



Attainment through Archaeology

SEPTEMBER - OCTOBER 2024

Exploring Newbattle Abbey with pupils from Musselburgh Grammar School



LEARNING TEAM
ARCHAEOLOGY SCOTLAND



We're being supported by the
ScottishPower Foundation in 2024



HISTORIC
ENVIRONMENT
SCOTLAND

ÀRAINNEACHD
EACHDRAIDHEIL
ALBA

NEWBATTLE ABBEY, MIDLOTHIAN

The origins of Newbattle Abbey near Dalkeith dates back to 1140 when Cistercian monks from Melrose Abbey were given land 'Newbotle' (new homestead) by the king, David I of Scotland. The monks and laymen were known for coal mining, sheep farming, salt production and cart making.

Archaeological evidence dates back thousands of years to prehistory. It was a site of incredible political importance in medieval times, and host to royal visits throughout history. It became the Kerr family home in the 16th century, and an adult residential college in 1937. The army requisitioned Newbattle during World War 2 as a training center, and it has been an adult college since 1950.



Interpretation of Newbattle Abbey, *Andrew Spratt, 1991*

ATTAINMENT THROUGH ARCHAEOLOGY

14 S1-3 pupils from Musselburgh Grammar School participated in a 5-workshop Attainment through Archaeology project at Newbattle Abbey from September - October 2024, with pupils attending a celebration event in March 2025.

The pupils used research, archaeological methods and interpretation to investigate and engage with a local heritage site, while developing skills, knowledge and sharing their learning. Participants explored sustainability and energy in the past and future as part of 'Energy Through Time' and earned Heritage Hero Awards.



Research and Investigation



**Archaeological methods:
Historic Building Recording,
experimental archaeology**



Heritage Interpretation



Map: Reproduced with the permission of the National Library of Scotland
(CC-BY) OS Map Edinburghshire VIII.11 Revised: 1892, Published: 1894



HISTORIC MAPS



Map reading, identifying features



Navigation and orientation, fieldwalking



Comparison to present building remains and modern sources

Fieldwalking

Archaeologists use fieldwalking to gain an understanding of a site without intrusive excavation.

Using historic maps, oral histories and their observation and curiosity, pupils explored the site, asking questions and finding features.

Unique perspectives

Each pupil's skills, strengths, interests and opinions in the present added more detail and value to the heritage. One pupil shared an intriguing oral history of a hidden tunnel, and another pupil found a previously unrecorded carved stone finial (ornament).





HISTORIC BUILDING RECORDING



Measure



Scale drawing (1:10 - every 1cm drawn represented 10cm)



Interpretation

Recording

Pupils located, measured and recorded a vault entrance. They made scale drawings of the vault entrance and worked out the orientation of the vault.

Interpretation

Pupils compared maps and historic sketches to think about how the vault may have linked to the medieval Abbey, and what it could have been used for.





ENERGY THROUGH TIME

Past energy

Pupils found examples of renewable energy use including solar power and hydropower, at the Orangery (later used as a Fernery), and at the Icehouse.

Renewable futures

Pupils explored renewable and non-renewable energy sources and natural resources available during the medieval period using a card game.

They discussed pros and cons of different energy sources in the past and present.



<https://netzeronation.scot/about>



<https://www.un.org/sustainabledevelopment/sustainable-development-goals/>

Learning for Sustainability & Net Zero

Our project used a LfS approach to archaeological learning to imagine possible energy futures towards Net Zero 2045 and contribute to Sustainable Development Goals.



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EXPERIMENTAL ARCHAEOLOGY

Participants used experimental archaeology (reconstructing and imagining artefacts and technology) to explore energy use and efficiency in the past.

After learning about water power along the river and how it was used, including a water powered musical organ, pupils constructed water mills and mill paddles, before testing them.

Experimental archaeology and reconstruction helps us understand how people made and used technology in the past.



