Exploring Fossils – The Making of the Peak

Aims of the session

Look at the evidence that helps us understand how the Peak District was formed.

Identify some of the earliest creatures.

Learn how to handle objects in a museum setting.

Create artwork based on fossils.

Trilobite fossil in limestone

Curriculum links

These sessions will support pupils to:

Develop a chronologically secure knowledge and understanding of British, local and world history, establishing clear narratives within and across the periods they study. They should note connections, contrasts and trends overtime and develop the appropriate use of historical terms.

They should regularly address and sometimes devise historically valid questions about change, cause, similarity and difference, and significance. They should construct informed responses that involve thoughtful selection and organisation of relevant historical information. They should understand how our knowledge of the past is constructed from a range of sources.

A visit to the Wonders of the Peak gallery will contribute to both an overview and a depth study to help pupils understand both the long arc of development and complexity of specific aspects of the content.

- A local study and a depth study linked to Prehistory
- Changes in Britain from the Stone Age to the Iron Age.
- A study over time tracing how several aspects of national history are reflected in the locality.

Resources

Handling collection, Play doh! dental alginate or clay (at school), PowerPoint Prehistoric Wonders

KS2

Session 1: Time travel in the Peak District 360 million years ago

Aim: to explore the evidence of life in the local area 360 million years ago. Identify some of the earliest creatures. Create artwork based on fossils.

Curriculum Links	Activities			Plenary	Follow Up Activities
Best for: KS2 **Learning opportunities for gaining an understanding of:** how our knowledge of the past is constructed from a range of sources both the long arc of development and complexity of specific aspects of the content	**Introduction** Explain that pupils will look for evidence to find out what life was like in the area 360 million years ago. Use the time line and the trail questions. If the pupils were standing in the gallery 360 million years ago, what might they have been doing? (Standing in a warm shallow sea) It's such a long time ago, how can we possibly know this? What is the evidence? Introduce the idea of fossils. What sort of fossils can they see in the gallery? Brachiopods, Gastropods and Crinoids).	**Before handling objects** **Ask** the pupils how to handle objects safely. Ask pupils to demonstrate how to handle objects safely. (Clean hands, use both hands, over a table, or sitting on the floor). Discuss the sorts of questions they need to ask to find out about the objects. Questions should focus on: • Description • Deduction • Interpretation. • Hand out the **Investigating objects sheet.**	**Handling objects** Rotate the fossils around groups of pupils. When the pupils have looked at the fossils ask for initial feedback. Ask them to write down five adjectives to describe the fossils. Do they look like anything pupils might see today? Can the pupils make deductions about what sort of fossil they are looking at?	**Video** Watch the video in the gallery to see how the Peak District was formed. **Sketch** Ask the pupils to find sea creatures from 360 million years ago in the displays. How many can they find? Ask them to sketch them quickly or take photographs. Repeat looking for land animals.	**Create** Pupils create artwork showing their interpretation of the animals. No one knows what colour they were so theirs can be as colourful as they like. Use the design to create poster to attract visitors to the Wonders of the Peak gallery. Make a fossil using Play-doh or dental alginate. Write an account of how to make a fossil. **Homework** Find good places to look for fossils with family.

Supporting information for teachers

360 million to 280 million years ago

Around 360 million years ago and for around 30 million years, the Peak District was under a warm, shallow, tropical sea, full of both large and small sea creatures. Over millions of years, as the animals died, billions of their shells compressed to form the limestone that is now the White Peak.

How do we know?

We know that the Peak District was covered by a shallow sea because of the evidence. The museum's collection has fossilised sea creatures and plant life found in the area, from this time. Fossils are evidence of ancient life. They might be the remains of creatures that lived millions of years ago (bones) or they might be traces (footprints or leaves). Fossils give clues to what an animal or plant would have looked like. A fossil is a rock. None of the animal or plant is left; instead we can see it as a pattern formed in the rock.

Handling collection

The handling collection has examples of fossilised:

- Brachiopods (looks like a clam shell)
- Gastropods or snails (found on both land and sea)
- Crinoids (plant-like animals, a bit like starfish. They had a stem attached to the seabed and tentacles to catch food.) Look carefully at the Crinoid Limestone to see fossilised stems.

