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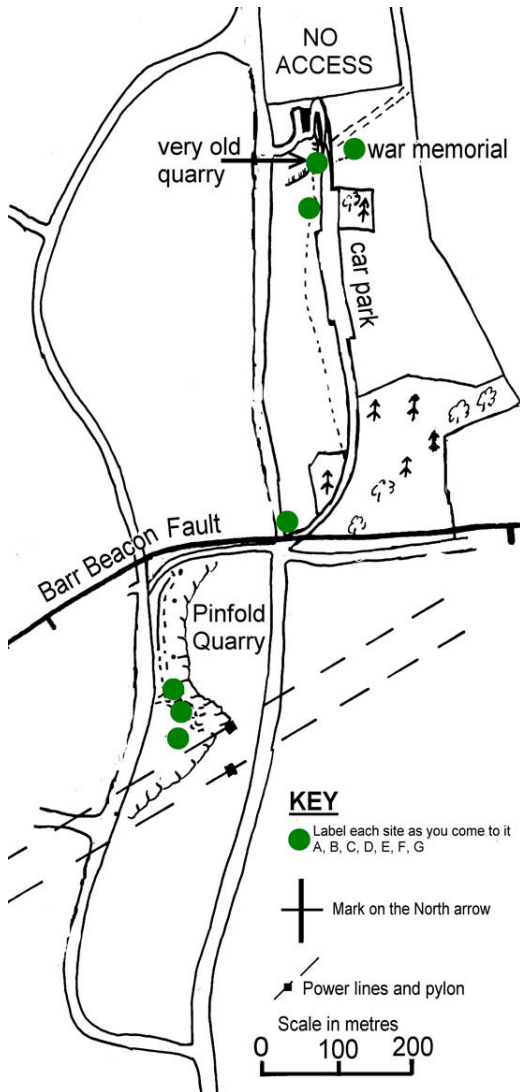
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PUPIL ACTIVITY SHEET 1

Pupil Name.....

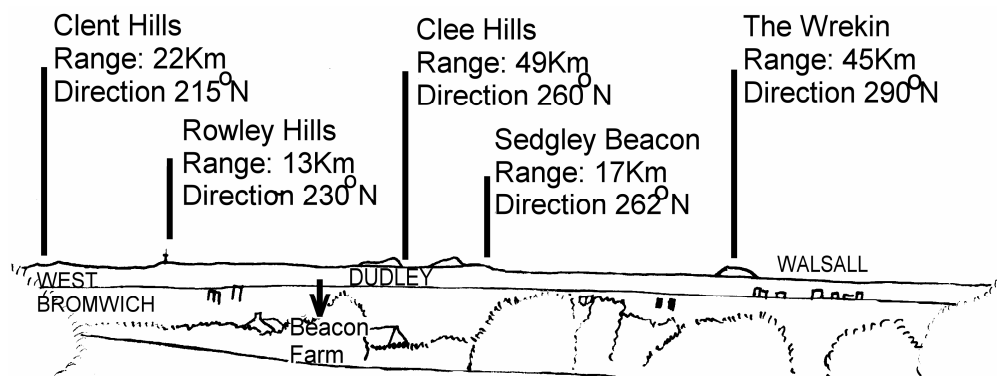
Map of Barr Beacon and Pinfold Quarry



Use your compasses to line up your map, so that you know where you are and where you are going.

