

Lesson Title/Topic: Are we related? An evolution memory game
7th grade evolution unit

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I. Lesson Objective(s)

Objectives

TSWBAT identify and describe how evidence from geology, fossils, and comparative anatomy support the theory of evolution.

TSWBAT evaluate given evidence from geology, fossils, and comparative anatomy to describe relatedness of various species.

II. Content Standards Addressed during this Lesson

California Content Standard

3c. Students know how independent lines of evidence from geology, fossils, and comparative anatomy provide the bases for the theory of evolution.

III. Materials (*List all materials you will be using in each area*)

-Are we related? Evolution memory game cards
-Evidence packets for Evolution memory with summary sheets
-Student worksheets

IV. Procedures/ Lesson Plan Outline

1. Lesson Format

(How will students take part in the lesson? What's the setting in your classroom?)

Consider: demonstrations, group investigation, games, multi-media, presentation, etc.

Students will be seated in groups of 4-5. The students will play the evolution memory game at a larger table or on the floor. They will then work together at a large table or on the floor to examine the evidence packets about species pairs, and fill out the worksheet together.

2. Introduction

Procedures	Teacher will...	Student will...
<p>Anticipatory Set: (How will you create interest in this lesson? Is pre-assessment necessary? Is this review or new info?)</p>	<p>Tell a story about my family tree. Draw a branching family tree as I describe the relatedness of family members.</p> <p>From the family tree, begin to describe how I do not descend from my cousins, but we share a common ancestor. Use this to describe how evolution creates a large family tree of how life is related. This does not always mean that species descend from each other, but they may share common ancestors.</p> <p>Ask students to remember what a scientific theory is. What do scientists use to develop a theory? Evidence! What sort of evidence do we need to support evolution?</p>	<p>Listen to family tree story, relate it to their own family trees.</p> <p>Answer questions about the nature of a scientific theory and how scientists develop theories. (Review).</p>

3. Body

Procedures	Teacher will...	Student will...
<p>Input: (How will you convey to students the info they need to learn- methods/techniques? How does this lesson link to previous learning?)</p>	<p>What sort of evidence do we need to support evolution?</p> <p>Write brainstormed ideas on the board. Finish by circling/adding geology, fossils, and comparative anatomy.</p>	<p>(Review/New info) Brainstorm possible types of evidence to support evolution.</p>
<p>Modeling: (How will you model- verbally explain with visual example/demo? How will you support students to activate their own thinking?)</p>	<p>Part 1: Present the memory game cards. Tell students that this is similar to the game of memory. They will take turns and try to find the pairs of animals that are closely related. The pairs will be indicated by the matching colors on the reverse side.</p>	

Procedures	Teacher will...	Student will...
Guided Practice: (How will students practice skill and how will you prompt/provide guidance? What prompts will you use? What corrective feedback will you provide?)	<p>Divide students into groups of 4 or 5. Give them a set of memory cards.</p> <p>If students struggle during the game, prompt them by asking them to think about what families the species belong to. Are they mammals? Etc. Don't answer questions of why a pair is related, remind them that the next step will be to examine the evidence.</p>	Play the memory game.
Modeling: (How will you model- verbally explain with visual example/demo? How will you support students to activate their own thinking?)	<p>Part 2: Ask each group of students to choose a pair from the game that they would like to investigate.</p> <p>Explain that they will now evaluate the evidence to see how the two species are related. In their groups, the students will work together to describe what the evidence shows, and fill in the worksheet table together. Provide an example of a piece of evidence, and where it would fit in the table.</p>	Students will discuss with their group to choose a species pair.
Guided Practice: (How will students practice skill and how will you prompt/provide guidance? What prompts will you use? What corrective feedback will you provide?)	<p>Give each group an evidence packet, and each student a worksheet.</p> <p>Walk around and assist students as needed to evaluate the evidence.</p> <p>Once students have spent time evaluating the evidence, provide them with the summary sheet for their pair that will describe what the evidence is showing as to how pair is related.</p>	<p>Students will work with their group to evaluate the evidence fill in the worksheet table.</p> <p>Students will read the summary sheet and discuss.</p>
Independent practice:		On their own, students will answer the questions on the worksheet.

4. Closure

Ask students: what was surprising to them? Did they find the evidence sufficient? Do they have questions? Remind them that these pairs share common ancestors; this does not mean that one descended from the other. Relate back to family tree. Next lesson they will be constructing evolutionary family trees using the pairs already studied, and relating them to their common ancestors. Introduce homework assignment.

V. Assessment

Homework assignment:

1. Ask students to interview an adult/family member about their family and make a family tree in preparation for the next lesson on constructing phylogenetic trees.
2. Using their worksheet, have the students create a family tree for how their animals are related. These will be very simple, but they will get the student to start thinking about creating branching diagrams.

Questions on the end of unit test:

- What types of evidence support evolution? Give an example of each.
- Give 3 pictures of skeletal limbs (whale, wolf, shark), ask them to determine who is most closely related and describe why.

VI. References

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