

© UKRIGS Education Project: Earth Science On-Site

Funded by Defra's Aggregates Levy Sustainability Fund, administered by English Nature.

This website and all of its contents are the copyright of UKRIGS and reproduction is only permitted in accordance with the following terms:

You may view, download and print any material for non-commercial educational use, research or study.

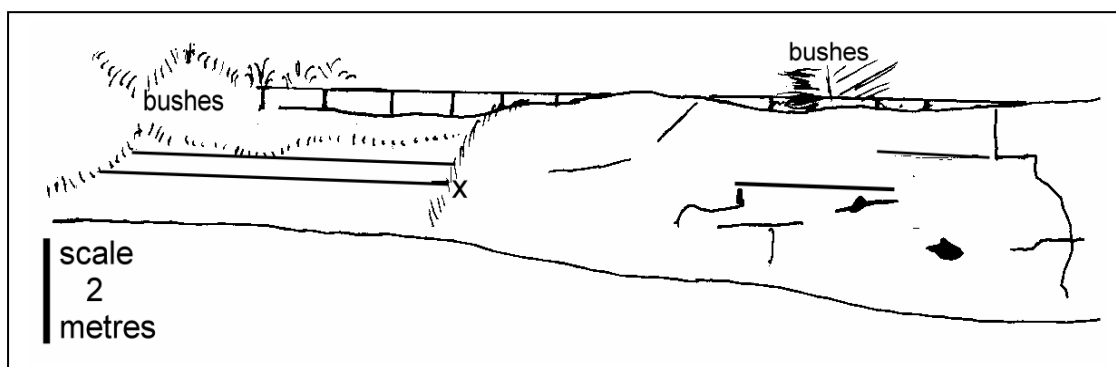
Any commercial use requires the prior written permission of UKRIGS.

Contact: info@ukrigs.org.uk

PUPIL WORKSHEET 1**Pupil Name****THE NORTH FACE**Investigate the rock face **starting from the left and working to the right.**

Make sketches of the main features on the section and write in the answers next to the 7 questions below.

HINT: What changes can you see in the rock when you look up and down, and when you look left to right?



- 1) Can you tell what kind of rock it is? [HINT: use one drop of dilute HCl and look closely]. Write the rock name on the section above. Can you find any fossils?
- 2) Can you see any bedding planes? If so draw them in and label them. What happens to the thickness of the beds as you look up and across?
- 3) Measure the dip amount and direction for these beds.
- 4) In this area, in which direction are a) the older rocks and b) the younger rocks to be found?
- 5) Can you find evidence of currents depositing these rocks. [HINT: start on the left of the face]. From which direction were the currents flowing?
- 6) Can you trace the bed at point "x" along the face and find the same bed on the right of the face? Label it on your sketch as point "y".
- 7) Can you find and sketch on the section an area of the face that is NOT natural rock?

1 Rock type: _____ Fossils found: _____

2 Bed are thinner in the _____ part of the face.

Beds are thicker in the _____ part of the face.

