**Science – Grade 6**

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| **Name: “Bubble Busters” – 60 minute activity** | **Date: to be done Sept 2011****Submitted on 7/20/11** |
| **Content Area: Science**  | **Grade Level(s): 6** | **Topic(s): Measurement****Science Inquiry ( Intro. Unit )** |

**Standards (SOL)**

SOL 6.1 The student will plan and conduct investigations in which :

 b – a classification system is developed based on multiple attributes

 c – precise and approximate measures are recorded

i – data are organized and communicated through graphical representations ( graphs, charts and diagrams )

 k – an understanding of the nature of science is developed and reinforced.

**Objectives**

The students will determine if how the amount of soap in a bubble will effect the time a bubble will last.

The students will be active, productive members of a collaborative group.

**Materials & Resources**

Each lab station should be equipped with :

* 4 straws
* a compass ( to construct circles )
* 4 small cups ( 6 oz. each )
* stopwatch
* paper towels

Teacher Lab Station should be prepped with :

* 1 liter containers of tap water ( 7 for a class of 28 students )
* 1 large bottle of liquid dishwashing soap
* measuring spoons – assorted sizes ( English common units )

**Safety Considerations**

Review relevant safety rules from Safety Contract on Day # 1, including use of goggles, UV sanitizer, proper behavior and clean / neat organization of station

**Engage – Time Estimate \_\_\_5 min.\_\_\_\_**

*Demonstrate a huge bubble using string and soap at teacher lab station as students enter. Ask students prompt questions from Daily Start Up format ( Bell Ringer ) and select two volunteers to attempt to create larger bubbles in front of the class.*

**Explore – Time Estimate \_\_15 min.\_\_\_\_**

“Design and conduct your own investigation to how the amount of soap in a solution effects the time a bubble will last. Record your procedure, the data you collect and display the results using a graphical representation.”

After 3 - 4 minutes, distribute WS ( Data Sheet ) to each group. If after 7 minutes a group is still struggling, offer assistance to the group leader by asking questions.

**Explain -- Time Estimate \_\_10 min.\_\_\_\_**

Ask each group to report back to the class the procedure and their results.

**Extend -- Time Estimate \_\_10 min.\_\_\_**

Rotate to a new group ( “leaders” and “data hounds” stay, “supply guys” move clockwise, and “graphic designers” moves counter-clockwise ). Share prepared flipchart on Promethean Board for key concepts :

* Vocabulary : Physical Property, Surface Tension of liquids

Task new groups to determine the optimal ratio of soap : water for making the longest lasting bubble.

**Evaluate -- Time Estimate \_\_20 min. \_\_**

Distribute WS ( Connecting Learning ). Have “Data Hounds” and “Graphic Designers” report to class their results ( time and ratio of soap : water ratio ).

**Plans for Diversity**

Four “Honors Science 6” classes will perform work in pre-arranged groups of 4 with strong & weak math students paired. Two “Academic Science 6” classes will also be in groups of 4 but will have guided key questions as prompts throughout the “Explore” phase written out on 3” x 5” cards and distributed by teachers aide to the leader of each group. The Academic classes will NOT switch partners during the “Extend” phase as there are many special needs students who would have difficulty re-gaining focus. Rounding and use of calculators can be used to aide in math computation.

**Connections**

Loudoun County Public Schools lays out a detailed curriculum that closely aligns with the VA State SOL’s. One of the first key concepts is measurement, so the first few weeks of the year I use an introductory skill unit spanning measurement, how to use equipment, lab principles and “how to think like a scientist”. This lesson will fall near the end of September and aide students on their SOL benchmark assessments later in November.

A Real-World application of this lab could involve students investigating how different brands of dishwashing soap compare, tracking ingredients and price. As a HW assignment, students can research how various company products use glycerin, or even corn syrup, as a key ingredient.

Math connections include : measuring elapsed time, whole number operations, converting units of time, measures of central tendency ( mean, median ), size of data samples as well as graphing skills.

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