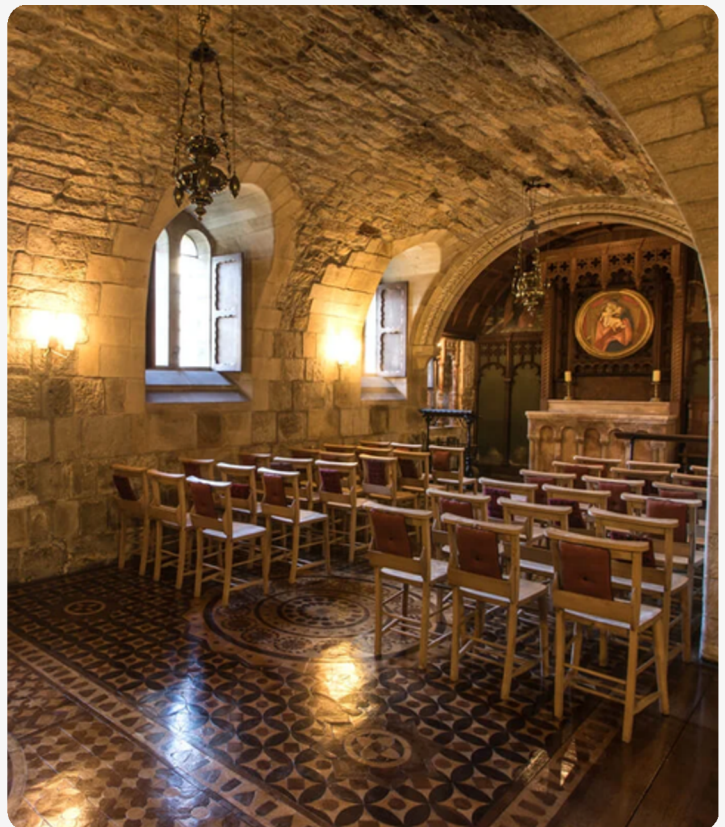
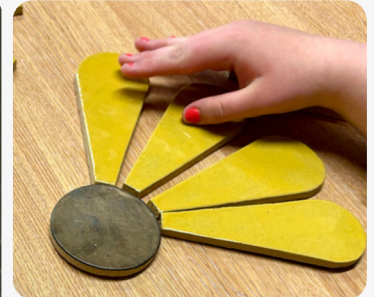
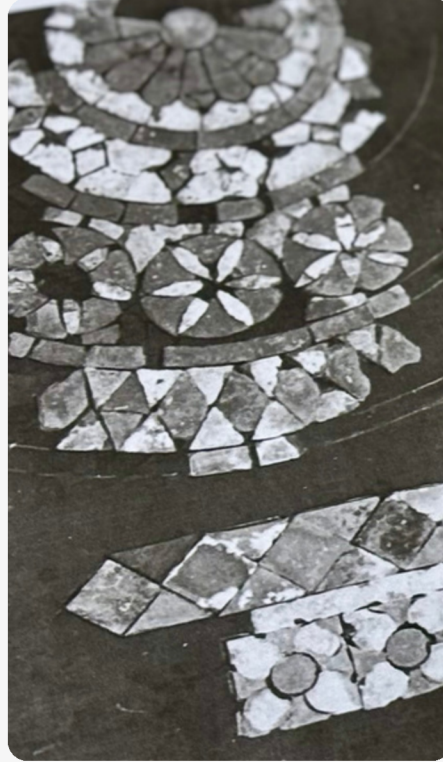


ARCHAEOLOGICAL FINDS

Medieval tiles

During excavation in the 19th century, medieval tiles were found in bright colours and beautiful patterns, similar to medieval tiles from Roslin.

We visited the chapel in the oldest part of the Abbey to look at the tiled floor made of wooden reconstructions of the artefacts, and made the patterns using modern recreations of the tiles.





INTERPRETATION



Reflection on learning, skills and themes



Communication and collaboration



Presentation and design



Pop-up banner

Pupils shared their learning by contributing to a pop-up display banner about their project, which is displayed in Archaeology Scotland's Learning Hub, and at learning events.

