Operationalizing NGSS Assessments: Performance Level Descriptors, Alignment Studies, and Standard Setting
Session Presenters

- Angela Bilyeu and Maria Harris
  - Oklahoma State Department of Education

- Art Thacker
  - HumRRO

- Danielle Branson
  - Office of the State Superintendent of Education, Washington, DC

- Gary Cook – Discussant
  - Wisconsin Center for Education Research, University of Wisconsin

- Karen Whisler – Moderator
  - Measured Progress
NGSS Assessments

Overview
Evolving challenges

Karen Whisler, Measured Progress
Performance Expectations are complex, integrating three dimensions:

- Move students from “knowing about” to “figuring out”
- Focus on performance and sense-making
From the NRC report *Developing Assessments for the Next Generation Science Standards*:

- “Developing new assessments to measure the kinds of learning the framework describes presents a significant challenge and will require a major change to the status quo.”

- “Assessment tasks…have to be designed to provide evidence of students’ ability to use the practices, to apply their understanding of the crosscutting concepts, and to draw on their understanding of specific disciplinary ideas, all in the context of addressing specific problems.”

- “To adequately cover the three dimensions, assessment tasks will generally need to contain multiple components (e.g., a set of interrelated questions)....together, the components need to support inferences about students’ three-dimensional science learning as described in a given performance expectation.”
Evolving Challenges

Standards Adoption 2013 → Item and Test Development First Operational Tests 2016-2017

Test Design Recommendations NRC, 2014 SAIC, 2015 State Work

Performance Level Descriptors Alignment Studies Standard Setting
Oklahoma School Testing Program – Science

Program Overview and Design
Performance Level Descriptors
Standard Setting

Angela Bilyeu, OKSDE
Maria Harris, OKSDE
Science Assessments Aligned to 3–D Standards

- The Oklahoma Academic Standards for Science were informed by
  - *Benchmarks for Science Literacy* (American Association for the Advancement of Science, 1993)
Why We Assess

- Federal Requirements
- State Law
  - 5, 8, and once in high school
- Improve the quality of science instruction and therefore science literacy in Oklahoma
- College and Career Ready Workforce
What and When We Assess

Spring 2017
- Grade 5
- Grade 8
- Grade 10
  - Biology 1 Standards

Spring 2018
- Grade 5
- Grade 8
- Grade 11
  - Integrated Assessment
  - 50% Life Science
  - 50% Physical Science
    - Physics
    - Chemistry
    - Physical Science
Students are required to respond to clusters of 3-dimensional items aligned to the assessable science performance expectations from the 2014 Oklahoma Academic Standards for Science (OAS–S).
Study the information. Then answer questions 7-9.

Two students investigated what happens when matter changes form. The materials the students used are shown in the pictures. The students used the amounts of lemonade mix, sugar, and water shown.

Then the students followed this procedure.
1. Make lemonade from the lemonade mix, sugar, and water.
2. Pour all of the lemonade into the ice cube tray. Put the same amount of lemonade into each spot in the tray. Leave no lemonade left over. Cover the tray and place it in the freezer overnight.
3. Remove the ice cube tray from the freezer the next day. See that the liquid lemonade has frozen into lemon ice. See that the cubes of lemon ice are taller than the sides of the tray.
The students measured each material before mixing them together. After they mixed the materials to make the lemonade they measured it using the balance.

Which picture shows what the students should have observed after mixing?

A

![Diagram A]

B

![Diagram B]

C

![Diagram C]

D

![Diagram D]
The students removed the lemon ice from the ice cube tray at the end of the investigation. Then they measured the total weight of all the lemon ice cubes.

Which graph shows the total weight of the liquid lemonade before it was poured into the tray and the total weight of the lemon ice removed from the tray?

