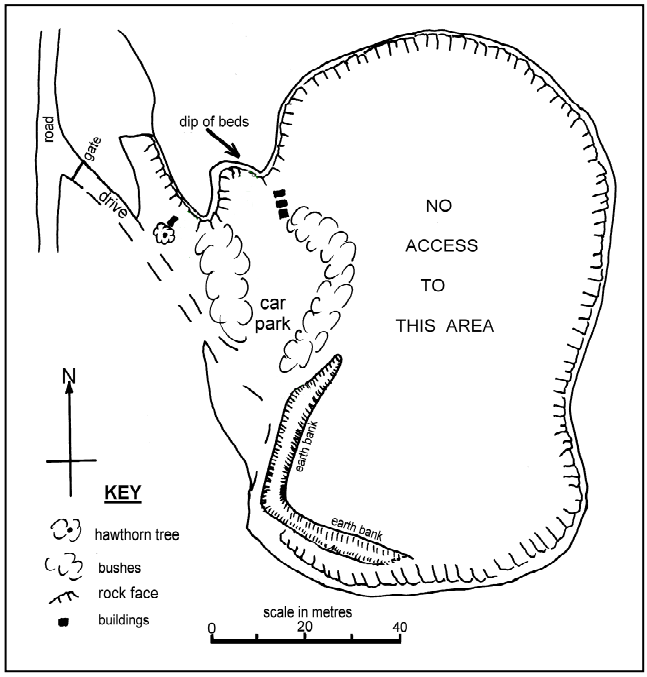
Funded by Defra's Aggregates Levy Sustainability Fund, administered by English Nature.

Contact: info@ukrigs.org.uk

PUPIL WORKSHEET 1 Pupil Name……

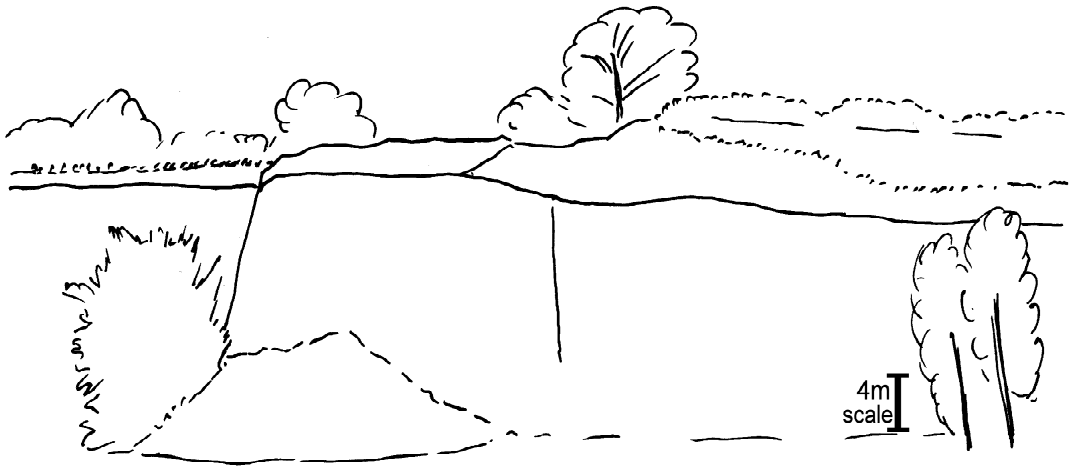
Site 1: Snableazes Quarry



1) **Mark on your position as site "a" on the map to the left.**

2) **As you come to site "b" and "c", mark those on the map as well.**

Site 1a: Snableazes Quarry, East Face.



3. Draw in the **bedding** and **joints** on the sketch above.

4. Mark and label the following features on the sketch of the quarry above:

a) North & South; b) Dolerite sill;
c) Top contact of sill; d) Baked sedimentary rocks;
e) Scree slope.

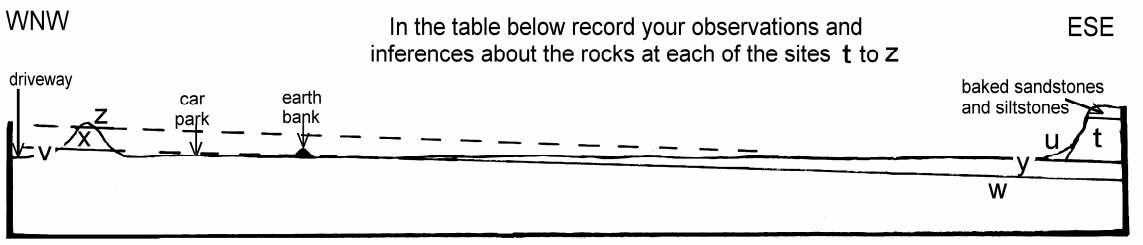
PUPIL WORKSHEET 2 Pupil Name.....

