Excavating Vermont Game

Overview

"Excavating Vermont" allows students to experience the work of archaeologists at a fictional site in Vermont. Students will plan, excavate, record, and interpret a site. By having different groups of students play the game, the class can compare conclusions that they make based on the different squares "excavated." This fictional site is located beside a highway, which runs parallel to a creek.

This game is the culminating activity in this kit. It requires that the students understand archaeology, object analysis, and general time periods in Vermont history. For best results, students should have completed the "Cultural History Mystery," "If Pennies Could Talk," "What is a Tool?" and "Last In, First Out" activities, and watched the "Rich and Ancient Heritage" video before playing the game.

Explain the importance of handling artifacts carefully, just as archaeologists and museum professionals do. While none of the artifacts in this kit have monetary significance, many are irreplaceable. *You can help by giving each group only one bag at a time, so that all of the pieces stay together.*

Core Standards of Kit

2.2 Problem Solving Process
6.4 Historical Connections
6.6 Being a Historian

Additional Standards

3.10 Teamwork
4.5 Continuity and Change

In addition, the field report activity at the end of the game assesses Standard 1.8 Writing Reports.

Age Level

Grades 4-12/Ages 9-18 (provided that students have a previous understanding of archaeology from other lessons in the kit).

Time

Your class will need a minimum of two hours to complete the game. The game can be extended by increasing the amount of squares you allow each group to "excavate." If the field report project is included, it can be expanded into a two-week research project.

Materials

In "Excavating Vermont" Box A, you will find:

- **28 artifacts bags** (one bag for each square on the grid). These plastic bags represent artifact bags that would be assembled at a site during a dig. When the students select a square to dig, they receive the corresponding artifact bag. Each bag represents one square from the grid, 6 feet deep. Inside each plastic bag, students will find five cards, one card for each level. Written on one side of the card are the square number and the level number. The reverse side has any information about soil disturbances and indicates where the artifacts, if any, were found. All of the information on the reverse side of the cards needs to be drawn on the overhead transparency sheets using the overhead markers. Artifact locations are identified with an "X." Students should name the artifact on their map, so it can be interpreted in context after the digging round is completed. Please help students return the correct artifacts and correct cards to the bags. If the cards get mixed up, the site cannot be interpreted.

In "Excavating Vermont" Box B, you will find:

- **Twenty overhead markers** in five different colors. Students will use these to record their findings on the overhead transparency grids (in the Excavating Vermont" folder). Each color represents one level. Level One should be **black**, level Two **purple**, level Three **blue**, level Four **green**, and level Five **red**. Therefore, everything drawn by students on one sheet in one color represents one two-foot layer of the site.

In the "Excavating Vermont" folder, you will find:

- **Game Bag Contents list**. Use this to ensure that all artifacts are in the bags.

- **Four sets of blank overhead grids** (five in each set). The five overhead grids show how the archaeologist excavates in levels. The levels in the game are each two feet deep (except Level One, which is the surface layer). In reality, the levels would usually only be about 5-10 centimeters deep. Students will record what they find in each square on the five different grids. Each group will get one set to record their findings.
- **One set (five sheets) of answer key overheads.** Use these after the students have presented their findings for discussion.

Background

Students should be reminded of some archaeological realities, which they have already learned about in class, before they play the game.

It is important that students handle the artifacts carefully, just as archaeologists and museum professionals do. While none of the artifacts in this kit has monetary significance, many are irreplaceable and very small.

Archaeologists dig methodically in a carefully laid out grid (students may have already completed the classroom grid lesson). Each of the sections of the grid is called a square, even though it is not always an exact square. Each of these squares has layers called levels. According to the principles of stratigraphy (students may have already conducted the stratigraphy lesson), older material is generally deeper in the ground than more recent artifacts. For example, one would find a site from the Woodland time period (300 A.D. to time of contact with Europeans) underneath a site from the 1850s. But soil disturbances, like wells and postholes, can cause artifacts to settle lower into the ground. Soil features are important clues that indicate some cultural disturbance. Postholes and fire hearths are common disturbances that provide important clues.

