

Resource 1: Appendix 1a

Teacher's Guide to stratigraphic coring

Basics

Stratigraphy: The study of the layers and their order in geology and archaeology.

The Law of Deposition: Layers of stratigraphy that are lower are generally older than the layers on top of them.

A sediment core is a way of looking into the past environment of a specific area to understand how it has changed through time. Think of a core as a straw being pushed into a cup with different coloured layers of jelly. If you brought up the straw and cut it open, you could see a small sample of each layer of jelly in the same order they had been in the cup. This models what we do when we take a core, except with layers of different sediments.

Some of the biggest changes we see when we look at a core are between underwater or marine environments and terrestrial (land) environments. We look for clues that help us identify these differences, including land materials (twigs, leaves, soil, etc.) and marine materials (shells, sand and marine muds, etc.) Sometimes even manufactured materials and objects, known as artefacts, also get deposited. These also tell us about the environment and about our history.

Dry vs. wet cores

Cores are very different when they are wet as compared to when they are dry. This is because:

- some layers will expand
- some layers will merge
- some layers will be more obvious when they are wet as compared to when they are dry (and vice versa)
- artefacts and organic materials may move to different layers or become hidden.

Interpretation of a model core

The most important aspect when making your own core is to decide which material will represent which stratigraphy or feature. Students should think about the “story” their core might tell about how the changes represented might have affected people in the past. Some things to remember:

- A deeper layer is usually older than the layer on top of it.
- If a layer is thick it usually means that the material has been deposited over a long period of time.
- People often lived near sources of fresh water, like a stream.
- Artefacts can help you date a layer very specifically. Coins, in particular, as they have dates stamped on them and pottery, which is commonly found.

See below for how you might interpret your display core. Your core may look different if you used different materials. Make sure you have a record of what each material represents.



Summary of the core

This is a typical core from the Black Sea. The soil is an ancient buried landscape, with grass and flowers that used to grow on it. There is also a coin from a settlement on the site. Above that we see peat, which suggests a more wetland type environment. Above that is a layer of marine shells and rocks that is typical of a site that has flooded. There may have been movement of materials due to an intertidal beach, for instance. Finally, we see a modern sand layer that suggests the site is now completely submerged and the movement of water is much less, allowing sand to settle.

We interpret the core as:

- The site was once dry land with a settlement.
- The area was slowly flooded with water, becoming first a wetland, then an intertidal beach.
- The site finally was completely submerged under water.