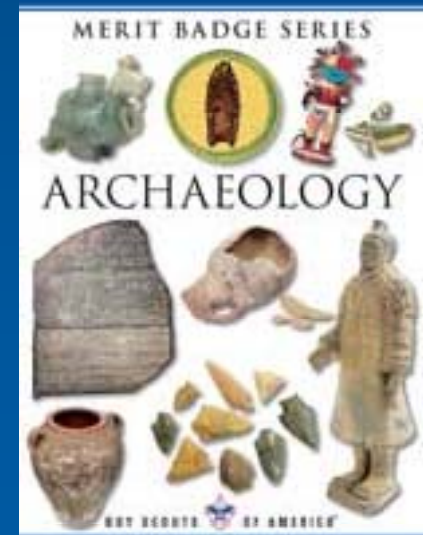


# Archaeology Merit Badge

## PART ONE



Eric Cutright, ASM Troop 1028, June 2015



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# The Plan for the Month June 2015



**Your Troop 1028 Merit Badge Counselor**

Dr. Eric “Indiana Jones” Cutright

**June 1** – Introduction, Site Sampling, Mock Dig

**June 8** – Artifact ID/Preservation, Dating, Cool  
Archaeological Sites Outside US

**June 15** – Field Trip – Meet at Ash Lawn-Highland  
(C’ville) – Requirement 4c / 10b

**June 22** – Artifact ID, Looting, Time Capsules

**June 29** - Experimental Archaeology –Requirement 9b,  
Cool Careers in Archaeology

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# The Plan for Today

## Part One - Introduction



**What is Archaeology?**

**Some of Eric's Favorite Archaeological Sites**

**The Archaeological Process**

Site Location

Site Excavation

Artifact Identification and Examination

Preservation

Information Sharing

**Site Excavation: Sampling Techniques**

**Archaeology Mock Dig – Patrol Competition**

Can you dig it?



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# Introduction to Archaeology



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# What is Archaeology?

(MB Book pages 9-11, Requirement 1)



- The word *Archaeology* is derived from Greek word *archaios* meaning “ancient” and Latin *logia* meaning “to talk or write about.”
- Archaeologists are detectives who study how people lived in the past.
- Archaeologists study the material remains of past *cultures* – the things people left behind – to learn how people lived and how cultures have changed through time.
- By studying the past, we can learn where we came from, how we got to where we are today, and where the future may take us.

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# What is a Culture?

(MB Book page 9)



- A culture is the way of life shared by a group of people and passed down from one generation to the next.
- The people of a given culture have the same language and similar customs, beliefs, ceremonies, habits, food preferences, and so on.
- **Examples:**
  - Native American Indian tribes
  - Ancient Egyptians
  - Ancient Romans
  - Vikings
  - Amazonian Indian tribes

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# Fields Related To Archaeology

(MB Book pages 16-18, Requirement 1)



- **Anthropology** – the study of humans in the widest sense
- **Geology** – the study of rocks, soil, and terrain
- **Paleontology** – the study of fossils of ancient animals and plants
- **History** – the study of the past through written records
  
- **Archaeology is officially classified as a sub-field of Anthropology**
- **Archaeologists may call on other specialists for help**



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# Some of Eric's Favorite Archaeological Sites



(Intro to Requirement 4a)



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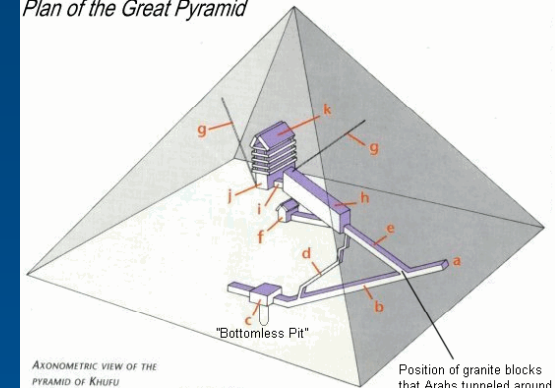




# Ancient Egypt – Pyramids of Giza (2500 BC)



Plan of the Great Pyramid



AXONOMETRIC VIEW OF THE PYRAMID OF KHUFU

- a. Entrance
- b. Descending corridor
- c. Underground chamber
- d. Service corridor
- e. Ascending corridor
- f. Queen's room
- g. Air shafts
- h. Great Gallery
- i. Antechamber
- j. King's chamber
- k. Weight relief chambers

Position of granite blocks that Arabs tunneled around in 620 A.D.



