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**Be
the**

DINOSAUR

Life in the Cretaceous

SEE.DO.LEARN

VIRTUAL CRETACEOUS EDUCATOR'S

LESSON PLANS

GRADES 5-12

LESSON PLANS/ACTIVITES

Introduction:

This teacher resource pack supports the subject matter of the Be the Dinosaur exhibit and the spark of inquiry that all good exhibits impart to their audiences. The purpose of the resource pack is to provide background information and classroom-based activities that can be used by teachers. Where relevant, links to the National Education Standards are highlighted. This is by no means the limit of information available on these subjects, more just an insight into the types of information currently around.

Activities described in this section can all be done in the classroom, using materials and equipment normally found in schools. Some of the activities may need photocopied sheets for the students. A copy of these sheets is included at the end of the section.

Children may know more about dinosaurs than you do. Use this as an opportunity to let them tell you what they know. Some of the younger children may find the idea of giant reptiles quite frightening, so reassure them that dinosaurs all died out a long time ago, before they were born. Redress the image of the dangerous dinosaur by talking about the huge range of dinosaurs that existed long ago. Many of the scariest looking dinosaurs were plant eaters and used their horns and spikes for self-defense.

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LESSON PLANS/ACTIVITIES

Mesozoic Masterpiece

Grades 2-5

Concept:

This lesson allows the students to learn about the complexities of an ecosystem by considering the past as well as the present.

Background:

Paleontologists have reconstructed many past ecosystems and as a result we have a pretty good idea of what kind of environment dinosaurs lived in.

Dinosaurs were as integrated into their communities as any animal today. Humans are underestimating our own integration with our ecosystem and so often cause more damage than we realize.

Curriculum Links:

NS.K-4.1/NS.5-8.1 Science as Inquiry
NSS-G.K-12.1 The World in Spatial Terms
NSS-G.K-12.2 Places and Regions
NSS-G.K-12.3 Physical Systems
NSS-G.K-12.5 Environment and Society
NSS-G.K-12.6 Uses of Geography
NS.K-4.6/NS.5-8.6 Science in Personal and Social Perspectives

Materials & Equipment:

- Craft materials and odds & ends
- Scissors
- Glue

Instructions:

Students work together in small groups
Create a collage to show the environments dinosaurs lived in.
Decorate the collage with descriptions and illustrations made by referencing books and exhibit materials.
Hold a classroom discussion and consider:
How does your environment compare to the environment in which dinosaurs lived?
How were the dinosaurs dependent on their environment?
How did the dinosaurs affect the environments in which they lived?
What do people depend on in their environment?
How do people affect their environment?
What are the similarities and differences?



LESSON PLANS/ACTIVITES

Dinosaur Food Chain

Grades 2-5

Concept:

Students will examine the relationship between animals and their food and will consider the different ways in which this may be accomplished.

Background:

Dinosaurs did not live alone. They lived with many different kinds of plants and other animals. Interactions between these living organisms are important and paleontologists try to figure out exactly what these relationships were. Part of this is trying to figure out what dinosaurs ate. This is mainly done by examining their teeth. For example, dinosaurs that ate fish have many straight, cone shaped teeth. Meat eaters have large pointy teeth sometimes with serrated edges. And plant eaters may have batteries of teeth with large grinding surfaces. Sometimes paleontologists are lucky enough to find fossilized gut contents, fossilized poop (coprolites) or a tooth lost while one animal attacks another.

Curriculum Links:

NS.K-4.1/NS.5-8.1 Science as Inquiry
NS.K-4.2/NS. 5-8.2 Physical Science
NS.K-4.3/NS.5-8.3 Life Science
NS.K-4.4/NS.5-8.4 Earth and Space Science
NSS-G.K-12.3 Physical Systems

Materials & Equipment:

- Pictures of dinosaurs
- Collection of dinosaur food (conifers, pine cones, magnolias, ferns)

Instructions:

Collect together pictures of dinosaurs and dinosaur food
Discuss modern food chains and how they work
Discuss how animal's teeth can give clues to their diet
Put together some dinosaur food chains

LESSON PLANS/ACTIVITES

What killed the dinosaurs?