Some time periods are associated with diagnostic artifacts. For example, a fluted projectile point in a site tells the archaeologist that the time period is the Paleo period (10,000 B.C.E. - 7,500 B.C.E.). Pottery and evidence of farming are from the Woodland period (300 - 1600 A.D.), while glass or metal indicates that the site dates from the time period after contact with Europeans (around 1609 A.D. in the northeastern United States).

The game site is not a real archaeological site in Vermont. It combines many elements and eras that are often represented in Vermont, so that students get a broad overview of different artifacts and land elements that archaeologists in Vermont often encounter, and a broad overview of time. The fictional site is located beside a highway, which runs parallel to a creek. (The creek runs in a north-south direction to the west of the site.) The site measures approximately 30 feet by 42 feet. Each "square" is 6 feet by 7 $\frac{1}{2}$ feet. In an actual dig, the squares would be much smaller. The large squares in the game allow students to examine a large site.

The students will only be allowed to "dig" a certain percentage of this simulated archaeological site. (You as the teacher can decide on the percentage beforehand, based on the amount of time you will be devoting to the activity.) This is normally the situation at a real dig -- a site is almost never entirely excavated. Some constraints are time, money, and personnel, but of greater importance is the preservation of part of the site for future studies. As archaeological expertise increases, new ways to study the past are constantly being developed, and future analyses of the site are likely to yield important clues.

Because they seldom excavate an entire site, archaeologists must use a sampling strategy to decide where to dig. Usually the goal is to sample the whole site to try and determine who lived there, when they lived there, and how they lived. Or they may decide to concentrate their efforts on the one section of the site that they believe will yield the most evidence. Before they dig, they carefully look at the site for clues. Hills, craters, trees, and rivers are just a few of the features that may help an archaeologist determine where people may have lived in the past.

Procedure

This game works best with sixteen or fewer students. There are enough transparencies and markers to have four groups participate at once (by handing out the squares on a first come-first served basis).

1. Pre-game notes

   The following important details should be listed on the classroom board or in students' notebooks.

A. Use only the provided overhead transparency markers on the transparencies. One color marker should be used per map: black on Level One (surface), purple on Level Two (0-2 feet deep), blue on Level Three (2-4 feet deep), green on Level Four (4-6 feet deep), and red on Level Five (6 feet and deeper). The marks can be removed with a wet paper towel.
B. Each layer is two feet deep, except for Level One, which is the surface of the ground.
C. The site is situated beside a creek, which runs from north to south to the west of the site.
D. Each overhead transparency represents a different level of the dig.
E. The sampling strategy may be changed if the majority of the group agrees.
F. On the cards, one inch equals approximately three feet. For the grid you are drawing, one inch equals approximately four feet.
G. Dark soil is important evidence. It may indicate postholes, storage pits, house frames, wells, etc.

2. Students should be assigned roles such as: a mapper for each of the four levels, a runner to deliver artifact bags from teacher to group, a packager who makes sure the bags are properly re-packed, and a note taker who records their conclusions.

3. Students select their sampling strategy. Decide how many squares each group can "excavate" based on the amount of time you have. Then explain to the students how this will translate into percentages. For example, excavating 25% of the site would mean seven squares. This can be as complicated or as simple as you desire. Archaeologists must approach a site with a sampling strategy in mind. Perhaps the best way to get students to think this through is to ask each student to draw a grid on a piece of paper, five squares by five squares. Tell them to color any five squares that best cover the whole twenty-five. Some may draw a line diagonally, some may use multiples of five, or some may select squares randomly. "Real" archaeologists use all of these methods, too. Draw several of the students' answers on the blackboard and have the class arrive at a consensus of which pattern would be best to use.

As different groups play the game, it would be instructive to have them choose different strategies and see how this affects the artifacts and then, of course, their interpretation of the site.

Once the game starts, you may allow students to change their minds about the strategy, but it would be best to have group consensus on the decisions. Often students find a "hot" area and are willing to drop the original plan to concentrate on the area of interest intensively. Whether or not that was a good idea can be determined during the follow-up discussions.

4. Students "excavate" the site by choosing one square at a time. They tell the teacher which site they have agreed upon, and receive from the teacher the corresponding artifact bag.

