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The following lessons were created by **Teresa Gable**, a teacher participating in the National Endowment for the Humanities Summer Institute for Teachers entitled Touch the Past: Archaeology of the Upper Mississippi River Region.

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Field Investigations and Sampling Techniques

Grade Level: 7th

Subject: Life Science

Objectives:
To teach the students how to conduct field investigations

To show the students the difference between systematic and random sampling techniques

Standards:
NYS standards

Key Ideas #2 Beyond the use of reasoning and consensus, scientific inquiry involves the testing of proposed explanations involving the use of conventional techniques and procedures and usually requiring considerable ingenuity.

S2.1d Use appropriate tools and conventional techniques to solve problems about the natural world including measuring, observations, describing. Classifying and sequencing.

S2.3 Carry out their research proposals record observation and measurements to help assess the explanations.

S2.3c Collect quantitative and qualitative data.

Duration: two 40 minute lessons

Materials/Supplies:
- Hula Hoops
- Clipboards

Field Investigation Worksheet
Pencil
String
Flags
Meter Sticks

Vocabulary:

Archaeology
Artifacts
Context
Field investigation
Sampling
Biotic
Abiotic
Flora
Fauna

Background: Archaeology is a set of methods and techniques used to recover and analyze artifacts in order to understand human history. An artifact is any object that human beings make, modify or use.

Setting the Stage: I believe that it is important to teach methods and techniques in sampling for natural resources and artifacts.

Procedure:

-Set up a grid system in the school yard to show how a systematic archaeological excavation would be set up. We would talk about how stratification and precise measurements would be important for accuracy. Show pictures of an actual archaeological excavation.
-Talk about random sampling.
-Divide the students into 6 groups.
-From the same spot, have each group throw a hula hoop. Wherever it lands, will be the random sampling site for that group.
- Divide with string the hula hoop into 4 quadrants.
-Have the students complete the field investigation worksheet.
-First calculate the percentage represented in each quadrant. Record what percentage of grass, soil, rock or pavement is represented.
-Then have the students look at the biotic factors.
-Identify all the plants in each quadrant and count each plant.
-Identify all animals in each quadrant and count each animal.
-Then have the students identify any abiotic factors.
-Identify and count each inorganic item such as rocks and litter.
-Clean up

Closure: Tally all information and have each group review the information. Rock Island Stratigraphy, Activity 2 (pages 45-48) in the *Digging and Discovery, Wisconsin Archaeology* book may make a nice closure activity.

Evaluation: Look over the field investigation worksheet and assign a grade.

Links/Extensions:
http://www.tpwd.state.tx.us/publications/nonpwdpubs/media/field_investigation_guide.pdf

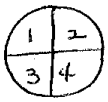
References:
Malone, Bobbie, Digging and Discovery: Wisconsin Archaeology, State Historical Society of Wisconsin, Office of School Services, Madison, WI 2000

Smith, Shelley, et. al, Intrigue of the Past: A Teacher's Activity Guide for Fourth through Seventh Grades, United States Department of Interior, Bureau of Land Management, 1996

Field Investigation Worksheet – Random Sampling Techniques

Throw the hula hoop from a central spot as instructed by your teacher. Investigate the area inside of the hula hoop and record the biotic and abiotic components.

Divide the hula hoop into four quadrants



Quadrant #1
Dirt _____ %
Grass _____ %
Rocks _____ %
Pavement _____ %

Biotic (Living material)
Plants (Flora)
_____ # _____
_____ # _____

Animals (Fauna)
_____ # _____
_____ # _____

Abiotic (Non-living material)
Rocks # _____
_____
Litter # _____
_____
Other # _____
_____

Quadrant #2
Dirt _____ %
Grass _____ %
Rocks _____ %
Pavement _____ %

Biotic
Plants
_____ # _____
_____ # _____

Animals
_____ # _____
_____ # _____

Abiotic
Rocks # _____
Litter # _____
Other #

Quadrant #3
Dirt _____ %
Grass _____ %
Rocks _____ %
Pavement _____ %

Biotic (Living material)
Plants (Flora)
_____ # _____
_____ # _____

Animals (Fauna)
_____ # _____
_____ # _____

Abiotic (Non-living material)
Rocks # _____
_____
Litter # _____
_____
Other # _____
_____

Quadrant #4
Dirt _____ %
Grass _____ %
Rocks _____ %
Pavement _____ %

Biotic
Plants
_____ # _____
_____ # _____

Animals
_____ # _____
_____ # _____

Abiotic
Rocks # _____
Litter # _____
Other _____