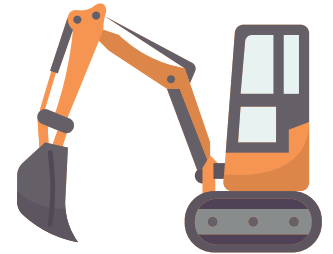


A Journey Through Archaeology

Episode 3 - How Can Technology Help?

We have already learnt about how desk-based research and site walking can give us clues about the remains of archaeological features such as walls, foundations or roads. Geophysical surveys tell us even more, using scientific methods to map what lies under the ground.



Activities

To learn more about how technology can help let's look at a case study of a site that YAT's archaeologists worked on.

These fields are in the village of **Wingerworth** in Derbyshire.

This site is now a residential area, but archaeological work had to take place before the housing development could begin. As you can see in the photograph below, the land is very flat and there are no visible features that could give the archaeologists any clues about what was happening here in the past.



To find out more about the site in a non-destructive way, Archaeological Research Services Ltd helped to create a **geophysical survey** of the site we were interested in. This involved using a machine called a **magnetometer** to survey the ground. Buried materials have an effect on the geomagnetic field or magnetism of the soil and creating a map of these readings can show their location and layout.



1. Here we can see the results of the geophysical survey (the grey area), positioned onto a map of the area. If we look closely, it shows features (as darker areas and lines) beneath the ground level! **Can you spot these features? Use a coloured pen or pencil to highlight them.**



Do you have any ideas about what these features could be? Label the map with your suggestions, then turn to the next page to find out what the archaeologists made of this site.



2. The below-ground features are marked on this map with coloured lines. Did you spot them all? They are labelled on the map with the archaeologists' theories about what these features could be, but they could not know for certain without digging below the ground.

Where would you recommend the archaeologists focus on when digging? Circle the areas in a different colour below:



Two straight features running parallel - this might be a track way. It continues diagonally across the whole site. We also spotted this track on 18th and 19th century maps of the area that there were fields on either sides.

Ridges and troughs - these are common on fields which were ploughed in medieval times and are called 'Ridge and Furrow' fields.

A group of small paddocks or enclosures. These reminded us of Iron Age farming sites discovered in South Yorkshire.

A ditch boundary, running parallel with the modern A61.

Drainage ditches - we know these are quite modern.

These straight lines align with field boundaries marked on a map from 1758.

This square-shaped feature aligns to a field recorded on a map from 1878. We think it's most likely drainage ditches surrounding a field.

This large feature which could be a boundary ditch or earthwork mound associated with the nearby enclosure.

A large enclosure, 100m long and 60-70m wide. Within this seem to be smaller enclosures or paddocks. None of these ditches or boundaries were marked on our 18th and 19th century maps!

These features are very similar to a mid-Iron Age to Roman site 18km north of Wingerworth.



3. After studying the results of the geophysical survey, the archaeologists dug in two areas of the site. Were these the areas that you thought should be investigated further?



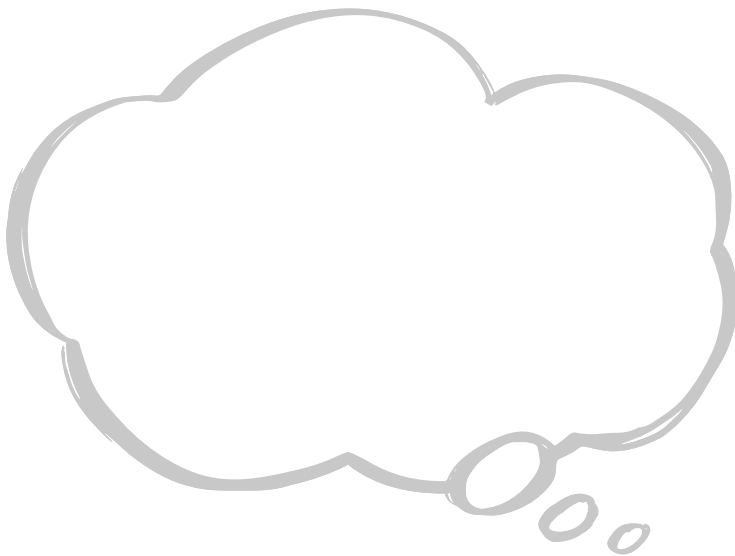
Iron Age enclosures for farming, and the remains of ditches and gullies which might have been dug around round houses!

A **Roman** settlement! A large rectangular enclosure, smaller enclosures and the remains of stone walls and foundations.



3 miles south of Wingerworth was the Roman fort at Chesterfield. Archaeologists think this could be a Roman farm built to provide supplies to the Roman soldiers.

Why do you think the Romans chose a site close to an Iron Age settlement? Write your thoughts below:



When the Roman settlement was excavated, the archaeologists made some interesting discoveries:

- **Wooden timber buildings**
- **The remains of kilns for baking pots**
- **Broken pieces of pottery**
- **The remains of cereal grains**
- **The remains of stone ovens, possibly for drying grains or baking bread**



Do Your Own Study!

In recent years 3D modelling technologies have allowed archaeologists to recreate how historical sites would have looked in the past!

Are you experienced in 3D modelling games such as Minecraft? Do you have a favourite computer programme that you use to create digital models? If so, then have a go at remodelling this Roman site, based on the evidence you have discovered today!

Use your imagination to fill in the gaps about how these buildings might have looked when the Romans were occupying this site.