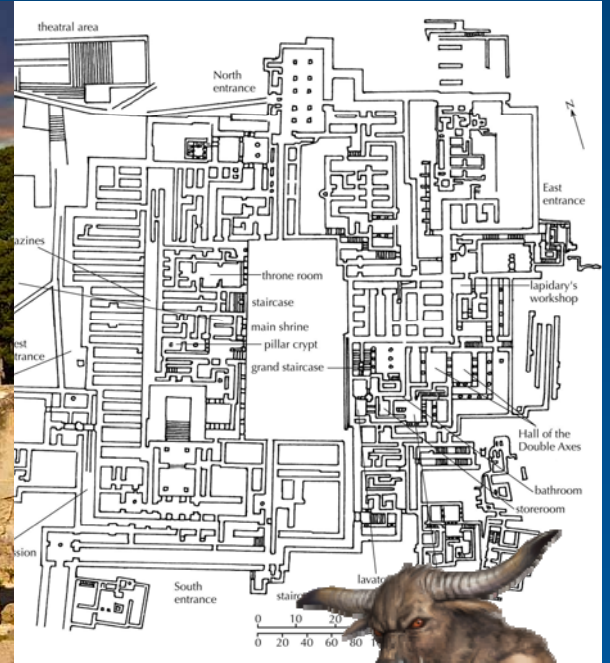


# Ancient Egypt – The Great Sphinx (2500 BC)





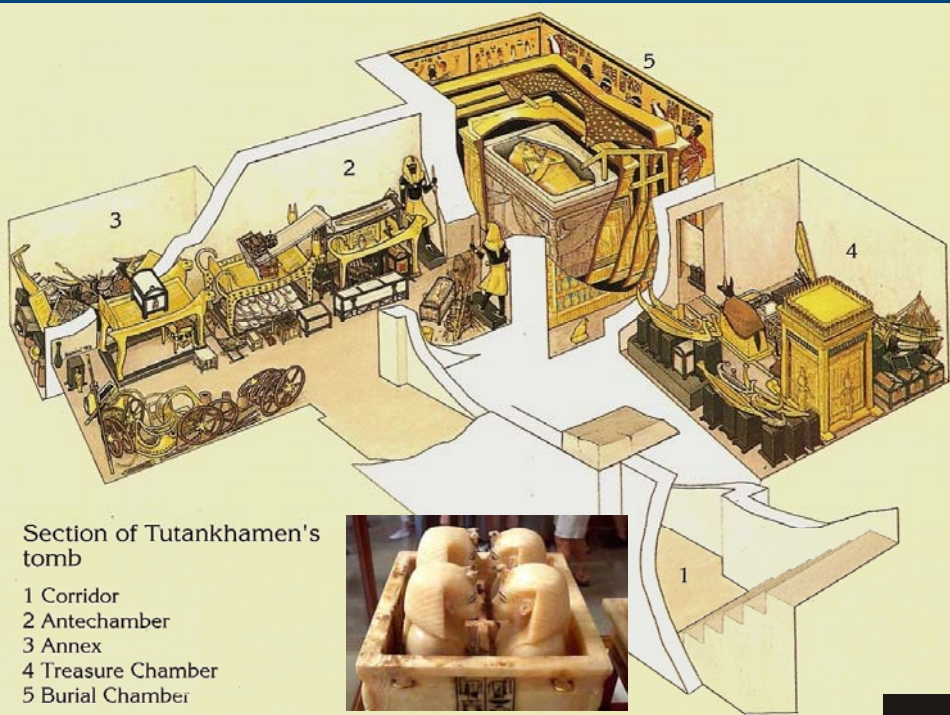
# The Minoans – Palace of Knossos, Crete (1800 BC)



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# Ancient Egypt – Tomb of King Tut (1350 BC)



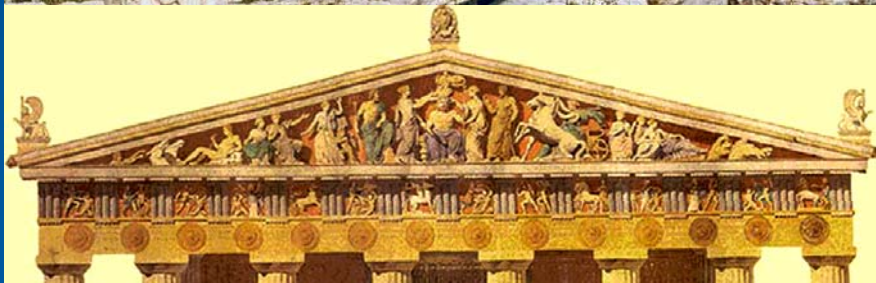
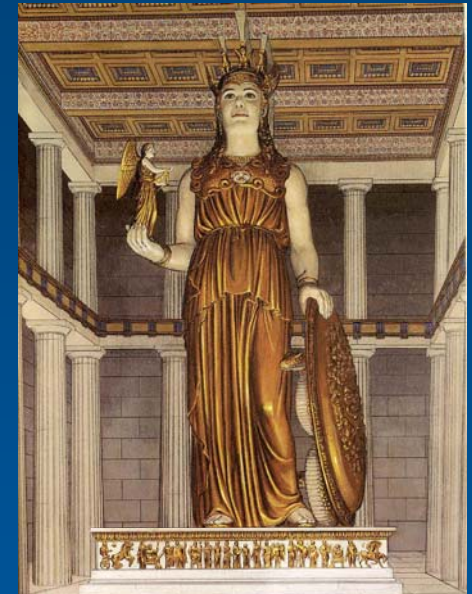
Section of Tutankhamen's tomb

