Student Assessment
Turn Your Results Into Action

What are we looking at?
Where are we?
Where do we want to be?
How are we going to get there?
Three Realities of Assessment

What are we looking at?
• Understanding the terms
• Connecting the scores

Where are we and where do we want to be?
• Analyze the scores and set realistic goals

How are we going to get there?
• Map a plan
• ACSI Data Online & Paper Reports
• Resources available and using them effectively
Let’s plan a trip (index card)

1. Where are you?
2. Where do you want to be (destination must be outside of the US where you have not been)?
3. How are you going to get there? Quickly brainstorm a plan of action, resources, steps, etc.
   - (Activity can be done for a school, grade, level, class, student, etc. to set goals and achieve them)
My Brainstorm

1) Col. Spts → Ireland. My ancestry is in Ireland.
2) Summer 2016
3) ~$3000 (Guestimate)
4) 2 weeks, hotels in various locations (continental breakfast)
5) By plane, w/ various connections; rental cars or taxi once we’re there. I’ve researched the cost and it’s around ~$2000 plus for plane + hotel + $250, so I’ll need to adjust my budget. (Consider price)
6) Had to look these up: museums, historical museum
   • Free air/coach w/ Dublin Pass (will save places)
   • ~200 for 2 people; look-up
7) Local restaurants (~50/2/day)

Side 2-As Needed

8) Research; competing travel + accommodations: approx. cost; local food; time to visit each exhibit (need to really narrow this down); go to various sites for passes; packing list; contacts; currency @ time of travel, etc.
   - I’ll probably spend several days for planning of research because I'm our kids during that time ~ 4-5 months before purchase and set-up childcare need to choose sites so 2 months. ok

9) Know your weather, don’t overpack, bring several snacks for the flight; converters, etc.

Steps 1 and 2 are the simplest!

Try the in between that makes the difference and helps set the plan into motion.

Is the pay off worth it? Yes!
What is TerraNova?

- **Norm-referenced**
  - Compares student performance to a group (Nationally/Locally)
- **Criterion-referenced**
  - Examines student performance on objectives and subskills
  - Identifies areas of strength/weakness
- **Standards Alignment**
  - National & State Standards
  - Educator Panel/Curriculum Study
  - Stratified Norming Sample (2011)
- **Assessment Components**
  - Core Content Areas: Reading, Language, Math, Science, and Social Studies
  - Additional Subtests: Vocabulary, Language Mechanics, Math Computation, Spelling, Word Analysis
RELATIONSHIPS: COMPARISONS

Key Areas of Evaluation

Norm-referenced Comparison Scores
- National Percentile (NP)
- National Stanine (NS)
- Normal Curve Equivalent (NCE)

Growth Scores
- Normal Curve Equivalent (NCE)
- Scale Score (SS)
- Lexiles

Performance
- Criterion Referenced
- Performance Levels/Bands
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Comparison Scores
Percentile Rank (NP)

The relative standing of a student compared to other students

Useful for evaluating student performance on a particular test

• Reading score of 76NP = Student scored higher than 76% of students who took the test
• Cannot be averaged, non-equal interval

Useful for evaluating student/group performance on a particular test (see chart below)

<table>
<thead>
<tr>
<th>Achievement Range</th>
<th>Traditional Ranges Percentiles</th>
<th>Traditional Ranges NCEs</th>
<th>More Common Ranges Percentiles</th>
<th>More Common Ranges NCEs</th>
</tr>
</thead>
<tbody>
<tr>
<td>High Achievement</td>
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</tr>
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<td>1-40 NP</td>
<td>1-44 NCE</td>
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</tbody>
</table>
Comparison Scores
Stanine (NS or S)

A mean of 5 and a standard deviation of 2

Represents equal units of achievement
- Below Average (1-3)
- Average (4-6)
- Above Average (7-9)

Can be averaged

Great for quick placement of students
Comparison Scores
Normal Curve Equivalent (NCE)

Conversion from Percentile Rank

99 equal units of the normal curve

Used to compute percentile rank for the typical student in a group

Can also be used to measure growth

- Andrew scored 2 NCEs higher in Math than Reading
- Grade 4 scored 6 NCEs higher this year in Reading
1) Record 5th Grade Scale Score & NP of Mean NCE
RELATIONSHIPS: COMPARISONS

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- National Stanine (NS)
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Performance
Growth Score: Normal Curve Equivalent (NCE)

