Chapter 12 Developing Strategies for Whole-Number Computation Jessica Torres

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| **Representative TN State Curriculum Standards**  *Second Grade-*  GLE’s  GLE 0206.1.2 Apply and adapt a variety of appropriate strategies to problem solving, including estimation, and reasonableness of the solution.  GLE 0206.1.4 Move flexibly between concrete and abstract representations of mathematical ideas in order to solve problems, model mathematical ideas, and communicate solution strategies.  Checks for Understanding  0206.2.4 Recognize that place-value notation represents the sums of multiples of powers of ten (e.g., 853 as 8 hundreds + 5 tens + 3 ones).  0206.1.11 Use manipulatives to demonstrate addition and subtraction sentences written symbolically.  *Third Grade-*  GLE’s  GLE 0306.2.2 Develop understanding of multiplication and related division facts through multiple strategies and representations.  GLE 0306.2.4Solve multiplication and division problems using various representations.  Checks for Understanding  0306.2.4 Use a variety of methods to perform mental computations and compare the efficiency of those methods.  0306.2.5 Use highest order value (such as tens or hundreds digit) to make simple estimates. | |
| Time: 9 minutes | Used to develop the concept of 100 feet.   * Estimate how many students it would take to equal the length of a blue whale. (Lying down) * Remind the students that a blue whale is 100 feet. * Discuss in groups and decide on estimate. * Discuss the answer with students. |

**Virtual Manipulatives Time:** 7 minutes

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| *Coin Box Exchange (NCTM Illuminations Tools)*  <http://illuminations.nctm.org/ActivityDetail.aspx?ID=217>  This is a great virtual manipulative. The game gives you a certain amount of coins and you exchange them for larger coins, like the nickel, dime, or quarter. I thought this would help for building strategies for whole-number computation because you are constantly trying to use easier numbers when computing a problem. |
| *Base Blocks Addition*  <http://nlvm.usu.edu/en/nav/frames_asid_154_g_2_t_1.html>  This virtual manipulative uses base-ten blocks on a place-value chart. You bring the blocks together to combine ones to make tens and so on. This is a great resource that makes it fun and not only can you do problems, you can make your own. |

**Activities from the Textbook**

**Materials needed:** Smart Pals, Base-Ten Blocks, Blackline Master 17, Small Post-Its, and Printed Money

1. Figure 12.5 Invented Strategies for Addition p.220 and 221; 6 minutes
   1. Topic: Adding Two-Digit Numbers
   2. Solve Word Problem with Smart Pal
2. Figure 12.12 Subtraction Algorithm p.225; 7 minutes
   1. Topic: Two-Place Subtraction with Models
   2. Use Base-Ten Blocks and Place-Value Mats to solve
3. Figure 12.23 Student-Invented Strategies for Division p. 233; 6 minutes
   1. Topic: Use Base-Ten Blocks to solve Division Word Problems
4. Page 234 Traditional Algorithm for Division; 7 minutes
   1. Topic: One Digit Divisors
   2. Solve problems using money as model

**Lesson Plan**

Where Will I Land?

<http://illuminations.nctm.org/LessonDetail.aspx?ID=L118>

Description: In this lesson, the students find differences using the number line, a continuous model for subtraction. Students are encouraged to predict differences and to compose puzzles involving subtraction. Before the lesson begins, attach a long strip of masking tape to the floor and draw a number line on it. Inform the students that today they will use a number line to find differences. Review addition on the number line by presenting an addition sentence such as 5 + 4 = \_\_, and have volunteers show how to hop on the large number line to find the sum. Then display a subtraction example such as 8 – 3 = \_\_, and call on a volunteer to tell a number story that would fit that subtraction situation. Then ask: How can we find the difference using the number line? Guide a volunteer to stand on the 8 and "hop" back three spaces on the number line. Ask the volunteer to tell his or her present position.