- **F**
  - Weight (g)
  - 0 50 100 150 200 250 300
  - Liquid lemonade  Lemon ice

- **G**
  - Weight (g)
  - 0 50 100 150 200 250 300
  - Liquid lemonade  Lemon ice

- **H**
  - Weight (g)
  - 0 50 100 150 200 250 300
  - Liquid lemonade  Lemon ice

- **J**
  - Weight (g)
  - 0 50 100 150 200 250
  - Liquid lemonade  Lemon ice
The students decided to let the lemon ice melt after the investigation. Once the lemon ice melted, the students poured all the liquid into a different ice cube tray. The drawing below shows this new tray.

The students poured the same amount of lemonade into each spot in the tray. There was no lemonade left over. The students covered the tray and placed it in the freezer overnight. The students removed the tray from the freezer the next day.

Which statement is correct about the new lemon ice cubes?

A. Altogether, the new lemon ice weighed less than the lemon ice made the first time.

B. Each new lemon ice cube had the same weight as each lemon ice cube made the first time.

C. Each new lemon ice cube contained more matter than each lemon ice cube made the first time.

D. Altogether, the new lemon ice contained the same amount of matter as the lemon ice made the first time.
5-PS1-2. Measure and graph quantities to provide evidence that regardless of the type of change that occurs when heating, cooling, or mixing substances, the total weight of matter is conserved.

**OAS-S Clarification Statement:**
Examples of reactions or changes could include phase changes, dissolving, and mixing that forms new substances.

**OAS-S Assessment Boundary:**
Assessment does not include distinguishing mass and weight.

<table>
<thead>
<tr>
<th>Science &amp; Engineering Practice:</th>
<th>Disciplinary Core Idea:</th>
<th>Crosscutting Concept:</th>
</tr>
</thead>
</table>
| **Using Mathematics and Computational Thinking**  
  - Measure and graph quantities such as weight to address scientific and engineering questions and problems. | **PS1.A: Structure and Properties of Matter**  
  - The amount (weight) of matter is conserved when it changes form, even in transitions in which it seems to vanish.  
  **PS1.B: Chemical Reactions**  
  - No matter what reaction or change in properties occurs, the total weight of the substances does not change. (Boundary: Mass and weight are not distinguished at this grade level.) | **Scale, Proportion, and Quantity**  
  - Standard units are used to measure and describe physical quantities such as weight, time, temperature, and volume. |

**In Lay Terms:**
Students should be able to choose/describe measurements and use graphs to show that the amount of matter does not change regardless of any change it undergoes. In any closed system, matter may change its form (heating, cooling, mixing, forming a new substance), but the amount stays constant. The amount of matter measured in SI units is used as a means to observe the conservation of matter.
## Assessment Formats

<table>
<thead>
<tr>
<th>Content Assessment</th>
<th>Total Items</th>
<th>Total Operational Items and Points</th>
<th>Total Field-Test Items</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Grades 5, 8, and 10 (2017)</strong></td>
<td>54 items (18 clusters)</td>
<td>45 items (15 clusters)</td>
<td>9 items (3 clusters)</td>
</tr>
<tr>
<td><strong>Grade 11 Integrated Assessment (2018)</strong></td>
<td>60 items (20 clusters)</td>
<td>54 items (18 clusters)</td>
<td>6 items (2 clusters)</td>
</tr>
</tbody>
</table>
The Commission for Educational Quality and Accountability shall determine and adopt a series of student performance levels and the corresponding cut scores pursuant to the Oklahoma School Testing Program Act.

The Commission for Educational Quality and Accountability shall have the authority to set cut scores using any method which the State Board of Education was authorized to use in setting cut scores prior to July 1, 2013.
The Commission shall adopt performance levels that are labeled and defined as follows:

1. **Advanced**, which shall indicate that students demonstrate superior performance on challenging subject matter;

2. **Proficient**, which shall indicate that students demonstrate mastery over appropriate grade-level subject matter and that students are ready for the next grade, course, or level of education, as applicable;

3. **Limited knowledge**, which shall indicate that students demonstrate partial mastery of the essential knowledge and skills appropriate to their grade level or course; and

4. **Unsatisfactory**, which shall indicate that students have not performed at least at the limited knowledge level.
The performance levels shall be set by a method that indicates students are ready for the next grade, course, or level of education, as applicable.