- 1 Corridor
- 2 Antechamber
- 3 Annex
- 4 Treasure Chamber
- 5 Burial Chamber



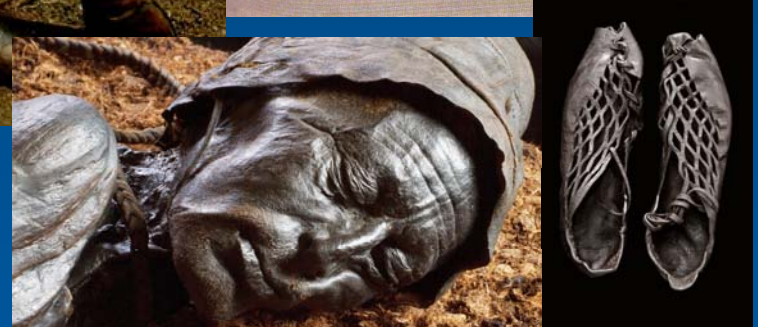


# Ancient Greece – The Parthenon, Athens (432 BC)



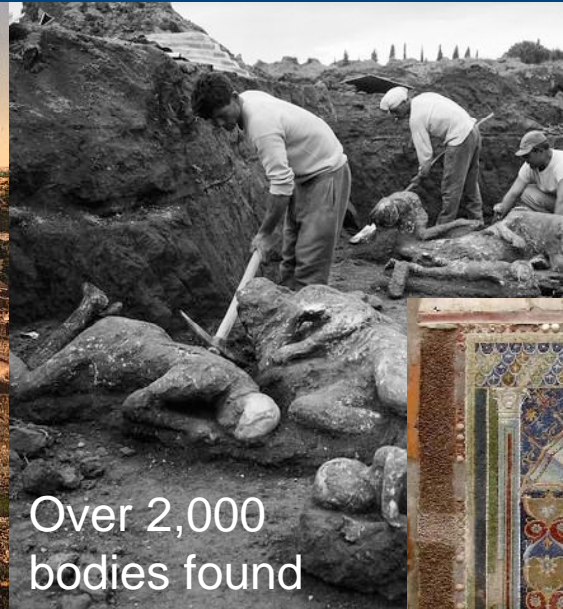


# The Bog People, Denmark (300 BC – Iron Age)

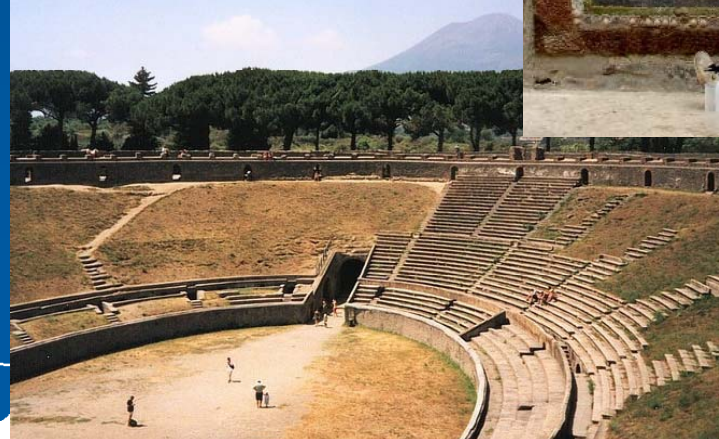




# Pompeii and Mount Vesuvius, Naples, Italy (AD 79)



Over 2,000 bodies found





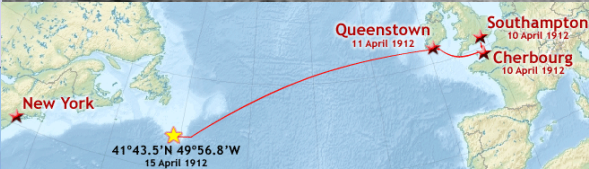
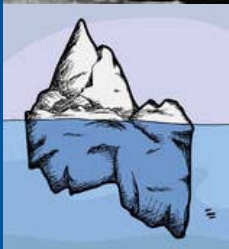
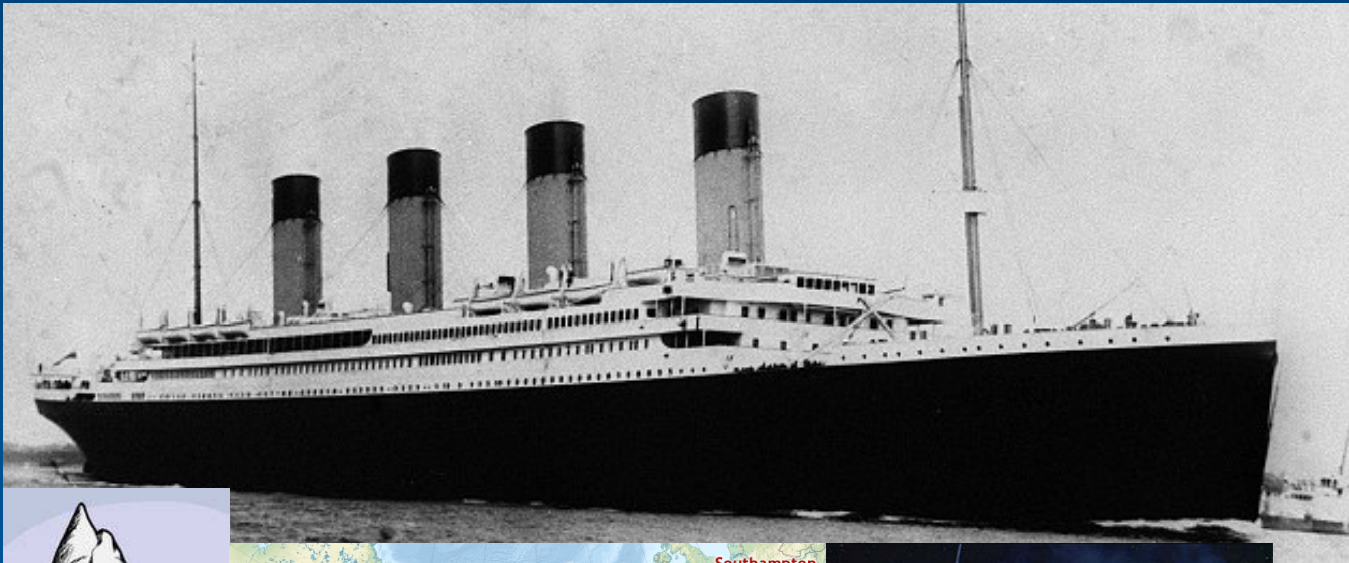
# Inca City of Machu Picchu, Cusco, Peru (AD 1450)







