

TEACHERS NOTES



Rocks, Minerals & Fossils



Photograph of a coalminer with the remnants of fossilised tree, 25th September 1894, Sparth Bottom Rochdale.

Courtesy of Rochdale Local Studies Library

From the 1890's onwards, the brickworks at Sparth Bottom in Rochdale was a site of numerous important fossil finds. Fossilised plants were often found, but in 1894, a whole fossilised tree trunk was discovered. Six years later, the foreman of the brickworks discovered the only example of the scorpion - *Eoscorpium Spartensis*—inside a clay nodule of iron stone. Touchstones still have a cast of this discovery, along with a collections of other fossils donated by Harold Howard.



INTRODUCTION

Thank you for booking a 'Rocks, Minerals and Fossils' discovery box from Touchstones.

Think of this box as a mini museum. It contains groups of objects that together, support learning around a particular topic or idea. These notes contain additional web links and background information to help you run themed sessions using the contents.

Take a closer look at more rocks, fossils and minerals in the Touchstones collection: <https://sketchfab.com/TouchstonesRochdale/collections/rocks-fossils-minerals-965290341530433eae805af6aac5a818>

Before you get started

Geology is the study of rocks, and Geologist are the scientists that study them. Rocks are usually several minerals stuck together, in fact, it is easier to find a mineral embedded in a rock than on its own. Rocks can also contain other things, like fossilised plants or animals. Here are some more fun facts to introduce the subject: www.funkidslive.com/learn/top-10-facts/top-10-facts-about-rocks/

Top tips for using the discovery box

- Use one group of objects at a time. The objects relate to each another and help re-enforce ideas.
- Look closely by using magnifying glasses. Take measurements or weigh objects. Complete a museum record card (template included), or write an exhibition label.
- Treat objects with respect. Encourage children to handle objects with care over a table and use the gloves supplied.
- Ask the children to act as curators (people who look after collections and organise displays.) Can they arrange objects in date order, by material or by function? Explain that museums arrange and display objects to help us understand the relationships between things and make sense of the world.

Find out more about Rocks, Minerals and Fossils

Information about minerals and precious stones:

www.nhm.ac.uk/visit/galleries-and-museum-map/the-vault.html

A visual database for you to search:

www.nhm.ac.uk/our-science/services/collections/mineralogy/rocks.html

Details of fantastic fossils and where to find them in Britain:

www.nhm.ac.uk/discover/fantastic-fossils.html

Amazing fossils found in Rochdale:

www.pressreader.com/uk/rochdale-observer/20161119/281698319336795



TRAY ONE: ROCK ON!

The Earth's crust is made of three types of rocks—sedimentary, igneous and metamorphic. Rocks are solids made from grains of minerals which fit together. Minerals are chemical compounds which occur naturally in the Earth's crust. A compound is a substance which is made from two or more elements. For more information on the different types of rock: www.bbc.co.uk/bitesize/articles/zdjhtrd#z4q47v4

Contents:

- Limestone
- Iron Ore
- Pumice
- Sandstone
- Vesuvius Lava
- Slate
- Fluospar (Blue John)
- Calcite
- Iron Pyrites (Fools Gold)
- Quartz
- Amethyst (raw state)
- Amethyst (polished)
- Turquoise
- Granite
- Coal
- In bags examples of Amethyst, Turquoise, Fluorite, Sodalite, Hematite
- Microscope

Points to consider:

- What are the 3 different types of rocks? Can you find examples in the box?
- How are different types of rocks formed?
- Where in the world do we find different rocks and minerals? Can you place these examples in the right place on a map? Consider where they are they found and why.
- What can different rocks and minerals be used for?

Activities:

Examine the samples and classify them:

www.stem.org.uk/resources/elibrary/resource/440610/edible-model-rocks.

Make a database or 'Top Trump' card containing information about each rock. State its uses, its hardness and the area where it is found.

