

Teacher Tool 258: The Science Behind Archaeology Study Guide

Study Guide for Archaeology 2: The Science Behind Archaeology

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The Science Behind Archaeology

Live Program Date: April 4, 2018

Times: 11:00 to 11:45 a.m. and 1:00 to 1:45 p.m. Central Time

Grade Levels: 7-12

Cost: NO CHARGE

Program Description:

Ever wondered what happens at an archaeological dig? How archaeologists decide where to dig, how to dig, what tools to use, and how to identify what they find? Interact with archaeologists currently working on a dig in Ireland to investigate these questions and more.

Through the course of this program, we'll explore those questions in a number of ways. Students will meet, interact with, and ask questions of archaeologists currently working on a dig in Lough Ce, Ireland. They'll engage in activities related to archaeology, find out how to set up an archaeological dig, investigate how artifacts are found and extracted, and learn about the processes used to date those artifacts. We'll see video of the site, and we'll invite you to share your students' questions as well as their responses to pre-program activities focused on these areas of investigation.

More details on the topics explored in the program, the order they will be explored, and the expert guests that students will interact with during that exploration is included in the Program Format section later in this document.

This program is another episode in our ongoing series, *The Science Behind*, that provides high school and middle school students the opportunity to interact live with individuals who apply scientific ideas and principles students are learning in class to everyday objects or processes those experts are working with in the marketplace, laboratory, or research center. To view archived programs, visit <http://edcate.today> and type "Science" in the keyword search bar.

Find Additional Program Materials At: <http://educate.today/videos/4407>

How To View the Program:

People can join the program live in any of three ways:

1. Via Videoconference--We have interactive and view only videoconference slots available for student groups to join the program. Groups interested in connecting this way may do so via h.323 VC connections, Skype, Zoom and/or similar software. When enrolling, please let us know the type of connection you prefer to make, and we will contact you to set up a test call as needed. Interactive slots get face to face question and answer time with the program guests; view only slots can e-mail questions and comments during the program to live@hectv.org. These slots are limited so early enrollment is highly recommended. For videoconference participation, we must have you enrolled no later than March 29, 2018. Contact us at live@hectv.org.

2. Via Internet--All our *The Science Behind* programs are streamed live on the program day via our Educate.Today website, <http://educate.today> and our sister TV station website, <http://www.hectv.org>. Just go to either home page at the program time. Since many schools limit streaming video through their firewalls, we recommend testing your ability to view the stream prior to the program by watching one of HEC-TV's archived programs at <http://www.hectv.org>. We also recommend viewing the program live on one computer only and connecting that computer to a television or digital projector for classroom viewing. Viewers can e-mail their questions and comments during the program to us at live@hectv.org.

To receive curriculum materials designed to help you prepare your students for the program, just e-mail us prior to the program at live@hectv.org or info@educate.today. Viewing in this way is unlimited; no other sign-in is required unless you wish to receive program prep materials. If the session is listed as full for videoconference participation, we welcome your participation this way as well.

3. Via Television--All our programs are available in the St. Louis metropolitan area on HEC-TV, Charter Communications digital channels 989 or 118-26. All our programs can also be seen on AT&T's U-Verse channel 99. Students viewing in this way can e-mail their questions during the program to live@hectv.org. To view the show live on the program day, just turn on your TV to the appropriate channel. To receive curriculum materials designed to help your students prepare for the program, just e-mail us at live@hectv.org or info@educate.today.

For Internet and TV viewing, there is no enrollment deadline date. We would appreciate knowing the time of the program you are watching and the grade level and amount of students involved so we can forward that information to our program partners. Such information is extremely helpful in securing funding for more free, interactive, educational programs in the future. To let us know you're viewing the program or to answer any additional questions about the program, please contact us at live@hectv.org or info@educate.today.

Archival Viewing:

Can't join us live? No problem! All *The Science Behind* programs are archived on the station website, <http://www.hectv.org> and on the HEC-TV page on iTunesU for on-demand viewing at any time. Archives are usually up and running about a week after the program's original air date.

Program Objectives:

1. The participant will interact with archaeologists working on a current archaeological dig.
2. The participant will gain a greater understanding of the nature of archaeology and the processes, tools and equipment used at an archaeological dig.
3. The participant will explore methods used to test, date, and catalog artifacts found at an archaeological dig.
4. The participant will engage in critical thinking and creative thinking.

