Name of Student: Student#1
Name of Teacher Conducting One on One Conference: Ms. S. Pozzobon
Date: May 27th 2011
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 27th 2011. I am gonna ask you some word problem and I am gonna ask you to solve it. Try to solve it in your head but if you need to umm.. solve it by writing it then you can do that too okay?
Student#1: Okay.

Ms.Sandra reads Word Problem #1. Student#1 thinks silently to herself.

Student#1: 55
Ms.Sandra: And how did you get that?
Student#1: It was easy. First I put 30 plus 20 then then I get 50 and then I only count the 5 there and I saw it was 55.

Analysis of Word Problem#1: Student#1 correctly chooses to use addition to solve this problem. She demonstrates an understanding of place value which helps her to calculate her answer.

Ms.Sandra reads Word Problem#2. Ms.Sandra paraphrases the word problem in order for Student#1 to better understand. She thinks silently on her own.

Student#1: Okay.. okay... 32.
Ms.Sandra: And how did you get that?
Student#1: I did put from the 4, 2 to the 18 then I have 20 then it's easier to count then I did 20 plus 20 and then it was 40 and then I count the 2. It was here left over and then I got 42 yes.
Ms.Sandra: What's the answer? Sorry what did you say?
Student#1: 20 plus 20 is 40... 42
Ms.Sandra: Does that make sense? 24 plus 18 is 32?
Student#1: What?
Ms.Sandra: Does that make sense 24 plus 18 is 32?
Student#1: Not 30.
Ms.Sandra: Oh what did you say?
Student#1: 42.
Ms.Sandra: With a four or a three?

Student#1 puts four fingers up.

Ms.Sandra: Write it down. Oh! Okay sorry I misunderstood. So can you write the answer down?
Student#1: Okay. **(Student#1 writes her answer on the paper)**

<u>Analysis of Word Problem#2:</u> **Student#1** correctly solves this word problem by using addition. Her knowledge of place value helps her solve the problem. **Student#1** partitions the number (breaks the number 42 into 20 and 20 with two left over) in order to more easily and efficiently count.

Ms.Sandra reads Word Problem #3 and clarifies the word 'loaf'. Student#1 thinks silently to herself.

Student#1: That's hard.
Ms.Sandra: Well what would you think you would have to do?
Student#1: Maybe divide them... or it's divided or...
Ms.Sandra: What would you have to do? You wanna figure out how many there are in 5.
Student#1: And in one 18.

Student#1 thinks silently.

Ms.Sandra: What's one way you could help solve the problem and figure it out?
Student#1: You could do it with the minus?
Ms.Sandra: Well what do you think?
Student#1: No because I think it's not divided. I only know..
Ms.Sandra: Do you want to use manipulatives?
Student#1: Yes.
Ms.Sandra: Okay go get manipulatives.

Student#1 runs to get manipulatives to help her solve the word problem. Student#1 begins to place the beans on the floor. She has independently made 5 groups with 18 beans in each group.

Ms.Sandra: And what's your answer **Student#1**?
Student#1: I think it's ... 40.....74?
Ms.Sandra: Okay and why do you think that?
Student#1: Because I count it with every..
Ms.Sandra: Well what did you do first?
Student#1: First I thought.. umm.. I can do it in my head but then I thought there are so big numbers, I could use beans.
Ms.Sandra: Okay. What did you do with the beans?
Student#1: In each group 18.There 18 there 18 there 18.. there not more because I put them already away.

Ms.Sandra: And then what did you do?
Student#1: Then I count them all and I counted 74.
Ms.Sandra: Alright. Thanks

Analysis of Word Problem #3: At first **Student#1** seems apprehensive about figuring out how to solve this word problem as she seems to have a lack of confidence when working with 'big numbers'. The use of manipulatives helps her to feel more comfortable working with the numbers. At first, **Student#1** is unsure of how to solve the problem and thinks about using subtraction and division; however, with the use of manipulatives she demonstrates that her understanding of how to solve the problem would be to add 18 groups of 5 (repeated addition). Although she does not state that this question requires her to use multiplication, through explaining her thinking with the use of manipulatives it is clear that she understands how to correctly solve this problem. This is demonstrated through her creation of the five groups of 18. Although she is able to apply her knowledge of using repeated addition to solve this multiplication problem, her knowledge of numbers 1-100 is not yet strong enough for her to accurately solve this problem. Further reinforcement with her numbers 1-100 would be recommended.

