Building High Quality Interim Assessments (Part 1)

Presented by:
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Lesa L Rohrer: Director of Data Literacy
Problem Statement

How can we view the state assessment in the larger context of a system of assessment to provide instructionally useful information to inform teaching for learning

So that…..
All students can grow and All schools can improve

So that…
All 700,000 students across the state have equitable opportunities to gain the knowledge, skills, and abilities they need to be successful in life.
Start with the Why?

The purpose of Assessment is..........................
“The National Research Council (NRC) defines a system of assessment as one that utilizes a range of measurement approaches to provide a variety of evidence to support education decision-making. In such a system, multiple measures enhance the validity of inferences drawn from assessment.”
Blueprint for a System of Assessment

- **Purpose**: What types of assessment do we have and what function do they serve?
- **Users**: Who is using the results?
- **Frequency**: What is the relationship between the assessment and instruction, and how often is it used?
- **Methods**: What strategies are being used to gather evidence of learning?
- **Evidence of Learning**: What evidence of learning is gathered?
- **Uses/Actions**: How is the evidence used? Can this information be obtained from other assessments within the system?
<table>
<thead>
<tr>
<th></th>
<th>Formative</th>
<th>Interim</th>
<th>Summative</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Why</strong> (Purpose)</td>
<td>Inform Teaching and Learning Approaches</td>
<td>Monitor Student Learning</td>
<td>Certify Student Learning of intended outcomes</td>
</tr>
<tr>
<td><strong>Who</strong> (Benefits)</td>
<td>Students and Teachers</td>
<td>Students, Teachers and School, District, and Families</td>
<td>Students, Teachers, School, District, and Families</td>
</tr>
<tr>
<td><strong>When</strong> (Frequency)</td>
<td>Continuous throughout instruction</td>
<td>Periodic “checkpoints” across time</td>
<td>End of period of learning (chapter, unit, nine-week, annual)</td>
</tr>
<tr>
<td><strong>What</strong> (Information Provided)</td>
<td>Inform Teaching and Learning Approaches</td>
<td>Monitor Student Learning toward meeting Learning Goals and Standards</td>
<td>Snapshot of what students know and are able to do</td>
</tr>
</tbody>
</table>

Three C’s for a system of assessment

**Comprehensive**

- **Variety** of high-quality assessment tools and practices are being used.
- Redundant, unused, and untimely assessments are eliminated.
- Provides users with a clear picture of what students know and are able to do.

**Coherent**

- Compatible with the models of how students learn content and skills over time.
- Curriculum, instruction, and assessment are aligned to ensure that the entire system is working toward a common set of learning goals.

**Continuous**

- Assessment occurs continuously, using a variety of formal and less formal methods.
- Student progress is measured on an on-going basis.
Comprehensive

Variety of assessment tools and practices are being used—including both formative and summative approaches.

Assessments collectively meet all purposes for assessment by providing users with a clear picture of what students know and are able to do.

Little League Baseball player at bat  Major League Baseball player at bat
Continuous

Occurs continuously, using a variety of formal and less formal assessment methods that measure student progress on an on-going basis.
Interim/Benchmark Assessments—monitor learning and provide opportunity for instructional adjustments before moving on.

Summative Assessments—certify learning of intended outcomes and provide information about programmatic changes that should be made.

Formative Assessments—provide a level of detail about the current status of student learning in relation to lesson goals to inform real-time teaching and learning.

**Coherent** — curriculum, instruction, and assessment are aligned to ensure that the entire system is working toward a common set of learning goals or standards.
How the SDE supports a system of assessment

End-of-Year Summative assessments and reporting benchmarked to Oklahoma Academic Standards and career and college readiness

Teachers, Families, and Schools have the information, support, and resources they need so that all students grow and all schools improve

Professional learning and instructional resources to support the formative assessment process to inform ongoing instruction

Professional learning and resources to support Interim assessments that serve as checkpoints to monitor progress in learning

All Oklahoma students leave the K-12 System ready for success

Oklahoma Academic Standards for Career and College Readiness
Interim Assessments have a purpose

A well-constructed interim assessment can fulfill multiple purposes

- **For students**, interim data can help them work with teachers to set learning goals and monitor progress toward their completion.