- Normal Growth: same NCE from one year to next
- Exceptional Growth: 2-3 NCE gain from one year to next
- Significant Gain/Loss: more than 7NCEs
- NCE is used to compute percentile rank for the typical student in a group

<table>
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</table>
All Grades Dashboard

Mean NCE for SCHOOL ONE

ACSI Spring 2013, Subtest: Mathematics

<table>
<thead>
<tr>
<th>Grade</th>
<th># of Students</th>
<th>Mean SS</th>
<th>Mean NCE</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>15</td>
<td>583.7</td>
<td>76.3</td>
</tr>
<tr>
<td>3</td>
<td>38</td>
<td>638.3</td>
<td>62.8</td>
</tr>
<tr>
<td>5</td>
<td>41</td>
<td>676.7</td>
<td>63.4</td>
</tr>
<tr>
<td>7</td>
<td>39</td>
<td>696.7</td>
<td>61.0</td>
</tr>
<tr>
<td>9</td>
<td>64</td>
<td>727.3</td>
<td>64.8</td>
</tr>
</tbody>
</table>

Record 5th Grade NCE
Growth Score: Scale Score (SS)

- Derived from raw score, Rasch, or IRT scoring methods
- Basis for all other norm-referenced scores
- Describes achievement on a continuum from Kindergarten through Grade 12
- Equal interval, range from 100 – 900
- *Scale scores in different content areas are not comparable.*
Growth Score: Lexile

- Measures a student’s reading ability or the difficulty of text
- Helps a reader find books and articles at an appropriate level of difficulty and determine how well that reader will likely comprehend a text.
- Use to monitor a reader's growth in reading ability over time.
RELATIONSHIPS: COMPARISONS

Key Areas of Evaluation

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Growth Scores
- Scale Score (SS)
- Lexiles

Performance
- Criterion Referenced
- Performance Levels/Bands
Performance Score: Criterion Reference (OPI)

- Reported for each instructional objective
- Content mastery levels by objective (i.e. High, Moderate/Partial, & Low/Non-Mastery)
Performance Score: Performance Levels by Grade and Band

- Scale Score’s five performance levels

**Low Mastery**
- Starting Out

**Moderate Mastery**
- Progressing
- Nearing Proficiency

**High Mastery**
- Proficient
- Advanced
Key Areas of Evaluation

Comparison
- Percentile Rank
- Stanine
- Normal Curve Equivalent

Growth
- Normal Curve Equivalent
- Scale Scores
- Lexile

Performance
- Objective Performance Index
- Performance Levels
TerraNova 3: 5th Grade Math

Using the resources provided, we will explore…

- How our students performed compared to students in the same grade?
- What goals we would like to set?
- The strategies, or resources I can use to meet that goal.
### Key Areas of Evaluation

1. **Norm-referenced Comparison Scores**
   - **National Percentile Rank (NP)**
     - National Average = 50
     - Above Average = 76.99
     - Average = 26-75
     - Below Average = 1-25
   - **Normal Curve Equivalent (NCE)**
     - National Average = 50
     - Above Average = 64-99
     - Average = 37-63
     - Below Average = 1-36
   - **Normal Curve Equivalent (NCE)**
     - Can be averaged, equal interval, computes NP
   - **Scale Score (SS)**
     - Raw score performance level & depending on test (IRT)

2. **Growth Scores**
   - **Criterion Reference Scores (OPI)**
     - Objectives, standards, other measures, etc.
   - **Performance Levels/Bands**
     - Low/1, moderate/2/3, high/4/5

3. **Performance**
   - **Objective Performance Index (OPI)**
     - High Mastery 70-100
     - Moderate Mastery 43-69
     - Low Mastery 0-42
   - **Performance Level/Bands**
     - 1 Starting Out
     - 2 Progressing
     - 3 Nearing Proficiency
     - 4 Proficient
     - 5 Advanced

### Score/Acronym & Definition

- **National Percentile (NP)**
  - Cannot be averaged, unequal interval

### School/Group/Class/Student Score & Observation

### Goal/Expectation

### Resources/Plan
**Where are we?**

**Norm-referenced scores**
- Look at NP of the Mean NCE and NCE
  - Compare each Math score to the national average (50th percentile)
  - Compare each Math score with the achievement range
  - Where do you want to be based on the current score?

