

## Math Case Study -Rinke

PD is a nine-year-old boy in second grade at Atherton elementary school. He receives 60 minutes in the resource room for explicit teaching in both mathematics and literacy. He is identified under the special education classification of other health impairment with a diagnosis of ADHD. This affects his executive functioning, attention and stamina when he is in the general classroom. PD is an engaged student but often struggles with multi step second grade word problems as well as checking his work. He loves to do hands-on activities and visual learning and struggles when asked to complete mental math challenges. Although he still has an IEP goal for mathematics, it is his favorite subject and he is very confident in his abilities, even taking pre-assessments. His go-to strategy right now for any mathematics problem is counting on his fingers, which does work for some tasks but other times it leaves him confused. In the most recent Winter NWEA testing he tested better in Mathematics than in Literacy, so math is his strength between the two subjects. I chose the student because he is a very sweet individual who is eager to learn when he comes to school, but is missing key strategies to allow him to show his thought processes.

I chose the KeyMath-3 Diagnostic Assessment (Form A) and a curriculum based measurement, focused on double digit edition. I chose KeyMath-3 Diagnostic Assessment because it focuses on exploring conceptual understanding and I was able to see clearly his strengths and weaknesses within mathematics. I also felt confident giving this assessment because I was able to practice with peers in a previous course. Although I didn't have to administer the whole assessment, I still wanted to see how PD did with the other sections. We were able to complete the whole assessment and I was able to see his abilities for each section. I chose this CBM because it will provide a look of how PD can use new strategies as he continues to learn in the general education classroom.

The student's strengths and evidence from assessments to support those strengths

PD's strength is shown in numeration where he received a scale score of 10 placing him in the 50th percentile. This shows that he has a foundational understanding of number identification, place value and counting and is average in his age group. I also noticed his geometry score was an 8, which puts him in the 25th percentile, which is in the average range meaning he has a solid understanding of relationships between shapes and more abstract concepts.

While looking over PD's scores, the assessment showed a significant drop in foundations of problem-solving and applied problem-solving where PD scored in the 5th percentile. This shows that while he understands what numbers are, he struggles with the logic of how to use them when solving a story. Also, his mental computation and estimation score was quite low in

the 9th percentile, showing he might be lacking fluency without the help of visual aids. Lastly, in his total test standard score of 75 but some in the 5th percentile showing that price is well below average for his age group.

I think PD's OHI diagnosis most likely plays a major role in these results. His low scores and mental computation implied problem-solving are closely related with deficits in working memory processing speed and attention. When there is a problem that requires multiple steps, PD often will lose his place mentally and have trouble figuring out what to do next. He has a supportive home environment, where his mom works with him to complete assignments; however his disability creates a challenge where his strong knowledge of numbers cannot be effectively used to complete complex tasks.

The results of these assessments show that PD does not need more practice with basic number identification, but will be needing heavy scaffolding in mathematical reasoning. In future instruction, I plan to implement visuals/manipulatives such as number lines, base 10 boards and counters in order to help him organize information in word problems to support his mental computation skills. Geometry is considered a strength, so I am also considering using geometric manipulatives to help teach operation concepts. My goal would be to move him from a 1.9 grade equivalent in applications to his 2.8 strength in numeration by teaching him to draw out his thought process that he currently cannot do all in his head.

**Consent for Documentation of Course Project for MSU Internship**

Dear Parents/Guardians,

I am an intern who is co-teaching this semester with Ms. Pike in your child's Resource classroom. In addition to interning in your child's classroom, I am also taking courses at Michigan State University to complete my requirement for obtaining my teaching license in both elementary education and K-12 special education. As is typical, in my courses I am asked to engage in activities that involve working individually with a student. For one of my courses, I am asked to determine a student's current mathematics level by completing a brief standardized mathematics assessments, conducting observations, and collecting examples and samples of the child's mathematical performance.

As a regular part of my ongoing course work and my internship responsibilities, I mask or use a pseudonym for the name of your student on any written work or visual work (e.g., pictures, drawings, paintings) – including the assessment – shared in class for an assignment. When discussing classroom interactions and lessons with my colleagues, I use pseudonyms exclude sensitive information about a child or the child's family. My course instructors are responsible for providing guidance to me and making sure I maintain appropriate confidentiality as I complete course assignments and interact with my colleagues. The written course project will only be shared with my course instructors. My Collaborating Teacher also assists me in making sure I maintain confidentiality of the students in our class.

