

SPINES

Purpose

To determine whether lateral spines found in some gastropods and trilobites might have helped prevent the animal from being turned over by predators or waves.

Activity I

Make sketches of the fossils or modern shells provided.

Activity II

Use the spring balance to find the force necessary to lift up the one side of the creature, leaving the spines on the other side touching the table. First lift it up with the hook next to the body. Make measurements for both the left and right hand side of the body. Then lift it up with the hook at the end of the spine. Do this for each of the creatures and record the length of the spines.

Activity III

Put the periwinkles in the tank and make waves without causing the water to splash out. Which rolls over, the one with or the one without nails. Repeat the last activity but using two rolls of plasticine one with nails through it and the other without

Teacher's Section

Requirements

Examples or pictures of gastropods with lateral spines e.g. Aporhais. See also plate 61 of British Mesozoic Fossils and plate 20 of British Cenozoic Fossils.

Examples or pictures of trilobites with lateral spines. See also plates 8, 9 and 10 of British Palaeozoic Fossils.

Spring balance

*4 "Creatures" (see below) three with spines and one without
2 periwinkles.
plasticine*

Tank or plant trough 75cm long, 15cm wide and 20cm deep

Making the equipment (1 hour)

4 pieces of wood 14cm by 4.5cm by 2cm

Cut 6 pieces of wire 5mm diameter (coat hanger wire is suitable) 15cm long, 6 pieces 10cm long and 6 pieces 5cm long.

Drill 3 holes in each side of three of the pieces of wood. Insert the 6 longest pieces of wire in the first piece of wood, the 6 medium length pieces in the second piece and the shortest in the third piece. Bend the pieces of wire so they just touch the table top. Bend the front and back wires as in the diagram. The fourth pieces of wood should have one small nail in the centre of each side each side hammered in until the head is 3mm proud from the wood. Draw eyes on each piece of wood.

Drill two holes in a periwinkle and put 2.5 cm nails in the holes. Cement them in using araldite. Make sausages of plasticine 2cm long and 1cm diameter, put 2.5cm nails through one roll of plasticine.

Notes

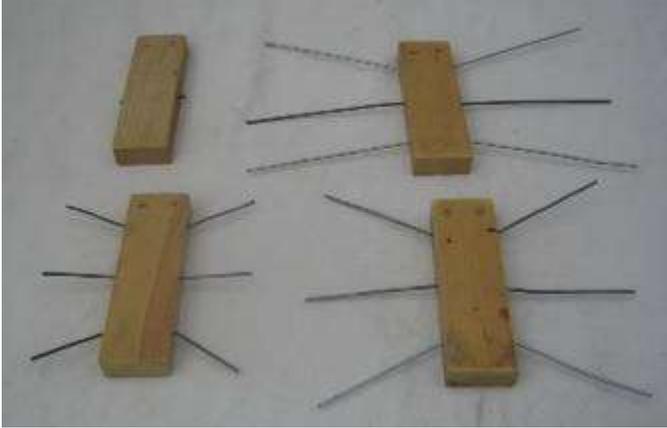
Lateral spines may have had other uses such as acting as outriggers when floating or snow shoes when on soft mud or helping gliding through the water.

Results

As the length of spines increase so the force needed to lift the creatures up increases if measured next to the body. The spines prevent the periwinkles and plasticine from rolling.

Time

30 minutes



Creatures with different lengths of spines



Lifting up model

Side view

Lift creature next to body first and then at end of spine.

