Rot or Not?

The following activity will encourage pupils to think about materials and the properties that influence their preservation – whether they rot or not – as fossils and archaeological finds.

Preparation

You will need: clip boards, pencils and copies of 'materials hunt' and 'what will survive' sheets.

Note: For an activity that explores the link between fossilisation and mummification, please see 'Talking Point: Fossils' and 'Action Point: Fossils' (pages 4 and 8) of the 'Exploring Egyptology beyond the Egyptian Worlds gallery' booklet, which you can access via the On-Gallery Resources page

Introduction to Discovering Archaeology Gallery

In the Discovering Archaeology Gallery, explain:

Archaeologists study physical things that have been left behind by people, to understand how people lived in the past. Many of the artifacts that are studied by archaeologists, have been excavated from the ground. Excavation is a slow process that involves carefully removing layers of the ground, and recording any items that have been discovered.

When digging in the garden, it is quite common to come across broken plates and cups, or pieces of clay pipe; items that were probably thrown away because they had broken. Clay pipes, for example, were manufactured from the 16th century up until the 1990s, and are therefore between 20 and 500 years old. To find older artifacts, archaeologists need to dig deeper into the ground: the deeper you dig, the older the artifacts.

Activity 1: materials hunt

Imagine that your classroom has suddenly been buried. Which items would survive the longest? Ask pupils to spend a minute thinking about which materials would be most and least likely to survive for hundreds of years in the ground. Then ask pupils to spend two minutes discussing their thoughts with a partner, before sharing some of their ideas with the rest of the class.

Explain that the chances of an artefact surviving in the ground for a long period of time, depends upon the material(s) from which it is made.

Split the class into 4 groups and allocate each group an adult helper. Provide each group with a clipboard, a pencil and a copy of the 'materials hunt' sheet.

Explain that their sheet lists a number of different materials, and that each group should search for these materials in the Discovering Archaeology gallery (please do not go into the Egyptian Worlds gallery), and then try to identify the 3 most common materials in the gallery.

When the class has finished exploring the gallery, explain that due to their strength and hardness, artefacts made from materials such as stone, pottery and metal - inorganic materials – are most likely to survive for long periods of time. Artefacts made from materials such as wood, wool, leather and bone – organic materials (materials that are made or extracted from animals or plants) - are less likely to survive for long periods of time because they are not as robust or strong, so will quickly rot away.

Now take the class to the Fossils Gallery (please either avoid the Egyptian Worlds gallery or walk through it very quietly so as not to disturb the taught session that will be taking place).

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When you get to the Fossils Gallery, gather the class in the first bay on the left.

Introduction to the Fossils Gallery

Explain that like archaeologists, palaeontologists (scientists who study fossils) are interested in evidence that has survived for long periods of time, buried underground. Unlike archaeologists who are interested in evidence left behind by people, palaeontologists are interested in evidence of all life on earth. So palaeontologists must dig much deeper than archaeologists, because the items that they study are much older.

Explain that there are two different types of fossil:

> Body fossils are the fossilised remains of ancient life such as bones, teeth and shells. Body fossils were once part of an animal or plant.
>
> Trace fossils are the fossilised evidence left behind by animals, such as footprints, bite marks, burrows, eggs and droppings. Trace fossils were never part of the animal but were made by them.

Most organisms do not become fossils when they die. Normally their remains are destroyed either by scavengers feeding on them, by being broken up by the elements, or by rotting away. Fossils form when organisms are protected from these natural processes.

Activity 2: what will survive?

Building on the work that they carried out in the Discovering Archaeology gallery, ask pupils to think about whether whole creatures are likely to be preserved as fossils? If not, can they think of which parts of a creature are likely to survive for long enough to become fossilized?

Ask pupils to spend a minute thinking about these questions. Then ask pupils to spend two minutes discussing their thoughts with a partner, before sharing some of their ideas with the rest of the class.

Explain that their next challenge is to find out more about fossils and fossilization, and to discover which parts of an organism are more or less likely to survive for millions and millions of years.

In the same groups as before, ask pupils to complete the ‘what will survive?’ sheet. This activity requires pupils to explore the gallery in search of different types of fossil and to think about which parts of a creature are most likely to survive for millions of years.

When the class have finished exploring the gallery, explain that most fossils form when a layer of mud or sand covers an organism shortly after death. Hard parts such as teeth, bones, and shells are more likely to become fossilised because they are hard, so take longer to rot. Soft parts such as eyes, brains and innards rarely become fossilised because they are soft, so quickly rot, decay, or break up.

While some pupils may have found the impressions of skin and feathers or some mammoth fur, nobody should have found a fossil heart, eyeball or brain!

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Explore the 'Discovering Archaeology' gallery, and search for artefacts that are made of the materials listed below.

Please note: You are looking for archaeological artefacts – the items that are on display in the display cases, NOT the labels or stands in the cases, or the cases themselves!

As you come across each material, note down at least one example of an artefact made from that material. When you have found all of the materials, try to identify the 3 most common materials in the gallery.

PLEASE STAY IN THIS GALLERY: DO NOT GO INTO THE EGYPTIAN WORLDS GALLERY.

Materials Hunt

Organic Materials: Materials that come from plants and animals		
Material	**Examples of items made from this material**	
Paper		
Wood		
Bone		
Leather		
Wool		
Any others?		

Inorganic Materials: Materials that come from rocks and minerals		
Material	**Examples of items made from this material**	
Stone		
Pottery / clay		
Metal (iron, bronze, copper)		
Precious metals (gold, silver)		
Glass		
Any others?		

Which three materials are most common?

1.

2.

3.

What properties do these materials share, that might make them more likely to survive?

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Explore the Fossils gallery, and search for the different types of fossil listed below. As you find each type of fossil, note down the name of at least one example of that fossil, and make a quick sketch of it.

HINT: following death, certain parts of a creature will not last long enough to become fossilized, so you may not be able to find all of the items on the list!

What will survive?

Trace Fossils: make a quick sketch and note down the name of 1 example that you have found.	
A footprint	A coprolite (fossilized poo)
A mark made by a creature dragging its tail	An egg

Body Fossils: make a quick sketch and note down the name of 1 example that you have found.	
A bone	An eyeball
Some fur	A tooth
A claw	A feather
A heart	A brain