1. At Site 1b measure the dip of the beds.

The dip of the limestone is _____ towards _____.

Use the sketch section below to help you investigate the rocks at sites **(t)** to **(z)** as you move through the quarry.

2. On the sketch section below draw in where you think the top of the sill might have been before it was quarried away.

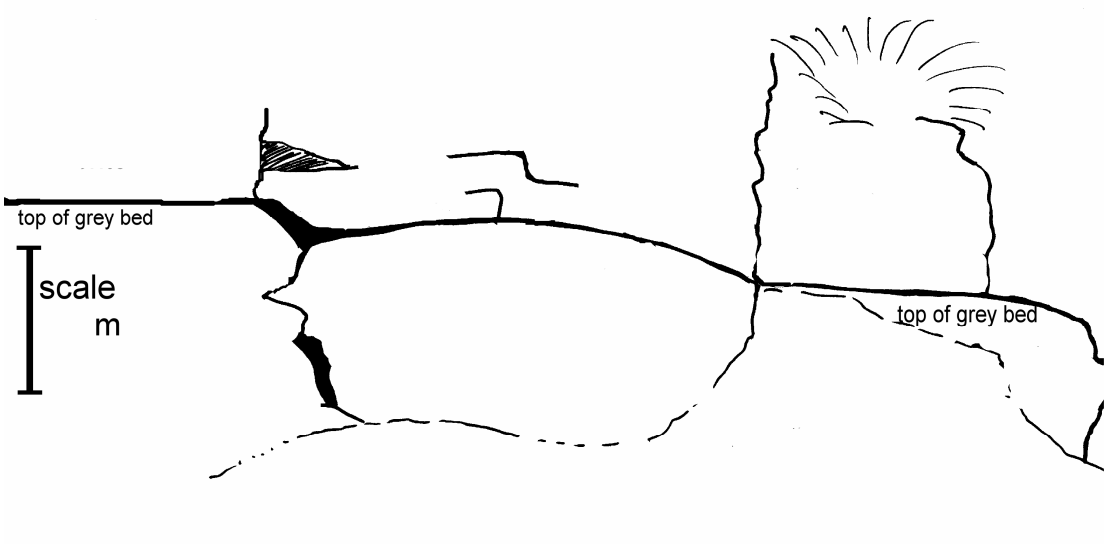


Location	Description of rock	Type of Rock (I, M or S).
t		
u		
v & w		
x & y		
z		

3. The quarry was used by tarmac for road-stone until 1987. Which of the rocks in this quarry would have been useful as road stone and whiy?

PUPIL WORKSHEET 3 Pupil Name.....

Site 1c: Snableazes Quarry, West Crag.



1. The top of the limestone and part of the sill have been drawn on the sketch. Draw in the dolerite across the exposure. Label where it "steps down". Mark on the height of the scale bar on the left.

2. On the field sketch of the crag above draw and label the following features:

a. limestone; **b. baked shales and fine sandstones;**
c. a joint plane; **d. one or more bedding planes ;**
e. oldest bed; **f. youngest bed;**
g. scree slope; **h. dolerite sill.**

3. **Explain why the crystals in the dolerite are so small.**

_____

_____

4. Number the following statements in the order in which they happened. (Number the oldest as 1 and youngest as 5.).

quarrying for roadstone
uplift weathering and erosion
deposition of fine sandstones in delta conditions
deposition of limestone in marine conditions
intrusion of dolerite sill, baking the rocks top and bottom

PUPIL WORKSHEET 4 Pupil Name.....

Site 2a: Cullernose Point.

1. Sketch in the joints in the igneous rock around point (x) on the sketch below. Is this likely to be a dyke or a sill?

_____

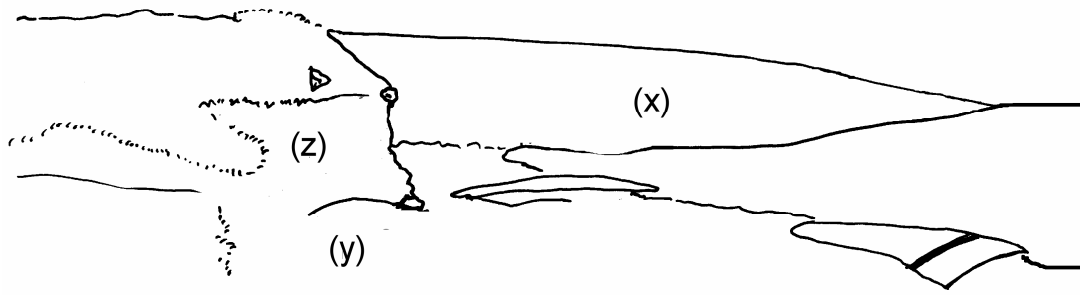
2. Describe the material on the beach near point (y) and explain how it got there.