# Wreck of the RMS Titanic (April 15, AD 1912)





# The Archaeological Process

(MB Book pages 35-71, Requirement 2)



- **To be covered tonight:**
  - Site Location
  - Site Excavation
  
- **To be covered at next meeting:**
  - Artifact Identification and Examination
  - Preservation
  - Information Sharing



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# Site Location- Where to Dig ?



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# Site Location

(MB Book page 35, Requirement 2)



- **Sites are selected (or discovered) for archaeological investigation through a variety of methods**
  - Historical references like old newspapers, letters, and maps
    - Example: Wreck of the RMS Titanic
  - Sites are often found “by accident” during modern construction
    - Example: Rail project finds Byzantine merchant ships from AD 700, Istanbul, Turkey
  - Ask the locals !!
    - Example: Minoan city of Gournia, Crete
  - Farmers digging wells or tilling fields
    - Example: Emperor’s tomb with 6,000 terra-cotta soldiers, China
    - Example: Viking treasure and weapons hoard, UK
  - Scouts on hikes !!



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# Site Location: Technology

(MB Book page 35, Requirement 2)



- **Often aided by modern non-destructive technology**
  - Aerial surveys
  - Satellite images
  - Ground penetrating radar
  - LIDAR – Laser Imaging, Detection And Ranging
- **Destructive techniques may also be applied but are not encouraged for obvious reasons**
  - Core sampling
  - Dynamite
  - Bulldozers and heavy machinery



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# Satellite image of Great Pyramids, Egypt



