dichotomous key. Students will write out their reasons for dividing the animals and then exchange them with another student to test the design of the dichotomous key they prepared.

Duration: 30 to 50 minutes

Materials, Facilities and Resources:

Photos, drawings or diagrams of twenty different organisms showing their entire body. Paper and pencils.

Background Information

Teachers should be familiar with the five kingdom classification scheme and the use of gene mapping by modern taxonomists to identify relationships.

Teaching and Learning Strategies

Ensure inquiry

Prerequisite Learning

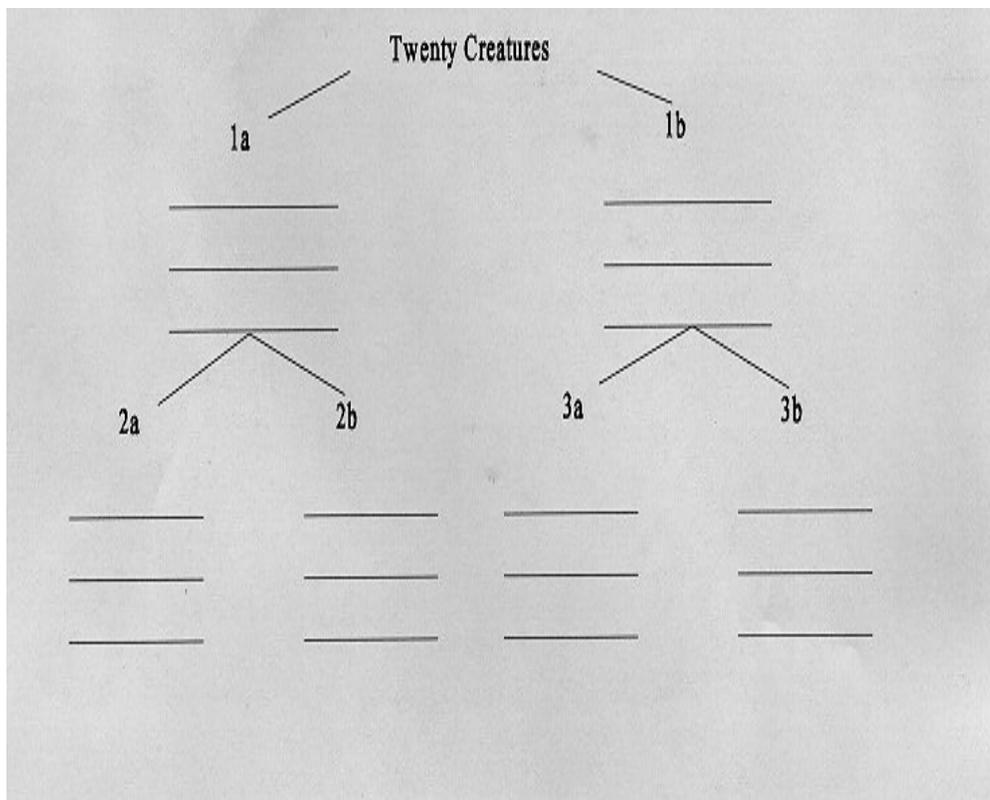
This activity can be used as an introduction to taxonomy. The students need to be familiar with the traits or characteristics of the twenty organisms provided for grouping.

Invitation to Learn

Problem: Sort these organisms into two groups, continue breaking them into two groups until each is the only member of its group.

Activity: Show the students pictures of twenty different but familiar organisms. Have them group them into two (approximately equal) groups using one characteristic. For example "Lungs" or "No Lungs" . Have the students record their reason for making the division. Have the students divide each of their groups into two more groups, again recording their reasons for doing so. Keep performing the dichotomous division until only one organism remains in each category and the student has written a reason for each division.

Show the students how to organize their divisions on paper in the following manner:



Have the students exchange their dichotomous keys to determine if they can follow the other student's reasons and categorized the critters in the same manner. Afterward, lead the class in a discussion regarding their reasons for separations, strengths and weaknesses of the criteria used for their categories, the history of dichotomous keys, examples of dichotomous keys, and why dichotomous keys are essential to the science of taxonomy.

Summary of Learning

1.The correct order of the biological hierarchy from kingdom to species is...

- A.kingdom, class, family, order, phylum, genus, species.
- B.kingdom, phylum, order, family, class, genus, species.
- C.kingdom, phylum, class, order, family, genus, species.
- D.kingdom, class, order, phylum, family, genus, species.

2. Which of the following do modern taxonomists study to determine relationships among organisms?

- A. Physical characteristics
- B. Behavioral patterns
- C. DNA sequence similarities or differences
- D. All of the above

3. Why do taxonomists not use characteristics like size, shape, color or habitat to delineate similarities?