

Manchester College

Education Department

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Lesson Plan: adapted from 101 Great Science Experiments

Lesson: Liquids: Floating and Sinking

Length: 20 minutes

Age or Grade Intended: 3rd grade

Academic Standard(s):

3.1.4 Discuss the results of investigations and consider the explanation of others.

3.2.5 Construct something used for performing a task out of paper, cardboard, wood, plastic, metal, or existing objects.

Performance Objectives:

*Each student will answer with their group each question on the worksheet with 95% accuracy.

*Each student will perform their task correctly during the experiment with 100% accuracy.

Assessment(s):

After this lesson the students will understand how some liquids are denser than others because they will see how each liquid separates depending on its density. They will also understand that some objects will float and some objects will sink depending on their density levels. Having the students do the experiment in groups will allow them to bounce ideas off of each other and learn more about why liquids are separating and why objects are sinking or floating.

Prep/Materials:

-Preparation: Have everything set out ready to use during the lesson. The desks need to be in three groups of five.

-Materials: Water, food coloring, syrup, vegetable oil, one large clear container, several clear cups, noodles, paper clips, square blocks, and pieces sticky tack.

Procedures:

Introduction/Motivation: Engage, Encourage, Engage

Start the lesson by asking, “Do you think liquids can float and sink?” (**Bloom’s Taxonomy: Comprehension**) Well, today we are going to learn about something called “density.” Write on the board the definition of density. Just like solid objects, liquids can float and sink as well. A substance with a lower density weighs less than the same volume of one with a higher density. If I had more time I would read the book, What is Density?, by Joanne Barkan. Before the experiment starts have the students draw what they think will happen to the three liquids on their worksheet. “Will the three liquids separate into layers?” (**Bloom’s Taxonomy: Knowledge**)

Step-by-Step Plan:

1. Each of the students will have a piece of paper on their desk that tells their task for their group participation. No matter what seat they are sitting at, each student

has a task. The tasks: Pourer, Noodle Dropper, Paper Clip Dropper, Square Block Dropper, Sticky Tack Dropper.

2. First, the pourer needs to come up and get the three different liquids in the cups and one empty cup for their group.

3. Along with the teacher the pourer will empty the syrup, vegetable oil, and colored water into the empty glass. Each of these liquids needs to be slowly poured into the empty glass to the level marked on the cup. (**Gardner's: Bodily-Kinesthetic**)

4. Discuss what happened to the liquids. "Why did the liquids separate?" (**Boom Taxonomy**) Explain how an object or a liquid will float only in a liquid more dense than itself.

5. Next, the students will fill out their worksheets as a group and answer for each object whether they think it will sink or float.

6. Once everyone has completed their worksheet in the group they can experiment and see which objects sink and float. There should be one dropper for each object. Take turns and drop each object into the cup. Keep all the objects in the cup.

7. Now with the results record whether each object sunk or floated.

Closure:

In closing have one person from each group come show their results in front of the class. Briefly talk about different results, if any, and try to find answers why these results occurred. "What does density mean again?" (**Bloom's Taxonomy: Knowledge**)

Adaptation:

-For the students who have trouble with remember meanings of words the teacher can write the meaning of "density" on the blackboard. Having the meaning of the word may help students on answering questions on the worksheet and they can automatically refer back to the blackboard.

Enrichment:

-Some students may need something else to do. Along with this activity have these students make a list of some more objects that might float or sink. Have them bring in these objects to experiment with at a later time also.