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This lesson was created by a teacher participating in a Wisconsin ESEA Improving Teacher Quality grant entitled Inquiry Based Technology-Mediated Teacher Professional Development and Application.

- Title: What a site!
- Submitted by: Barbara Bauer
- Grade Level: 4th
- Subjects: Science, Math and Language Arts
- Objectives: In their study of gridding a site, students will use the Cartesian coordinate system to:
1. Establish a grid given the tag board land area
 2. Place the objects on the tag board land area and then map them on their group map
 3. Photograph the site (tag board grid) and journal notes
 4. Exchange group maps with others and have them reconstruct how the objects were placed on the tag board map and journal notes
 5. Photograph the site again
 6. Compare and contrast the photographs and discuss results
- WI Standards: -Math A.4.2, A.4.3, A.4.4, C.4.4, D.4.1, E.4.1
-Science A.4.3, A.4.5, C.4.2, C.4.4, C.4.5, C.4.6
-Language Arts C.4.1, C.4.2, C.4.3
- Duration: 1 hour
- Materials/Supplies: -Tag board with grid lines marked
-Small grids
-Digital camera
-Lots of items around the classroom to map
-Rulers and compass
- Vocabulary: -Datum - something to use as a base for measuring
-Site datum - the master control point on an archaeological site into which all measurements are eventually tied.
-Cartesian coordinate system - two to three dimensional graph based on

intersecting, perpendicular lines

-Grid unit - the specific special area on the Cartesian coordinate system, designated by the coordinate in one corner, (generally the southwest corner)

-Artifact - any object made or used by humans

-Context - the relationship artifacts have to each other and the situation in which they are found.

Background:

Once a site has been dug (or in the case of sites with no depth), and the artifacts have been removed, the site is gone forever and can never be replaced with another like it. Because sites are destroyed during the collection and excavation process, archaeologists record the site on paper to preserve the context of all the artifacts and structures. Archaeologists can look back at maps, notes, photographs, drawings and the artifacts to study a site that was excavated long ago.

One way archaeologists preserve context on paper is through the use of a rectangular grid, or the Cartesian coordinate system. The first step in the excavation process is to establish a grid. Site datum is set at a location that is permanent and is designated as (0,0). Two perpendicular axes intersecting at the site datum are then established and an invisible rectangular grid is superimposed over the entire site. Each square on the ground is marked with numbered stakes in the corners so that each square has a unique "name" referred to by its coordinates. The coordinates indicate the distance of a given point north, south, east, or west from the site datum.

Once a grid is established, all artifacts and structures are measured and recorded using the system. Before excavation actually begins all artifacts visible on the surface are collected and locations on the grid are recorded. As the excavation proceeds, materials found under the surface are similarly recorded and collected. When the archaeologist returns to the laboratory, the maps and the data recorded in the field can be used to make inferences about past events and the life ways of the sites inhabitants. The exact location of each artifact transported back to the laboratory is known and the object can be tied back to its place in the site.

Setting the Stage:

My students have already done a mapping unit and learned about maps, directions, map coordinates and latitude and longitude. This will be a perfect activity to include in our mapping unit or in math when we work on coordinates. We have played Battleship with coordinates too.

Procedure:

1. Explain the use of the tag board grid map and the smaller group grid map include: how to place the objects, determine and record the scale and a placement of the north arrow.

2. Have the students select items that would be found on their site from inside the classroom, their desk area, or some artifacts that you may have from the study of Pre-historic European people.
3. Write a few notes on why these items were placed together in this site.
4. Place the objects selected on the tag board grid
5. Map the objects on the group maps using a key or legend to help identify each of the items.
6. Photograph the tag board map with the items on it and then remove the items.
7. Exchange grid recording sheets with another group. This group tries to reconstruct your site according to the coordinates on the map given.
8. Photograph the site again and share photographs and notes.
9. Group discussion on mapping problems? What they learned and what they liked about this lesson. Complete the worksheet on the site

Closure:	Summarize the importance of archaeological record keeping. Re-discuss the importance of mapping, photographing and writing observations down to keep the past alive and accurate. Compare the photographs using PowerPoint or digital images projected together. Note differences. Compare to Wisconsin desk maps or to the map of the world. Students can come up with similarities and differences. (Students in the past suggested the grid system was the same and the continents and oceans were like the artifacts. They noted the necessity of mapping for navigating waters, etc. Latitude and longitude can tell exactly where something is and so does our grid map.)
Evaluation:	<ol style="list-style-type: none"> 1. Discussion 2. Mapping Activity Sheet and map 3. Student writing or journaling about their artifacts and the artifacts of others
Links/Extension:	We could map the playground setting up a huge grid in maybe 1m x 1m sections and locate the playground equipment on it. Then, we could analyze our information and draw some conclusions based on this information. There are more structures on the first, second grade playground---why? Etc.
References	<u>Intrigue of the Past</u>

WHAT A SITE!

Mapping is an activity that archaeologists use to show dimensions and locations of artifacts within a feature, test pit, or site. Details are necessary to put the whole picture together-the relationship of items and possibly to infer what this area was used for.

1. List the 5-6 items found at your site.
2. What could each of these items have been used for?
3. What could you know about your site from these artifacts?

You do this!

Place your items on the large tag board map. Put them so that these artifacts tell a story about what the site was used for. Photograph your site because archaeologists always photograph the site, and then map it on your small site map. Remove your items and place them at the side of your site map.

Have another group use your site map, small map and place the items back on the original site map. (large tag board map) and photograph the new map with the items on it.

Now answer these questions:

1. Compare/Contrast the two photographs
2. List things you notice that are the same:
3. List things you notice that are different:
4. Draw some conclusions about the maps.
5. If you were archaeologists list three reasons why careful mapping is so important.