“Heave, Ho the Cargo!”

Judy Bowlus, jbowlus@bgchristian.org, Bowling Green Christian Academy

Kindergarten: math, science and social studies

Lesson Overview: Students will learn to identify, sort and graph samples of goods from the Great Lakes area using the criteria of living/non-living, natural/man-made, and above ground/below ground.

Sources Consulted:

1. www.ode.state.oh.us for Ohio standards
2. Field investigation at Toledo Port
3. Great Lakes Shipping Educator’s Resource notebook

Objectives:

After this lesson, students will be able to:

1. Discern the difference between living/non-living things and natural/man-made.
2. Describe and sort cargo samples by one or more properties.
3. Identify and distinguish between a “good” and a “service”
4. Identify some natural resources that are used in our daily lives.
5. Arrange cargo samples in a floor graph.

Ohio Standards and Benchmarks Addressed:

- Explore differences between living and non-living things (Life Sciences Benchmark A.1)
- Describe and sort objects by one or more properties (Physical Sciences Benchmark A.3)
- Explore that objects can be sorted as “natural” or “man-made” (Science and Technology Benchmark A.1)
- Identify key natural resources that are used in the students’ daily lives (Geography Benchmark C.7)
- Identify goods and services, distinguishing between goods and services (Economics Benchmark B.3, C)
- Identify how objects are alike and different (Patterns, Functions and Algebra Benchmark A.1.a)
- Recognize and explain how objects can be classified in more than one way (Patterns, Functions and Algebra Benchmark A.1.c)
- Identify what attribute was used to sort groups of objects that have already been sorted (Patterns, Functions and Algebra Benchmark A.1.d)
- Arrange objects in a floor or table graph according to attributes, such as use, size, color or shape (Data analysis and Probability Benchmark B.2)
**Materials Needed:**

- 2 boxes of Samples:
  - Box #1 = samples or pictures of area resources to use for graphing, 7 suggested (I used: taconite, grain (wheat), sand, limestone, coarse salt, coal, plastic fish)
  - Box #2 = everyday items made from those resources (I used: magnet, loaf of wheat bread, drinking glass, chunk of cement, salt shaker, pencil,
- 2 Hula hoops
- Chart paper, marker to write and display floor graphs
- Maps of the Great Lakes region – 1 of region, 1 of roadways
- *About Cargo Ships* by Melvin John Uhl
- *Trading and Shipping on the Great Lakes* by Coles Publishing Company, selected pages/pictures

**New Vocabulary (enrichment):**

- *Goods* – merchandise, or the “stuff” we use each day
- *Services* – work done for another
- *taconite* – form of iron ore, mined from the earth
- *grain* – seed of a cereal plant, in this case, wheat
- *limestone* – rock made up of sea animals’ skeletons
- *coal* – a black mineral found inside the earth

**Focus Questions, setting the stage:**

- Have you ever thought of where the things you buy from the store come from?
- What happens to the crops that are growing by our school?
- How does a shopkeeper in Ohio get fish from Lake Superior?
- Can living things be shipped to other states? How?

**Procedure/activities:**

**INTRODUCTION**

- ***It is suggested that the activities be broken up into different sessions and not necessarily completed all in one lesson time, to the discretion of the teacher. Throughout the activities, refer to *About Cargo Ships* by Melvin John Uhl and *Trading and Shipping on the Great Lakes* by Coles Publishing Company, selected pages/pictures for pictures and information for the students.***

Gather the students around the circle area on the floor. Begin by reviewing the regional map of the Great Lakes region and where we live (from a previous lesson). Now show roadways map of the region and discuss travel, highlighting waterways and roadways, for moving goods from area to area. Pause and ask students to think of what **goods** we use each day, defining “goods” for students.
ACTIVITY #1

Say, “Let’s take a break from the maps for a moment and think about some of the goods we mentioned, like food. We eat apples. Where do apples come from (pause for answers)? We drink mil. Where does milk come from (pause for answers)? Now let’s look in my box at some things we use each day. See if you can think about where they may come from”.

Using Box #2, hold up each item, guiding discussion to get beyond answers that the items come from the store to thinking about what they are made out of and where they got their start, matching the item to its product from Box #1. This would look something like this:

Hold up a loaf of bread and say, “What is this (students answer)? Where does it come from (help them get beyond the answer of ‘the store’ by asking questions such as ‘what is it made of? Where did that come from’)?

Continue with other items in the boxes.

Then tell the children that in the next lesson we will look at these goods that come from the Great Lakes’ region, compare/contrast what they are made of, and graph them with some science words.

ACTIVITY #2

Have students sit at circle area. Review what was learned from activity #1, defining goods. Bring out boxes #1 and #2. Have the students help match up the items from box #2 to what they are made of from box #1.

Now tell the children, “Today we will be sorting, grouping and graphing our goods using some science words. First we will look at living and non-living things. I am a fisherman. I catch fish. Is this living or non-living?”

Lay out the hula hoops and place the labels in each - one living, one non-living. Take each item from both boxes and have the students sort them into the hula hoops. Help them reason out what they are made of and where they come from.

Next, make a bar graph to display this information. On chart paper, draw and label your graph like this, and then lay it on the floor:
Take each item from the hula hoops and have students stack them in the graph to “display” the information. Talk about the graph, which has more, less, etc.

Repeat the sorting and graphing. Use the hula hoops to sort more “science words” like natural/man-made and above ground/below ground. Make a paper graph for each to compare and discuss the information.

To wrap up, review how we used the graphs to tell us different information about the same things. Review how graphs can tell us lots of information and how objects are alike and different.

ACTIVITY #3 (possibly an extension or enrichment of the previous lessons)

Review your graphing experience and descriptions of the items in the boxes. Get out the maps from your introduction. Ask the children how people from one region might move their goods to another region (water, land, air, etc.). Introduce services, discussing how each item can be used in a service, highlighting the difference between goods and services.

Assessment:

Divide the class into 3 groups. Have them take turns sorting the items from boxes #1 and #2 using the hula hoops and the three categories of science words (living/non-living, above ground/below ground, and natural/man-made). Observe students and guide reasoning as they work through the activity together.
Living
Non-Living
Natural
Man-made
Above

Ground
Below

ground