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Excavation Exhilaration

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Grade Level: 4 & Up

Subject(s): Science, Math

Key Terms:

- Archaeology
- Artifact
- Culture
- Evidence
- Excavation
- Feature
- GPS
- Grid system
- Interpret
- Stratification
- Survey
- Test Unit
- Written/Oral History

Florida State Standards:

SC.4.N.1.3
SC.4.N.1.4
SC.4.N.1.7
MA.4.DP.1.3

SC.5.N.1.Pa.2
SC.5.N.2.In.1
MAFS.5.G.1.1
MAFS.5.G.1.2

MAFS.K12.MP.5.1
MA.K12.MTR.6.1
MA.K12.MTR.7.1

Summary:
Archaeology is the study of the material remains left by past communities and typically uncovered through excavations. Students will use materials provided to explore techniques used by archaeologists during an excavation and practice recording data by plotting points on a grid system.

Objectives:
Students will demonstrate an understanding of how and why archaeologists use graphing skills to record site data. Through this activity and classroom discussion, students will understand scientific methods and terminology used by archaeologists.

Materials:

- M & M chip cookies or clay/playdough and colored beads – brown, orange, yellow, green, blue, and red
  - Beads can be substituted for any small item like buttons – it is the color coding that is more important for this activity
- Paper plates
- Plastic toothpicks, popsicle sticks – to be used as excavation tools
- Excavation Grid Student Worksheet (use accompanying pdf), pencils

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Excavation Exhilaration

Background:

Archaeology is the excavation and study of the material remains left by past communities. **Archaeologists** must first gather data on the culture and site they wish to study. **Culture** is the characteristics and knowledge of a particular group of people, including but not limited to their language, religion, diet, social habits, music and arts. Archaeologists learn about a culture and site in different ways. **Written and oral history** are an important source of information for many archaeologists in addition to studying a site in the field.

Excavation is the method that archaeologists use to extract artifacts out of the ground. The work is very difficult and the person doing it has to be detail-oriented. By removing things from their original location, the archaeologist is destroying the very thing they are trying to study. It is also impossible for the archaeologist to know exactly what is under the ground, so they have to be very careful not to damage artifacts they cannot see while excavating artifacts at the surface. Since *where* artifacts are found is just as important as *what* the artifacts are, archaeologists use a **grid system** to identify and record the location, orientation, and size of objects within the given format.

Surveys allow archaeologists to examine and record the features of an area of land so as to construct a map, plan, or description. Surveying is done through the use of evidence, sampling, **GPS**, **test units,** and other techniques, to determine where archaeological research should be done (https://explorable.com/archaeological-methods). While Google maps uses Global Positioning System technology (GPS) to provide users directions, archaeologists record GPS points to accurately record the exact location of objects. GPS is a satellite navigation system used to determine the ground position of an object. Archaeologists studying a site will decide upon the location of test units typically a 1 x 1 meter square area that will be carefully excavated and recorded in great detail. The test units often consist of layers deposited over time. In archaeology, the formation of layers (strata) in which objects are found is referred to as **stratification**.

Procedure:

M & M Cookie

- Pass out the materials to each student.
- Tell the students that they are archaeologists and they have been asked to excavate their artifacts (the M&Ms/chips) from their archaeological site (the cookie) to the best of their ability while keeping their M & M chip cookie intact.
- *Where* artifacts are found is just as important as *what* the artifacts are. Since the process of excavating is destructive, students will need to use a grid to plot the location of each artifact (M&M) as they excavate to preserve that site data. Students will be marking the locations of the chips and M & M's that they excavate on a grid map. Use the Excavation Grid Worksheet (pdf) and go over the instructions on the handout with the students.

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Clay and colored beads

- If you would prefer making this a food free activity, students can be given clay/playdough and beads to create an excavation unit.
- Pass out the materials to each student
- Explain that they will be archaeologists in the field excavating a site, but first they need to *create* their archaeological units.

- Part 1 – Students shape clay to be a 2 ½ - 3 inch square. Students choose beads to put into the clay/playdough and it is left to dry. Make the square thick enough so that some of the beads can be hidden from sight.
    - Opting to start activity the same day or to let the clay dry overnight should not affect the activity
- Part 2 (Day 2) - Students exchange their "archaeological unit" with another student for them to excavate.
- Students will mark the locations of the colored beads that they excavate on a grid map. Use the Excavation Grid Sheet (pdf) and go over the instructions on the handout with the students.

