Archaeology for Schools

ALL ABOUT ARCHAEOLOGY

Archaeology is the study of people in the past based on the objects they have left behind. It is an important part of historical research and closely connected to local history studies.

Everybody knows that archaeologists dig things up but what else do they do? Check it out here.

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For more information, visit www.ntslearning.org.uk
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1.0 THE WORK OF AN ARCHAEOLOGIST

Archaeologists can dig anywhere but they tend to focus on areas where they know they’ll find a lot of information. In order to narrow down the search, they will undertake desk-based research, looking at records of previous work, old maps and aerial photographs. Often historical records, and even local tradition or folk memory, will record details about certain local sites.

Old photographs can be useful
Evidence of a similar cottage

Having narrowed down the search area, the archaeologist will make a field visit to examine whether there are any traces of a site above the ground (in the form of ruined buildings or mounds of earth). If there are surface traces, a detailed map or plan will be made of these before proceeding. Sometimes, where there are no surface traces, a concentration of objects (such as pieces of flint or broken pottery) may indicate the location of an important site.

Once the decision is made where to dig, a small trench is laid out and the upper topsoil layer removed by machine or by hand. On reaching layers that contain lots of objects, or the remains of collapsed structures, things will proceed more slowly.

Removing topsoil layer by machine
Removing turf – preparing a trench

The archaeologist then excavates, using a small trowel, hand shovel and bucket. Each layer of soil will be stripped down gently before moving on to the next. If fragile objects are found, these will be excavated around carefully, in order not to break them or disturb deeper layers below. Only once an object is fully exposed will it be removed, cleaned and catalogued.
On many sites, the deeper you dig down through the layers (or stratigraphy), the older the objects are. During excavation, which is itself destructive, archaeologists will keep a meticulous record of each layer, where objects were found and their depth from the surface. This detailed record allows the site to be reconstructed on paper in 3D at a later date. Once the excavation is finished, sites are often backfilled although some might be conserved for presentation while others might be destroyed by building works.

A great deal of time is spent sorting the objects and rebuilding complete items from many broken parts. Measurements, such as the weight and size of the objects, are taken so that specialists can compare them to similar finds on other sites. They are often drawn and photographed.

Once all the objects and other evidence are gathered and catalogued, the archaeologists begin the process of writing a report. This report is effectively telling the story of the excavated site based on the evidence recovered. Often, if the results are interesting, they will be published in a book or interpreted on site with display panels. Significant finds are displayed in local or even national museums.
2.0 THE EXCAVATION

Excavation or digging is the process by which archaeologists recover evidence about the past. These remains may be features (such as pits, post holes, walls, floors, etc) or artefacts (objects made by people).

During a dig, layers of soil are scraped back, one by one, revealing earlier and earlier remains. Soil is dug away carefully using a small trowel and hand shovel. The earth is scraped on to the shovel and then put into a bucket which is then emptied on to the spoil heap.

If an object is found its position is recorded on the site grid (map) using co-ordinates and its depth (or height) is also taken.

When a feature, such as a wall, is found the soil is gently removed and when fully exposed it is photographed and drawn (mapped). In order to find out the age of features, archaeologists try and match the artefacts nearby with one in museums that have a known date. Pottery, which survives very well in the ground, can be useful for providing a date although coins are even better.
Excavation is a very detailed and destructive process. It should only be undertaken by or with a suitably qualified archaeologist.

Young people can get involved with real archaeological digs through groups like the Young Archaeologists Club run by the Council for British Archaeology, or check the Council for Scottish Archaeology. Or you could contact your local museum or council archaeologist. For adults, the Archaeology Handbook, published annually by Current Archaeology, is a guide to fieldwork projects both in the UK and abroad (visit www.archaeology.co.uk). The National Trust for Scotland is pleased to work with volunteers. Go to the NTS website for more information.
3.0 RESEARCH AND INVESTIGATION

The results of an excavation can be improved if other research work is carried out. Such work includes documentary research, geophysical survey, finds analyses, human bones, vegetation studies and dating finds.

**Documents**: old maps and written documents can provide clues to the history of a particular place.
Geophysics: can provide an image of archaeological features buried beneath the soil, without the need to remove the soil. There are three main techniques: resistance, magnetometry and radar. A resistance survey passes electrical currents through the ground; walls have a high resistance to these currents while ditches have low resistance. Magnetometry detects changes in magnetic fields within the ground, often due to burning – this can be used particularly to find hearths (including fireplaces) and furnaces. Radar can pass through solid features such as concrete and walls so, for instance, you can locate features beneath a concrete car park or road.