- **For teachers**, interim data can provide an objective measure of student achievement, demonstrate growth, point to instructional opportunities, and inform differentiation strategies.

- **For administrators**, interim data can show trends for grade levels, schools, and classrooms.
Interim considerations

• Not all multiple-choice questions to make students’ thinking visible.
• Creates opportunities for productive struggle to give ownership of the learning.
• Provides relevant and actionable information to inform instructional adjustments before moving on.
• Matches rigor and complexity of the standard and includes a range of rigor.
• Provides insight as to where students are in their learning relative to the Oklahoma Academic Standards beyond a numeric score.
• Fits within the curriculum so that the test is an extension of the learning rather than a time-out from learning.

Building a High-Quality Interim

Start by choosing the Standard/s you wish to assess

Unwrap the standard/s using the Frameworks or District/Site Level Tools

Evaluate what evidence the question provides about what students know and are able to do relative to the standard

<table>
<thead>
<tr>
<th>Oklahoma Academic Standard</th>
<th>(3. \text{N}.1) Compare and represent whole numbers up to 100,000 with an emphasis on place value and equality.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Essential Questions</td>
<td>(\cdot) How can we represent numbers in different ways? (\cdot) What relationships do we find in mathematics?</td>
</tr>
<tr>
<td>OSDE Math Frameworks</td>
<td>(\cdot) Numbers have value that can be represented in different ways (\cdot) Number relationships determine the pattern, rule, or unknown number</td>
</tr>
<tr>
<td>Big Ideas</td>
<td>(\cdot) Numbers have value that can be represented in different ways (\cdot) Number relationships determine the pattern, rule, or unknown number</td>
</tr>
<tr>
<td>Source: OSDE Math Frameworks</td>
<td>(\cdot) Numbers have value that can be represented in different ways (\cdot) Number relationships determine the pattern, rule, or unknown number</td>
</tr>
<tr>
<td>NAEF Question #</td>
<td>(\cdot) Numbers have value that can be represented in different ways (\cdot) Number relationships determine the pattern, rule, or unknown number</td>
</tr>
<tr>
<td>What the question is asking students to do?</td>
<td>(\cdot) Numbers have value that can be represented in different ways (\cdot) Number relationships determine the pattern, rule, or unknown number</td>
</tr>
<tr>
<td>Evidence of Alignment to Standard (Consider elements from the standard, big idea, or essential question)</td>
<td>(\cdot) Numbers have value that can be represented in different ways (\cdot) Number relationships determine the pattern, rule, or unknown number</td>
</tr>
</tbody>
</table>
Let’s Practice

What is the question asking students to do?

Write a three-digit number using the digits 2, 4, and 6 so that the digit 4 means four tens and the digit 6 means six hundreds.

NAEP Question ID: 2009-4M5 #8 M020001
What instructionally useful information can we gain?

Write a three-digit number using the digits 2, 4, and 6 so that the digit 4 means four tens and the digit 6 means six hundreds.

<table>
<thead>
<tr>
<th>H</th>
<th>T</th>
<th>O</th>
</tr>
</thead>
<tbody>
<tr>
<td>6</td>
<td>4</td>
<td>2</td>
</tr>
</tbody>
</table>

642
## Where does this question fit? How does the question align?

<table>
<thead>
<tr>
<th>Oklahoma Academic Standard</th>
<th>Essential Questions</th>
<th>OSDE Math Frameworks</th>
</tr>
</thead>
</table>
| **3. N.1** Compare and represent whole numbers up to 100,000 with an emphasis on place value and equality. | - How can we represent numbers in different ways?  
- What relationships do we find in mathematics? | - How does place value play a part in number operations? |
| **4. N.1** Solve real world and mathematical problems using multiplication and division. | - How can the outcome of division be communicated?  
- What information can be gathered from division? | - How can number relationships help with problem solving?  
- What is the relationship between fractions, decimals, and percents? |
| **5. N.1** Divide multi-digit numbers and solve real world and mathematical problems using arithmetic. |                  |                      |
| **6. N.1** Read, write, and represent integers and rational numbers expressed as fractions, decimals, percents, and ratios; write positive integers as products of factors; use these representations in real-world and mathematical situations. |                  |                      |
Your Turn

