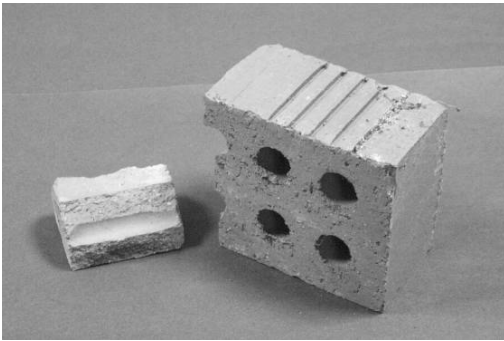


# Materials Trail

## Teachers' Guidance Notes



## Essential information about the Materials Trail

### Before your visit, please...

- Return your booking form within two weeks to confirm your booking and avoid disappointment.
- Read the Risk Assessment Advice in the Education Visits Pack and add your own comments after your preliminary visit.
- Photocopy all the information (including the Materials Trail documents) for the supervising adults that you bring with you, and worksheets for your students.
- Bring clipboards and pencils for your students.

### On the day

- The materials trail is a **self-directed trail**.
- When you arrive on site, 9 boxes will have been set out at various locations (see *Materials Trail Locations* sheet). You should guide the students to each box, and encourage them to look at the item in the box and discuss what it is made of, and that material's properties. The students have a worksheet to fill in (enclosed), which should have been photocopied by you, before visiting.

### Learning outcomes:

Children should be able to identify different types of materials and their properties and group them accordingly. They should communicate this knowledge using use relevant vocabulary. They should understand concepts such as 'man-made' and 'natural' materials.

General aims of trail/workshop	Specific objectives
1. Observe a range of materials	<ul style="list-style-type: none"><li>• Name some common materials and make observations</li></ul>
2. Understand these materials can be used in a variety of ways	<ul style="list-style-type: none"><li>• Understand how these were used in mining</li></ul>
3. Identify properties of materials	<ul style="list-style-type: none"><li>• Communicate observations using terms like bendy, rough, hard, strong, soft, shiny, dull etc</li></ul>
4. Group and classify according to property	<ul style="list-style-type: none"><li>• Understand that materials are chosen on the basis of their properties</li><li>• Identify naturally occurring and man-made materials</li></ul>
5. Make predictions	<ul style="list-style-type: none"><li>• Work in groups to suggest why a material may/may not be suitable for a particular purpose</li></ul>

An introduction to:

#### Key Stage

**KS1** Sc1. Sc3: 1 a, b, c, d.

**KS2** Sc1. Sc3: 1 a.

#### QCA links

Science 1c Sorting and using materials

2d Grouping and changing materials

## Materials Trail Locations

There are **9 stops** on the Materials Trail. Use the map from your Education Visits Pack, or from Reception, to help your group find them.

<b>LOCATION</b>	<b>OBJECT</b>
Stables	Horse shoe
Pithead Baths	Tile
Lamp Room (entrance to Underground Tour)	Check, Helmet, Overalls, Lens glass
Coal Screening Plant	Brick
Control room	Belt
Steam Winding House	(No Box) Log book
1842 Gallery	Wood
Coal Interface Gallery	Cog
Orientation Area	Seal & clamp

### Background information to Materials Trail objects

<b>Object</b>	<b>Material</b>	<b>Use in Mining</b>
<b>Ceramic tile</b>	<b>Clay</b>	<i>Protecting the walls of the Pithead Baths. This was where miners showered at the end of their shift.</i>
<b>Top bar and wedge</b>	<b>Wood</b>	<i>Holding up the roof where the miners worked. This was placed between the pit prop and the roof. The flat side would go against the rock and the wedge would secure it. Hydraulic props are now used.</i>
<b>Seal</b>	<b>Rubber</b>	<i>Sealing the join between two pieces of water pipe underground.</i>
<b>Clamp</b>	<b>Cast iron</b>	<i>Holding the rubber seal that joined two sections of water pipe together.</i>
<b>Building brick</b>	<b>Clay</b>	<i>Building walls underground, structures on the surface and for lining the shafts. Bricks similar to this were used at collieries when more buildings were built. Many mines had their own brickworks.</i>
<b>Check</b>	<b>Brass</b>	<i>There were two checks with the same number – one was left on the surface (this showed how many miners were underground); the other was taken with the miner on his shift. When it was returned, it showed the miner had returned safely.</i>
<b>Miner's helmet</b>	<b>Plastic</b>	<i>Protecting the miner's head while he worked.</i>
<b>Strap</b>	<b>Leather</b>	<i>Attaching the battery for the cap lamp around the miner's waist.</i>
<b>Logbook</b>	<b>Paper</b>	<i>Recording the maintenance and daily running of the steam winder. The steam winder for everyday use was replaced by an electric winder at Hope Pit in the 1970s.</i>
<b>Cap lamp</b>	<b>Glass</b>	<i>Replacing the glass when it broke on the electric cap lamp and battery.</i>
<b>Miner's overalls</b>	<b>Cloth</b>	<i>Protecting the miner's clothing and making him visible underground.</i>
<b>Horseshoe</b>	<b>Steel</b>	<i>To protect horses' hooves that may crack and split if shoes are not worn. The shoes were made by the blacksmith at the mine. Horses were used to pull the tubs of coal underground.</i>
<b>Cog</b>	<b>Steel</b>	<i>Used in a machine with other cogs. These turn and make the machine work.</i>