_____

3. On the sketch below draw the bedding planes round point (z) and label an up- fold.

4. Explain what has happened to these beds since they were deposited below sea level.

_____



Site 2b: On Top Of Cullernose Point.

5. On the top of Cullernose Point count the number of **edges** of the columns. **Ideally** there should be 6 (hexagonal).
What is the highest, lowest and most frequent number of edges you have found?

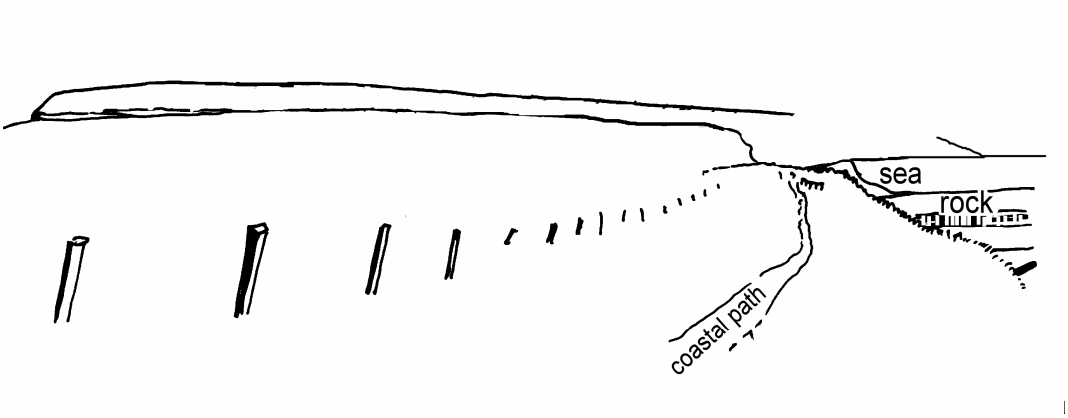
HIGHEST_____ LOWEST _____ MOST FREQUENT _____

6. Circle the word below which best describes the shape of **most** of these columns?
TRIANGULAR; RECTANGULAR; PENTAGONAL; HEXAGONAL

7. In the box below sketch one of the blocks of dolerite from the top of Cullernose Point

PUPIL WORKSHEET 5 Pupil Name.....

View Of Long Heugh Crag.
On the way back to the road, stop at and look back at the skyline to the north.



1. Draw in the skyline at the eastern end of the sketch.

2. Label the following features on the sketch:

Cullernose Point;	sedimentary rocks;
dyke on foreshore (if visible above waves)	sill with vertical jointing;
rounded boulders on storm beach;	cliff of sedimentary rocks;
Long Heugh Crag;	screes of angular boulders;