• Choose a question
• Evaluate what the question is asking the student to know and be able to do
• Use the standard, essential questions and big ideas to find evidence of alignment
• Record your evidence
Database Overview

- There is a database open to the general public with thousands of free questions
- Users can search questions & look at performance data
- You can customize and build assessments
- Create class rosters and test your students
- You can share your customized tests with others and save them for future use
The average score for eighth-grade students in Louisiana in 2009 (237) was not significantly different from their average score in 2007 (232) and was higher than their average score in 1990 (236).
Overview of NAEP

NAEP, often called the *Nation’s Report Card*, has been around since 1969.

NAEP provides state-level results in reading and math every other year for students in Grades 4 and 8.

NAEP is also referred to as the gold standard of assessment.

Other assessments and studies are conducted in conjunction with NAEP.
NAEP Components

The National Assessment of Educational Progress (NAEP)

Main NAEP

National
Public & Nonpublic
Grades 4, 8, & 12

State
Public
Grades 4 & 8

Trial Urban District
Public
Grades 4 & 8

Long-Term Trend

National
Public & Nonpublic
9-, 13-, & 17-year-olds
Tools You Can Use

- Data Explorer
- Questions Tool
- Item Maps
- Test Yourself
- State Profiles
- District Profiles
**Tools You Can Use**

**NAEP Questions Tool**

**Search Questions**
- Explore thousands of questions by grade, year, and content area.
- See sample student responses and data.

**Test Yourself**
- Try answering some of the same questions that students have responded to on actual NAEP assessments.
- See how your scores compare to those of students across the nation.

**Create Tests**
- Select a subject and grade and get a pre-selected assessment, or make all the choices yourself and create your own customized assessment.

Already have an account? [Sign In](#)  
Make a roster and save your selections. [Create an account](#)
NAEP Questions Tool

- Mathematics
- Reading
- Writing
- Science
- Civics
- Economics
- Geography
- Music
- Technology & Engineering Literacy
- U.S. History
- Visual Arts
- Vocabulary
NAEP Questions Tool

Select subject and grade(s) to get started.

Subject: Mathematics
Grade: Grade 4, Grade 8, Grade 12

Select any of the available options below to further narrow your search results:

Content Classifications:
- Number properties and operations
- Measurement
- Geometry
- Data analysis, Statistics, and Probability
- Algebra
- Ability (1990-2003)
- Conceptual understanding
- Procedural knowledge
- Problem solving
- Complexity (2005 and on)
  - Low
  - Moderate
  - High

Types:
- Multiple Choice - MC
- Selected Response - SR
- Short Constructed Response - SCR
- Extended Constructed Response - ECR

Difficulty Levels:
- Easy
- Medium
- Hard

Years:
- All Years
  - 2017
  - 2013
  - 2011
  - 2009
  - 2007
  - 2005
  - 2003
  - 1999
  - 1995
  - 1992
  - 1990
Andy has three cards, A, B, and C. Each card has one number on it. One card has the number 4 on it. One card has the number 6 on it. One card has the number 10 on it.

The number on card B is a factor of 8, and the number on card C is a factor of 12. Write the correct number on each of the cards below so that they are the same as Andy’s cards.

**Rationale:** These partially correct responses have 6 written on card A, 10 written on card B and 4 written on card C. This particular response received partial credit since 4 is also a factor of 12.
Percentages for mathematics, grade 4 by jurisdiction, year and Identify and use factors to solve problem in context [M1607E1]: 2013
2013, National

Performance Data to Compare
Join me this afternoon to learn how to...

