

# First Steps In Mathematics ...

April 14<sup>th</sup>, 2010 C. VanderRee

## A Refresher ...

1. Know where to start when a child is referred.
2. Review interpreting a child's results.
3. Make recommendations
4. Primary / DMA Math Assessment Follow-up
5. What more do you need?

# A Referral ...

Grade	FSiM Tasks (First Steps in Mathematics)
K	Subitizing, Counting Principles, Hide the Jelly Beans
1	Subitizing, Counting Principles, Skip Counting, Hide the Jelly Beans
2	Skip Counting, Animals, Up to and Over 100
3	Animals, Up to and Through the Hundreds, Dinosaurs, Change Task 1
4	Dinosaurs, 52 Candies, 43 Candies, 116 Candies, Change Task 1
5	Dinosaurs, 52 Candies, 43 Candies, 116 Candies, Change Task 1 or 2
6	Dinosaurs, 52 Candies, 43 Candies, 116 Candies, Change Task 2
7	Dinosaurs, 52 Candies, 43 Candies, 116 Candies, Change Task 2

Posted on the website ...

# Now dig deeper ... cb page 165

## List of Diagnostic Tasks available ...

### WHOLE AND DECIMAL NUMBERS

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### OPERATIONS

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### COMPUTATIONS

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# Now interpret the results ...

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Where is 'Sally' stuck?

What grade do you think she is?

Does it make a difference if you know her grade?

# Summarize your findings ...

## First Steps in Mathematics Diagnostic Assessment

School: \_\_\_\_\_  
Grade: \_\_\_\_\_ Teacher: \_\_\_\_\_  
Assessment Date: March 22, 2010

Student: 'Sally'  
Tasks: Subtracting, Counting Principles, Skip Counting, Animals, Up to and Through Hundreds,  
Saying the Number Sequence, Dinosaurs, 52 Candies, Circle the Biggest, What's Next?, Read,  
Write and Say Numbers, Flexible Numbers

Summary of Assessment:

Able to:

Difficulty with:

# My

## Able to:

- Subitized to 9 (able to recognize at a glance the total)
- Able to orally count a small collection by 1's
- Fluently recorded numbers to 109
- With prompting completed the 52 candies task correctly, but first stated that the  $5 = 500$  before the teacher corrected her and helped her realize it was 50.
- Could record the numbers as they read to her up to the 1000s and could record a numeral in words up to 1000s

## Difficulty with:

- Does not fully trust her count, not realizing that counting by 2's should give her the same amount
- Unable to deal with the 15<sup>th</sup> counter when skip counting
- Does not fluently break a number into its parts, could mentally determine that 6 and 6 give 12, but was unable to give any other combinations until prompted with manipulatives
- cannot extend numbers beyond the 100s, after 109, she recorded 200, some patterns noted include: 498, 499, 4100 and also 508, 509, 600 *Note: when the teacher had her state the number out loud, Sally was able to correct her errors.*
- Does not understand that the position of a digit refers to the quantity it represents and was unsuccessful with the dinosaur task – in fact – when asked to explain her reasoning, circled groups of 6 when the digit 3 in 35, she claimed that  $3 + 3 = 6$ , did the same for 5, circled 10 of them, when asked where the 3+3 came from she was unable to explain
- When comparing numbers, incorrectly stated that 37 is larger than 370 because the 0 is at the end
- Could not identify the number that comes after numbers into the 100's and beyond
- Unable to record number/words beyond the 1000s
- Was unable to complete the flexible numbers task – ignoring the value stated on the cards and reading only the digit (ex. Saw 10 ones as a 10)

**Diagnostic Level:** During Quantifying (entered typically between ages 5 and 6)

**Summary:**

I am very concerned about the level of mathematical reasoning that Sally has demonstrated. I suspect that some of her success in mathematics in the regular classroom has been because she sometimes gets answers correct 'for the wrong reasons' and as a result has a lot of conceptual misunderstandings. (A good example of this is the method she uses to compare numbers). I recommend that further assessment be completed so that a profiled beyond mathematics can be developed. She obviously is quite frustrated in mathematics and gives up quickly. In the meantime, intensive work to establish a stronger number sense including partitioning and place value needs to be done to strengthen her foundations. Encourage her to keep explaining her reasoning and seeking to understand the 'reasons' behind the mathematics so she can begin to get correct answers for the 'right' reasons.

# Make Recommendations

Go to page 158 in the course book to make some decisions

Key understandings	Diagnostic tasks	Emergent phase	Matching phase	Quantifying phase	Partitioning phase
<b>Whole and Decimal Numbers</b> <b>KU 4</b> <ul style="list-style-type: none"> <li>• K-Grade 3 SLA</li> <li>• Grades 3-5 SLA</li> </ul>	<b>1-9 Repeating Sequence</b> p. 171 <b>Up To and Through the Hundreds</b> p. 171	...memorize the 1 to 10 (and may be to 13) words in sequence?	...hear the 4 to 9 part of the sequence in 14 to 19? ...predict and name the decades by following the 1 to 9 sequence? ...repeat the 1 to 9 sequence within each decade?	...repeat the decade sequence and 1 to 9 sequence within each of the hundreds? ...write 500 6000 015 for five hundred and six thousand and fifteen? ..repeat the decade	...repeat the hundreds, decade sequence and 1 to 9 sequence within each of the thousands? ...readily use the names of the first several places from right (ones, tens, hundreds, ones of thousands)? ...give explanations based on correct place value understanding?
<b>Whole and Decimal Numbers</b> <b>KU 4</b> <ul style="list-style-type: none"> <li>• Grades 3-5 SLA</li> <li>• Grades 5-8 SLA</li> <li>• Case Study 3</li> <li>• Did You Know, p. 63</li> </ul>	<b>Read, Write, and Say Numbers</b> p. 188 What's Next?				...repeat the hundreds,

Which key understanding was being assessed?

Which activities will support this key understanding?



# Suggested Activities ...

Some activities I recommend out of the First Steps in Mathematics: Number Sense include:

KU1 We can count a collection to see how many are in it

- Constant addition p.28 and page 30 – focus 90 and higher
- Skip counting a large collection p.29
- Skip counting money p.29
- Which number is bigger? P. 30
- Counting on p.30
- Bucket Loads – p.31

KU4 The numbers are in a particular order and there are patterns in the way we say them that help us to remember order

- Next Number p.56
- Bicycle Odometer p. 56
- Comparing Numbers p.57

KU5 There are patterns in the way we write whole numbers that help us to remember their order

- Place Value Beans p.67
- Expanded Notation p.67
- Patterns in Numbers p.68

# Fall Profiles

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1. Data was collected ...
2. Profiles were built, data was shared.

# HL

Grade: **One**      Date: \_\_\_\_\_      Number of Students Assessed: \_\_\_\_

Number of Students:	Not Meeting	Partially Meeting	Fully Meeting
Subitizing to Nine			
Counting Principles			
Partitioning			
Order of Numbers	N/A	N/A	N/A
Place Value	N/A	N/A	N/A
Operations	N/A	N/A	N/A

Criteria:

Subitizing: Dot Cards 0-9

Not meeting: 0-4

Partially meeting: 5-7

Fully Meeting: 7-9

Counting Principles (4 principles)

Not meeting: 0-1

Partially meeting: 2-3

Fully meeting: 4

Partitioning (start at 5)

Not meeting: not able

Partially meeting: 5-7

Fully meeting: 7-9

## Discussion ‘What’s next?’

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1. Spring assessment ?
2. What would you do with the results?
3. What about the DMA?
4. Ideas?