

Introduction to the American Bison: Lesson Plan

Objective: The purpose of this lesson is for students to familiarize themselves with the parts and geographic range of the American Bison (AKA buffalo), prior to a field trip to the Falls on the Colorado Museum.

Grade Levels: 3-4

Applicable TEKS:

1. 3rd Grade Science
 - a. (12) Organisms and environments. The student describes patterns, cycles, systems, and relationships within environments. The student is expected to:
 - (A) explain how temperature and precipitation affect animal growth and behavior through migration and hibernation and plant responses through dormancy;
 - (B) identify and describe the flow of energy in a food chain and predict how changes in a food chain such as removal of frogs from a pond or bees from a field affect the ecosystem;
 - (C) describe how natural changes to the environment such as floods and droughts cause some organisms to thrive and others to perish or move to new locations; and
 - (D) identify fossils as evidence of past living organisms and environments, including common Texas fossils.
 - b. (13) Organisms and environments. The student knows that organisms undergo similar life processes and have structures that function to help them survive within their environments. The student is expected to:
 - (A) explore and explain how external structures and functions of animals such as the neck of a giraffe or webbed feet on a duck enable them to survive in their environment; and
 - (B) explore, illustrate, and compare life cycles in organisms such as beetles, crickets, radishes, or lima beans.
2. 4th Grade Science
 - a. (12) Organisms and environments. The student describes patterns, cycles, systems, and relationships within environments. The student is expected to:
 - (A) investigate and explain how most producers can make their own food using sunlight, water, and carbon dioxide through the cycling of matter;
 - (B) describe the cycling of matter and flow of energy through food webs, including the roles of the Sun, producers, consumers, and decomposers; and
 - (C) identify and describe past environments based on fossil evidence, including common Texas fossils.

Introduction to the American Bison: Pre-Field Trip Activity

Materials:

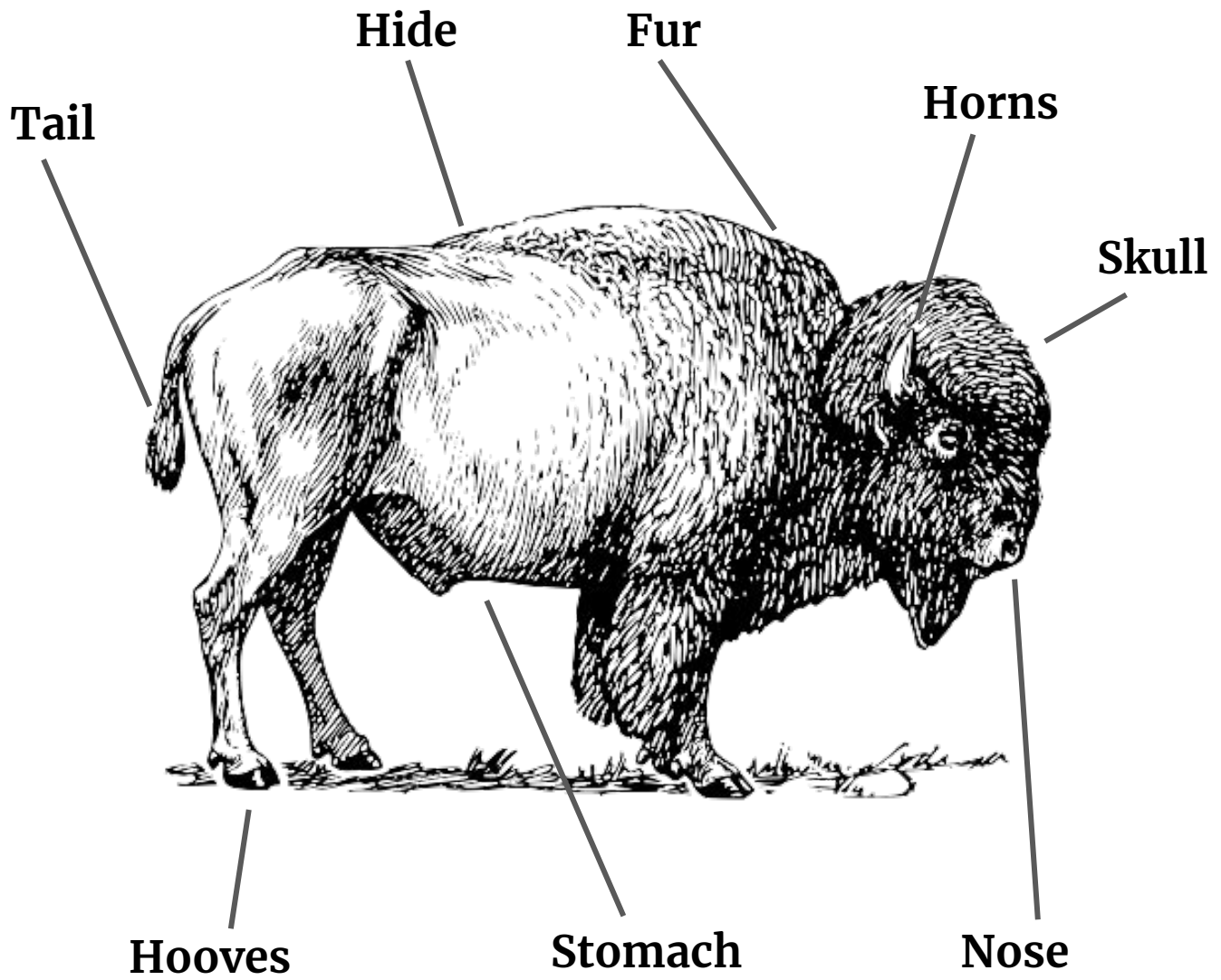
- Image 1: Diagram of bison parts
- Image 2: Map of historic bison range
- Image 3: Map of current bison range

