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Science Methods
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Lesson Three: Guided Discovery
What Part of the Earth's Surface is Covered by Oceans?

Grade Level: 3rd Grade

Standards:

- 3.1.4 Discuss the results of investigations and consider the explanations of others.
- 3.1.15 Record the possible outcomes for a simple probability experiment.

Objectives:

- After performing an experiment, the students will be able to identify how much of the Earth is made up of water with 75% accuracy.
- By using a globe, students will be able to come up with a strategy to predict how much of the Earth is oceans with 100% accuracy.

Advanced Preparation by Teachers:

Materials: Inflatable Globe (preferably showing natural land features rather than political boundaries), Chart

Procedures:

Introduction (Engage): Hold up the inflatable globe. Ask: *What is this globe a model of? (Bloom's Knowledge) How is it like the real earth and how is it different? (Bloom's Analysis) What is shown on the globe's surface? About how much of the earth is covered by oceans? (Bloom's Knowledge) How could we use the globe to find out? (Bloom's Application)*

Step by Step Plan:

- Step 1 (Explore): Tell the class we need to collect data by using a sampling method (Gardner's Mathematic).
- Step 2: how the class a two-column table with the headings "ocean" and "land".
- Step 3: Select a student to be a record keeper.
- Step 4: Instruct one student to toss the inflatable globe to another student (Gardener's Kinesthetic).
- Step 5: The person who catches the globe will look to see if his or her right thumb is on an ocean or land part of the globe's surface and report this information to the record keeper.
- Step 6: The record keeper will make a tally mark in the appropriate column on the table.
- Step 7: Then the inflatable globe should be tossed to another student and the process repeated.
- Step 8: Continue for a total of 100 tosses.

Closure (Engage): Ask: *How many times out of 100 tosses was the catcher's right*

thumb on an ocean area? How many times out of 100 tosses was the catcher's right thumb on a land area? (Bloom's Knowledge) Why do you think the catcher's right thumb was on an ocean area more often than on a land area? Discuss the term percent with the class. What percent of the times was the catcher's thumb on an ocean area? What percent of the times was the catcher's thumb on a land area? (Bloom's Knowledge) Challenge the class to find out what percent of the earth's surface is covered by oceans using their textbook or other references. Ask the class to explain how well and why this sampling technique worked to estimate the relative amount of land and ocean on the earth's surface.

Adaptations/Enrichment: For students with ADHD it may be difficult to get them to sit still and pay attention. It may be helpful if you can locate several globes to have them do this experiment in smaller groups so that they can participate more. You may choose them to be the tally keeper as well so they have to be constantly attentive. For gifted students teach them how to do percents. Have them try the experiment over again. Compare the percents to see how close they get to the right answer. Talk about the importance of big samples to get more accurate results.

Assessment: For this lesson I would mainly use formative assessment. I would look at how the students were paying attention and then during group discussion I would ask students for responses and judge whether or not they understand by the answers they are giving me to the questions.