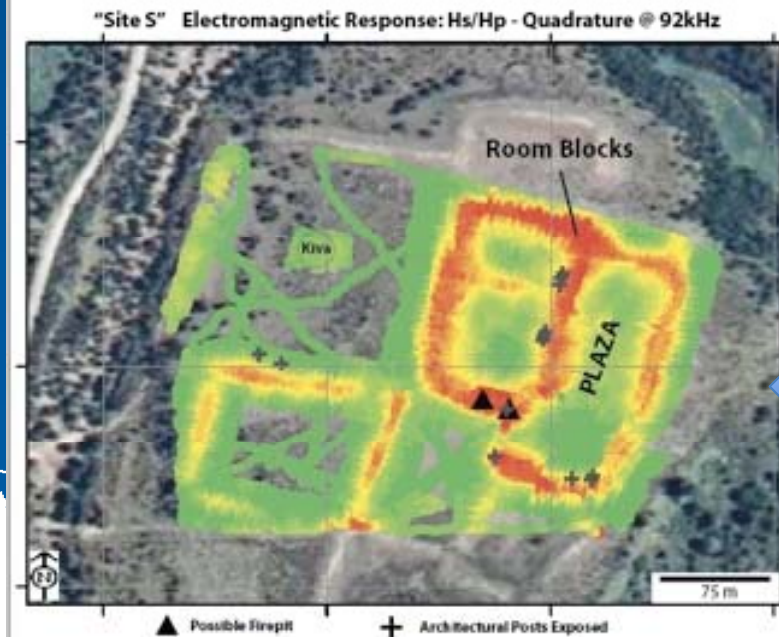
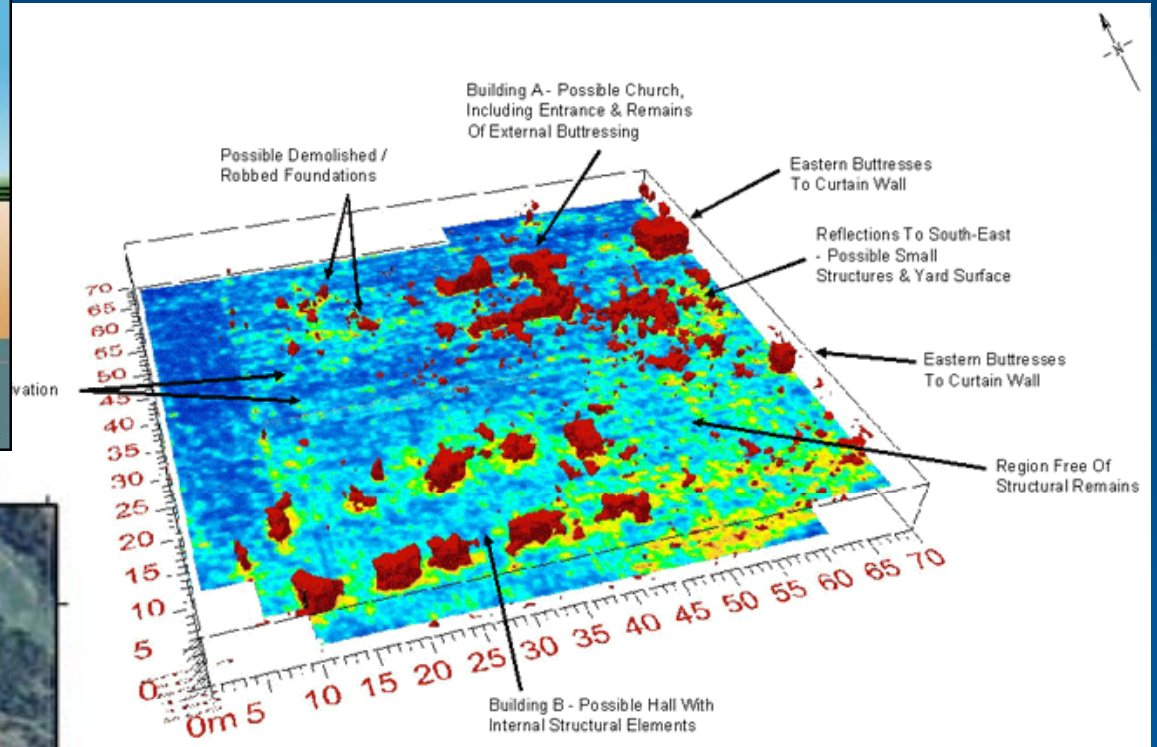
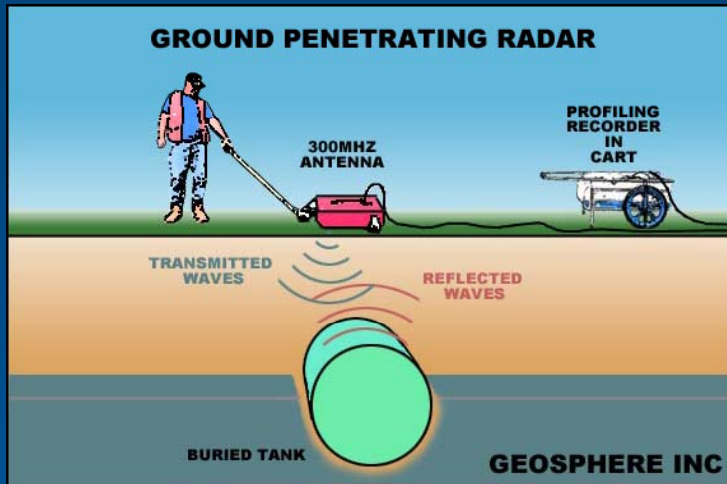


# Zoom-in Satellite Image Behind Great Pyramid, Egypt





# Ground Penetrating Radar



← GPR overlay on top of satellite image

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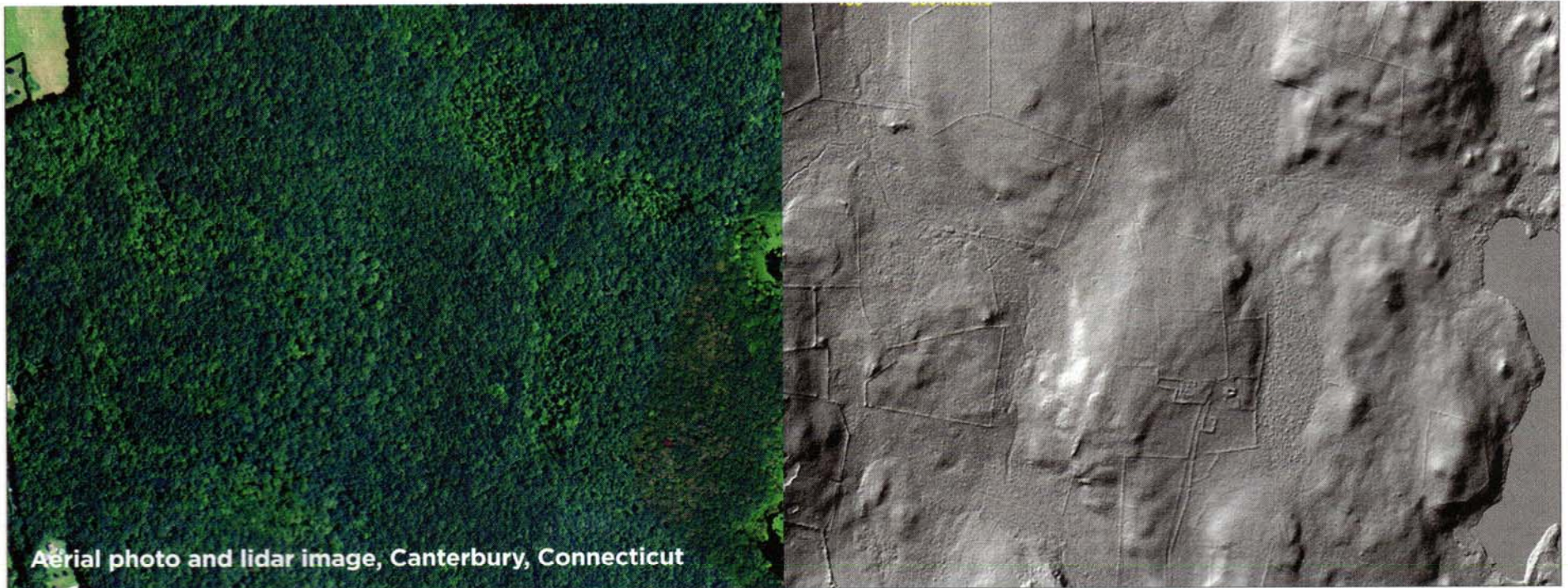