1. Now mark North on the direction arrow on your map.

2. You will visit each of the sites marked with a dot. Label each one as you come to it. Start with Site "A"

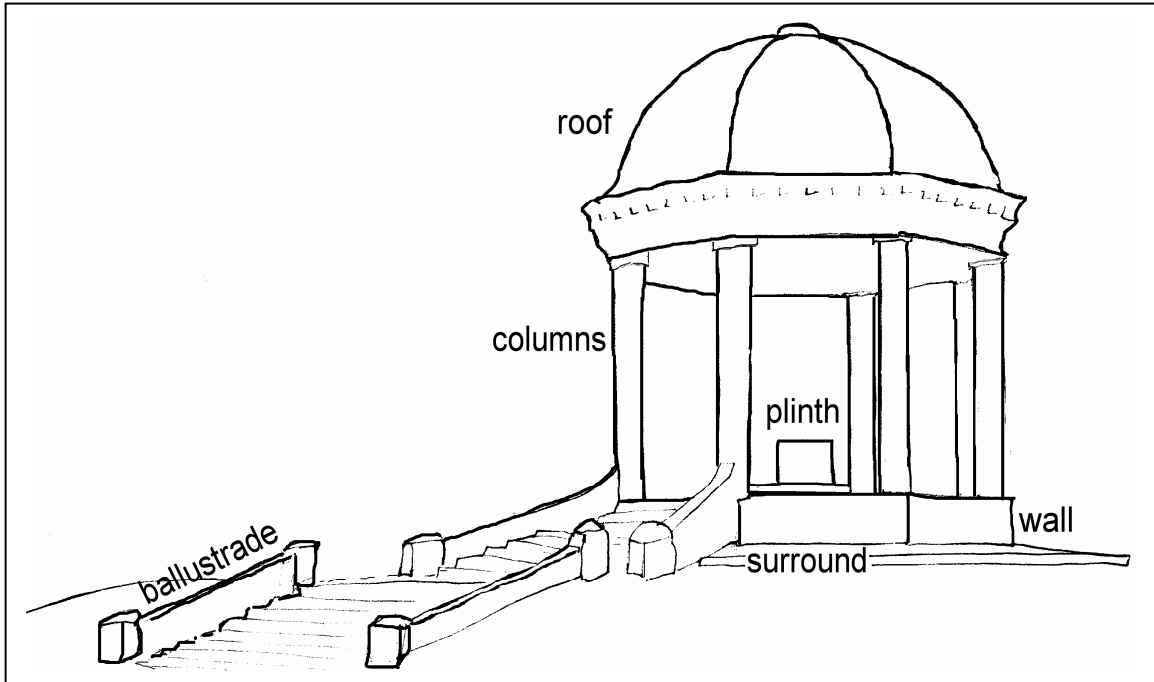


Site A. View from Barr Beacon car park

PUPIL ACTIVITY SHEET 2

Pupil Name.....

Site B. Investigating the materials used to build the Memorial



Questions	Answers
What rock is used to build the columns and walls?	Limestone.
What are the white "bits" you can see inside this rock?	Fossil sea shells.
What are the steps made from?	Sandstone.
What has happened to the copper since the memorial was built 100 years ago?	Copper no longer shiny, but weathered to green.
What has happened to the limestone in that time?	Limestone has dissolved in acid rain, leaving fossil shells standing out from the rest of the rock.
What other rock types can you find?	Reddish sandstone used for the plinth.



PUPIL ACTIVITY SHEET 3

Pupil Name.....

Site C. The Very Old Quarry

Questions	Answers
How has the soil at the top of the quarry formed?	Weathering, plants and microscopic animals break down the underlying rocks
Why can't we see the rocks in this old quarry?	Soil formed & plants have grown to cover the old faces with trees & grass.

Site D. Car Park Entrance

Check the map to see where you are and label the site "D"

Questions	Answers
Can you see any fossils in the blocks?	No.
What type of rock is it?	Igneous [Dolerite/basalt].
What has been used between the stones to hold them together?	Mortar been used for added strength.
What would happen to the soil behind the wall if the wall wasn't there?	The soil would slump onto the pavement.

As you walk through the overgrown part of these old quarries look out for different kinds of plants and animals.