The Commission for Educational Quality and Accountability shall establish panels to review and revise the performance level descriptors for each subject and grade level. The Commission shall ensure that the criterion-referenced tests developed and administered by the State Board of Education pursuant to the Oklahoma School Testing Program Act in grades three through eight and the tests administered at the high school level are vertically aligned by content across grade levels to ensure consistency, continuity, alignment and clarity.
Score Interpretation

- Provide a measure of performance indicative of being on track to College and Career Readiness (CCR).

Reporting and State Comparability

- Utilize the existing National Assessment of Educational Progress (NAEP) data to establish statewide comparisons at grades 4 and 8. NAEP data should also be used during standard-setting activities to ensure the CCR cut score is set using national and other state data.

Assessment results will only be reported at the domain level.
Performance Level Descriptors

- Four descriptors at each grade level
- Bundled by Science and Engineering Practices to ensure three-dimensional mindfulness for standard setting
- Developed by committees of Oklahoma educators
- Because of the length of the PLDs, a separate description of performance was created for the Parent-Student reports
Oklahoma Academic Science Standards were adopted in 2014 and operational assessments were administered in 2017, necessitating the need for standard setting.

Committees of 11 Oklahoma educators who were selected will convene this summer.

Participants will use the bookmark method to recommend cut scores.

NAEP and ACT will be used purposefully for comparisons of DOK and rigor to enable proficiency at national performance levels.
Panelist recommendations will be presented to the Commission on Educational Quality & Accountability (CEQA) for final consideration.

SDE is planning to send a letter to schools (separate from the reports) and develop other tools to explain to parents the new level of expectations for mastering our state standards and new performance expectations on the statewide annual assessments.
Oklahoma Alignment Study

Overview
Evaluation Categories
DOK Rating and Results

Art Thacker, HumRRO
What is Alignment?

“The degree to which expectations and assessments are in agreement and serve in conjunction with one another to guide the system toward students learning what is expected.”

–Webb, 2005
Alignment as Validity Evidence

- Alignment supports score reporting!
- Scores must be sufficiently reliable for their purpose.
- Ideally, alignment evidence informs item development and supports continuous improvement.
- Alignment study results should be considered in parallel with psychometric data.
- The structure of the standards impacts (dictates?) the structure of the test and the alignment methodology.
Why is Science a Special Case?

- Science standards include multiple dimensions and content categories.
- Science standards demand a high level of integration of the dimensions and content categories.
- Test items may not be (should not be?) linked to a single dimension and content category.
- Test and item formats have been adapted to accommodate complex integrated standards.
- Reporting is especially challenging.
<table>
<thead>
<tr>
<th></th>
<th>Earth and Space Sciences</th>
<th>Life Sciences</th>
<th>Physical Sciences</th>
</tr>
</thead>
<tbody>
<tr>
<td>Practices</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Crosscutting Concepts</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Disciplinary Core Ideas</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Webb alignment results (item level):

<table>
<thead>
<tr>
<th>Category</th>
<th>Alignment Results</th>
</tr>
</thead>
<tbody>
<tr>
<td>Categorical Concurrence</td>
<td>✓ All reporting categories in all grades met this criterion – should be verified</td>
</tr>
<tr>
<td></td>
<td>psychometrically.</td>
</tr>
<tr>
<td>Range of Knowledge Correspondence</td>
<td>✓ All reporting categories in all grades met this criterion.</td>
</tr>
<tr>
<td>Balance of Knowledge Representation</td>
<td>✓ All reporting categories in all grades met this criterion.</td>
</tr>
<tr>
<td>DOK Consistency</td>
<td>• 50% of the reporting categories met this criterion.</td>
</tr>
</tbody>
</table>
Cluster Level Analyses

