

# TEACHER'S MANUAL

This Suitcase Program provides the materials and lesson plans for teachers of grades 6-8 with content and activities increasing in difficulty by grade level. Activities in this Suitcase Exhibit may assist in meeting the Tennessee State Standards.

## ACTIVITIES

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## Tennessee State Standards for 6-8

- 8.LS4.1 Analyze and interpret data for patterns in the fossil record that document the existence, diversity, extinction, and change in life forms throughout Earth's history.
- 8.ESS2.5 Construct a scientific explanation using data that explains that the gradual processes of plate tectonics accounting for A) the distribution of fossils on different continents, B) the occurrence of earthquakes, and C) continental and ocean floor features (including mountains, volcanoes, faults, and trenches).

For the entire activity and materials and to reserve a Suitcase Exhibit, please call 901.636.2362.

## ACTIVITY I: Learning About Fossils

DURATION OF ACTIVITY: 45-60 minutes

### LESSON OBJECTIVES

The students will take a pretest about fossils and then view a 20-minute video which introduces the fascinating subject of fossils.

### GUIDING QUESTION

What are fossils, how are they formed, and what can we learn from them?

### TENNESSEE STATE STANDARDS

Sixth Grade	Not addressed at this grade level.
Seventh Grade	Not addressed at this grade level.
8.LS4.1	Analyze and interpret data for patterns in the fossil record that document the existence, diversity, extinction, and change in life forms throughout Earth's history.
8.ESS2.5	Construct a scientific explanation using data that explains that the gradual processes of plate tectonics accounting for A) the distribution of fossils on different continents, B) the occurrence of earthquakes, and C) continental and ocean floor features (including mountains, volcanoes, faults, and trenches).

### MATERIALS INCLUDED

DVD/Videotape: **Fossils: Uncovering Clues to the Past**  
Fossil Sets 1 and 2

### MATERIALS PROVIDED BY TEACHER

Television with VCR or DVD player

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## Activity II: Becoming a Fossil

DURATION OF ACTIVITY: 45-60 minutes

### LESSON OBJECTIVES

Students will first study fossils and observe the decomposition of a variety of items to help them understand why some material fossilize and some do not. The students will compare fossilized wood and bone with modern specimens of wood and bone to observe the results of fossilization by petrification, replacement and permineralization.

### GUIDING QUESTION

What are some ways in which a once-living organism can become a fossil, and what causes the organism to become fossilized, when millions of others do not?

### TENNESSEE STATE STANDARDS

Sixth Grade Not addressed at this grade level.

Seventh Grade Not addressed at this grade level.

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8.ESS2.5 Construct a scientific explanation using data that explains that the gradual processes of plate tectonics accounting for A) the distribution of fossils on different continents, B) the occurrence of earthquakes, and C) continental and ocean floor features (including mountains, volcanoes, faults, and trenches).

### MATERIALS INCLUDED

Magiscope (directions are included in the activity)  
Fossil Set 1,2 and 4  
Hand lenses

### MATERIALS PROVIDED BY TEACHER

Index cards  
Fruit with a pit, such as peach or apricot  
Leaf  
Wood, small piece, or twig  
Chicken wing  
Shrimp  
Zip-lock bags  
Chart paper

For the entire activity and materials and to reserve a Suitcase Exhibit, please call 901.636.2362.

## Activity III: Types of Fossils

DURATION OF ACTIVITY: 1-2 class periods

### LESSON OBJECTIVES

Students will create several types of fossils (remains and trace: cast and mould) using household items. Students will compare their fossils with those of real specimens that were collected.

### GUIDING QUESTIONS

Part A What are the various types of remains and trace fossils? Part B How do all the different kinds of fossils form?

### TENNESSEE STATE STANDARDS

Sixth Grade Not addressed at this grade level.

Seventh Grade Not addressed at this grade level.

8.LS4.1 Analyze and interpret data for patterns in the fossil record that document the existence, diversity, extinction, and change in life forms throughout Earth's history.

8.ESS2.5 Construct a scientific explanation using data that explains that the gradual processes of plate tectonics accounting for A) the distribution of fossils on different continents, B) the occurrence of earthquakes, and C) continental and ocean floor features (including mountains, volcanoes, faults, and trenches).

### MATERIALS INCLUDED

Modern seashells

Fossil Set 1

### MATERIALS PROVIDED BY TEACHER

Plastic containers or bottles

Fast drying plaster (works best) or play dough

Vaseline (if using plaster)

For the entire activity and materials and to reserve a Suitcase Exhibit, please call 901.636.2362.

## ACTIVITY IV: Correlation of Strata

DURATION OF ACTIVITY: 45-60 minutes

### LESSON OBJECTIVES

Students will use fossil evidence to correlate worldwide rock strata. *Adapted from Who's on First: A Relative Dating Activity*, by Marsha Barber and Diana Scheidle Bartos and **Correlation and Strata: Findasaurus**, by Craig A. Munsart and Karent Alonzi-Van (grundyh<http://www.ucmp.berkeley.edu/fosrec/MunGun3.html#topmung>)

### GUIDING QUESTION

How do paleontologists determine the relative ages of rocks and fossils?