- National Stanine
  - Write down a score of 4 and make an observation
    - 1-3 Below Average, 4-6 Average, 7-9 Above Average
  - Student score; Where would you like the student to be based on the current score? How many stanines does the student need to get to the next level (if applicable)?

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Where are we?

- Scale Score (Level 15, Math)
  - Using the Scale Score, what performance level is the student?
  - How many points does the student need to get to the next level?

<table>
<thead>
<tr>
<th>LEVEL 15*</th>
<th>Reading</th>
<th>Language</th>
<th>Math</th>
<th>Science</th>
<th>Social Studies</th>
</tr>
</thead>
<tbody>
<tr>
<td>Nearing Prof. (3)</td>
<td>638–670</td>
<td>643–672</td>
<td>634–668</td>
<td>630–662</td>
<td>634–667</td>
</tr>
<tr>
<td>Step 1 (1)</td>
<td>475–604</td>
<td>480–611</td>
<td>430–598</td>
<td>440–593</td>
<td>495–601</td>
</tr>
<tr>
<td>LOSS/HOSS</td>
<td>475/790</td>
<td>480/782</td>
<td>430/797</td>
<td>440/809</td>
<td>495/770</td>
</tr>
</tbody>
</table>
Performance Levels/Bands: Grade 5 Math

- Use the Scale Score to identify the Performance Level
- Use the chart on the next slide to find the:
  - Grade Level Expectation
  - Mastery Level

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Performance Level Bands
Mastery Performance Levels

<table>
<thead>
<tr>
<th>High Mastery</th>
<th>Moderate Mastery</th>
<th>Low Mastery</th>
</tr>
</thead>
</table>

Identify Performance Levels from the chart (derived from Scale Scores for each Grade Level Subtest)

Objective Performance Index (OPI)

1. Scores derived from Scale Scores
2. Include # correct, difficulty level of the terms, and performance for the test objective
3. Follow Performance Levels
# Data Analysis Activity Form

**Data Analysis Activity: Strength Challenges and Critical Needs**

<table>
<thead>
<tr>
<th>Strengths</th>
<th>Challenges</th>
<th>Critical Needs</th>
</tr>
</thead>
<tbody>
<tr>
<td>75%+ at Mastery</td>
<td>50%-74% at Mastery</td>
<td>&lt;50% at Mastery</td>
</tr>
<tr>
<td>Objective</td>
<td>%</td>
<td>Objective</td>
</tr>
<tr>
<td>83%</td>
<td>Example: Measurement</td>
<td>54%</td>
</tr>
</tbody>
</table>
Criterion Reference Scores
(Grade 5 Math: Data Analysis, Statistics, and Probability)

- Using Data Analysis, Statistics, and Probability…
  - What is the % mastery and category?
  - How many more % points would it take to advance to the next level?
- How many more % points would it take to reach High Mastery (if applicable)?
- Set a goal using one of the questions above
- Use the next two resources provided to help
Use the High Mastery percentages to categorize on Data Analysis Activity Form.
# Objective Focus - Grade 5 Math

Patterns, Functions, & Algebra

## Objectives Summary for SCHOOL ONE

ACS Ha Spring 2013, Grade: 5, Form/Level: G/15, Subtest: Mathematics

<table>
<thead>
<tr>
<th>Objective Title</th>
<th>Total # of Students</th>
<th>Mastery</th>
<th># in Mastery Category</th>
<th>% in Mastery Category</th>
</tr>
</thead>
<tbody>
<tr>
<td>Data, Stats, &amp; Prob</td>
<td>41</td>
<td></td>
<td>High</td>
<td>21</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Moderate</td>
<td>20</td>
</tr>
</tbody>
</table>

## GRADE 5

Level 15 (4.6-6.2)

Item Classifications by Objective and Subskill

<table>
<thead>
<tr>
<th>MATHEMATICS (57)</th>
<th>Questions on Test</th>
<th>Percentage of Test</th>
</tr>
</thead>
<tbody>
<tr>
<td>15 Data Analysis, Statistics, and Probability</td>
<td>8</td>
<td>14%</td>
</tr>
<tr>
<td>read table, chart, diagram</td>
<td>1</td>
<td>2%</td>
</tr>
<tr>
<td>interpret data display</td>
<td>2</td>
<td>4%</td>
</tr>
<tr>
<td>make inferences from data</td>
<td>1</td>
<td>2%</td>
</tr>
<tr>
<td>draw conclusions from data</td>
<td>1</td>
<td>2%</td>
</tr>
<tr>
<td>statistics</td>
<td>2</td>
<td>4%</td>
</tr>
<tr>
<td>probability</td>
<td>1</td>
<td>2%</td>
</tr>
</tbody>
</table>
## Math Competency: Grade 5
### Data Analysis, Statistics, & Probability

