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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:	Decomposing Artifacts
Submitted by:	Bart Appleton
Grade Level:	Grade Seven
Subjects:	Science, Math
Objectives:	1. Students will estimate and graph rate of decomposition for rock, plant materials, and animal materials. 2. Students will infer how rate of decomposition affects the number and type of artifacts found at an archaeological dig.
WI Standards:	Science A.8.2, A.8.3, A.8.4, A.8.5, A.8.6, B.8.3, C.8.1, C.8.2, C.8.3, C.8.4, C.8.6, C.8.7, C.8.8
Duration:	Initial time period, one 40-50 minute period will be needed to set up the activity. After that students will need 30 minutes once each month to check and record observations. This activity should be done over a minimum of four months. At the end of the activity one more 40-50 minute period will be needed for groups to make the inferences and create their graphs.
Materials/Supplies:	Blackberries or raspberries, dried grass, pieces of clay pot, wood chips, pieces of wood charcoal, bone, cooked meat, small limestone rocks, small zip-loc freezer bags, small boxes, and soil.
Vocabulary:	Decomposition
Background:	Different materials decompose at different rates. Time, temperature, moisture, and soil type are some factors that affect the rate of decomposition. In this activity students will be observing the effect that time has on different materials that are buried in the soil.

Setting the Stage:	The purpose of this activity is to see how time affects the rate of decomposition of different plant materials, animal materials, and even rocks. Students will be comparing the rate of decomposition of materials that were available to early Wisconsin peoples.
Procedure:	Working in groups, students will use a permanent marker to label a baggie with one of each of the following – berries, grass, pottery, wood, charcoal, bone, meat, rock. Then they fill each baggie with soil. They must first weigh and record the weight of each piece of material they will be using. Next they place a piece of each material in its corresponding bag. They must make sure that each piece of material is completely covered with soil. Remind them to squeeze out any extra air before sealing the baggie. Then they place each baggie in their group's box. Each month they will remove each object from its baggie and carefully remove as much soil from it as possible. Next they must examine and weigh each piece of material and estimate what percent of each piece has decomposed. Then they must record their observations and their estimations.
Closure:	At the end of the decomposition period, 4-6 months, each group will make inferences about why certain types of artifacts are more commonly found at archaeological digs and why others types are rarely or never found.
Evaluation:	Each group will produce a line graph showing estimated rate of decomposition, in percent, of each piece of material. Each group will also share with the class their inferences about why certain types of artifacts are more common than others.
Links/Extension:	This activity could be done comparing rate of decomposition at different temperatures, with different soils, with differing amounts of moisture, or any combination of these variables.