5. The five level cards and any artifacts are briefly examined and recorded by the group. The mapper should copy the information from the cards onto the transparencies on the appropriate levels, using the appropriate colors. Students may need to be reminded that dark stains in the soil are important clues about disturbances such as postholes from buildings, fire hearths, storage pits, etc. The runner must return the artifact bag before receiving the next one.

6. After all squares have been opened and mapped, students begin their interpretation of the site. Using the soil features and artifacts, they should try to determine:
    - Who lived at each level?
    - When did they live there?
    - How did they live?
    - What evidence led you to this conclusion?

    The note taker records the group's answers to present to the class. Depending on the number of squares and which squares they picked, the groups may not have received enough information to interpret the site correctly, but that's OK. This gives them the sense of the detective work that all historians must undertake -- piecing together available evidence to create a story of the past.

Place all five maps on top of each other in the proper order (Level Five, mapped in red, goes on the bottom and is deeper than six feet; Level Four, mapped in green, goes next and is 4-6 feet deep; Level Three, mapped in blue, is 2-4 feet deep; Level Two, mapped in purple, is 0-2 feet deep; and Level One, mapped in black, is the ground surface). Students can now see how the whole puzzle fits together.

7. *Presentation:* Have the groups present their findings (With older students, you may want to have them prepare a written field report.) If there are two or more groups, have them compare answers. Have students consider that different interpretations happen in "real" archaeology, too.

8. After they have presented the findings, use the answer key overheads to show the complete maps. How accurate were their interpretations?

   Level One: Modern Era, surface. This is a modern site at the side of a small paved road. If it were a major road, there would have been a thick layer of fill to create the roadbed. The eastern side of the site is covered with asphalt and the gravel roadbed. The road sign is still in the ground in square 17. (It will be removed for the dig.) All of the artifacts are litter from passing drivers. Notice that the heaviest artifacts tend to be farther from the road because their weight carries them farther when they are thrown. Also notice the high incidence of plastic artifacts in this layer.

   Level Two: 1927 flood layer. This distinctive layer of dark soil and debris is from the destructive Vermont flood of 1927. The artifacts are a somewhat random assemblage of debris washed away by the flood. The heaviest artifacts (glass, hinge, sap tap) were deposited closer to the creek, while the lightest artifacts (coal and pieces of flooring) were deposited farther east, close to the high water mark. Artifacts such as the flooring and the hinge indicate the destructive force of the flood, as do the personal effects, like the earring, key, and ceramic animal. Coal is not naturally occurring in Vermont, but was used to heat homes. The sap tap is an artifact associated with Vermont; it is used to tap maple trees for sap to make maple syrup. The earring has a screw backing which was common in the 1920s. The pennies are examples of *terminus post quem;* the date on the pennies

indicates that this layer was deposited on or after that date. The posthole from the road sign intrudes from Level One.

Level Three: Early settlement (mid-19th century). This was a small, simple log cabin with a granite slab for a doorway. There is a field stone foundation in the trench. There was a brick fireplace at the north side. Nails remain from the cabin. The garbage next to the east wall was probably thrown out the window. The beads suggest sewing activities. The marbles and the china doll suggest children. There is a well lined with fieldstones in squares 20, 21, 27, and 28, which goes through all of the lower levels; garbage has been thrown down into it. There was an outhouse in squares 6 and 7; it was deeply dug by the owners, and intrudes into Levels Four and Five. The posthole from the road sign intrudes from Level One. DIAGNOSTIC MATERIALS: GLASS, METAL, CHINA.

Level Four: Archaic (7,500 B.C.E. - 300 A.D.) This level probably dates from late in the time period because of the presence of semi-permanent housing. There was a circular house, roughly eighteen feet in diameter, as indicated by the postholes. A fire hearth with charcoals and nutshells in the center of the house (squares 19 and 20) indicates cooking. A laboratory analysis might help determine what was burned and cooked in the pit. There was a storage pit to the west of the house in squares 4 and 5. A bone fragment indicates that the pit was used for food storage. A post-dig lab analysis might help determine what kind of animal it came from. There was a possible flintknapping station in squares 8 and 9. The well in squares 20, 21, 27, and 28 is from the historic site above, as is the bottom of the outhouse in squares 6 and 7. Ceramic sherds in square 6 are from the 1927 flood era, when they were deposited into the outhouse. DIAGNOSTIC ARTIFACTS: PROJECTILE POINTS.