# LIDAR (Laser Imaging, Detection And Ranging)



- LIDAR image penetrates tree cover to show old stone walls, foundations, and roads



Aerial photo and lidar image, Canterbury, Connecticut



# LIDAR (Laser Imaging, Detection And Ranging)



- Marching Bear Mound Group
- Effigy Mounds National Monument, Iowa





# Site Excavation: Sampling Techniques



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# Site Excavation: Sampling

(MB Book page 43, Requirement 2)



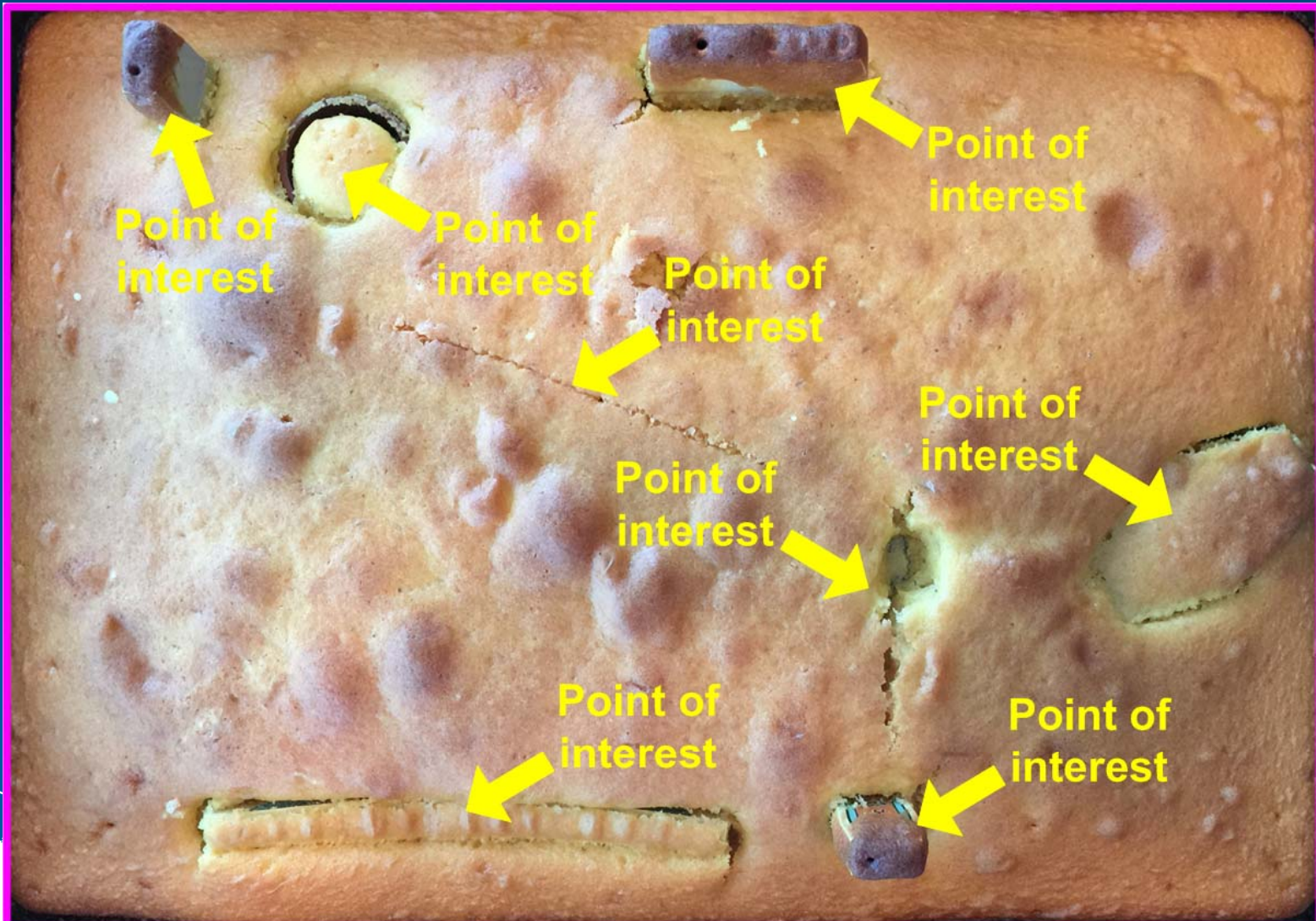
- **Archaeologists rarely have enough time, money and resources to fully excavate a new site**
  - May also want to preserve some areas for future archaeologists who will have better technology
- **A grid system is established to divide the site into blocks for study**
- **Sampling is used to select grid blocks to excavate**
  - Want to select some areas from across the site to not miss anything
  - Can also concentrate sampling in areas with promising points of interest