Grades 5-12

Most students have heard the theory of the asteroid impact that may have caused the demise of the dinosaurs. Discuss the problems and uncertainties of this theory.

Look up and discuss other theories about this extinction (e.g. volcanoes, climate change, evolution of flowering plants etc).

The K-T extinction was actually the fifth mass extinction to hit earth, and certainly not the largest. Get the students to find out more about the other extinctions and see if they can find any similarities and differences.

Curriculum Links:

NS.K-4.1/NS.5-8.1 Science as Inquiry

NS.K-4.2/NS. 5-8.2 Physical Science

NS.K-4.3/NS.5-8.3 Life Science

NS.K-4.4/NS.5-8.4 Earth and Space Science

NSS-G.K-12.3 Physical Systems

NS.K-4.5/NS.5-8.5 Science and Technology

NS.K-4.6/NS.5-8.6 Science in Personal and Social Perspectives

NS.K-4.7/NS.5-8.7 History and Nature of Science

Resource Information:

Ever since fossils were discovered, humankind has wondered: "Why did they die?" A poignant question, for it has relevance to us - if extinct animals were wiped out by some catastrophe, couldn't that just as easily happen to us? Could we be found as fossils someday, and could someone figure out why we died?

Inquiring into the Great Mystery :

Until recently, people simply knew that dinosaur fossils were found in rock layers (strata) of the Mesozoic era (The Age of Dinosaurs) but not in the following Cenozoic era (The Age of Mammals). So, dinosaurs went extinct about 65 million years ago at the K-T Boundary (the Cretaceous is K and the Tertiary is T). Many wild ideas about how the dinosaurs were rendered extinct were presented over the years. But few satisfactory answers to the mystery behind the extinction of dinosaurs were offered.

LESSON PLANS/ACTIVITES

What killed the dinosaurs? (continued)

Then in 1980 a group of scientists at the University of California, Luis and Walter Alvarez, Frank Asaro, and Helen Michel, proposed a stunning and convincing mechanism for the K-T Extinction. Since the Alvarez hypothesis was proposed, the search for the “perpetrator” of the K-T Extinction has been a thriving area of scientific research, incorporating scientists from many disciplines including astrophysics, astronomy, geology, palaeontology, ecology, and geochemistry. The mystery has drawn extensive media coverage over the last 25 years.

Mass Extinctions:

Before we dive into the complexities of the K-T extinction (often referred to as “The Great Dying”), here’s some essential background information about the controversy:

The K-T mass extinction was an episode in evolutionary history where more than 50% of all known species went extinct in a short period of time (< 2 million years).

Several mass extinctions have occurred in the history of life; the largest was the P-T extinction between the Permian and Triassic periods. Catastrophically, life on Earth nearly was wiped out: an estimated 90% of species were extinguished likely because of large-scale changes to global conditions at that time, but even that is not confirmed yet. The issue has not received much press because the dinosaurs were not involved, but another familiar group, the trilobites, were wiped out among others.

Who Died?:

How does the K-T extinction compare to this debacle? Well, about 60% of all species that are present below the K-T boundary are not present above the boundary. Dinosaurs were among numerous casualties - the worst hit organisms were those in the oceans. Foraminifera (microscopic, shelled organisms), Echinodermata (including starfish), Mollusca (including clams), and the marine reptiles (plesiosaurs and ichthyosaurs) were devastated by the K-T event. On land dinosaurs and pterosaurs went extinct. Mammals and other reptiles seemed to be relatively unaffected.

(Please note: Additional lessons and activities are available upon request. Please contact Eureka Exhibits or your local host institution.)



**Be the Dinosaur - an
Inquiry Based Learning experience
for the entire family.**

High level of Interactivity

Exciting Subject Matter

Innovative Exhibit Concept

World class content experts

Paleontologist Speaker included

FUN!