Below is a space for signing to provide consent for me to work with your child and to document his mathematics achievement and performance. Again, confidentiality will be maintained. If you have any questions about this project, I am happy to speak further with you regarding what it will involve or how the information will be used; please do not hesitate to contact me at rinkemol@msu.edu. If you could please indicate yes or no and have your child return the consent form that would be greatly appreciated.

Sincerely,  
Molleigh Rinke

Yes     NO

I grant consent for you to work with my student in mathematics, including conducting a brief mathematics assessment, conducting observations, and collecting examples and samples of the child's mathematical performance.

Amber L. Dixon                      Amber Dixon  
Parent Signature                      Parent Name

P. Dixon                                      2/12/16  
Child Name                                      Date

**KeyMath3**  
Austin J. Conroy  
**Diagnostic Assessment**

Test Date: Year 2016 Month 2 Day 19  
Birth Date: Year 2016 Month 12 Day 19  
Chronological Age: Year 9 Month 2 Day 0  
\*See Chapter 2 in the KeyMath-3 DA manual for instructions on how to calculate chronological age.

Examinee: P. Dixon Grade: 2nd Sex:  F  M  
School: Atherton Elementary School Math Teacher: Paige Ubschak  
Examiner: Molleigh Rinke Classification/Diagnosis: OHI  
Reason for Assessment: Open Evaluation

**SCORE SUMMARY** Norms Used:  Grade Age  Subtest Confidence Level:  68%  90%  Area and Total Test Confidence Level:  90%  95%

Subtest/Area	Raw Score	Scale Score (Tables A.1-A.3)	Confidence-Interval Value (Tables A.4-A.6)	Confidence Interval	Grade/Age Equivalent (Tables A.7-A.8)	Percentile Rank (Table A.9)
Numeration	16	10	+	-	2.8	95 <sup>th</sup>
Algebra	7	7	+	-	1.8	90 <sup>th</sup>
Geometry	12	8	+	-	1.8	90 <sup>th</sup>
Measurement	8	7	+	-	1.5	90 <sup>th</sup>
Data Analysis and Probability	9	7	+	-	1.8	90 <sup>th</sup>
<b>Area Raw Score</b>						
<b>BASIC CONCEPTS</b>	52	38	+	-	2.0	80 <sup>th</sup>
Mental Computation and Estimation	7	6	+	-	1.9	90 <sup>th</sup>
Addition and Subtraction	10	7	+	-	2.2	90 <sup>th</sup>
Multiplication and Division	NA	NA	+	-	NA	NA
<b>OPERATIONS</b>						
Foundations of Problem Solving	17	13	+	-	2.0	90 <sup>th</sup>
Applied Problem Solving	7	5	+	-	1.8	90 <sup>th</sup>
OPERATIONS	8	5	+	-	1.7	90 <sup>th</sup>
<b>APPLICATIONS</b>						
Foundations of Problem Solving	15	11	+	-	1.9	90 <sup>th</sup>
Applied Problem Solving	8	5	+	-	1.7	90 <sup>th</sup>
APPLICATIONS	15	11	+	-	1.9	90 <sup>th</sup>
<b>Total Test</b>						
BASIC CONCEPTS Area Raw Score + OPERATIONS Area Raw Score + APPLICATIONS Area Raw Score = 52 + 17 + 15 = 84    75    +    -    1.9    95 <sup>th</sup>						

**PEARSON**  
Product Number 31101

**2 Digit Addition With Regrouping**

0/10

$\begin{array}{r} 65 \\ + 89 \\ \hline \end{array}$	$\begin{array}{r} 26 \\ + 88 \\ \hline \end{array}$	$\begin{array}{r} 11 \\ + 69 \\ \hline \end{array}$	$\begin{array}{r} 26 \\ + 95 \\ \hline \end{array}$
$\begin{array}{r} 16 \\ + 47 \\ \hline \end{array}$	$\begin{array}{r} 11 \\ + 98 \\ \hline \end{array}$	$\begin{array}{r} 65 \\ + 76 \\ \hline \end{array}$	$\begin{array}{r} 63 \\ + 68 \\ \hline \end{array}$