KS2 GROUP LEADERS' NOTES

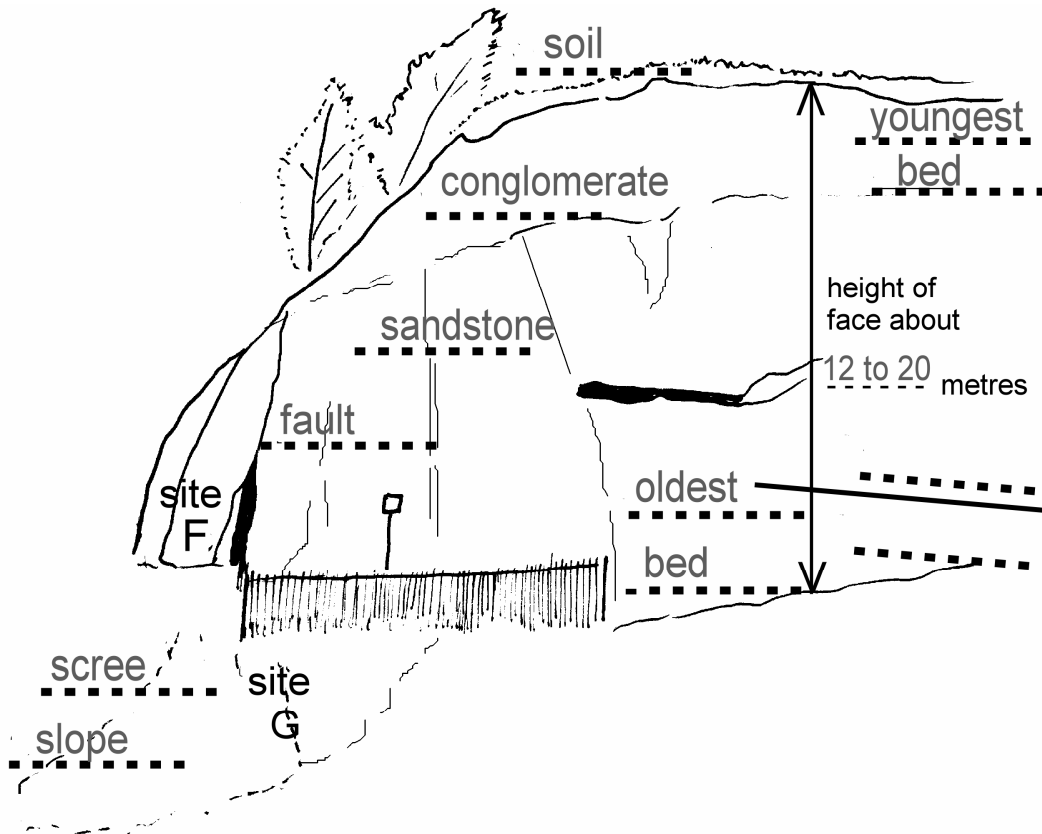
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PUPIL ACTIVITY SHEET 4

Pupil Name.....

Site E. Field Sketch of Pinfold Lane Quarry.

1. Check the map to see where you are and label the site "E".



2. On the sketch label the following features which can be seen in this quarry. The first letters have been done for you.

1. sandstone
2. conglomerate [pebble bed]
3. oldest bed
4. youngest bed.
5. soil layer
6. scree slope
7. fault
8. the height of the face [in metres].

We can now take a closer look at the sandstones and pebbles.



KS2 GROUP LEADERS' NOTES

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PUPIL ACTIVITY SHEET 5

Pupil Name.....

Site F - A close look at Triassic Sandstones

First check the map to see where you are and label the site "F".

What colour is the rock here?	Reddish
What is the rock here made up made of?	Sand grains & larger pebbles [which are about 2cm across].
What happens when you rub the sandstone with your fingers?	Some sand grains & larger pieces break away, but rest are stuck together by a quartz cement
Using a lens describe the size and shape of the sand grains.	1-2mm, fairly angular, quartz grains
Are the main layers in these rocks flat or sloping? (look carefully)	Sloping.
What does layering tell us about how these rocks were formed?	Formed under water by settling of sand, mud etc in layers.
Are there any fossils in these rocks?	No, the climate was mostly too dry for animals to survive.
Is the sandstone porous? (use a water dropper bottle)	Yes, porous
Why might porous rocks be useful?	Often contain water. [There are many wells and boreholes in these rocks in the Midlands].

What is the evidence in the rocks telling us about Britain in Triassic times, about 250 Million years ago? (Circle your answers.)

