# **Animals at Ashfall**

## **Lesson Overview:**

Students will use the painting in the Visitor Center, link to Paleo Sleuths, and the video: “Building Ashfall Fossil Beds Park” on the Virtual Tour to complete a lesson about the animals found at Ashfall.

## **Grade Level:**

Grades 4 - 8

## **Objectives:**

1. Students will develop skills in observation.

2. Students will develop skills identifying various characteristics of ancient animals.

## **Nebraska State Standards:**

### **Science**

SC.3.7.2.A **Construct an argument** that some animals form groups that help members survive.

SC.3.7.2.B **Analyze and interpret data** from fossils to provide evidence of the organisms and environments in which they lived long ago.

SC.3.7.2.C **Construct an argument** with evidence that in a particular habitat some organisms can survive well, some survive less well, and some cannot survive at all.

SC.3.7.2.E **Generate and compare multiple possible solutions to a problem** based on how well each is likely to meet the criteria and constraints of the problem.

SC.3.9.3.B **Analyze and interpret data** to provide evidence that plants and animals have traits inherited from parents and that variation of these traits exists in a group of similar organisms.

SC.HS.7.2.D **Evaluate the evidence** for the role of group behavior on individual and species’ chances to survive and reproduce.

## **Materials Needed:**

Access to computers with internet

Handout: “Animals at the Waterhole”

## **Suggested Procedure:**

Teacher introduces students to the “Virtual Tour of the Ashfall Fossil Beds.” The teacher can take students through aspects of the tour or allow the students to “take the tour” on their own.

Teacher points out how to find the painting in the Visitor Center, the link to Paleo Sleuths, and the video in the Barn: “Building the Ashfall Fossil Beds.”

Teacher oversees the students working and collects the completed work.

## **Extending the Lesson**

The teacher could have the students draw the horses of Ashfall.

## **Assessment:**

The completed handout.

## **Animals at the Waterhole**

1. While at the Visitor Center, find the painting of animals at the waterhole entitled “Ash Cloud Nears the Waterhole.”

Describe ten different animals in the picture:

1.

2.

3.

4.

5.

6.

7.

8.

9.

10.

1. Click on the icon of “chain links” inside the Visitor Center. You should now be at the Paleo Sleuths webpage. Scroll down to “Discover: The Animals of Ashfall” and click on “Dig Deeper.”

Now answer the following:

1. Which animals shown here are not in the painting?
2. Select one of these animals. Where would you place it in the painting? Why in that area?
3. Of all of these animals, which would you like as a pet? Why?
4. Of all of these animals, which would you least like to face in the wild? Why?
5. The following descriptions best fit which animal from the Ash Bed? (Click on each animal for descriptions.)
6. About two feet tall, chased prey in a zigzag pattern.
7. A grass eater about the size of a medium-sized dog.
8. Side toes probably helped it turn corners.
9. A bone crusher that was only about a foot and a half tall at the shoulder.
10. The following descriptions best fit which animal from below the Ash Bed? (Click on each animal for descriptions)
11. Only one has been found at Ashfall, about the size of a muskrat.
12. Probably nocturnal, would be related to a modern hedgehog.
13. Probably had difficulty drinking at the waterhole, most likely ate leaves off trees.
14. Walked flat-footed like a bear.
15. Choose one animal you think could have had a different color and markings than the way this artist conceived. Describe the color and makings you think might have worked well for this animal in this environment. Explain why.
16. Now go to the Rhino Barn and watch the video: ”Building the Ashfall Fossil Beds.”

Pay particular attention to the section on the artist thinking about the animals at Ashfall.

Answer the following:

1. What are the aspects of the animals that the artist was able to gather from the bones and where the animals were found?
2. What are the aspects of the animals that the artist imagined based on what he sees in similar animals that are alive today?

**Suggested resources:**

**Ashfall Fossil Beds Virtual Field Trip:** [**Ashfall Fossil Beds Virtual Field Trip**](https://nebraskapublicmedia.org/webxr/ashfallfossilbeds/)

**Paleo Sleuths; Digging Deeper (Ashfall Fossil Beds):** [**Ashfall Fossil Beds Paleo Sleuths**](http://www.paleosleuths.org/ashfall_fossil_beds.html)

# **For Teachers only:**

## **Key to questions 5 and 6:**

 5a. Secretary bird Mimic

 5b. Small Three-toed Horse

 5c. Sturdy Three-toed Horse

 5d. Racoon-like Dog

 6a. Round-tail Beaver

 6b. Moonrat

 6c. Giraffe Camel

 6d. Bear dog