3. Explain why there is a hill at Long Heugh Crag and a headland at Cullernose Point.

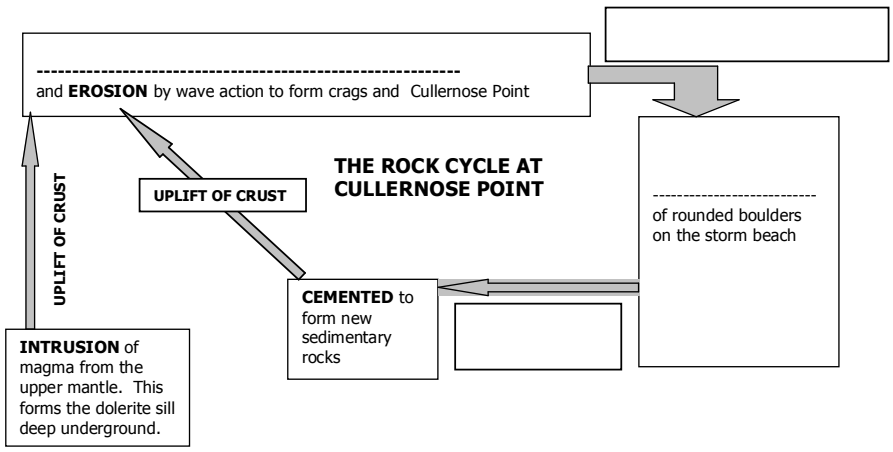
_____

_____

4. Shade in the hill on the skyline which is made of dolerite sill.

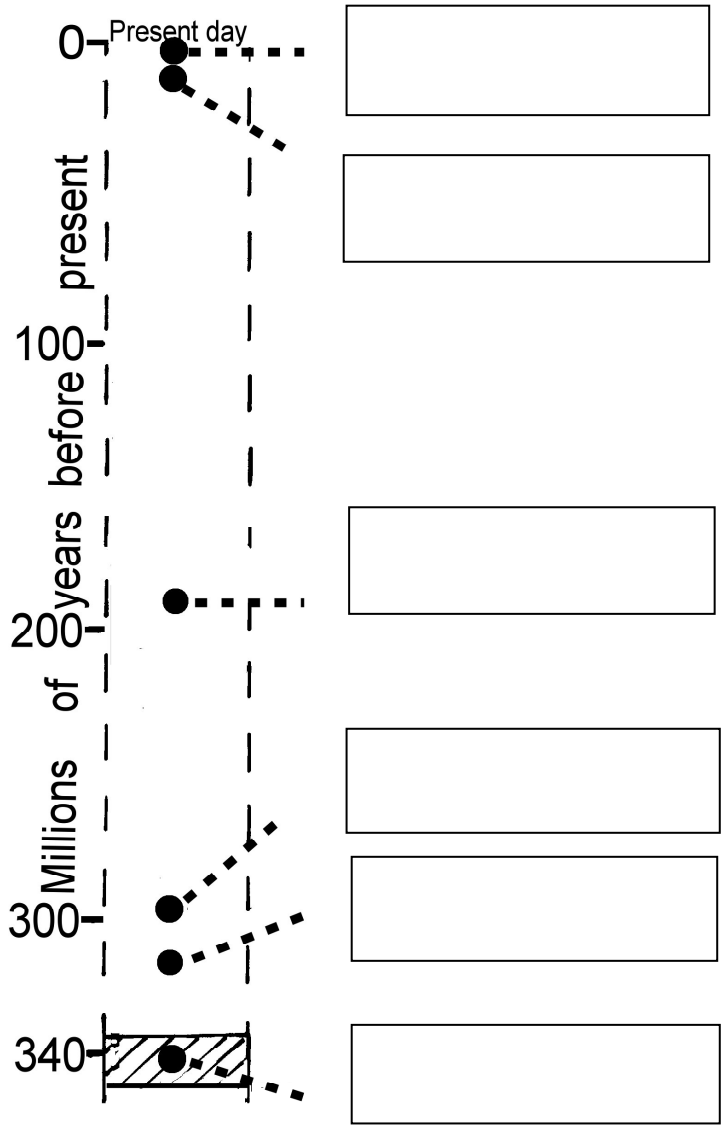
5. Label the boxes in the rock below with the following labels in the correct places:

Transport by waves; deposition, burial; physical and chemical weathering



PUPIL WORKSHEET 6 Pupil Name.....

Summary Of Events.



Summarise all of the geological events you have seen by writing the letter for each statement in the correct box on the geological event column above.

A. **Period of faulting**
B. **Period of dolerite sill intrusion**
C. **Deposition of dune and beach sands begins**
D. **End of glaciation and beginning of weathering and marine erosion continuing to present day.**
E. **Deposition of limestone and shales in a sea area**
F. **340 million years of erosion leaving no rock evidence behind.**

PUPIL WORKSHEET 7 Pupil Name……

1. SUMMARISING THE ROCK CYCLES:
PUPIL HOMEWORKSHEET: The Two Rock Cycles at **Snableazes / Cullernose Point.**

FIRST CYCLE: deposition. What can you say about the deposition of the sedimentary beds in the quarry? HINTS: Evidence for deposition; fossils, limestone, shales, oldest / youngest etc.
FIRST CYCLE: uplift and tilting. What can you say about the changes to the beds cause by plate tectonics? HINTS: tilting, faulting, intrusions, metamorphism etc.
SECOND CYCLE: weathering and erosion. What evidence of **present day** weathering and erosion have you seen on the foreshore at Cullernose Point?
SECOND CYCLE: sediment transport. In what ways have you seen sediments being transported on the foreshore?
SECOND CYCLE: deposition. What kinds of **modern deposits** have you seen and what rock types might they form in future? HINT: Don't forget plant and animal evidence – and which (if any) parts might survive as fossils.