The temperature was ...	<u>Hot</u> / Cold
and mostly ...	Wet / <u>Dry</u>
Sometimes there were sudden ...	<u>Rain Storms</u> / Ice Ages
that caused ...	<u>Flash floods</u> / Dry spells
and deposited ...	<u>Sand / pebbles</u> / limestones



KS2 GROUP LEADERS' NOTES

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PUPIL ACTIVITY SHEET 6

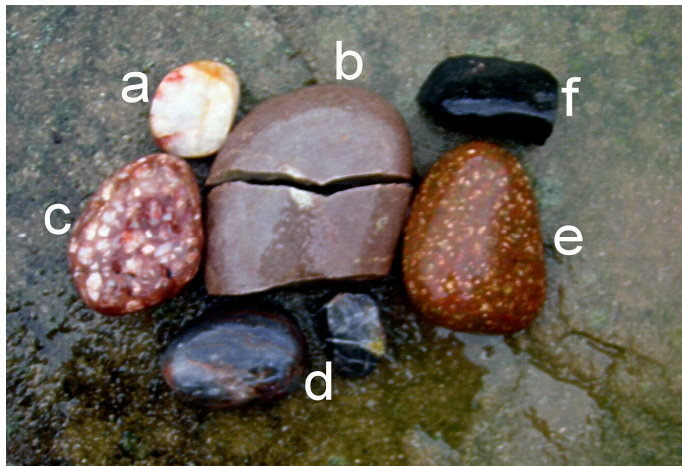
Pupil Name.....

Site F: Investigating a Fault.

A **fault** is a break in the rocks where one side has slipped downwards a little way. You can see a fault where the bedding planes are broken and moved up or down.

Find a thin pale layer, or bed in the rock face. Is it horizontal or sloping?	It is sloping.
Can you see other pale beds on the other side of the cave?	Yes.
Do they line up, or do they step upwards?	They step upwards.
Look upwards and describe what is filling the spaces caused by the faulting.	Pebbles and lumps of sandstone.
What caused the fault to happen?	Plate tectonic forces.

Site G - Triassic Pebble Hunt. (Tick off the ones you find)



When you recognise one of these pebbles put a tick in the next box.
a) white quartz pebble	
b) grey quartzite pebble	
c) conglomerate pebble	
d) dark chert pebble	
e) igneous pebble (porphyry)	
f) igneous pebble (basalt)	



PUPIL ACTIVITY SHEET 7

Pupil Name.....

Questions	Answers
Describe the shape of most of the pebbles.	Rounded.
What clue does the shape tell us about how they were transported to here?	Rounded by contact with other pebbles rolling along bed of a river.
What does the large size of many of the pebbles tell us about the current strength?	Very strong currents of water needed to move them a long way.
What are the two most common types of pebble made of? Suggest why they are the most common.	Quartz and quartzite. Hardest.
Why does hardness improve a pebble's chances of survival?	Resists attack, with less hard ones breaking up sooner on the journey.
From the information on the pebble identity sheets, in which direction were the pebbles coming from?	From south to north.
Look out for contact points on many of the pebbles. Some of the pebbles have been broken through these contact points. What do you think might have caused this?	Great weight of overlying sand/sandstone and pebbles/conglomerate over millions of years.

In the space below draw one of the pebbles you have identified. Show as much detail as you can see and give a cm scale.





PUPIL ACTIVITY SHEET 7

Pupil Name.....

Summary Sheet:

Sandstone and Pebbles at Pinfold Lane Quarry

Fill in the spaces with details of what you have found out.

The oldest rocks are ____ **sandstones** ____ which are made of grains of ____ **sand** ____ with some ____ **pebbles** ____ .

They are ____ **red** ____ in colour and form layers called ____ **beds** ____ .

The layering tells us that they formed under ____ **water** ____ .

The ____ **younger** ____ rocks lie on top of the sandstones and contain many ____ **pebbles** ____ . The pebbles are ____ **rounded** ____ in shape. They are made of rocks that came from a ____ **southerly** ____ direction. This all happened about 250 million years ago in the ____ **Triassic** ____ Period of geological time.

The ____ **sandstone** ____ is useful for supplying underground water and also in the ____ **building** ____ industry.

The ____ **pebbles** ____ are useful for making roads and concrete in the building industry.

Well done. Did you enjoy your day?