Ms.Sandra reads Word Problem#4.

Student#1: Ohhh...
Ms.Sandra: What would you have to do?
Student#1: I don't think I can do it with the beans.
Ms.Sandra: What do you think you have to do?
Student#1: Umm.. 90.. 90... 80... (**Student#1 thinks silently on her own**)... 77.
Ms.Sandra: Okay how did you get that?
Student#1: I.. is it right?
Ms.Sandra: How did you get that?

Student#1: I did 90... 100 then I did 90 then I did 80, then I did 70, then I put the 7. Oh! I need to take the 7 away! Then it's not right! Ummm... **(Student#1 thinks silently on her own. Through explaining her strategy to her teacher, Student#1 begins to understand that she has made an error in her calculations. She then changes her answer)** ... 60...**(Student#1 thinks on her own and counts)**... then it's 67.

Student#1: I did 90, 80 and 70 then I count... it 's 7 uggh!!! Why? Then I count the 7 from them away but... it can't don't be right.
Student#1: Alright! What would it be?

After realizing through her thinking that her answer is incorrect, Student#1 continues to think silently on her own.

Ms.Sandra: So you have made it down to 70 and then how much would you take away you were saying?
Student#1: Umm... 7.
Ms.Sandra: Okay so how?
Student#1: Then I go to 60.
Ms.Sandra: And if you go to 60, how much is that? How much... if you take 70.. if you're at 70... if you go to 60 how much did you take away?
Student#1: One.
Ms.Sandra: One what?
Student#1: One number?
Ms.Sandra: Does that make sense? That 70 minus one is 60?
Student#1: Yes.. no. Huh?
Ms.Sandra: What are you taking away?
Student#1: One.
Ms.Sandra: One what?
Student#1: One counter maybe? Yes 1.
Ms.Sandra: Okay so we're gonna move on right? Okay so it's around that much.
Student#1: Yes I'm not so... and I also think that's wrong **(Student#1 points to the answer she wrote on the paper '77')** because I saw that in one group I did not 18 but 19.
Ms.Sandra: Okay that's okay. We are going to move on.

Analysis of Word Problem#4: Student#1 understands that she is to use subtraction to solve this word problem. She begins to solve this word problem by counting backwards from 100 by tens. At first she incorrectly identifies her answer as 77; however, changes her answer through thinking and explaining her strategy to the teacher. Through prompting by her teacher, **Student#1** comes closer to solving the problem accurately; however, seems to become confused when asked the value of how much she is subtracting (for example, instead of taking away 'one ten', **Student#1** understands this as 'one'.)

Ms.Sandra reads Word Problem#5. Student#1 looks at the paper and reads.
Student#1: Where? Where are we?

Ms.Sandra: Number 5 there.

Ms.Sandra continues to read Word Problem#5.

Student#1: Aha!
Ms.Sandra: And what would you have to do?
Student#1: 50 maybe?
Ms.Sandra: I... I did...uggh.. from there are 5 and there are 5. Then I noticed I could take the five away to have the five, can we say? And then I said ten and ten is then 50! Yes!

Analysis of Word Problem#5: **Student#1** correctly solves this word problem using subtraction. She is confident in her answer.

Ms.Sandra reads Word Problem#6. They discuss the meaning of the word problem.
Student#1: Huh! I think it should be three... because you could have a 50...
Ms.Sandra: But we can't. We only have tens.

Student#1 begins to count on her own using her fingers. On each finger she is counting by tens.

Student#1: 12
Ms.Sandra: Okay and how did you get that?
Student#1: You... you did 20 like you one...
Ms.Sandra: What did you do?

Student#1 begins to count out loud by tens to 100 using her fingers.

Student#1: And then again 20 because the 20 is there and then I have 12. Yes!

Analysis of Word Problem#6: **Student#1** correctly solves this word problem. She uses her understanding of the tens times tables to help her accurately solve the problem. From there, her understanding of place value helps her to understand that she must add two more tens to make twenty, which would make the answer 12.

Ms.Sandra: Okay thanks!