Level Five: Sterile soil. Archaeologists stop digging when they reach soil that appears to be undisturbed by humans – this is called "sterile soil." The bottoms of some features from upper levels intrude. Crockery sherds and nail artifacts in the bottom of the outhouse pit are from the Early Settlement era as are the glass and nails deposited in the bottom of the well.

Evaluation

Engage the class in a discussion that helps them to draw some conclusions about their "excavated" archaeological site from the clues that they discovered:

- What clues were "give-aways"?
- What clues could not be interpreted?
- What other clues might have made it easier to interpret the site?
- Is dark soil more or less useful than the artifacts?
- What kinds of objects did people use on this site? (such as clothing, food, weapons, etc.) Why didn't students find these artifacts in the dig?
- How did the sampling strategy work? Did the group stick to the original plan? Should they have? Would another plan have worked better?
- What were some of the similarities between the different levels? What were some differences?
- Why is it important for students and amateurs to leave archaeological sites undisturbed, so that they can be dug or excavated by professionals only?

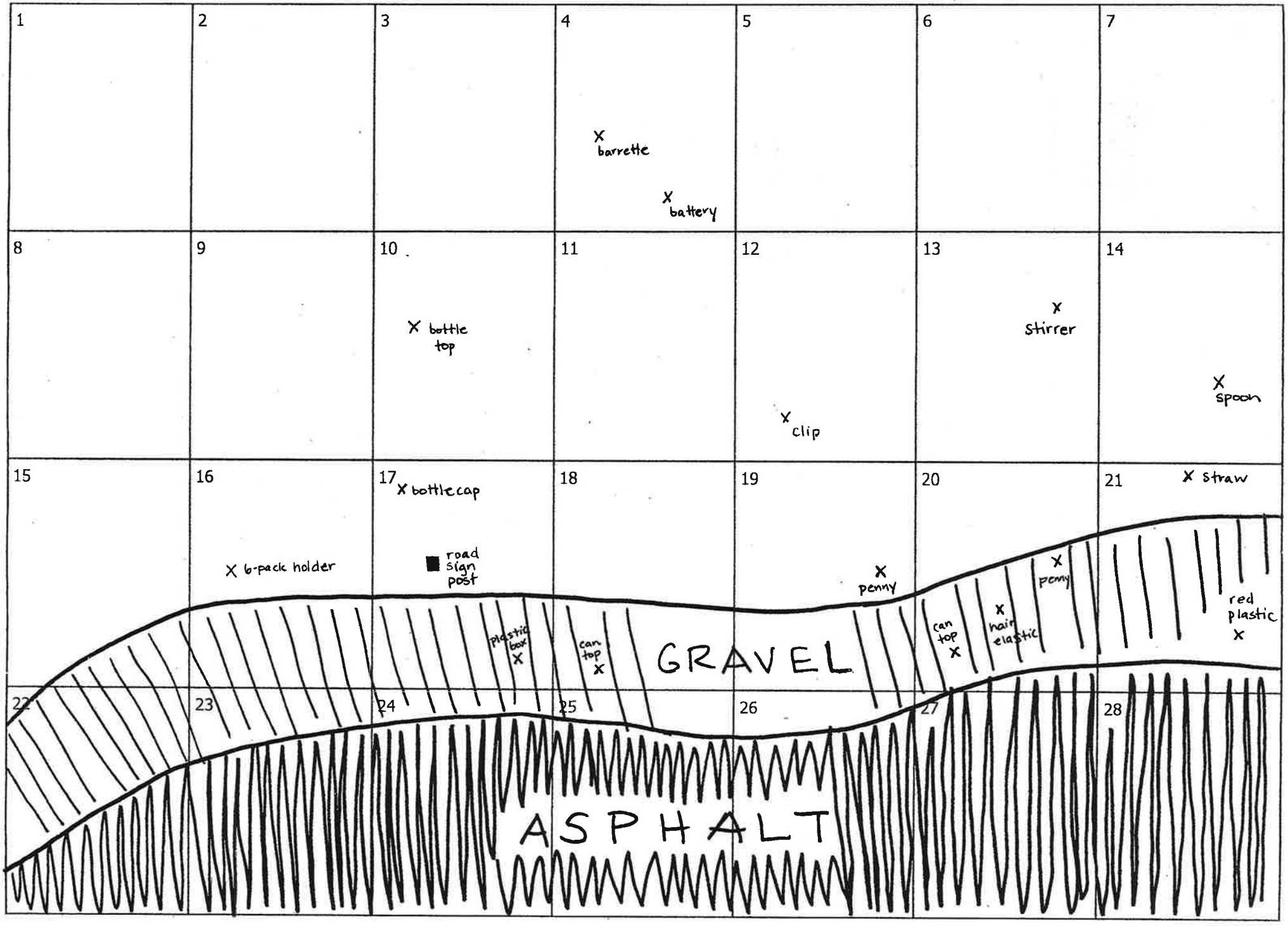
Please make this game easy for the next class to use. Using a wet paper towel, wipe the overhead transparency sheets clean. Check to see that the artifacts are in the proper bags.

