

Practical work: Investigate the way ledges of hard rock affect cliff shapes

You will need some sheets of cardboard, each side about 15cm and some dry sand for this practical.

You are going to try to make a cliff using weak material (dry sand) and strong material (sheets of cardboard).

1. Spread out some sand in a tray to make a layer about 2cm thick. The layer should be about the same size as the sheets of cardboard you have.
2. Level the top and place a sheet of cardboard on it. Now put a thinner layer of sand on the cardboard and then place a sheet of cardboard on top.
3. Continue to build up layers, much like you would make a layer cake. Now, try to change the shape of the cliff by pushing the cardboard layers in and out.

Notes

The shape of a cliff is determined by both the hard and the soft rock. The hard layers act like the sheets of cardboard, supporting the material above. The soft layers always collapse down to a more gentle angle. As a result, they undermine the hard layers, which eventually break. As soon as they do this, all of the material above collapses as well.

By experimenting with the position of the sheets of cardboard, children can bring out this important conclusion. Notice that in a cliff, the lowest layer is undermined by wave action.