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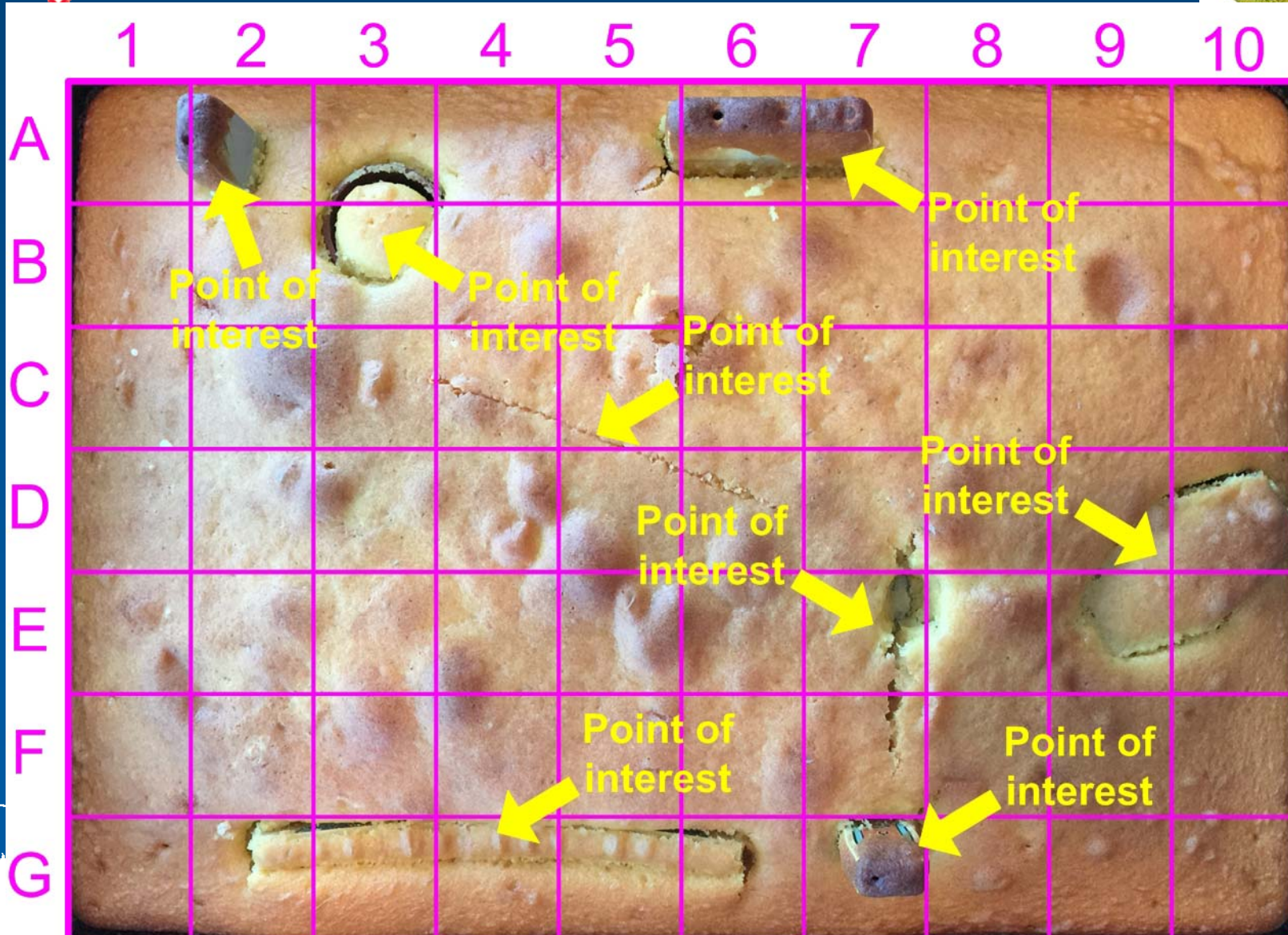


# Site Excavation: Planning





# Site Excavation: Sampling





# Site Excavation: Sampling from Grid



- F8, F9, G8, G9:



- D9, D10, E9, E10:





# Site Excavation: Artifacts



- When archaeologists find an artifact, they dig carefully with special tools and brushes to avoid damaging the artifact
- An artifact is never immediately moved unless it is in danger of damage or theft
  - The artifact's position can provide valuable clues to how it was used, its relationship to nearby artifacts, and for site dating
  - The artifact's location must be carefully recorded on the dig grid
  - Pictures are taken (with a reference stick) to record the position, and detailed drawings or digital/laser scans are also made
  - Each artifact is assigned an identification number and marked
  - The artifact is moved only after all the above steps are done