Brachiopod

Gastropod

Crinoids

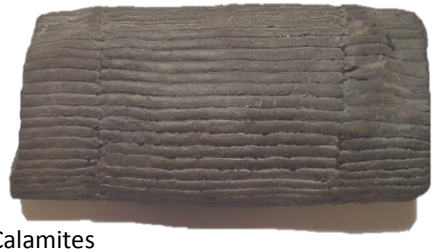
Refer to the session on handling objects (**Museum experts)** and allow pupils to handle the fossils (clean hands, hold with both hands, hold over a surface so the object is not in danger should it be dropped)

Ask pupils to write down adjectives that describe the fossils.

Do they look like anything that is familiar to them?

Can the pupils make deductions about the fossils? (Are they Brachiopods, Gastropods or Crinoids?). Ask them to write up their findings using compound sentences. (Handling objects sheet).

These fossils are younger (from around 280 million years ago)



Calamites

Lepidodendron root

Seed fern leaves

Calamites (Horse-tail Stem)

This fossil is part of the stem of a plant. It is called a horse-tail stem because palaeontologists think it looks like a horse's tail.

Ask: Do you agree? What would you call it?

Lepidodendron root

This fossil was created by part of a tree being trapped in layers. As the name suggests, it shows the root of the tree.

Seed Fern Leaves

The seed fern leaves fossil is made of a different type of rock from the Lepidodendron root.

This fossil is very unusual because it is of leaves. Why might this be unusual? (Usually only the hard parts of animals or plants, shell, bone, stems etc, get fossilised so this is very rare.)

Question: Can you work out what sort of rock this is?

Suggested activities

In the gallery…

Watch: the video in the museum to see how the Peak District formed.

Refer to the fossils from the handling collection.

Fossils provide great clues to what an animal might have looked like. What can they tell us? What can't they tell us? (They can provide jigsaw like pieces to show the form of an animal, but they can't tell us what colours animals might have been).

Ask the pupils to make sketches of what they think the sea creatures might have looked like from the evidence in the fossils.

Ask the pupils to look at the animals in the display.

How many sea creatures can they find? Ask them to make a note of their names with a little sketch or photograph.

How many land creatures can they find?

Can they find any animals that we no longer see in the Peak District today?

Draw or photograph them and/or make a note of their names.

Create a piece of artwork showing your interpretation of the animals whose images are caught in fossils. No one knows what colour they were so the pupils' version can be as colourful as they like.

Challenge/back in the classroom

Create fossil-inspired artwork

Using sketches from the visit to the Wonders of the Peak gallery, ask the pupils to create a fossil-inspired artwork as a lino or vegetable print. Suggest planning the artwork by sketching it out. Which colours will they use? Can they improve their design?

Use the design to create poster to attract visitors to the Wonders of the Peak gallery.

Create

Create fossils by using Play doh! and dental alginate.

- Put a layer of Play doh! in the bottom of a tray or sandwich box-type tub.
- Then use a plastic toy animal, leaf or shell to make an impression in the Play doh! Mix the dental alginate and pour on top. Wait for it to set and then peel it away. This leaves a cast of the impression. http://www.trigienedental.co.uk/Hydrogum_5_Alginate_453g--product--749.html

NB Do not use Plaster of Paris as it gets too hot.

Use different objects and shapes to see which make the best fossils.

As the pupils are making the fossils, encourage them to observe each stage and make notes. Focus on the method:

- How to make the fossil. What to do at each stage?
- What happens at each stage?
- What are the results like?
- What might the pupils change to make better fossils?

How did this process work?

Is there anything that would make the process better?

Write up a short account of how to make a fossil.

Homework

Find good places to look for fossils such as Grin Low, Castleton or Dovedale. Go on fossil hunt (with suitable supervision).

Remember, don't take away fossils away, leave them in the rock for other people to enjoy.

BUXTON MUSEUM AND ART GALLERY

Investigating objects

What sort of questions will help you to describe the object?	What sort of questions will help you work out what the object might be?	What is your object?

First What sort of question will help describe the object? Here are some prompt or questions to use to summarise or for feedback.

- What does it look like?
- What does it smell like?
- What does it feel like?
- What colour is it?
- Is it old or new?
- Is it valuable?
- What is it made from?
- Had been changed or mended?
- How heavy is it?
- Is it decorated?
- Does it make a sound?
- Is anything missing?

Next ask what can they **deduce** from their observations of the object? Again ask for questions.

- Who might have owned it or where might it have come from?
- Who might have made it, worn it, built it etc.
- How might it have been used?
- How old is it?