

# THE EVOLUTION OF MICRASTER

## **Purpose**

To determine how the shape of *Micraster* changed during the Upper Cretaceous.

## **Background information**

*Micraster* is found throughout the Upper Chalk. Specimen a is found near the top and b near the bottom. There is a gradational change from one form to the other but there is no change in the surrounding sediment.

## **Instructions**

- 1 Use the British Fossils to identify the two micrasters.
  
- 2 Measure the following features of *Micraster* (a) from a low zonal form and *Micraster* (b) a high zonal form. The pieces of wood make measuring easier for 1 to 3.
  1. length
  2. width
  3. height
  4. depth of anterior groove
  5. height of the anus
  6. distance of the mouth from the anterior end
  7. length of the petals
  
- 3 Comment on any changes you notice in the plastron, the labrum and the fasciole.
  
- 4 Tabulate and describe your results.
  
- 5 Use a text book to obtain an explanation of these changes.

## Teacher's Section

### Requirements

British Fossils published by Natural History Museum London

Plaster casts of Micrasters: a low zonal form such as *M. corbovis* or *M. cortestudinarium* and a high zonal form e.g. *M. coranguinum*. labelled a and b

Two blocks of wood 5cm by 2cm by 2cm (makes some measurements easier)

Callipers

A tyre depth gauge fixed into a board is very good for measuring the depth of the anterior groove (making equipment).

Diagrams to remind them of the different parts of irregular echinoids

### Notes

Check the students' measurements and understanding of the parts. If plaster casts or real samples are not available the drawings in "British Fossils" can provide most of the information. Unless the samples or diagrams are clear the changes to plastron and fasciole will not be obvious. Students can use the table below to record their results.

### Results

In the higher zonal forms the:

1. length gets longer
2. width gets larger
3. height gets higher
4. depth of anterior groove becomes deeper
5. height of the anus increases
6. distance of the mouth from the anterior end gets smaller
7. length of the petals become longer

In addition the labrum becomes more pronounced, the plastron increases in size and the fasciole becomes broader

### Time

30 minutes

### Cost

Micraster plaster casts £7 each

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		Earlier form (b)	Later form (a)	change	reason
1	Length				
2	Width				
3	Height				
4	Depth of anterior groove				
5	Height of anus				
6	Distance of mouth from anterior end				
7	Length of petals (measure shortest on each)				
8	Plastron				
9	Labrum (lip)				