LESSON: Collaboration with Nature and Math

GRADE: K

OBJECTIVES:

Mathematics

Counting & Cardinality-

Counting to tell the number of objects-

- **K.CC.B.4** Understand the relationship between numbers and quantities; connect counting to cardinality.
  - When counting objects, say the number names in the standard order, pairing each object with one and only one number name and each number name with one and only one object.
  - Understand that the last number name said tells the number of objects counted. The number of objects is the same regardless of their arrangement or the order in which they were counted.
  - Understand that each successive number name refers to a quantity that is one larger.

Physical Education

- **P.E. Standard 1** - Demonstrates competency in a variety of motor skills and movement patterns.

MATERIALS & RESOURCES:

- Photos of Andy Goldsworthy's work and/or his book, *Andy Goldsworthy: A Collaboration with Nature*
- Objects from nature, such as leaves, stones, twigs, bark, feathers, etc. (teacher should bring a few nature items from home or ask students ahead of time to bring them for "practice")
- Digital camera
- Website links for Andy Goldsworthy: http://www.morning-earth.org/ARTISTNATURALISTS/AN_Goldsworthy.html or go to YouTube.com, *Andy Goldsworthy, Time Lapse Leaves* and *Andy Goldsworthy, Rivers & Tides*

PRESENTATION:

Show students the art book, *Andy Goldsworthy: A Collaboration with Nature.* As students view the work, explain that this artist wanted to work with nature, so that viewers would better understand the land. Discuss with students ways in which the artist uses sorting, grouping, counting, and adding.

DIRECTIONS:

1. Introduce students to the art of Andy Goldsworthy.
2. Show students examples of the things from nature which they can collect. Go over rules about how to collect such items in nature. For example, "Don't pull or harm live plants. Don't collect from private property without permission. Be sure to identify unsafe plants (poison ivey) or other hazards in the area before collecting."
3. Over a period of a few days to a week, have students collect materials for their sculptures. This could be done on the playground, a field trip to a park, or a neighborhood walk.
4. Once enough natural items have been collected, divide students into small groups and have them practice sorting, grouping, counting and adding objects that have been brought in. Students should count to 100 by ones and tens, practice counting from a given number within the known sequence (instead of having to begin at 1), and write numbers from 0 to 20, representing a number of objects with a written numeral 0-20
5. Either during this session or in a second session, have students assemble their nature sculptures, continuing to use grouping, sorting, counting and adding as part of the process. Remind them to arrange their leaves, rocks, etc. by sorting small to large, grouping by color or shape, and using a shape, such as spiral, circle, triangle, etc. to organize their creations.
6. Teachers or accompanying parents will photograph the sculptures, using a digital camera.
7. Sculpture photos can be available for viewing on the computer.

TIME: **90-120 min**

PROCESSING THROUGH THE SIX PILLARS:

WHAT:

- Were you able to collect items from nature without digging or taking pieces of live plants or harming the space the item came from?
- Do you think the artist, Andy Goldsworthy is respectful of nature? Why or why not?

SO WHAT:

- What would happen if everyone took leaves off live plants instead of picking up fallen leaves from the ground?
- Why is it important to collect only items from nature that has fallen?

NOW WHAT:

- A good citizen of the outdoors leaves only footprints in the out-of-doors. What does this mean?
- Do you think it's a good idea to create art from natural items?