- Find questions to use in your classroom
- Choose an existing assessment
- Customize either version
- Create a roster of students
- Choose your download options
- Print or administer the test online
- Save tests to use throughout the year
- Share your tests with other teachers
- Explore NAEP item maps
To use the NAEP Questions Tool:

Copyright Policy

Material contained in the NAEP Questions Tool is in the public domain and permission is not required to reproduce it. You are encouraged to reproduce it as needed.

If you publish any part of the questions, please include an acknowledgement below with the year and name of the assessment.

System Requirements

- Minimum recommended screen resolution of 1024x768
- Internet Explorer 8 or higher
- Firefox 9.01
- Google Chrome 3.7.12.6
- Safari 5.1.2
- Enabled JavaScript and pop-ups in your browser
Reflection of Learning

If you were riding in an elevator with your superintendent, a parent, a student and a colleague, and they asked you what you learned during this session, what would you say?

Write your one-minute explanation.
Contact Information

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“I began by seeing assessment as judging performance, then as informing teaching, and finally as informing learning. In reality, all those perspectives play a role in effective teaching. The key is where we place the emphasis.” Carol Ann Tomlinson

Interim assessments designed to serve instructional purposes should provide results that enable educators to adapt instruction and curriculum based on student needs. Such assessments are built with the following considerations:

| Not all multiple-choice to reveal student’s thinking process |
| Creates opportunities for productive struggle to give ownership of the learning |
| Provides relevant and actionable information to inform instructional adjustments before moving on |
| Matches rigor and complexity of the standard and includes a range of rigor |
| Provides insight as to where students are in their learning relative to the Standards beyond a numeric score. |
| Fits within the curriculum so that the test is an extension of the learning rather than a time-out from learning. |
NAEP Provides Many Useful Resources

NAEP in the Classroom

Released NAEP assessment questions can be used as a helpful educational resource in the classroom. You can use the NAEP Questions Tool to create and customize tests, share tests with colleagues, and to see how your students’ performance compares nationally on specific test items. Resources are free and available to everyone.

<table>
<thead>
<tr>
<th>If you want to</th>
<th>Visit</th>
</tr>
</thead>
<tbody>
<tr>
<td>Learn more about NAEP results</td>
<td><a href="https://www.nationsreportcard.gov/">https://www.nationsreportcard.gov/</a></td>
</tr>
<tr>
<td>View NAEP data for individual states</td>
<td><a href="https://www.nationsreportcard.gov/profiles/stateprofile">https://www.nationsreportcard.gov/profiles/stateprofile</a></td>
</tr>
<tr>
<td>Access specific results for a grade level, subject, jurisdiction, and/or student groups</td>
<td><a href="https://www.nationsreportcard.gov/ndscore/xplore/nde">https://www.nationsreportcard.gov/ndscore/xplore/nde</a></td>
</tr>
<tr>
<td>Find subject specific sample questions</td>
<td><a href="https://www.nationsreportcard.gov/sample_questions.aspx">https://www.nationsreportcard.gov/sample_questions.aspx</a></td>
</tr>
<tr>
<td>Download a booklet that contains sample test questions</td>
<td><a href="https://nces.ed.gov/nationsreportcard/about/booklets.aspx">https://nces.ed.gov/nationsreportcard/about/booklets.aspx</a></td>
</tr>
<tr>
<td>Learn more about how policy is drafted for each NAEP assessment</td>
<td><a href="https://www.nagb.gov/content/nagb.html">https://www.nagb.gov/content/nagb.html</a></td>
</tr>
</tbody>
</table>
Building a High-Quality Interim Assessment - Math Assessment Questions Alignment Tool