Finds analyses: Detailed studies of objects found during an excavation can provide information on how people lived in the past. Different tools were used for different functions: bashing, cutting, scraping, piercing and grinding. Stone tools were used before the discovery of metals such as bronze and iron. Pottery tells us what people were eating and drinking, and whether they made their own pots or imported them from elsewhere. Animal bones can tell us whether people were farming domesticated animals such as cattle, sheep and pigs or were hunting wild animals such as deer, or catching fish.
**Human bones:** Scientific examination of human bones provides information on past populations. The age, health and gender of skeletons can be easily determined. From this other factors such as diet, lifestyle and status may be inferred.

**Vegetation studies:** Microscopic pollen can be recovered from soil samples taken from the excavation site. This will help to build a picture of vegetation in the past. Were there thick forests of pine or mixed woodlands of hazel and oak? Perhaps there were open fields of grass and crops of barley.

**Dating finds:** One of the most important scientific methods used in archaeology is radiocarbon dating. Chemical studies of organic remains (such as wood, charcoal, leather, bone) which contain carbon, some of which is radioactive, can be measured to provide a broad date range for an object.
4.0 WHY DIG?

Excavation is a destructive process. To dig is to destroy - so there are important questions that archaeologists must ask before setting up an excavation. They may decide to try non-destructive methods first. They may still go ahead and dig.

Increasingly, archaeologists are opting for non-destructive methods first – using survey equipment that investigates what is beneath the ground without removing the soil. However, these techniques can only give an idea of what is there – whereas an excavation can uncover details of the actual buildings and important artefacts.
There are vital questions archaeologists need to ask before they set up an excavation:

- Will it tell us something new?
- Does it fit into a larger plan?
- Is the site of special interest?
- Will it be repeating something already done elsewhere (a similar excavation)?
- If this is the case, is the latest excavation required as a comparison?

Results of geophysical survey

Keeping a careful record of the excavation is essential

Many archaeologists now work in advance of new developments on building sites such as roads, quarries and shopping arcades. When developers plan to build foundations for a new building, archaeologists are hired to check if there is any archaeology on the site. They check for possible historic features or artefacts. If anything important is found, the site is excavated before the developers start work. The archaeologists often need to work fast and in all weathers. Occasionally a site is so important that it is conserved.

Volunteers investigating a shieling site at Ben Lawers

However many sites are excavated for research purposes alone. Some archaeology units and historic organisations bring in volunteers to help with excavations. The National Trust for Scotland archaeologists are pleased to work with volunteers.
## 5.0 THE TIMELINE & STRATIGRAPHY

Here is a time line that can be used in the classroom. It connects to the stratigraphy diagram.

### Time Line

<table>
<thead>
<tr>
<th>Event</th>
<th>Date</th>
</tr>
</thead>
<tbody>
<tr>
<td>End of the last Ice Age</td>
<td>12,500</td>
</tr>
<tr>
<td>Wildlife colonises land</td>
<td>8500</td>
</tr>
<tr>
<td>Mesolithic hunting settlers</td>
<td>4000</td>
</tr>
<tr>
<td>Neolithic farming settlers</td>
<td>3000</td>
</tr>
<tr>
<td>Metal technology (gold, copper)</td>
<td>2000</td>
</tr>
<tr>
<td>Climate deteriorating</td>
<td>1000</td>
</tr>
<tr>
<td>Fortifications begin</td>
<td>500</td>
</tr>
<tr>
<td>Iron-working technology</td>
<td>200</td>
</tr>
<tr>
<td>First burghs</td>
<td>1000</td>
</tr>
<tr>
<td>Roman army in Scotland</td>
<td>79</td>
</tr>
<tr>
<td>Waning of Roman influence</td>
<td>200</td>
</tr>
<tr>
<td>Emergence of Scottish nation</td>
<td>600</td>
</tr>
<tr>
<td>Introduction of Christianity</td>
<td>800</td>
</tr>
<tr>
<td>Picts, Gaels, Britons and Anglians</td>
<td>1100</td>
</tr>
<tr>
<td>Start of the Viking Age</td>
<td>1200</td>
</tr>
<tr>
<td>Reformation of the Church</td>
<td>1500</td>
</tr>
<tr>
<td>Agricultural improvements &amp; Industrial Revolution</td>
<td>1600</td>
</tr>
<tr>
<td>Two World Wars</td>
<td>1800</td>
</tr>
<tr>
<td></td>
<td>1900</td>
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<td></td>
<td>2000</td>
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Stratigraphy
Stratified = horizontal layers (in archaeology, layers of earth that have built up over time, containing the detritus from past ages). Archaeologists scrape away the earth layer by layer to reveal features and/or artefacts.

Illustration by Jane Gaze
6.0 CONTACT

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