Program Format:

The agenda below provides you the topics to be explored in the program as well as the order of that exploration. A final agenda will be e-mailed closer to the program. That agenda will include advance questions we receive from student groups enrolled for the program. Those advance questions and responses are based on pre-program activities included later in this document, so please review those activities and the related resources available on our website so your students' questions and responses can be part of determining the program's final agenda.

I. Welcome and Introduction—Student groups and experts are introduced and welcomed to the program and given information on ways to interact during the program.

II. Setting Up an Archaeological Site—Using video and still images from the Irish dig along with any tools/equipment brought by the guests, hosts and guests will discuss how an archaeologist determines a site is viable for a dig and then sets up the dig itself, etc.

III. Extracting Artifacts from an Archaeological Site—Using video and still images from the Irish dig along with any tools/equipment brought by the guests, hosts and guests will discuss and show artifacts are removed from a dig to ensure their quality and integrity

IV. Dating Materials from an Archaeological Site—Again using video and still images from the Irish dig along with any tools/equipment brought by the guests, hosts and guests will discuss what happens once the archaeologist returns from the dig with artifacts and finalizes age, use, importance, etc. of artifacts found.

V. Summary and Closing—We summarize the major concepts learned today and deal with a final question regarding examples of how their education helped prepare them for their careers.

Featured National Standards:

The following **Common Core Standards for English/Language Arts and Literacy in History/Social Studies, Science and Technical Subjects** are referenced in this program:

College and Career Readiness Anchor Standards for Reading

7. Integrate and evaluate content presented in diverse media and formats, including visually and quantitatively, as well as in words.

College and Career Readiness Anchor Standards for Writing

6. Use technology, including the Internet, to produce and publish writing and to interact and collaborate with others.
7. Conduct short as well as more sustained research projects based on focused questions, demonstrating understanding of the subject under investigation.

College and Career Readiness Anchor Standards for Speaking and Listening

1. Prepare for and participate effectively in a range of conversations and collaborations with diverse partners, building on others' ideas and expressing their own clearly and persuasively.
2. Integrate and evaluate information presented in diverse media and formats, including visually, quantitatively, and orally.
3. Evaluate a speaker's point of view, reasoning, and use of evidence and rhetoric.
4. Present information, findings, and supporting evidence such that listeners can follow the line of reasoning and the organization, development, and style are appropriate to task, purpose, and audience.
5. Make strategic use of digital media and visual displays of data to express information and enhance understanding of presentations.

College and Career Readiness Anchor Standards for Language

6. Acquire and use accurately a range of general academic and domain-specific words and phrases sufficient for reading, writing, speaking, and listening at the college and career readiness level; demonstrate independence in gathering vocabulary knowledge when encountering an unknown term important to comprehension or expression.

Featured National Standards: (Science)

Unifying Concepts and Processes - Unifying concepts and processes help students think about and integrate a range of basic ideas which builds an understanding of the natural world

1. Systems, order, and organization
2. Evidence, models, and explanation

Science as Inquiry - Science as inquiry requires students to combine processes and scientific knowledge with scientific reasoning and critical thinking to develop their understanding of science.

1. Abilities necessary to do scientific inquiry
2. Understandings about scientific inquiry

Participant Preparation:

1. Participants should come to the program with an interest in archaeology, history, and/or science.
2. Participants should utilize preparatory materials provided for the program and other resources of their own to better understand the context of the program's subject and to think in advance of questions they wish to ask the experts. If you want your students to be able to ask interactive questions during the program, please make sure to complete Pre-Program Activity 4 and e-mail us their questions to live@hectv.org or info@educate.today no later than Friday, March 30, 2108.
3. Participants should have pencil and paper ready to use during the program to jot down ideas and additional questions as they come to mind.

Pre-Program Activity Suggestions:

The pre-program activities below are designed to get your students thinking about the topics we will explore in the program and to develop advance “burning questions” and “activity responses” for us to consider for inclusion in the live program. We really want each program's conversation to be driven by the student questions we receive in advance and look forward to receiving yours.

1. Learn About the Location of the Archaeological Dig—The purpose of this activity is to get students thinking about Lough Ce, the location in Ireland where the archaeologists joining us for the program are currently searching for artifacts at an archaeological dig. To engage in this exploration, consider using information and examples from any of the web resources below, and/or having student explore the sites on their own. Have students share information with each other about what they learned, and develop questions they'd like to ask the program guests.

