

**Date:** May 11th 2011

**Student:** Student #1

**Purpose of Diagnostic Task:** To find out which strategies students use to solve addition, subtraction and multiplication problems mentally.

**Ms. Sandra:** Hi.

**Student #1:** Hi.

**Ms. Sandra:** It's May 11th 2011 and I am going to ask you some questions some word problems and what I would like you to do is read the word problem and solve it. You can solve it in your head and do that and explain it to me if you need to use a paper and a pencil then you can do that too but I would like you to explain to me how you got your answer. Okay?

**Louise:** Okay.



**Ms. Sandra begins to read Word Problem #1. The sheet of paper with the word problems is in front of Student#1. Before Ms.Sandra finishes reading the word problem, Student #1 raises her hand.**

**Student #1:** I know it!

**Ms. Sandra:** Okay.

**Student#1:** 55.

**Ms. Sandra:** How did you get that?

**Student #1:** Because 30 plus 20 is 50 and then there's the five and then it's 55.

**Analysis of Problem#1:** Student#1 is mentally able to solve this word problem. She correctly uses addition to solve this problem. She successfully adds by her understanding of place value. She seems very confident when answering this question.

**Ms.Sandra reads the Problem#2.**

**Student#1:** Ummm... 42.

**Ms. Sandra:** Okay how did you get that?

**Student#1:** Like I did 8 plus 4 is 12 and then I do the 10 to the 30 because 20 plus ten is 30 and then it's 40 and then there is 2 left from the 12 and then it's 42.

**Analysis of Word Problem#2:** Student#1 correctly uses addition to solve this word problem. Her understanding of place value helps her to correctly solve the problem. She seems confident when solving this word problem.

**Ms. Sandra begins to read Problem #3 and clarifies the word 'loaf' so Student#1 can better understand the word problem.**

**Student#1:** Ugghhh 90?

**Ms. Sandra:** Okay and how did you get that?

**Student#1:** I did 5 times 18.

**Ms. Sandra:** Okay and how did you get that?

**Student#1:** I did 5 times 18 because 5, 10, 15, 20, 25, 30, 35, 40... and then I count with my fingers to 18 and then I got 90. Is it right? 90?

**Ms. Sandra:** Write down what you think the answer is. I am not going to tell you.

**Student#1:** Wait!

**Analysis of Word Problem #3:** Student#1 can mentally solve this word problem by multiplying. She uses the strategy of skip counting by 5's to multiply  $5 \times 18$  and at a certain point admits to using her fingers when skip counting. She correctly answers the word problem but begins to demonstrate a lack of certainty.

**Student#1 double checks her answer by skip-counting by 5's once again.**

**Student#1:** Yes!

**Student#1 seems secure in her answer. Ms. Sandra reads Problem# 4. Student#1 thinks quietly to herself.**

**Student#1:** I don't know.

**Ms. Sandra:** You can use the paper and pencil.

**Student#1 begins to write something on the paper.**

**Ms. Sandra:** How would you solve that?

**Student#1:** Maybe like 73, ugh 37 plus what is 100? Like that?

**Student#1 re- reads the question to Louise.**

**Student#1:** I don't know because I am not good at Math. No.

**Analysis of Word Problem #4:** Student#1 does not answer this question. She seems unsure about which method of computation to use to solve this problem. She seems to begin to demonstrate a lack of confidence in her math abilities and so does not answer the question.

**Ms. Sandra reads Problem# 5.**

**Student#1:** I think 50?

**Ms. Sandra:** And how did you solve that problem?

**Student#1:** Because I did 10 minus 60 and wait... Yes I did 10- 60 is 55 and 5 minus 5 is 0. I think so.

**Analysis of Word Problem #5:** Student#1 correctly uses subtraction to solve this problem mentally; however, she is not accurate in describing her strategy. She does answer the word problem correctly.

**Ms. Sandra reads Word Problem #6 and explains the word 'note' to Student #1. Student#1 seems to understand.**

**Student#1:** 12.

**Ms. Sandra:** Okay and how did you get that answer?

**Student#1:** Ummm... I ddi ummm 10, 20, 30 and then there were.... yeah... no... no. Yes!

**Ms. Sandra:** How did you get that answer?

**Student#1:** I did 10, 20, 30 till I get to 120 and till there you have to have like 12 things.

**Ms. Sandra:** Alright! Thanks!

**Analysis of Word Problem#6:** Student#1 is able to solve this word problem mentally. The strategy that she uses to solve this word problem is skip counting by 10's.

**Overall Analysis:** Student#1 is able to mentally solve five out of six of the word problems. Of the five that she had completed, she accurately used the correct method of computation to solve the problem. Building her confidence in Math is one area that could develop.