Useful resources:

Introduction to rocks: www.bbc.co.uk/bitesize/articles/zgj9r2p

More in-depth information: www.bbc.co.uk/bitesize/articles/zpygcmn#zb9wqfr

Worksheets and lesson plans: www.stem.org.uk/resources/elibrary/resource/520471/rock-cycle

Lesson plans: www.hamilton-trust.org.uk/science/unit/748-rock-detectives/



TRAY TWO: FOSSILS - ROCKS WITH A STORY TO TELL

A fossil is the preserved remains, impression, or trace of any once-living organism from a past geological age. These include bones, shells, exoskeletons, stone imprints of animals or microbes, objects preserved in amber, hair, petrified wood, oil, coal, and DNA remnants. They can be found all over the world and give us clues about how the Earth once was.

Contents:

- 1 large Ammonite
- 1 medium Ammonite
- 1 small Ammonite
- Dunbarella
- Gryphaea (Devils Toenail)
- Unknown fossil
- Fluospar (Blue John)
- Fossilised Lycopod tree root
- Fossilised clam shell
- Trilobite
- Lycophoria nucella
- Belemnite

Points to consider:

- During what time period were these fossils alive?
- Where might these fossils have been found?
- What do fossils tell us about life in the past?
- Can you identify the 'unknown fossil'?

Activities:

Create fossils using bread and gummy sweets:

<https://teachbesideme.com/sedimentary-rocks-fossil-experiment/>

Make simple 'amber' fossils:

www.athriftymom.com/jurassic-world-party-ideas-mosquito-in-amber-craft-for-kids/

Make plaster cast fossils: www.youtube.com/watch?v=JrNmGqneZ7U

Useful resources:

Fossil factsheet: www.stem.org.uk/resources/elibrary/resource/520461/fossils

Mary Anning fact-file: www.stem.org.uk/resources/elibrary/resource/520464/mary-anning

How fossils are made: www.bbc.co.uk/bitesize/articles/z2ym2p3

Games, videos and activities from the American Museum of Natural History:

www.amnh.org/explore/ology/paleontology



ADDITIONAL BOX CONTENTS

- Blank museum-object cards (digital copy sent to staff member who booked box)
- Gloves for object-handling
- Magnifying glasses

Further resources:

Watch this video: www.nhm.ac.uk/discover/how-are-fossils-formed.html

Explore fossil collections at the Natural History Museum:

www.nhm.ac.uk/our-science/services/collections/palaeontology.html

Enjoy a virtual tour of the Lapworth Museum of Geology, Birmingham:

<https://www.birmingham.ac.uk/news/2024/lapworth-virtual-museum-a-new-era-of-digital-exploration>

Take a quiz: www.educationquizzes.com/ks2/science/rocks/

Find local fossils: <https://ukfossils.co.uk/2013/03/17/newhey-quarry/>

Lesson plans and resources:

Activity ideas from the Sedgewick Museum of Earth Sciences:

https://sedgewickmuseum.cam.ac.uk/files/media/investigating_rocks_information.pdf

Classroom activities for KS2 from the British Geological Survey: www.geolsoc.org.uk/KS2Resources

Example scheme of work: www.primaryresources.co.uk/science/pdfs/11y5rocks.pdf

Lesson ideas /worksheets: www.primaryresources.co.uk/science/science3a2.htm

STEM resources: www.stem.org.uk/resources/elibrary/resource/33350/stfc-lunar-rocks-and-meteorites-loan-scheme-primary-resources

Virtual learning opportunities for KS3, KS4 and KS5:

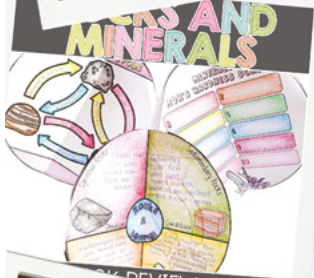
<https://www.birmingham.ac.uk/cultural-attractions/lapworth-museum-of-geology/teaching-and-learning>

Recommended reading:

The Pebble in My Pocket by Meredith Hooper

ISBN-13 978-1847807687 published by Frances Lincoln Children's Books

This book tells the story of a pebble, from its origins in a fiery volcano 480 million years ago to a busy, modern landscape.



ROCKS & MINERALS

Inspiration Board

