The Agrius Forest Schools

Nature Inspires Growth

Lesson Plan: Evolution of Prehistoric and Modern Mammals in Colorado

Grade Level

6–8

Subject

Science – Evolution and Paleontology

Duration

2 class periods (45–60 minutes each)

Learning Objectives

- Identify major prehistoric animals that once lived in Colorado.
- Compare skeletal structures and physical features of prehistoric and modern animals.
- Explain how environmental changes influenced animal evolution.
- Analyze fossil evidence to understand adaptation and survival.

Materials

- Images or 3D models of prehistoric animals (e.g. ancient bison)
- Images or models of modern Colorado animals (e.g., elk, bison, mountain lion)
- Skeleton comparison worksheets
- Chart paper and markers
- Access to online fossil databases (e.g., Denver Museum of Nature & Science resources)
- Clay or modeling materials for activity
- Rulers and measuring tools

Key Vocabulary

- Fossil
- Adaptation
- Evolution
- Extinction
- Paleontology
- Morphology

Lesson Procedure

Day 1: Discovering Prehistoric Colorado

1. **Introduction (10 min)**
   Present a brief overview of Colorado's prehistoric environment, highlighting the Jurassic time period. Show images of the Stegosaurus (Colorado's state fossil) and other ancient species. Discuss (show video) of the geological time periods of Colorado. Introduce the Pleistocene time period when mammals first came about.
2. **Discussion (10 min)**
   Ask students to brainstorm what modern animals live in Colorado today. Record responses on the board.
3. **Presentation (15 min)**
   Display side-by-side images of prehistoric and modern animals. Discuss similarities and differences in body structure, size, and habitat.
4. **Activity 1: Skeleton Comparison (20 min)**
   - Provide skeleton diagrams of prehistoric and modern animals.
   - Students label key bones and note differences in skull shape, limb length, and spine structure.
   - Groups share findings and hypothesize why these changes occurred (e.g., climate, food sources, predators).

Day 2: Evolution in Action

1. **Review (10 min)**
   Recap key points from Day 1. Discuss how fossils help scientists understand evolution.
2. **Activity 2: Build an Evolution Model (25 min)**
   - Students use clay or modeling materials to create a prehistoric animal and its modern descendant.
   - They highlight adaptations (e.g., shorter tusks, lighter bones, different limb structure).
   - Each group presents their models and explains the evolutionary changes.
3. **Activity 3: Environmental Change Simulation (15 min)**
   - Present a scenario: Colorado's climate shifts from tropical to mountainous.
   - Students predict which traits would help animals survive and which might lead to extinction.
   - Groups record and share their reasoning.
4. **Wrap-Up Discussion (10 min)**
   Summarize how environmental pressures drive evolution. Reinforce the connection between prehistoric and modern species.

Assessment

- Completed skeleton comparison worksheets
- Group model presentations
- Participation in discussions and simulations
- Short written reflection: “How do fossils help explain the animals we see in Colorado today?”

Extension Activities

- Field trip to a local museum or fossil site in Colorado.
- Research project on a specific prehistoric Colorado species.
- Create a digital timeline showing the evolution of Colorado’s wildlife using **canva.com**.

Standards Alignment

- NGSS MS-LS4-1: Analyze and interpret data for patterns in the fossil record.
- NGSS MS-LS4-2: Apply scientific ideas to explain how variations in traits increase survival.
- NGSS MS-LS4-4: Construct explanations for how genetic variations influence adaptation.