Allow enough time for students to excavate and complete their grid and questions.

Review questions on the student worksheet.

Additional Questions:

- How many students were successful in excavating chips and M & M's from their cookie?

  OR

- How many students were successful in excavating beads from the clay/play dough unit?
- What problems did they encounter excavating the items?
- Did the students run into problems determining how many chips/M & M's were in the cookie?

  OR

- Did the students run into problems determining how many beads were in the clay/play dough?

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Key Words:

- Archaeologist – Scientist who studies archaeology *(Theresa Schoeber was the lead archaeologist for the excavation at the Mound House.)*
- Archaeology – The study of people and cultures from the past through material evidence
- Artifact – An object made by a human being, typically an item of cultural or historical interest to archaeologists
- Culture – A pattern of behavior shared by a society, or group of people; Made up of things like food, language, clothing, tools, music, arts, customs, beliefs, and religion *(At the Mound House, archaeologists studied the Calusa and other people who lived on the Mound after the Calusa were gone.)*
- Evidence – Something that proves that something exists or is true *(The Mound House site is higher up above sea level than other places on the island, suggesting this site was likely built up by humans living here long ago.)*
- Excavation – A place where archaeologists expose, record, and process research; scientific digging *(The Mound House pool excavation took 2 ½ years from 2006 – 2008.)*
- Feature – An immovable element of an archaeological site usually showing evidence of structures created or modified by humans, such as building foundations, wells, agricultural terraces, pits, and post holes
- GPS – Global Positioning System; a space-based satellite navigation system that provides location and time information in all weather, anywhere on or near the Earth *(GPS is used by archaeologists to define boundaries and locations at a site.)*
- Grid (archaeological) – A design that breaks a section of ground into small squares, usually marked with rope or string
- Interpret – Explain the meaning of
- Oral History – An account of something passed down by word of mouth from one generation to the next
- Stratification – The building up of layers of deposits; the layers are called strata *(The Mound House pool excavation revealed layers of stratification representing periods of building and living by the Calusa.)*
- Survey (archaeological) – A type of field research by which archaeologists search for archaeological sites and collect information about past human cultures across a large area *(Archaeologists conducted surveys at the Mound House to look for evidence of the Calusa culture.)*
- Test Unit (archaeological) – Typically a 1 x 1 meter square area that will be carefully excavated and recorded in great detail *(Due to the size and shape of the pool excavation at the Mound House, the test units are 1 x 2 meter rather than the typical 1 x 1 meter square.)*
- Written History – An account of something based on a written record or other documented communication *(Spanish documents refer to the Calusa people living along the estuaries of Southwest Florida.)*

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Excavation Activity Worksheet

Excavation Site

	A	B	C	D	E	F	G	H	I	J
1										
2										
3										
4										
5										
6										
7										
8										
9										
10										

Grid Map

	A	B	C	D	E	F	G	H	I	J
1										
2										
3										
4										
5										
6										
7										
8										
9										
10										

1. Place your archaeological unit in the middle of the Excavation Site grid. Do not move it from this spot.
2. Find the following coordinates of your archaeological unit on the Excavation Site to plot the outline of your site on the Grid Map. Record the outline plot points below:

Top: _____ Bottom: _____

Left side: _____ Right side: _____

3. Transfer these coordinate pairs to the Grid Map and sketch the perimeter of your archaeological unit.
4. Plot the “artifacts” (M&M’s, chips, beads, etc.) on your Grid Map as you excavate them.
5. What problems did you encounter trying to excavate the “artifacts”?

_____

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Not only do archaeologists look at what they uncover, but also how many of each artifact. How much of something is found at a site can tell you a lot about the people who once lived there.

Add up the number of colored chips/M & M's or beads to determine the quantity of any one item. Fill in the blanks below.

	Quantity
1. brown chip/bead = shellfish	_____
2. orange chip/bead = shell tool	_____
3. yellow chip/bead = pottery sherd	_____
4. green chip/bead = charcoal	_____
5. blue chip/bead = fish bone	_____
6. red chip/bead = mammal bone	_____

Which item was the most abundant in your excavation? _____

What can you tell about how the people lived, what they ate, and what they made by looking at the items you have excavated?