In archaeological learning

Interpretation shares the importance, value and relevance of archaeology to different audiences in the present. Planning, discussing and contributing to interpretation offers the opportunity to reflect on key learning, skills development and then communicates this to others.



MUSSELBURGH GRAMMAR SCHOOL

Exploring Energy through Time

AT NEWBATTLE ABBEY



WHAT WE DISCOVERED

Find out what we discovered during our Attainment through Archaeology course with Archaeology Scotland as we explored energy and sustainability past, present and future!



Heritage Hero Awards



MEET THE TEAM!

WHAT WE WANTED TO FIND OUT

We were interested in the stories we'd heard about old tunnels under the Abbey and were keen to find evidence of these and discover what they were used for.

We looked at historic maps, photos and drawings before exploring and recording historic sites in the landscape.



THE POWER OF WATER!

Water diverted from the river and channelled through lades and tunnels turned water wheels that powered mills and a water organ!

In winter months, ice was taken from the river and packed into the icehouse where food could be kept fresh all year round.



Making and testing our waterwheels!



THE ORANGERY

We discovered the ruins of the orangery, a large 300 year old greenhouse which used heat from the sun to grow exotic fruit like oranges.



ACHIEVEMENT AND SKILLS



Each pupil earned a Heritage Hero Award for their time, effort and unique contributions investigating the local heritage and archaeology.



Meta-Skills and Wellbeing

As well as developing archaeological skills including research, investigation, recording and interpretation, participants developed Meta-skills (Skills Development Scotland) to explore, discover and share archaeological learning.

Engaging and connecting with the historic landscape positively impacts wellbeing. (Five Ways to Wellbeing)

<https://www.skillsdevelopmentscotland.co.uk/what-we-do/scotlands-careers-services/education-team/meta-skills-toolkit/progression-framework>



CELEBRATION EVENT



Energy Through Time celebration and Learning Hub launch

The pupils who took part in this project were invited to be involved in an event celebrating the end of Energy Through Time. They saw the banner they created, made finishing touches to the Learning Hub and took part in a building activity, as well as having tea and cake. The project funders were thrilled to meet the pupils and learn more about their project.



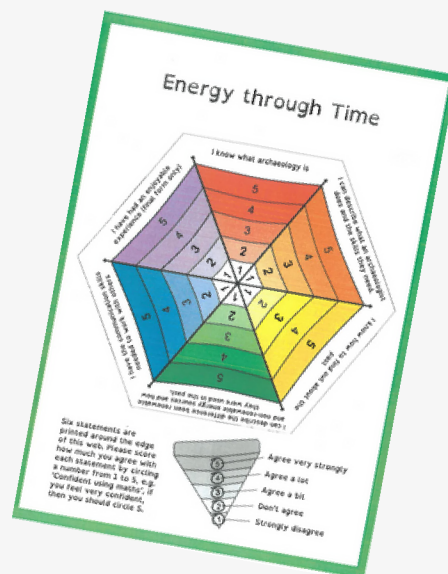
You can read about the Energy Through Time celebration event and Learning Hub launch on the Heritage Resources Portal Blog run by Archaeology Scotland.

<https://www.archaeologyscotland.org.uk/heritage-resources-portal/2025/05/20/endings-and-beginnings-celebrating-the-energy-through-time-project-and-launching-our-archaeological-learning-hub/>

EVALUATION

Outcomes - Pupils will have:

- a better understanding of archaeology and what archaeologists do, as well as the skills they need
- developed archaeological skills
- increased knowledge of the difference between renewable and non renewable energy sources, and how these were used in the past
- increased confidence in communication skills



All participants agreed "I have had an enjoyable experience"

I agree: a bit a lot very strongly

QUOTES

From teaching staff

"Working with Archaeology Scotland to achieve the Heritage Hero Award has provided an excellent opportunity for our pupils to learn all about archaeology and why it matters. For a number of our unmotivated and disengaged pupils, it provided the opportunity to tie in many different aspects of learning, from geography, science and art to developing teamwork skills.