<table>
<thead>
<tr>
<th>Data Analysis, Statistics, &amp; Probability</th>
<th>Read table, chart, diagram</th>
<th>• Read grade-level tables, charts &amp; diagrams to find information; use that information to answer questions or solve problems</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Complete, construct, interpret data display</td>
<td>• Create &amp; interpret information in a data table, circle, line or bar graphs, stem-&amp;-leaf plots, pictographs, &amp; frequency charts.</td>
</tr>
<tr>
<td></td>
<td>Make inferences, draw conclusions from data</td>
<td>• Use data from a grade-level table or graphic display to deduce answers from the evidence</td>
</tr>
<tr>
<td>Statistics &amp; probability</td>
<td></td>
<td>• Calculate mean, median, mode &amp; range for a set of numbers in order to answer questions</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Determine probability for a simple event, e.g., using a spinner, selecting a particular item from a set of varying items</td>
</tr>
</tbody>
</table>
Let’s be the teacher in our class…

Let’s be the student
1. Take the 5th Grade Math test (see sampler)
2. Exchange papers with your partner and have them score it
3. How did you do?
4. What did you miss and why?

Let’s be the teacher
1. Use the answer key to find the Objective: Patterns, Functions, and Algebra
2. Go back into the exercises to find the question(s)
3. Evaluate the question(s)
   • Should a student in your class know how to do this by the end of the year?
   • Where do you find this content?
   • Why might a student miss this question?
4. Look through the questions and identify the distractors.
5. Where do you think your students would struggle the most? What immediate changes can be made based on this observation?
6. Review the Teaching Activity table of contents to locate a prepared lesson for PFA (see sample lesson for PFA)
   • How can we use and extend from it?
How are we going to get there? cont.

- Ask these questions as you work through the exercise…
  - Where is this content taught/found in the textbooks?
  - To what depth and duration is it taught?
  - Are there ancillaries…
    - Being used? Could be used? Need to get?

- How can the instructional strategies be modified?
  - Modify, implement, pull in ancillary materials, pacing
  - Pair-Share, questioning techniques, Thinking Maps, GOs, DEAR
  - Small group, pull-out, tutoring, afterschool, online resources

- What enrichment strategies are used to extend learning for above average students?
  - Extension activities, outside projects, special activities with key pullout group

- What are the instructional strategies that may have led to the successes?
  - How can they be used to improve other areas?
Assessment Resources

• Practice Materials, sample items (i.e. Classroom Connections; Grades 2-9)
• Teacher’s Guide to TerraNova3 (K-12)(Objectives, Critical Thinking Skills, Depth of Knowledge, compendium of information for TN3)
• Grade Level Competencies (Grades 1-8)
• Blue Prints and Subskills Charts (Grades K-12)
• Objectives (i.e.)
• Assessment Data Online
• Assessment Accommodations Supplement
• Performance Levels (Scale Scores)
• Academic Vocabulary: Building Foundational Skills for Success
  ➢ Recall and recognition
    ➢ Examples: basic computation, stated information
  ➢ Interpret and apply skills
    ➢ Examples: 1-step word problems, prediction
  ➢ Explain and support with evidence
    ➢ Examples: explain reasoning, make inference & support with evidence
  ➢ Evaluate and extend
    ➢ Examples: synthesize information, critique
Assessment Resources cont.

- Bloom’s, or Modified Bloom’s, Taxonomy Levels
- Test Taking Strategies
- Reading and Writing Programs
- Lexile Scores Suggested Use:
  - Teachers - customize their instruction to their students.
  - Librarians - support classroom teachers and enhance instruction, connect readers with books they not only can read but will want to read.
  - Parents - help their children with homework and school reading, and to guide their children in picking leisure reading.
- Professional Development:
  - Thinking Maps, Questioning Technique, Test Administration, Workshop to Analyze, Plan, and Implement instructional improvements to increase student achievement
  - Helpful resources available through Purposeful Design (www.purposefuldesign.com), select Assessment Support