Instructions

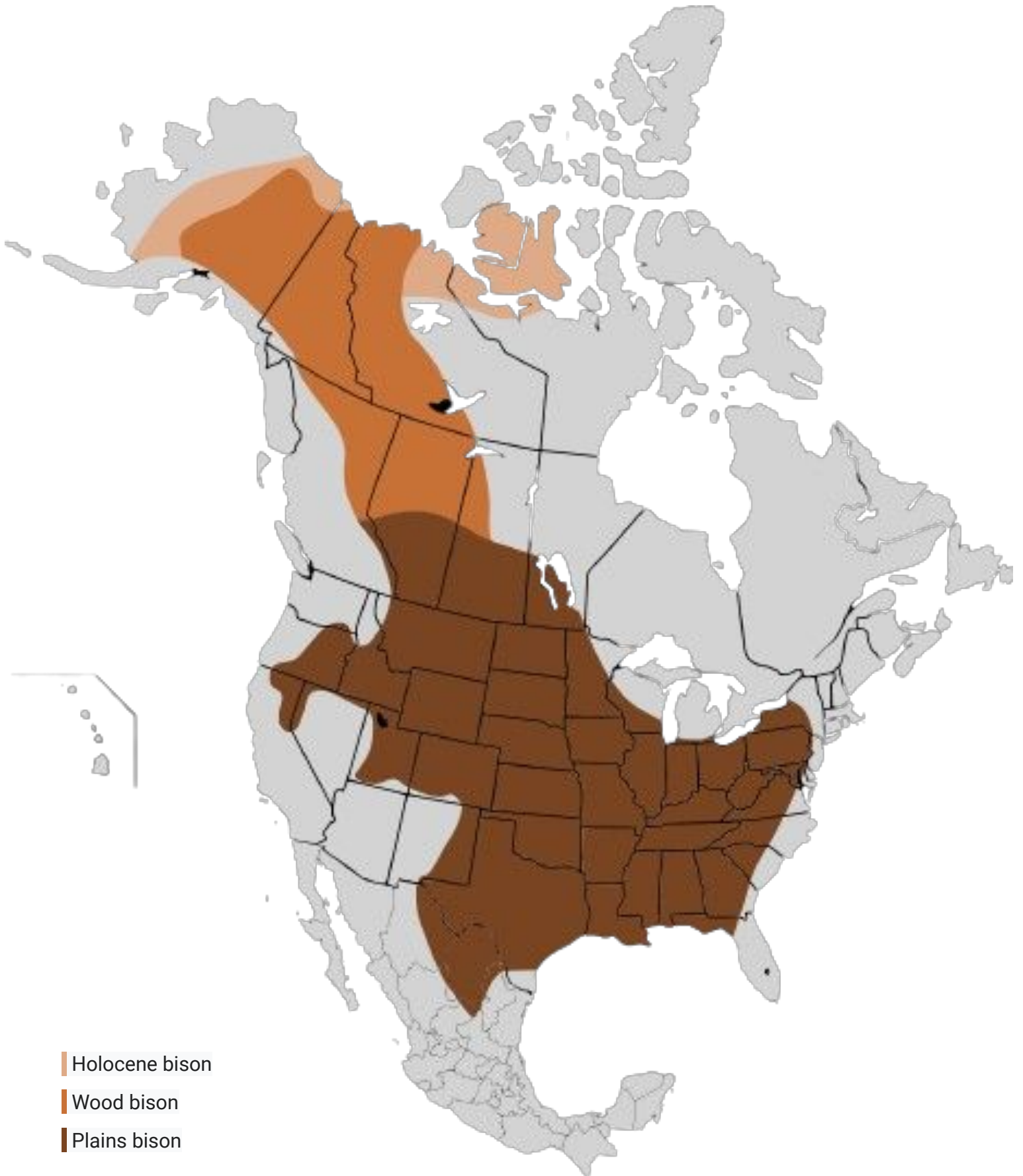
1. To introduce the topic, start a class discussion (5-10 minutes) to find out what students know about the American bison (also called the American buffalo). Questions you might ask include:
 - a. What is a bison? What do they look like?
 - b. When did they live in America? And where?
 - c. Have you ever seen a bison? If so, where?
2. After the introductory discussion, pass out the two maps and the diagram of bison parts to individual students or groups of 2-3 students.
3. Ask students first to study the diagram of bison parts (Image 1). Have students brainstorm and write down 2-3 functions for each part of the bison's body. In addition, ask students to compare Image 2 and Image 3, then brainstorm explanations to the following questions (15-20 minutes):
 - a. Herds of bison did not always stay in the same place, but moved around in patterns of migration. Why?
 - b. Bison used to number in the millions, but today there are only about 30,000 bison living in the wild. Why?
4. Following the previous step's activity, engage the whole class in a discussion of each bison part, asking students to share their ideas then comparing them to the actual uses listed below (10-20 minutes):
 - a. Thick hide of the bison keeps it warm and protects it from predators
 - b. Bison have thick fur in front of their faces to protect them from cold, winter storms.
 - c. Bison fur is thick and warm in the winter but can be molted or shed in the summer when the temperature is warmer.
 - d. Bison hooves are sturdy and help them to dig away snow from the ground in the winter. Their hooves can also be used as a weapon, to kick away predators.
 - e. Bison stomachs have four chambers that have special microorganisms to help them digest the grass that they eat.

