Predicting End of Year Mathematics Achievement with Opportunity to Learn and CBM Measures: Year 1 Report

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Opportunity to Learn (OTL) the Intended Curriculum

Definition: Opportunity to Learn
The degree to which a teacher dedicates instructional time and content coverage to the intended curriculum objectives emphasizing higher-order cognitive processes, evidence-based instructional practices, and alternative grouping formats.

(Kurz, 2011)

A unified conceptualization of OTL based on 50+ years of empirical research.
NCAASE Multiple Measures Study where OTL is featured as a Process Variable

Our Key Research Questions

• Do students with disabilities have equal access to the general curriculum in comparison to their classmates without disabilities?

• What is the relationship between opportunity to learn and academic achievement in mathematics for all students? Is the relationship different for students with and without disabilities?

• To what extent are variations in growth for students with and without disabilities related to OTL?
# MyiLOGS: Calendar for Reporting Content Covered & Instructional Time

**School:** Desert Meadows  
**Name:** Teacher turquoise1005m  
**Class:** Tunnell Gr. 8 Math

## December 2010

<table>
<thead>
<tr>
<th>Monday</th>
<th>Tuesday</th>
<th>Wednesday</th>
<th>Thursday</th>
<th>Friday</th>
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</thead>
</table>
| S1 Number/ Operations | S2C2P02 Compare/order                                                   | S2C3P02 Counting-factorial notation 15 min.                              | S2C2P01 Theoretical/experimental 15 min.                               | Testing 60 min.  
Time Not Available for Instruction 15 min.  
Concept Review Bell Work 5 min. |
| S1C2P01 Classify rational/irrational                                  | S2C2P01 Theoretical/experimental 15 min.                               | S2C2P02 Counting-factorial notation 15 min.                              | S2C2P03 Sample space for dep/indep 15 min.                              | Concept Review Bell Work 10 min.  
Time Not Available for Instruction 10 min. |
| S1C1P03 model read numbers                                             | S2C2P02 Sample space for dep/indep 15 min.                              | S2C2P02 Compare outcome/prediction 15 min.                               | S2C3P02 Counting-factorial notation 15 min.                              | Concept Review Bell Work 10 min.  
Time Not Available for Instruction 10 min. |
| S1C1P02 Factor/multiples/prime                                        | S2C2P02 Compare outcome/prediction 15 min.                              | Concept Review Bell Work 10 min.  
Time Not Available for Instruction 10 min.                                  | S2C3P02 Sample space for dep/indep 15 min.                              | Concept Review Bell Work 10 min.  
Time Not Available for Instruction 10 min. |
| S1C1P03 model solve absolute value                                     | Time Not Available for Instruction 40 min.                              | Time Not Available for Instruction 60 min.                               | Time Not Available for Instruction 10 min.                               |                                                                     |
| S1C2P02 Rational number effects                                        | S2C2P02 Compare outcome/prediction 40 min.                              | Time Not Available for Instruction 30 min.                               | S3C3P01 Alg. expressions, equations, inequalities 15 min.               |                                                                     |
| S1C2P03 Percent Inc., dec, simple interest                            | S2C2P01 Theoretical/experimental 15 min.                               | S3C3P01 Alg. expressions, equations, inequalities 15 min.               | S3C3P02 Linear equations and inequalities 15 min.                      |                                                                     |
| S1C2P04 std/scientific notation converter                              | S2C2P02 Sample space for dep/indep 15 min.                              | S3C3P02 Evaluate expression 30 min.                                      | S3C3P02 Linear equations and inequalities 15 min.                      |                                                                     |
| S1C2P05 Simplify expression                                            | S2C2P02 Sample space for dep/indep 15 min.                              | S3C3P02 Evaluate expression 30 min.                                      | S3C3P02 Linear equations and inequalities 15 min.                      |                                                                     |
| S1C1P02 Estimate.                                                      | S2C2P02 Compare outcome/prediction 15 min.                              | S3C3P02 Evaluate expression 30 min.                                      | S3C3P02 Linear equations and inequalities 15 min.                      |                                                                     |
| S1C1P03 Estimate on number line                                        | S2C2P02 Counting-factorial notation 15 min.                              | S3C3P02 Evaluate expression 30 min.                                      | S3C3P02 Linear equations and inequalities 15 min.                      |                                                                     |
| S2 Data Analy., Prob., Discrete Math                                   | Time Not Available for Instruction 40 min.                              | S3C3P02 Evaluate expression 30 min.                                      | S3C3P02 Linear equations and inequalities 15 min.                      |                                                                     |
| S3 Patterns, Algebra, and Functions                                   | Time Not Available for Instruction 30 min.                               | S3C3P02 Evaluate expression 30 min.                                      | S3C3P05 Linear equations and inequalities 15 min.                      |                                                                     |
| S4 Geometry and Measurement                                           | S3C3P01 Alg. expressions, equations, inequalities 15 min.               | S3C3P03 Linear equations and inequalities 20 min.                        | S3C3P01 Alg. expressions, equations, inequalities 10 min.              |                                                                     |
| S5 Structure, Logic                                                  | S3C3P02 Evaluate expression 15 min.                                      | Time Not Available for Instruction 35 min.                               | S3C3P05 Linear equations and inequalities 20 min.                      |                                                                     |
| Custom Skills/Activities                                              | S3C3P03 Linear equations and inequalities 20 min.                        | Time Not Available for Instruction 45 min.                               | S3C3P01 Alg. expressions, equations, inequalities 10 min.              |                                                                     |

Drag skills from the calendar here to delete them.
Multiple Measures Study Design
Four 2-year Longitudinal Cohorts: 4-5, 5-6, 6-7, & 7-8

State Achievement Test 2013

Classroom Instruction Grades 4 - 8

Daily MyiLOGS Records Class-wide Sample of 30-45 days for Target Students

Easy CBM Time 1
Easy CBM Time 2
Easy CBM Time 3
Easy CBM Time 4

State Achievement Test 2014

Apr → Sept → Nov → Jan → Mar → Apr
Multiple Measures Study: Year 1 Findings

• Teachers (N = 69) and students (N = 261; 136 SWD + 125 SWoD) from AZ & OR schools grades 4\textsuperscript{th}-8\textsuperscript{th}.

• A regression analysis showed OTL, easyCBM, grade, and special education status predicted nearly 67\% of the variance in students’ end of year mathematics achievement as measured by the OR Assessment of Knowledge & Skills in Math. By comparison, this same set of measures accounted for 61\% of the variance in students’ end of year mathematics achievement on the AZ Instructional Measurement of Skills test.

• Inspection of the regression results showed
  – CBM measures are the best single predictor of end-of-year achievement (46\% of the variance)
  – OTL indices of time, content, cognitive processes, and instructional practices contributed an additional 10\% to the prediction of end of year achievement for students in mathematics.
Thank You & Stay in Touch

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