

DIGGING DINOS

Teacher Resource Guide

Program Overview

TOPIC: Fossil excavation and mapping.

THEME: Discover the unique process fossils go through as we uncover them, map them, and reveal some of their prehistoric secrets.

PROGRAM DESCRIPTION: It doesn't get any more hands-on than this! In this exciting workshop, students experience the exhilaration of discovery as they uncover real dinosaur fossils. Using tools of the trade, students learn how to excavate fossils in our simulated quarry and how scientists map and interpret their finds.

AUDIENCE: Grades 3 - 6

Curriculum Connections

Grade 3 Science: Earth and Landscape Changes; Investigation for Understanding

Grade 4 Science: Evidence and Data

Grade 5 Science: Evidence, Understanding, and Ethics
Math: Coordinate Geometry

Grade 6 Science: Scientific Explanation
Math: Coordinate Geometry

Program Objectives

Students will be able to:

1. Demonstrate what each tool is used for and how to use them correctly in excavation.
2. Identify the co-ordinates of a fossil within a grid square.
3. Point out specific characteristics of bonebeds and the information they can give us.

Suggested Pre-Visit Activity

1. SIMPLE MACHINES

Many simple machines (levers, pulleys, wedges, axles, inclined planes) are used in excavation. Investigate how each of these five simple machines works in preparation for your dig at the Museum.

2. MAPPING PRACTICE

Practice drawing maps of various areas to scale. For example, you might want to try mapping the classroom, your school yard, or just a few items on the floor. This type of mapping will help you prepare for the mapping exercise during your program.

Hint:

Provide students with a grid/chart paper that represents the floor of the classroom/playground. Ask them to draw in desk/playground equipment etc. over the chart paper.

Extra things to try:

Introduce the concept of coordinates. Fossils are mapped using coordinates on a grid.

Post-Program Activity

1. BONEBED STUDY

Using a piece of grid paper, create your own bonebed map. Include as few or as many fossils on it as you like. Explain to the rest of the class what information your bonebed contains (how many dinosaurs were buried there, how did they end up arranged like this, etc.)

2. SIMPLE MACHINES – HOW DO WE USE THEM?

This is a follow up exercise to the Simple Machines activity that was included in the Suggested Pre-Visit Activities section for this program.

For the seven tools or pieces of equipment (used in palaeontology) listed below on the left side, relate them to levers, pulleys, wedges, axles or inclined planes in terms of their function.

TOOLS:	FUNCTION:
Awls	Lever or wedge
Hammers	Lever
Dental picks	Lever or wedge
Jackhammer	Motorized wedge
Ramps	Inclined plane (for moving heavy specimens up or down hills)
Winches	Pulleys (to move heavy specimens up hills)
Carts and trucks	Wheels and axles

3. ONLINE RESOURCES

University of California, Berkeley:

<http://www.ucmp.berkeley.edu/diapsids/dinosaur.html>

Website on evolution and dinosaurs:

<http://www.pbs.org/wgbh/evolution/extinction/dinosaurs/>

Includes links to dinosaurs and geology:

<http://en.wikipedia.org/wiki/paleontology>

Website for younger grades:

<http://www.enchantedlearning.com/subjects/dinosaurs/>

Smithsonian Institute:

<http://paleobiology.si.edu/index/html>

Up-to-date scientific reports on dinosaur science:

http://www.bbc.co.uk/sn/prehistoric_life/dinosaurs/

American Museum of Natural History, New York:

<http://www.amnh.org/exhibitions/permanent-exhibitions/fossil-halls>

**Great up-to-date information on all aspects of science,
including geology and palaeontology:**

<http://www.sciencedaily.com>

Keywords: Evolution, dinosaurs, geology, Discovery channel,
Natural History Museum of London, American Museum of Natural History,
Smithsonian Institute, Science Daily, Palaeontology

4. MUSEUM RESOURCES

Check out the Royal Tyrrell Museum website at www.tyrrellmuseum.com for a wide variety of teacher resources including distance learning programs.

Links to Other Websites

Links to websites are provided solely for your convenience. The Royal Tyrrell Museum does not endorse, authorize, approve, certify, maintain, or control these external Internet addresses and does not guarantee the accuracy, completeness, efficacy or timeliness of the sites listed.