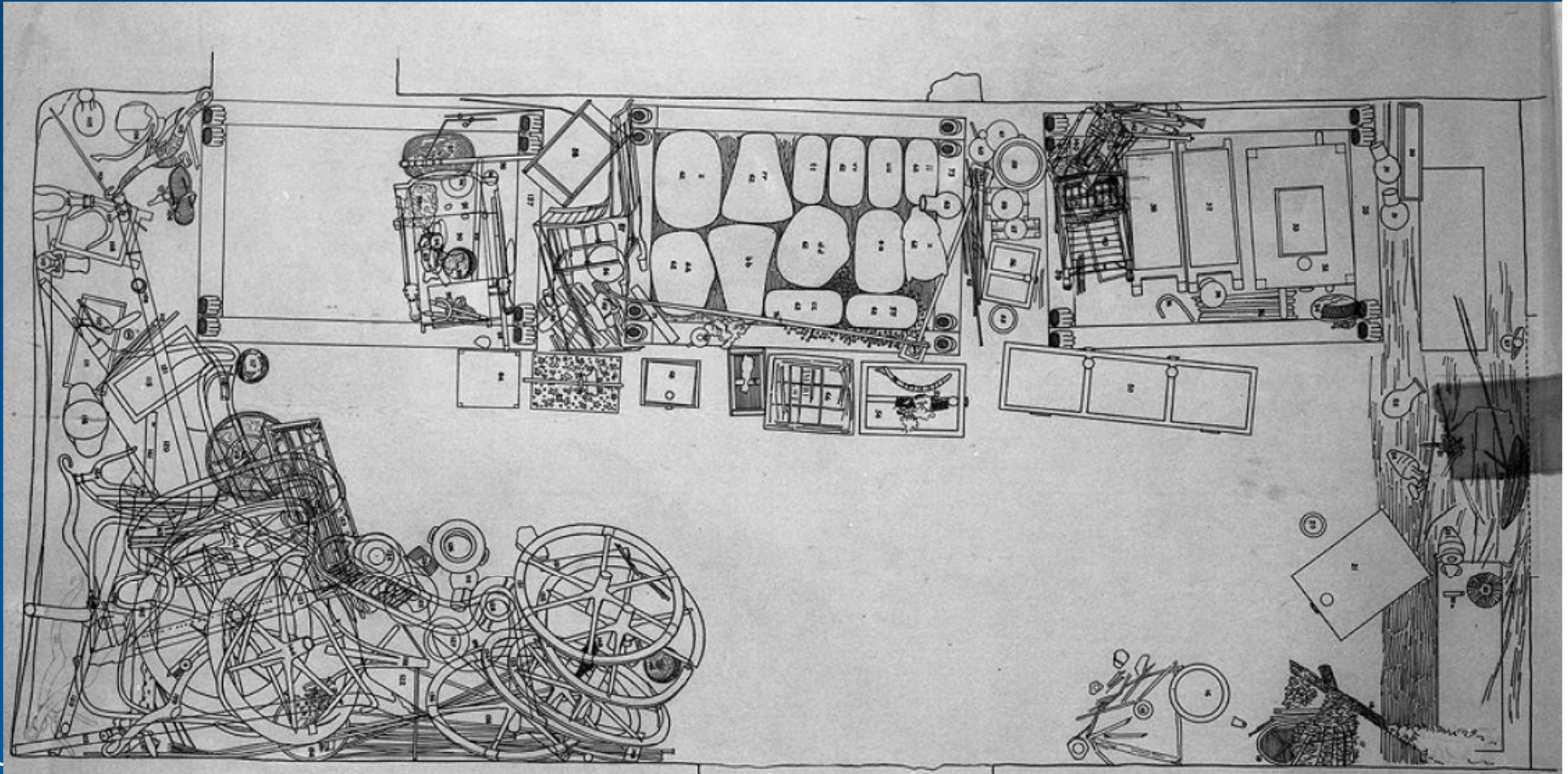


# Site Excavation: Artifact Photograph – King Tut's Tomb





# Site Excavation: Artifact Drawing – King Tut's Tomb



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# Archaeology Mock Dig Patrol Competition – Can You Dig It ?!



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# Mock-Dig Process

(MB Book page 75, Requirement 8c)



- Each patrol will be given a dig site, map, tools, and artifact log
- You will apply sampling to excavate part of the site
  - The site looks suspiciously like a cake – do not eat the soil
  - During excavation, record what you find on your site map and artifact log. Don't move artifacts until they have been recorded.
- Goal is to determine what culture/site you have found and give an approximate date
  - Then sketch out the entire site map based on your findings
- At the end of the meeting, present your site identification, map and key findings to the Troop



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## Mock-Dig Steps and Rules:



- **Step 1: Create a grid system using poles and strings**
  - 13 x 8 = 104 grid blocks
- **Step 2: Look for points of interest and decide on a sampling approach. Explain your approach.**
  - Use stakes to mark 30 grid blocks to initially excavate.
- **Step 3: After approval, start excavating as a team using provided tools**
  - Stay within the grid block, go slowly and carefully
  - Do not move any artifacts until they have been recorded on your dig map. Sift your excavated soil in case you missed something.
- **Step 4: Based on findings, choose an additional 20 blocks to excavate. Explain your approach.**

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## Mock-Dig Steps and Rules:



- **Step 5: Draw your site map based on your findings and try to guess at unexcavated areas**
- **Step 6: Fill in your artifact log recording location and description of every artifact**
- **Step 7: Determine what culture/site you have found and give an approximate date**
  - At the end of the meeting, present your site identification, map and key findings to the Troop
- **After you give your report, you are welcome to excavate the rest of your site**



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