<table>
<thead>
<tr>
<th>Oklahoma Academic Standard</th>
<th>Essential Questions</th>
<th>Big Ideas</th>
<th>NAEP Question #</th>
<th>What the question is asking students to do?</th>
<th>Evidence of Alignment to Standard (Consider elements from the standard, big idea, or essential question)</th>
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</thead>
</table>
| 5.N.1 Compare and represent whole numbers up to 100,000 with an emphasis on place value and equality. | • How can we represent numbers in different ways?  
• What relationships do we find in mathematics? | • Numbers have value that can be represented in different ways  
• Number relationships determine the pattern, rule, or unknown number | | | |
| 4.N.1 Solve real world and mathematical problems using multiplication and division. | • How does place value play a part in number operations? | • The place value system is based on multiplication and division and is useful when estimating and comparing.  
• Multiplication and division are related to each other and give us information about real-world situations. | | | |
| 5.N.1 Divide multi-digit numbers and solve real world and mathematical problems using arithmetic. | • How can the outcome of division be communicated?  
• What information can be gathered from division? | • Whole numbers can be divided to solve real world problems. | | | |
| 6.N.1 Read, write, and represent integers and rational numbers expressed as fractions, decimals, percents, and ratios; write positive integers as products of factors; use these representations in real-world and mathematical situations. | • How can number relationships help with problem solving?  
• What is the relationship between fractions, decimals, and percents? | • Factors and multiples can be used to find relationships between numbers. | | |
<table>
<thead>
<tr>
<th>Oklahoma Academic Standard</th>
<th>6.N.1 Read, write, and represent integers and rational numbers expressed as fractions, decimals, percents, and ratios; write positive integers as products of factors; use these representations in real-world and mathematical situations.</th>
<th>7.N.1 Read, write, represent, and compare rational numbers, expressed as integers, fractions, and decimals.</th>
<th>PA.N.1 Read, write, compare, classify, and represent real numbers and use them to solve problems in various contexts.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Essential Questions</td>
<td>• How can number relationships help with problem solving? • What is the relationship between fractions, decimals, and percents?</td>
<td>• How do we mathematically represent rational numbers? • Where are rational numbers found in real life</td>
<td>• What characteristics do we use to classify real numbers? • How can we use real numbers to identify real world situations? • How can you apply strategies to simplify expressions?</td>
</tr>
<tr>
<td>Big Ideas Source:</td>
<td>Math Frameworks</td>
<td>Factors and multiples can be used to find relationships between numbers.</td>
<td>Equivalent rational numbers can be represented in multiple ways • Rational numbers are found in the real-world</td>
</tr>
<tr>
<td>NAEP Question</td>
<td>What is the question asking students to do?</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Evidence of Alignment (Consider elements from the standard, big idea, or essential question)</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
The sale price of milk at a store is 25 percent off the regular price.

Which of the following statements describes the sale price of milk at the store?

- A: \( \frac{1}{4} \) off the regular price
- B: \( \frac{1}{5} \) off the regular price
- C: \( \frac{1}{3} \) off the regular price
- D: \( \frac{1}{2} \) off the regular price
- E: \( \frac{1}{2} \) off the regular price

Clear Answer
Points A and B are plotted on the number line.

What number corresponds to point A?

What number corresponds to point B?

What number corresponds to the point that is located halfway between point A and point B?
Which picture shows that $\frac{3}{4}$ is the same as $\frac{6}{8}$?

A.  

B.  

C.  

D.
A certain even number is divisible by 9. This number is between 100 and 120. What is the number?

Add the numbers $\frac{7}{10}$, $\frac{7}{100}$, and $\frac{7}{1000}$. Write this sum as a decimal.

Did you use the calculator on this question?

☐ Yes  ☐ No
9.8413\times 02

The figure above represents a calculator display showing a number in scientific notation. That number is

A. 0.098413
B. 0.98413
C. 19.6826
D. 98.413
E. 984.13

Did you use the calculator on this question?

☐ Yes    ☐ No

Question ID: 2007-8M9 #15 M013521
Sebastian is making lemonade.

His recipe requires 750 grams of sugar to make 20 liters of lemonade.

Sebastian wants to make 12 liters of lemonade.

How many grams of sugar does Sebastian need to maintain the same ratio of sugar to lemonade as in his recipe?

- A: 32 grams
- B: 450 grams
- C: 670 grams
- D: 1,250 grams
- E: 8,800 grams
A game board is shown.

Some of the squares on the board are labeled.