What next?

Field reports: Have students prepare a field report on their findings from this fictional site. Using their knowledge of archaeological practices, students can create the details of the dig. The sections of the report should include Setting, Materials, Procedure, Findings, and Conclusions. For a more detailed outline of a field report, look in the reference section of the teacher's guide.

Putting it in Context: Have students conduct research on the different eras in Vermont history represented in this dig, including the 1927 flood, the early nineteenth century and the Archaic period.

Level 1 *Surface– modern* West ↑ **ANSWER KEY**



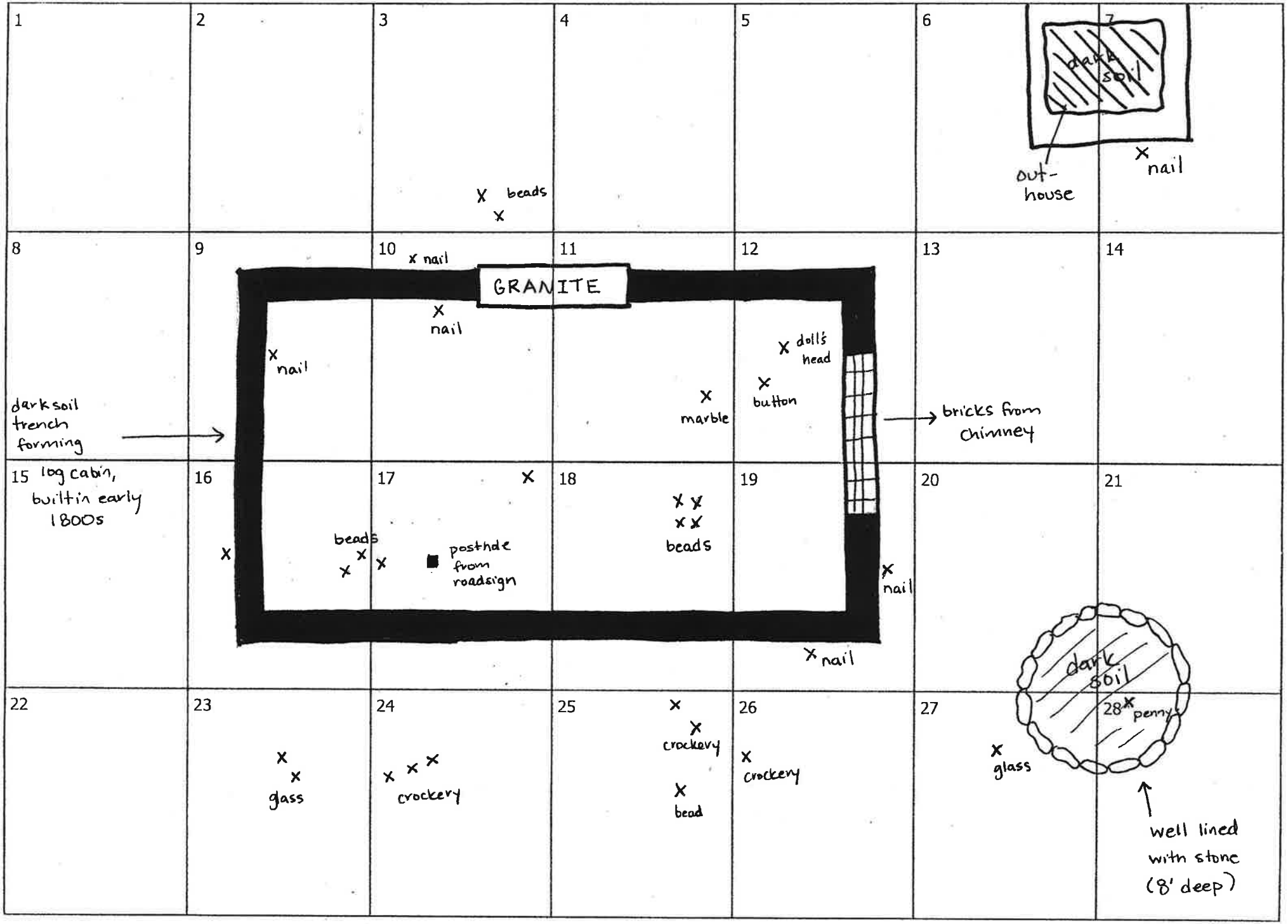
East ↓

Level 2 *1927 flood* West ↑ ANSWER KEY

1	2	3 saptap	4	5 flowered plate sherds	6 glass	7 hinge
8	9 key	10 ceramic animal	11 penny	12	13	14 ceramic shard
15 earring	16 shaker	17 thimble post hole from level 1 glass	18	19 marble	20	21 marble
22 metal	23 coal flooring	24 coal flooring	25 coal	26 penny	27 flooring flooring	28