3 The dip is to the _____ (compass direction) At _____ degrees.

4 We predict that the rocks will get younger towards the _____ (direction) and older to the _____ (direction).

5 The currents depositing these beds came from the _____ (direction).

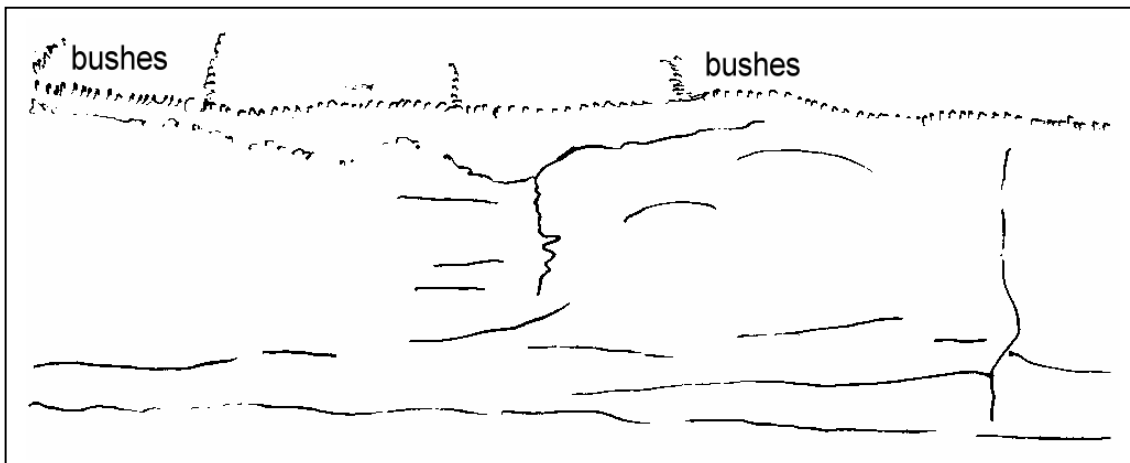
PUPIL WORKSHEET 2

Pupil Name

THE NORTH EAST FACE

Using the questions and the sketch below as a guide, investigate the rock face **starting from the left and working to the right**. What changes can you see in the rock when you look up and down, and when you look left to right?

Make sketches of the main features on the section below and make notes describing them.



Rock Type _____ Fossils found _____

- 1) Can you tell what kind of rock it is? [HINT: use one drop of dilute HCl and look closely]. Write the rock name on the section above. Can you find any fossils?
- 2) Can you see any bedding planes? If so draw them in and label them. Can you find a place where the beds are broken by a fault? Draw and label the fault.
- 3) What happens to the bedding planes as you look across the face to the right?

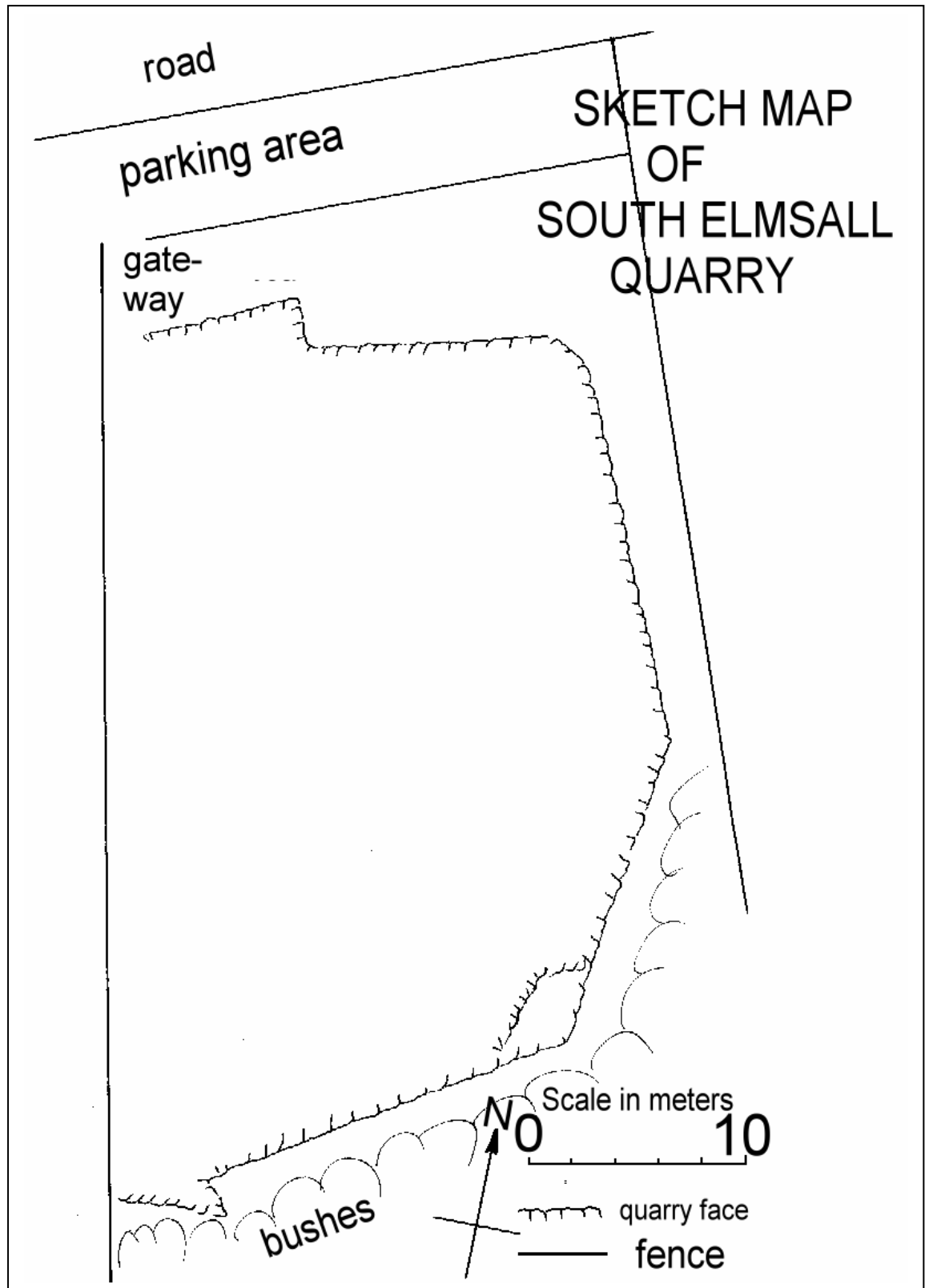
- 4) Study the area to the right. Try to sketch the curving layers in the rock face, as well as the bottom and left hand edge of the curving part, (where the bedded limestone stops). You will have to look hard!