Drag letters into the rest of the squares so that

- $\frac{1}{2}$ of all the squares on the board are labeled $Y$,
- $\frac{1}{4}$ of all the squares on the board are labeled $B$, and
- $\frac{1}{4}$ of all the squares on the board are labeled $G$.
Mr. Franklin wants to buy an eraser for every fourth-grade student.

There are 12 erasers in each box.

There are 7 fourth-grade classes with 24 students in each class.

How many boxes of erasers does Mr. Franklin need to buy?

A. 2
B. 14
C. 43
D. 84

Question ID: 2017-4M9 #5 M241301
50-YARD-RACE

<table>
<thead>
<tr>
<th>Girl</th>
<th>Time (seconds)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Christa</td>
<td>8.28</td>
</tr>
<tr>
<td>Kelly</td>
<td>7.82</td>
</tr>
<tr>
<td>Lorinda</td>
<td>7.9</td>
</tr>
<tr>
<td>Sonja</td>
<td>8.31</td>
</tr>
<tr>
<td>Tanya</td>
<td>8.2</td>
</tr>
</tbody>
</table>

The table shows the times for five girls who ran a 50-yard race. The goal was for each girl to run the race in less than 8.25 seconds. Which girls met this goal?

A. Christa and Sonja
B. Christa and Tanya
C. Kelly, Lorinda, and Sonja
D. Kelly, Lorinda, and Tanya
HOW BUTTONS ARE SOLD

<table>
<thead>
<tr>
<th>Type</th>
<th>Number of Buttons</th>
</tr>
</thead>
<tbody>
<tr>
<td>Box of buttons</td>
<td>1,000 buttons</td>
</tr>
<tr>
<td>Package of buttons</td>
<td>100 buttons</td>
</tr>
<tr>
<td>Card of buttons</td>
<td>10 buttons</td>
</tr>
<tr>
<td>Single button</td>
<td>1 button</td>
</tr>
</tbody>
</table>

The art teacher bought buttons for a project.
The teacher bought 1 box, 9 packages, 12 cards, and 5 single buttons.

How many buttons did the teacher buy altogether?

Answer: ___________ buttons
A bag of potatoes weighs 12.4 pounds. Which of the following statements is true?

A. There are between 1 and 2 pounds of potatoes in the bag.
B. There are between 12 and 13 pounds of potatoes in the bag.
C. There are between 124 and 125 pounds of potatoes in the bag.
D. There are between 1,246 and 1,247 pounds of potatoes in the bag.

Which number does the diagram above represent?

A. 4,703,082
B. 4,073,082
C. 473,820
D. 407,382
Elsa works at the library.
She puts a total of 54 books onto 3 shelves.
Elsa puts at least 16 books on each shelf.

Complete the table to show one way Elsa could put the books on the shelves.

<table>
<thead>
<tr>
<th>Shelf</th>
<th>Number of Books</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td></td>
</tr>
<tr>
<td>2</td>
<td></td>
</tr>
<tr>
<td>3</td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>54</td>
</tr>
</tbody>
</table>

Did you use the calculator on this question?

☐ Yes  ☐ No
Susie said, "I have 83¢ but fewer than 10 coins." Show in the chart how many of each coin she could have to total 83¢.

<table>
<thead>
<tr>
<th>Total Number of Coins</th>
<th>25¢</th>
<th>10¢</th>
<th>5¢</th>
<th>1¢</th>
</tr>
</thead>
</table>

Question ID: 2009-4M5 #14 M06G301
<table>
<thead>
<tr>
<th>Number of Students</th>
<th>Ms. King's Class</th>
<th>Mr. West's Class</th>
<th>Ms. Chang's Class</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>20</td>
<td>25</td>
<td>28</td>
</tr>
</tbody>
</table>

In each class listed above, the students are lining up with a partner to walk to lunch. Which class will have one child with no other child for a partner?

Answer: ____________

Explain your choice.

These three fractions are equivalent. Give two more fractions that are equivalent to these.
Carlos bought the cereal and milk shown. Use the table to find out the total amount Carlos spent, including tax.

Total amount spent: 

Show how you found your answer.

Did you use the calculator on this question?

☐ Yes  ☐ No