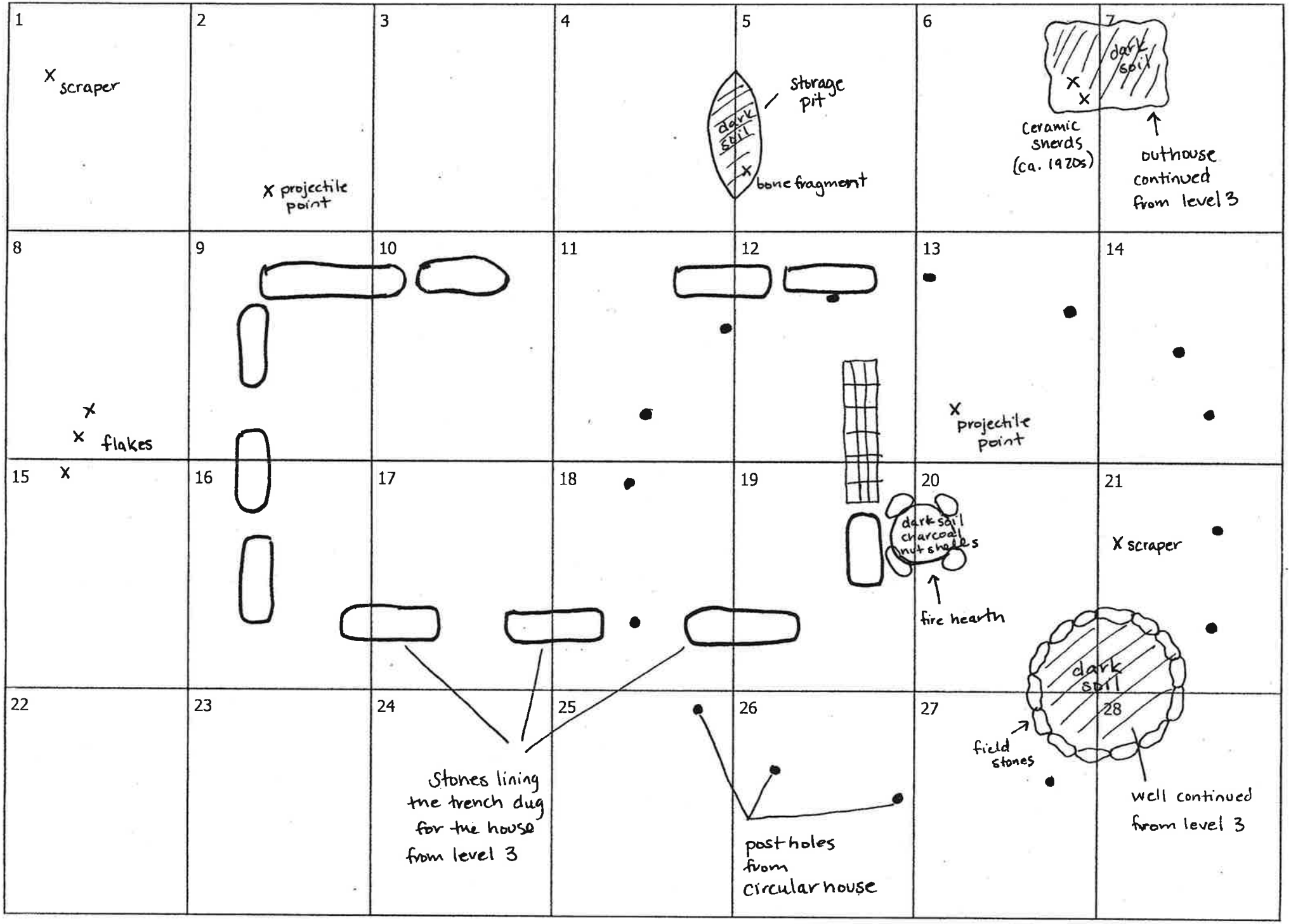
East ↓

Level 3 *Early Settlement* [redacted] West ↑ **ANSWER KEY**



East ↓

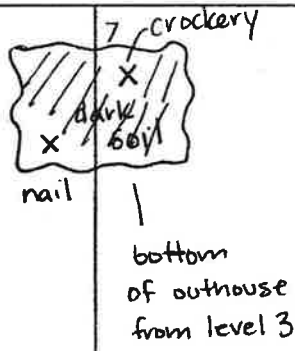
Level 4 *Archaic* West ↑ **ANSWER KEY**

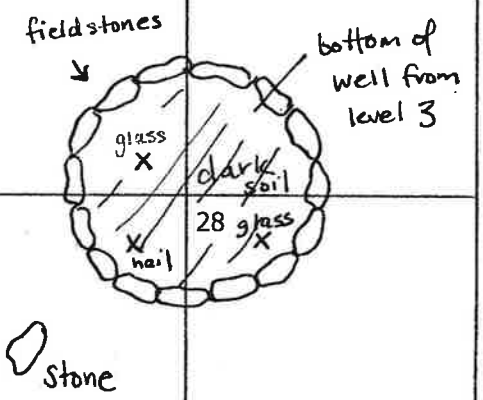


East ↓

Level 5 *Sterile* West ↑ **ANSWER KEY**

1	2	3	4	5	6	7
8	9	10	11	12	13	14
15	16	17	18	19	20	21
22	23	24	25	26	27	28





East ↓

Excavation Game: Bag Contents

This chart shows the artifacts that should appear in each of the excavation bags. It is very important that the artifacts and cards go in the proper bag, so that students can interpret the site correctly. NOTE: Level one is the top level of soil, including the surface.

Square	Level One Modern	Level Two 1927 (flood)	Level Three Early Historic	Level Four Archaic	Level Five Sterile
1				scraper	
2				projectile point	
3		sap tap	2 beads		
4	barrette, battery				
5		2 ceramic sherds		bone fragment	
6		glass sherd		2 ceramic sherds	nail
7		hinge	nail		crockery sherd
8				2 flakes	
9		key	nail		
10	bottlecap	ceramic animal	2 nails		
11		penny	marble		
12	metal clip		button, doll's head		
13	coffee stirrer			projectile point	
14	spoon	ceramic sherd			
15		earring		flake	
16	6-pack holder	metal shaker	nail, 2 beads		
17	bottlecap, 1 plastic box	thimble, glass	bead, nail		
18	can top		4 beads		
19	penny	marble	2 nails		
20	cantop, hair elastic, penny				glass sherd
21	straw, red plastic piece	marble		scraper	
22		metal			
23		coal, piece of flooring	2 glass sherds		
24		coal, piece of flooring	3 crockery sherds		
25		piece of coal	2 crockery sherds, bead		
26		penny	crockery sherd		
27		2 pieces of flooring	glass sherd		nail
28			penny		1 glass sherd