### TENNESSEE STATE STANDARDS

Sixth Grade Not addressed at this grade level.

Seventh Grade Not addressed at this grade level.

8.LS4.1 Analyze and interpret data for patterns in the fossil record that document the existence, diversity, extinction, and change in life forms throughout Earth's history.

8.ESS2.5 Construct a scientific explanation using data that explains that the gradual processes of plate tectonics accounting for A) the distribution of fossils on different continents, B) the occurrence of earthquakes, and C) continental and ocean floor features (including mountains, volcanoes, faults, and trenches).

### MATERIALS INCLUDED

Poster, Geologic Time Scale  
Fossil Set 1  
Fossil Set 2

### MATERIALS PROVIDED BY TEACHER

Colored pencils  
Overhead projector

For the entire activity and materials and to reserve a Suitcase Exhibit, please call 901.636.2362.

## **ACTIVITY V: Ancient Environments**

DURATION OF ACTIVITY: 45-60 minutes

### LESSON OBJECTIVES

Students will simulate actual fossil hunting by looking through fossiliferous ore from Bone Valley. They will research ecosystems, animal communities and ancient environments, based on what fossils they discover.

### GUIDING QUESTION

How do fossils provide clues about ancient environments?

### TENNESSEE STATE STANDARDS

Sixth Grade Not addressed at this grade level.

Seventh Grade Not addressed at this grade level.

8.LS4.1 Analyze and interpret data for patterns in the fossil record that document the existence, diversity, extinction, and change in life forms throughout Earth's history.

8.ESS2.5 Construct a scientific explanation using data that explains that the gradual processes of plate tectonics accounting for A) the distribution of fossils on different continents, B) the occurrence of earthquakes, and C) continental and ocean floor features (including mountains, volcanoes, faults, and trenches).

### MATERIALS INCLUDED

Fossil Set 5, including Find-A-Fossil resource booklet  
Hand lenses  
Brushes  
Wire screens  
Forceps  
Styrofoam plates  
Laminated artist's rendition of life in the Oligocene Epoch  
Reference books

### MATERIALS PROVIDED BY TEACHER

Poster paper  
Drawing materials

For the entire activity and materials and to reserve a Suitcase Exhibit, please call 901.636.2362.

**SUITCASE EXHIBIT INVENTORY CHECKLIST**

School: \_\_\_\_\_

Check Out: \_\_\_\_\_

Return Date: \_\_\_\_\_

MoSH Check In:	Teacher Check In:	Item	Books/Videos/Posters	Teacher Return:
		A	Teacher's Manual	
		B	Poster: "Geologic Time Scale"	
		C	Poster: "What is a Fossil?"	
		D	Book: A Golden Guide to Fossils	
		E	Book: A Resource Book for Find-a-Fossil	
		F	Book: (True Book) Fossils	
		G	Book: (Watts) Fossils	
		H	Book: Eyewitness Books: Fossils	
		I	Book: My Book of the Prehistoric World	
		J	Book: Picture Atlas of Prehistoric Life	
		K	DVD: "Fossils: Uncovering Clues to the Past" Earth Science Video Lab, Activity 1	
		L	Video: "Fossils: Uncovering Clues to the Past" Earth Science Video Lab, Activity 1	

**SUITCASE EXHIBIT INVENTORY CHECKLIST**

MoSH Check In:	Teacher Check In:	Item	Materials	Teacher Return:
		1	Fossil Set 1	
		2	Fossil Set 2	
		3	Fossil Set 3	
		4	Fossil Set 4	
		5	5 Wire Screens	
		6	5 Styrofoam Trays	
		7	5 Small Paint Brushes	
		8	5 Small Hand Lenses	
		9	5 Rulers	
		10	Set of 21 Plastic Fossils	
		11	5 Forceps	
		12	Magiscope Lenses in Film Canisters (4X, 10X, 15.5m Eyepiece)	
		13	Magiscope Lenses in Film Canisters (4X, 10X, 15.5m Eyepiece)	
		14	Digging Tool	
		15	Magiscope (with Scope and 1 5X Eyepiece)	
		16	Magiscope (with Scope and 1 5X Eyepiece)	
		17	Bucket of Bone Valley Ore	
		18	Set of 6 Fossil Rubbing Plates	
		19	5 Sets of Student Cards Set A (8 Cards In Each Set)	
		20	5 Sets of Students Cards Set B (8 Cards In Each Set)	
		21	Set Blue Teacher Cards (8 Cards)	
		22	10 Fossil Puzzles & Info Sheet (15 Pieces Each Puzzle)	
		23	Plastic Graduated Cylinder	
		24	Slab Sandstone	
		25	Slab Limestone	
		26	Slab Shale	