

Fossil Hunters: Uncovering Clues from the Past, Grade 3-5*

Project Description:

Was there life on ancient Mars? Could a Mars meteorite reveal anything about Mars' past? What are some clues that have helped us unravel Earth's ancient past? Explore some fossil replicas to reveal clues to our past. As teams of paleontologists, we will examine some of the most common fossil evidence using a key to identify each piece. Other activities might include: solving a dinosaur fossil mystery by creating and assembling detailed rubbings of the skeletal structures of velociraptor, triceratops and tyrannosaurus rex, go on an exciting computer simulated tour of a dinosaur museum to learn some of the latest findings about these fascinating animals, examine a geologic timeline, and compare replicas of dinosaur feet/claws.

* Note that there are no listed standards for grade 5 but references to fossils reappears once again at grade 7.

Vocabulary:

ammonite	fossil	mold	triceratops
cast	geology	plaster	trilobite
cave bear	magnifier	rubbing	tyrannosaurus rex
clam	meteorite	shark	velociraptor
dinosaur	microbe	timeline	

Possible Class Activities:

- Introduction – Show Mars meteorite picture. What do you notice? Point out the wormlike shape and introduce the term fossil. Briefly discuss the definition of a fossil.
 - Show geologic timeline and how to read the scale. Introduce the 4 organisms that will be identified through teamwork and the use of clues provided.
 - Make plaster casts of the above organisms for “take home” follow-up activity.
 - Dinosaur activities –Fossil rubbings, dinosaur feet/claws and Dinosaur Hunt computer software. One group will start out with fossil rubbings. The other group will examine dinosaur feet/claws and use the Dinosaur Hunt software to find out more about these animals. After 30 minutes, the groups will switch to the remaining activity.
 - Fossil Identification Stations – Students try to identify 12 fossils in teams of 4-6 students. Clues will be at each station and students will have cards that provide descriptions of each fossil. Answers will be discussed at the conclusion of this activity.
 - Closure - What did we find out? This is the time to review highlights of today's investigations and also acknowledge any questions that may have arisen as a result of the different activities.

Pre-Visit Activities (in your classroom):

- Explain reasons for field trip (discuss theme).
- Stress following directions exactly and listening carefully.
- Introduce vocabulary if appropriate (optional).
- Using old magazines, have students find pictures of fossils, cut them out and explain w the picture illustrates a fossil.
- Go to one of the websites below to find out more about fossils.

Post-Visit Activities:

See the “Mysteries of Egypt” production in the Tien Mega Dome theatre. Explain how mummies a example of a fossil.

- Visit the meteorite exhibit and discuss the following question – Is it possible that micro could “hitch” a ride and survive a trip to another planet?
- Examine the plaster casts that were produced in the fossils class. Try to create rubbings and/or draw a picture of the fossil. Find out more about these creatures.
- Reconstruct the velociraptor, triceratops, and tyrannosaurus rex skeletons using the pap rubbings created in class. Refer to the sample skeletons of each and learn more about th creatures from the materials provided in the class.
- Collect some examples of fossils from home/school, and create an identification game i these student/teacher samples. (many possibilities exist – pressed flowers, leaves, any b (chicken, turkey, etc., teeth, hair/fur, nails, bark, sea shells, rocks with impressions of sl petrified wood – often found at aquarium shops)
- Visit one of the websites below for further explorations about fossils.

Website References:

This site will give your students lots of information about fossils. It also has links to activities with fossils.

http://www.isu.edu/departments/museum/education/homep/flc_files/index1temp.html

Learn about different types of dinosaur fossils; body fossils and trace fossils.

<http://www.zoomschool.com/subjects/dinosaurs/dinofossils/Fossiltypes.html>

State of California Science Standards :

Grade 3

Earth Sciences

3. Earth is made of materials that have distinct properties and provide resources for human

activities. As the basis for understanding this concept, students know:

d. fossils provide evidence about the plants and animals that lived long ago, and scientists learn about the past history of Earth by studying fossils.

Grade 3

Life Sciences

3. Adaptations in physical structure or behavior may improve an organisms chance for survival. As a basis for understanding this concept, students know

e. some kinds of organisms that once lived on Earth have completely disappeared; some of these resembled others that are alive today.

Grade 4

Life Sciences

3. Living organisms depend on one another and on their environment for survival. As a basis for understanding this concept, students know:

b. For any particular environment, some kinds of plants and animals survive well, some survive less well, and some cannot survive at all.

Grade 7

Focus on Life Science

Evolution

3. Biological evolution accounts for the diversity of species developed through gradual processes over many generations. As a basis for understanding this concept, students know:

c. how independent lines of evidence from geology, fossils, and comparative anatomy provide a basis for the theory of evolution.

d. how to construct a simple branching diagram to classify living groups of organisms by shared derived characteristics, and expand the diagram to include fossil organisms.

e. Extinction of a species occurs when the environment changes so the adaptive characteristics of a species are insufficient for its survival.

Earth and Life History (Earth Science)

4. Evidence from rocks allows us to understand the evolution of life on Earth as the basis for

understanding this concept, students know:

b. the history of life on Earth has been disrupted by major catastrophic events, such as major volcanic eruptions or the impact of an asteroid.

f. fossils provide evidence of how life and environmental conditions have changed.

g. How to explain significant developments and extinctions of plant and animal life on the geologic time scale.