

# AMMONOID SUTURES

## Purpose

To try to explain why ammonoids developed complex sutures. In this paper exercise you will investigate how the shell strength will change with increasing crinkling of the suture.

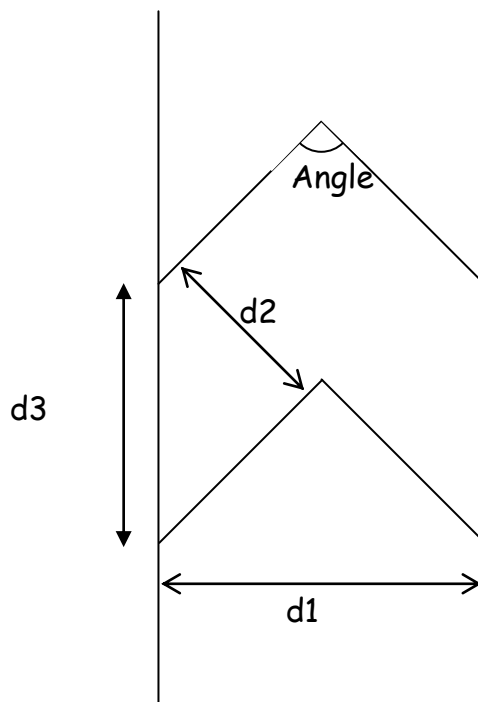
## Instructions

### Activity I

1. Draw the suture patterns of a goniatite, a ceratite and an ammonite.

### Activity II

1. Draw several separate pairs of V shapes to represent the folded septa as in the diagram. Keep  $d1$  and  $d3$  constant. Use an angle of  $180^\circ$  (straight line) in your first diagram and smaller angles down to  $20^\circ$  in subsequent diagrams. Draw about 6 separate diagrams.



2. Measure the shortest distance ( $d_2$ ) between the lines.
3. Plot distance against angle
4. Draw your conclusions
5. Work out a formula which relates  $d_2$  to the angle and  $d_3$

## Teacher's Section

### Requirements

A goniatite, ceratite and an ammonite

Protractors

### Results

The strength of the shell increases the closer together the septa are so the more crinkled the sutures are the stronger the shell.

$d_2 = d_3 \sin(\frac{1}{2} \text{ angle})$

### Time

45 minutes