THE SHAPE OF PEBBLES

Purpose
To see if the shape of a set of pebbles is controlled by the bedding planes within the pebble.
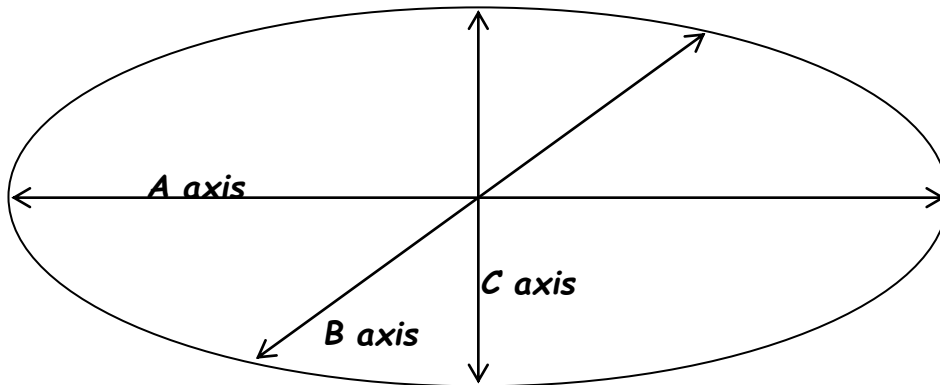
Background information
When a rock breaks the fractures will be controlled by any planes of weakness, e.g. bedding planes, joints or cleavage.

The axes of a pebble are named as follows: Long axis = A
                                                Intermediate axis = B
                                                Short axis = C

The planes containing those axes are referred to as the AB plane, AC plane and the BC plane.

Instructions

1   Copy this table but with 25 rows.

Number of pebble	Bedding	parallel	to	
	AB plane	BC plane	AC plane	No plane

2   Choose a pebble and examine it. Note if the bedding plane is parallel to any of the planes.

3   Put a tick in the appropriate box in the table.

4   Total up the ticks in each column and draw your conclusions.

Teacher's Section

Requirements

A minimum of 25 (100 would be good number) pebbles all from the same locality and of the same lithology with some signs of bedding in each. Pebbles from the Budleigh Salterton Pebble Bed are suitable, 1 pebble with bedding parallel to plane of largest cross section area.

Notes

It is important that students understand and can locate the axes and planes on a rounded pebble. Use the pebble with the bedding parallel to the AB planes as an example. A trial run is useful. 25 pebbles is enough for one student. It is good if students combine their results and so have larger sample from which to draw their conclusions.

Results

Most bedding planes in the Budleigh Salterton pebbles are not parallel to any plane so the original rock was already well cemented before any joints formed and before the rock was eroded and turned to pebbles.

Time

45 minutes including time to understand the system of naming the planes and a trial run of 5 samples.