**SLED Implementation Plan**

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| **Your Name(s):** Stephanie Beiswenger | **Unit BIG IDEAS:** Estimation, Volume, Weight |
| **Grade Level**: 5th Grade Math | **Key vocabulary:** weight, mass, volume, prototype |
| **School:** Riverside Intermediate | **Unit prior to and following this unit**: TBD. Estimation is an on-going year long skill. |
| **Total time (hours or class sessions):**  2 eighty minute class periods | **Estimated starting date in the school year:** April 2012 |

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| **Unit Objectives**:  ***By the end of this unit, students will be able to:*** Measure volume of various objects; approximate solutions to problems, use engineering design process to produce a new product |
| **Core Indiana Academic Standard to be addressed**:  5-Measurement  7-Number Sense  **Standard Indicator(s) to be addressed:**  **5.5.4**  Find the surface area and volume of rectangular solids using appropriate units  **5.7.5**  Recognize the relative advantages of exact and approximate solutions to problems and give answers to a specified degree of accuracy. |
| **Materials and Resources (available in school and/or will need to get):**  Design Notebooks, rulers, spring scales, triple beam balance, measuring cups, 16 x 16 pieces of drop cloth, masking tape, twine, books bottles, objects to be used as weights; items to check for weight such as candy or rice |

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| **Overview of Lesson Activities:**  ***How will you introduce the unit? What kinds of questions will you ask to engage students?***   * Construct a graphic organizer on the Promethean Board to review the math concepts that will be used for this design activity. Make copies as needed for the students. * In students’ design notebook have students set up a two tab foldable. Have students label the two tab foldable as “Prototype”. One flap labeled as before, and the other flap labeled “after”. Under the before flap have students define the word prototype. Watch the Learn 360 video “Design Prototype”. Then have students revise their definitions of prototype as needed. * Read the Design Challenge of Supernova Sweet Tooth Candy Store   ***What kinds of hands-on activities will students engage in?***   * Creating a foldable in their design notebooks, creating a new and improved candy bag from provided materials, testing the candy bag using spring scales and triple beam balances.   ***How/when will you use the engineering design process?***   * Once there has been a review of the math concepts, the word prototype is understood, then we will begin the design process of an improved candy bag.   ***How/when will you introduce the science concepts and vocabulary?***   * As this will be a review of skills, all vocabulary will have been introduced.   ***How will you connect science concepts and vocabulary to what students are doing?***   * Using the words in the context of classroom instruction, engage students in prior knowledge by referencing the science units that have been completed by Mrs. Rumpler, clickers, foldable   ***How will the lesson build on your existing curriculum?***   * This lesson will give hands on experience and real world application of estimation, volume, and weight.   ***How will you conclude the unit?***   * The unit will conclude by weighing all bags. The bag that holds the most “candy” will be declared the winner. We will celebrate by getting to eat the candy (shhhh, don’t tell☺, we have a wellness policy)   ***Outline the day by day timeline of activities.***   * **Day 1:**   + Review vocabulary   + Using the SLED Model for Engineering Design (scan for Promethean Board) identify the problem.   + Ask students the questions from: “Can you design and construct a better candy bag?” page 3 (#1)   + Project the design challenge and read through with the students.   + Ask students the questions from: “Can you design and construct a better candy bag?” page 3 (#2)   + Show materials available to use for their designs.   + Have students make their individual designs in design notebooks. * **Day 2**   + Have students take the individual designs and now meet with their team. Give time to design a group prototype, gather supplies, and test for a first time. Redesign time. All bags will need to be finished 20 minutes before the end of their switch to accommodate weighing and celebrating! * ***What handouts, worksheets, or other classroom materials will you create and/or use?***   Scan the Design Activity and SLED Model for Engineering Design page for use on the Promethean Board and individual copies for the students |
| **Cross-curricular connections:**  Persuasive letter to the Sweet Tooth Candy Store to inform why their bag is the best design.  Science: reinforce the design process  Science: reinforce volume and weight |
| **Assessment:**  ***How will you assess student learning?***   * Day 1-Assessment of design notebooks using a teacher made rubric to check for each students’ understanding of the design process and initial design prototype of the candy bag.   Day 2-check design notebooks for each student for group design, labeling of design, and vocabulary usage.  ***How will you determine whether or not students have mastered the big ideas and/or vocabulary?***   * Use a teacher created rubric to assess the design process, prototype design and labeling of prototype, and vocabulary.   ***What work (evidence) will you collect from students?***   * Design notebooks |