- f. Bison noses are wedge-shaped, which helps them to push snow out of the way when looking for grass to eat in the winter.
 - g. Bison have very thick skulls. Sometimes bison will use their heads as a weapon and they head-butt predators and other bison.
 - h. Both male and female bison have horns for protection.
 - i. Like cows, bison use their tails as a flyswatter to deflect biting and stinging insects.
5. To close the lesson, ask students to volunteer their answers to the questions related to Image 1 and Image 2. Use the following information to assess the accuracy of student responses:
- a. The American bison is the largest land mammal in North America. Bison traveled in herds across a large area of grassland that stretched from Alaska to the Gulf of Mexico during different time periods in history. They played a very important part in the prairie ecosystem, and they were a major resource for the Native Americans. During the fall and winter, they would travel south where it was warmer, then return to the north in the spring to graze upon newly-grown grasslands.
 - b. Bison once roamed in vast herds, but they nearly became extinct in the 19th century due to human activities: commercial hunting and the exposure to diseases from domestic cattle. In addition, the United States intentionally massacred bison herds in order to deprive Native Americans of their resources and accelerate their assimilation to American culture. Through more recent conservation efforts, bison numbers slowly have recovered. Today, about 30,000 wild bison live in North American reserves.

Diagram of Bison Parts



Map of the original distribution of bison in North America



Map showing the distribution of plains bison and wood bison in North America as of 2003.