Our pupils took part take part in all sorts of fantastic, hands-on activities and we also had a strong focus on exploring local place and heritage with lots of wonderful supporting resources that was differentiated for our group." "One of the many great things about these workshops is that it gives more scope for inclusive activities and overall mindset. The Heritage Hero Award was a great sense of achievement for all of those that took part and their parents /carers were also proud.

All of the pupils really enjoyed the workshops and were disappointed that they only lasted five weeks. I hope to work with Archaeology Scotland again in the future and have recommended the workshops to my colleagues."

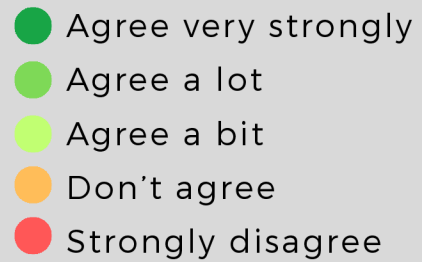
Adam Davie, Support for Learning Teacher
Musselburgh Grammar School



EVALUATION

Pupils completed self-evaluation at the start and end of the project. These results represent responses from pupils who completed both start and end evaluations (5 out of 10).

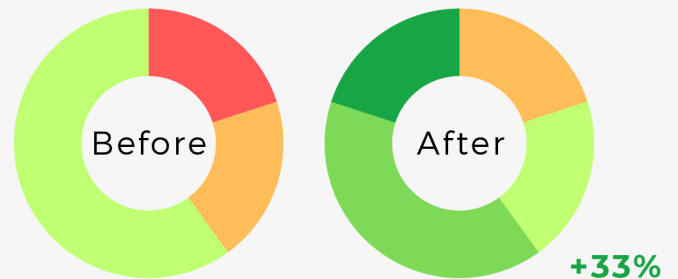
I know what Archaeology is



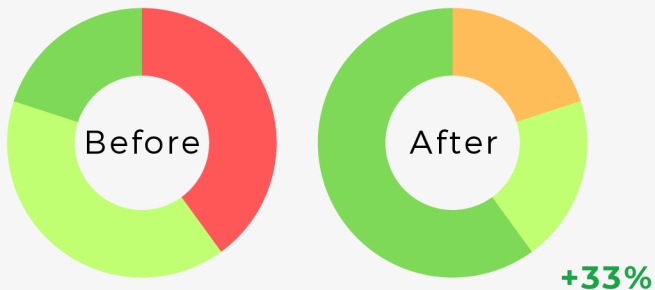
I can describe what an Archaeologist does and what skills they need



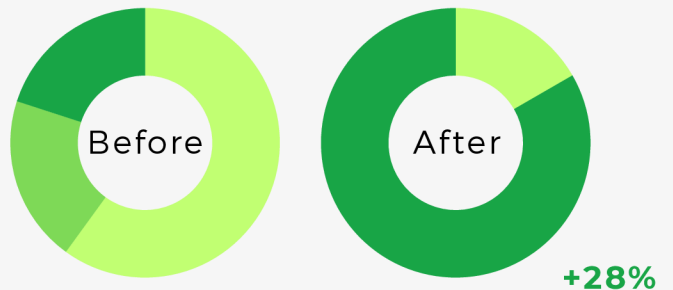
I know how to find out about the past



I can describe the difference between renewable and non renewable energy sources and how they were used in the past



I have the communication skills needed to work with others



As factors impact on attendance, 5 more pupils completed 1 of 2 evaluations. This will inform how we conduct evaluations in the future.

MUSSELBURGH GRAMMAR SCHOOL 2024 ATTAINMENT THROUGH ARCHAEOLOGY PROJECT

Thanks to...

- The Musselburgh Grammar School pupils and Support for Learning Staff
- Energy Through Time funders: Scottish Power Foundation and Historic Environment Scotland



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- Swire Charitable Trust, ESES Communities and Heron Bros for helping us create the Archaeological Learning Hub.



SWIRE
CHARITABLE
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