Web resources to learn about Lough Ce:

https://en.wikipedia.org/wiki/Lough_Key

<http://www.britainirelandcastles.com/Ireland/County-Roscommon/MacDermotts-Castle.html>

https://en.wikipedia.org/wiki/McDermott%27s_Castle

<https://www.youtube.com/watch?v=nhiVJmD7jKA> : Drone footage of the castle at Lough Ce

<http://www.hectv.org/watch/hectv-presents/irelands-medieval-mystery-unearthed-promo/25737/> Promo of upcoming HEC-TV documentary dealing with the archaeological dig at Lough Ce

Once students have completed their exploration of the topic, have them complete the first section of the Archaeology Student Worksheet document that was e-mailed to you with your program registration confirmation e-mail and is also available by clicking on the Student Tools button on our Educate.Today website at <http://educate.today/videos/4407>.

2. Think About What Happens at an Archaeological Dig—This activity gives students a chance to explore what goes on at an archaeological dig to help them develop questions for the guests they'll interact with during the live program. To engage in this exploration, consider using information and examples from any of the web resources below as well as any of your own, and/or having student explore the sites on their own.

Web resources to learn about archaeological dig sites:

How long does it take to excavate an archaeological dig site?

<https://science.howstuffworks.com/environmental/earth/geology/excavate-archaeological-dig-site.htm>

How to perform an archaeological dig: <https://sciencing.com/perform-archaeological-dig-2065469.html>

Basic Archaeology: What's a Dig?

<http://www.socialstudiesforkids.com/articles/archaeology/whatsadig.htm>

Once students have completed their exploration of the topic, have them complete the second section of the Archaeology Student Worksheet document that was e-mailed to you with your program registration confirmation e-mail and is also available by clicking on the Student Tools button on our Educate.Today website at <http://educate.today/videos/4407>.

3. Think About What Happens with the Artifacts Found at a Dig— This activity gives students a chance to think about what happens to the artifacts found at an archeological dig, what goes on at an archaeologist’s lab, and help them develop questions for the guests they’ll interact with during the live program. To engage in this exploration, consider using information and examples from any of the web resources below as well as any of your own, and/or having student explore the sites on their own.

Web resources to learn about what happens with artifacts:

<https://livesandlegaciesblog.org/2015/09/10/after-digging-what-happens-in-the-archaeology-lab/>
<https://www.youtube.com/watch?v=iyaUEAKrXtg>
<https://www.youtube.com/watch?v=xLJXYKDx-Y>

Once students have completed their exploration of the topic, have them complete the third section of the Archaeology Student Worksheet document that was e-mailed to you with your program registration confirmation e-mail and is also available by clicking on the Student Tools button on our Educate.Today website at <http://educate.today/videos/4407>.

4. Send Us Your Advance Questions and Activity Responses—We really are looking forward to the program’s exploration of time to be driven by student questions and activity responses we receive in advance, so please complete section one of the Explore Archaeology Response Worksheet and e-mail it to us no later than March 30, 2018. The Explore Archaeology Response Worksheet was e-mailed to you with your program registration confirmation e-mail and is also available by clicking on the Teacher Tools button on our Educate.Today website at <http://educate.today/videos/4407>,

We’ll go through all advance questions and responses we receive, select some for inclusion in the live program, and e-mail you back no later than January 30 with a finalized agenda with selected questions and responses included.

Vocabulary:

The following terms and their definitions will be highlighted in the program and/or in the program’s preparatory materials:

Archaeologist
 Archaeology
 Excavation
 Seriation
 Stratigraphy

Program Keywords:

Archaeology, Archaeologist, Science, STEM, artifact, excavation, history, culture

Cancellation Policy:

Since there may well be a waiting list for interactive participation, we ask that you let us know of your need to cancel as soon as you know.

Technology Specifications:

This program's videoconference connections will be bridged through our state bridging agency, MOREnet. When you register for the program, please include the IP address of the VC unit you'll be using to connect to the program. This information is needed to send to MOREnet to arrange your test call with them prior to the program. A validation test call **MUST** be made with our bridge at MOREnet no less than one week prior to the program date. As part of the confirmation you'll receive after we get your registration and IP information, we'll send you the details for the test call with MOREnet.