

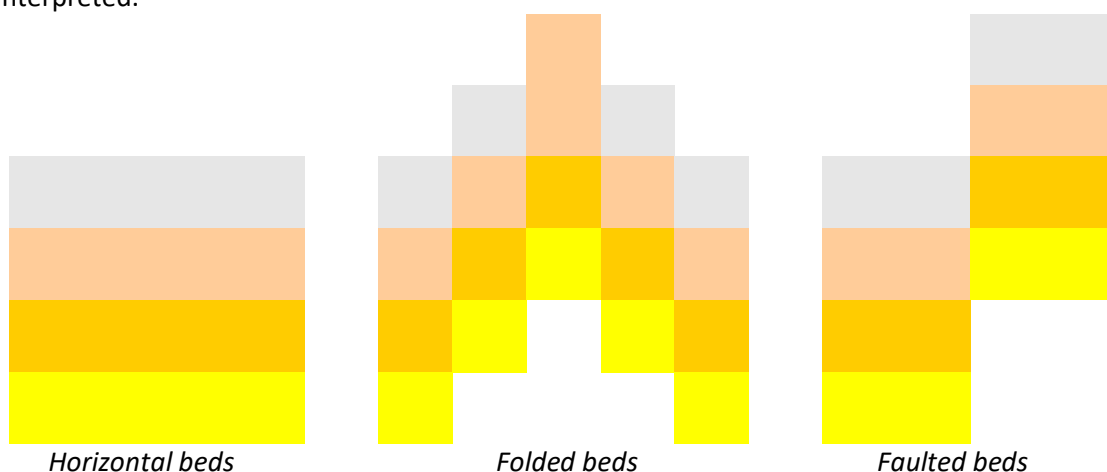


Demonstration

1. "Way up" for sedimentary strata can usually be easily demonstrated as the overlying rocks are younger than those below (Principle of Superposition). Also, individual sedimentary beds will have coarser grains at the bottom with the grains becoming finer as you move up the bed (graded bedding).

2. However, Earth movements can cause horizontal strata to bend, buckle, fold and fault. Placing layers of towels on a bench and compressing them laterally can demonstrate the overturning of some folds, resulting in beds appearing the wrong way up. Interleaving the towels with a less flexible substance, such as newspaper, will demonstrate that some strata will not bend plastically but will build up tension, which can create faults.

3. Students can draw a horizontal strata sequence onto a sheet of paper and colour, or number, specific beds. They then cut the sheet into separate vertical rock columns and rearrange them to demonstrate folding and faulting over a distance. These beds can be correlated and the structure interpreted.



Sometimes folding is so extreme, and some rocks are so plastic, that a fold can bend all the way over (become recumbent). It can be difficult to work out which way is up after erosion has cut strata down. These structures can be hundreds of kilometers wide and are named from the French "nappe" (a tablecloth), because they crumple up like tablecloths do, as a result of horizontal pressure.

In cases like this the grading of the sediment and other indicators are used to determine the way up of sedimentary beds.

Optional Activity

Students may use layers of different coloured plasticine or playdough to replicate strata. They can then deform these and cut across the top to see the effect of erosion on rock outcrop patterns and interpretation of WAY UP. Changing the pattern of the land surface will change the patterns of the rock outcrops.