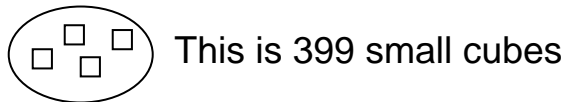


## LAB 1 HOMEWORK QUESTIONS

1. Imagine a set of base 7 multibase blocks.
  - a. Describe and sketch the four types of blocks and their relationship to each other. To start, declare that 1 small cube = 1 and give the values of the other blocks. For problem 1; this counts as describing the manipulative for the rest of the problem.
  - b. Suppose you start with 13 small cubes, 8 longs, 9 flats and 1 big cube. Sketch a model of trading this for the most efficient set. Sketch your work, explain each step and clearly label each diagram.
  - c. What standard numeral does your most efficient set in part b. form?
  - d. What is the place value of each digit in the standard numeral in part b.?
  - e. What is the expanded numeral in part b.?
  - f. Suppose you start with 399 small cubes. Sketch a model of trading this for the most efficient set. Show the most efficient set. Sketch your work, explain each step and clearly label each diagram. Don't sketch 399 individual cubes, just sketch a simple representation such as:



- g. What standard numeral does your most efficient set in part f. form?
- h. What is the place value of each digit in the standard numeral in part f.?
- i. What is the expanded numeral in part f.?

2. For each setting (parts a. – e.); do each of the following:
  - ✓ Write a simple, short story problem that school children might relate to that would lead to the addition or subtraction setting.
  - ✓ Model finding the solution to the story problem with bean sticks.
  - ✓ Sketch your work, explain each step and clearly label each diagram.
  - ✓ To start, declare that 1 bean = 1 and sketch a bean a bean stick, give the value of the bean stick.
  - a. Addition: Joining one amount to another amount
  - b. Addition: Adding two parts to find the whole
  - c. Subtraction: Take Away
  - d. Subtraction: Comparison
  - e. Subtraction: The Missing Addend
3. Model each of the following with Cuisenaire Rods.
  - ✓ Sketch your work, explain each step and clearly label each diagram.
  - ✓ Label every rod with the correct color.
  - ✓ Use appropriate terminology such as addend, sum, minuend, subtrahend and difference.
  - a.  $12 + 14$
  - b.  $36 - 18$
4. Look at the **Number and Operations Standard**: Understand numbers, ways of representing numbers, relationships among numbers, and number systems. State three expectations, one for each grade level Pre-K-2, Grades 3 – 5 and Grades 6 - 8 the ideas in the activities in Lab 1 address. Briefly explain how the activities address these expectations.