

Big Square, Little Square: Using Grids in Archaeology

Overview

Archaeologists organize digs with square pits. (See "Squares Everywhere" lesson plan in Additional Activities.) As scientists, archaeologists need to keep precise records of where artifacts were located within the large square. So archaeologists break the large squares into smaller squares by mapping the pits on a grid. This lesson has students examine why archaeologists (and cartographers) use grids. Students also play a game to practice naming squares on a grid.

Objectives

Students will:

- investigate the importance of grids in map-making
- locate artifacts on a grid
- practice naming the coordinates of squares on a grid

Core Standards of Kit

- 2.2 Problem Solving Process
- 6.4 Historical Connections
- 6.6 Being a Historian

Additional Standards

- 1.17 Notation and Representation
- 6.7 Geographical Knowledge

Age Level

Grades 4-12 / Ages 9-18

Time

1 hour

Materials

- transparency with hand-drawn map of classroom (blank in kit)
- transparencies with horizontal and vertical lines
- "Archaeology Bingo" packet with game boards, cards, and chips

Background

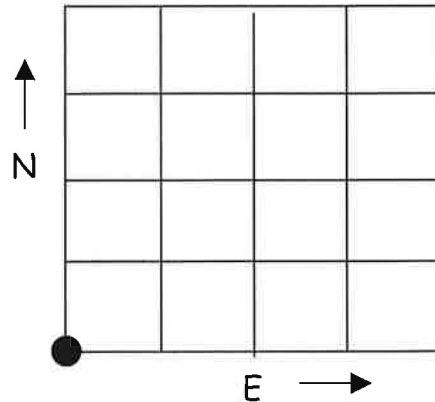
Once archaeologists have established the large square, they use more squares to create a grid system for mapping the artifacts found within the pit. The maps are important for recording the context, especially the surrounding artifacts and features. This lesson looks at the importance of the grid and the naming of the individual squares.

The first part of this lesson is adapted from "Locate an Artifact" in *Project Archeology: Saving Traditions* by Nan McNutt.

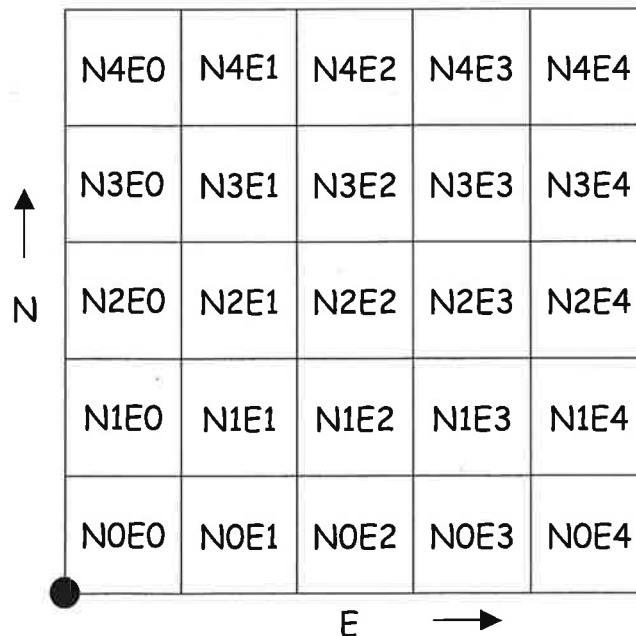
Procedure


1. Before class starts, quickly draw a map of your classroom on the blank overhead transparency found at the end of this lesson. It is not necessary to measure distances or objects. However, the map should be oriented to an axis with the southwest corner of the classroom in the bottom left hand corner of the transparency.
2. In class, project the map of the classroom onto the screen. Ask students to describe objects in the room based on their relative location to each other. For example: *The teacher's desk is next to the hallway door.* Do students think this is a precise method for locating artifacts?
3. Ask the students to think of ways to describe the location of artifacts without using other artifacts. For example: *The reading corner books are in the northwest corner of the room.* Do students think this is a precise method of locating artifacts?
4. Place the transparency with vertical lines on top of the map. Do these lines help define the location of the objects in the classroom? The map may indicate that the overhead projector is located on the 6th line over, but not whether it is located on the top or bottom of the page.
5. Remove the transparency with vertical lines and replace it using the transparency with horizontal lines. Again, ask if these lines help define the location of the objects in the room. Like before, these lines help indicate only one set of directions at a time.
6. Combine the two transparencies over the map. The lines will create a grid system. Does this help with describing the location of the objects in the room? If necessary, introduce the term *grid*.

7. Remove the two transparencies and replace them with the single transparency covered with the grid. Locate the bottom left corner of the grid. Label this as the origin point, the point from which all measurements will be made and named. Everything on the classroom map should be to the north and east of this point.



8. Ask the students to think about how a grid would help an archaeologist. Does a grid make the mapping of a site more scientific? If the students were going to grid a 1-meter x 1-meter square, where would they place the grid lines? Every 10 centimeters creates 100 equal small squares.
9. Introduce the concept of naming the squares of the grid. The rows and columns are numbered starting from the origin (N0 and E0). Practice naming squares to describe the locations of objects on the map.





(Depending on their age or grade, the students may be familiar with the naming of points on an axis. This is another use of a grid. However, in archaeology, the focus is on the squares, not on the intersection points.)

10. For additional practice with naming squares, remove the map and draw other artifacts on the grid transparency. For a fun review, allow students to play Archaeology Bingo in small groups.
11. Please wipe the map of your classroom off the transparency to prepare the kit for the next teacher.

Archaeology Bingo

This game is a variation of the standard game of Bingo. Each student has the same game board with a coordinate system. The kit contains supplies for a group of 6 players. This game differs from traditional Bingo in that only the player who draws the card can place a bingo chip over the named space.

To Play:

- Each player takes a game board. Note that the coordinates are based on an origin point in the bottom left corner of the board.
- Take a few bingo chips.
- The cards should be in a pile with the coordinate side face down.
- The first player draws the top card. The player must find the square with the coordinates listed on the card and mark the square with the bingo chip. Other players should help check that the correct square is covered. The card should be placed in a discard pile.
- Play continues around the circle, with each player drawing only one card per turn. *Only the player who selects the card can mark the square with a bingo chip.*
- If the cards run out, shuffle and return the whole pile to the game.
- The first player to get five in a row wins.

Evaluation

Make sure that students can name coordinates in a variety of situations, such as naming the squares on a road map or on a chessboard.



What Next?

This lesson prepares the students for the "Excavating Vermont Game" where they must map artifacts on the corresponding square of the grid.

Students have learned one use for a grid system. In the "Shrink the Axe" lesson in *Additional Activities*, students use a grid to maintain scale on a map or artifact drawing. Continue with another *Principles of Archaeology* lesson or proceed to the artifact activities.