- 5) What do you think these curving shapes are?

- 6) Were the curving layers formed **during deposition** or **after deposition** of these beds? Give the reason for your answer.

PUPIL WORKSHEET 3

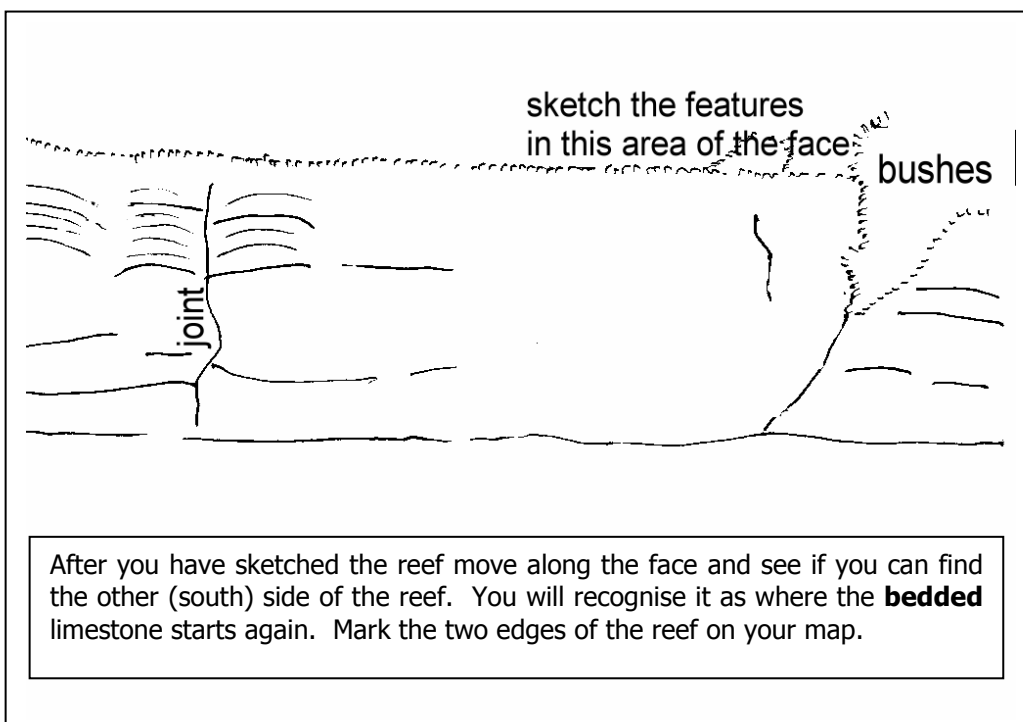
Pupil Name



PUPIL WORKSHEET 4

Pupil Name

THE SOUTHEAST CORNER OF THE QUARRY



Now summarise the evidence you have found telling you how these rocks and the quarry were formed. (Remember also the class demonstration about the evaporate rocks overlying the Magnesian Limestone here at South Elmsall.)

STATEMENT ABOUT THE ROCKS IN THE QUARRY	EVIDENCE WHICH SUPPORTS THE STATEMENT
These rocks were formed in a shallow sea, not a deep ocean.	
The currents in this sea were gentle and some flowed from the north west.	
Patch reefs and stromatolite reefs formed in these waters.	
The sea lay in a hot tropical region.	
The rocks were later uplifted and tilted to the east.	
These rocks were discovered to be economically useful.	
The site was scientifically important enough to protect.	