- Performance Expectations (PE) targeted by cluster (3 items/cluster)
- Asked—do the items within a cluster measure the content of the assigned PE?
- Asked—does the average DOK by cluster align with the DOK of the PE?
Science Alignment Lessons

- Begin by thinking about how you want to represent the standards and what you want to report.
- If items are clustered by PE or by phenomenon or otherwise, be intentional about how those items work together to represent content standards.
- Customize your alignment method to account for your test design appropriately.
- Decide what you’ll consider “good enough” before you begin.
DC Science Assessment – Washington, DC

Program Overview and Design
Performance Level Descriptors
Standard Setting

Danielle Branson, OSSE
In January 2014, the State Board of Education adopted the Next Generation Science Standards (NGSS). These new standards emphasized five key innovations:

- **Innovation 1**: The NGSS describes science as having three distinct dimensions, each of which represents equally important learning outcomes: Science and Engineering Practices (SEPs), Disciplinary Core Ideas (DCIs), and Crosscutting Concepts (CCCs).
- **Innovation 2**: In the NGSS, students engage in explaining phenomena and designing solutions.
- **Innovation 3**: The NGSS incorporate engineering design and the nature of science as SEPs and CCCs.
- **Innovation 4**: SEPs, DCIs, and CCCs build coherent learning progressions from kindergarten to grade 12.
- **Innovation 5**: The NGSS connect to Standards for English Language Arts and Mathematics.
To assess the NGSS, the District of Columbia administers summative, districtwide assessments in:
- Grade 5,
- Grade 8, and
- High School Biology.

The District developed and implemented a new assessment following adoption of the NGSS.
- Spring 2015 Field Test
- Spring 2016 Operational Administration
- Spring 2017 Operational Administration
To measure the multi-dimensionality of the NGSS, the DC Science assessment is designed using real world scenarios with multiple item types. Units are crafted around scenarios.

Item types include:
- Selected response
- Constructed response
- Technology-enhanced
- Multi-component

The assessment is currently limited to two operational units, each approximately 60 minutes.
Teams of middle school students from Washington, DC are participating in an engineering competition. In this competition, the teams must develop solutions to several design challenges. The team is made up of Marcus, Anna, and Makayla. The students are excited because they like working together and solving engineering problems.

The first challenge is to design and construct a device that launches a Ping-Pong ball. The ball must travel through the air a distance of 3 meters and land on a target. The device can't use electricity and must cost $15 or less.

In the first step of the design process, Anna and Makayla made sketches of their design solutions. They used the sketches to determine which of their ideas have the best potential.

Marcus created a decision table so the team could evaluate the different design ideas. Below are the sketches for four designs and the decision table:
Which design solutions should be built and tested? Explain your decision. Also, explain why they should not work on each of the other design solutions.

Support your explanations with evidence from the design sketches and decision table.
<table>
<thead>
<tr>
<th><strong>Performance Expectation</strong></th>
<th><strong>Science &amp; Engineering Practice(s)</strong></th>
<th><strong>Disciplinary Core Idea(s)</strong></th>
<th><strong>Cross cutting Concept(s)</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td>MS-ETS1-3</td>
<td>7</td>
<td>ETS1.B</td>
<td>Influence of Science, Engineering and Technology on Society and the Natural World</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Developing Possible Solutions: There are systematic processes for evaluating solutions with respect to how well they meet the criteria and constraints of a problem. Sometimes parts of different solutions can be combined to create a solution that is better than any of its predecessors.</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Optimizing the Design Solution: Although one design may not perform the best across all tests, identifying the characteristics of the design that performed the best in each test can provide useful information for the redesign process—that is, some of those characteristics may be incorporated into the new design.</td>
<td></td>
</tr>
</tbody>
</table>

**Analyzing data from tests to determine similarities and differences among several design solutions to identify the best characteristics of each that can be combined into a new solution to better meet the criteria for success.**

Engaging in Argument from Evidence: Construct an argument supported by evidence and scientific reasoning to support or refute an explanation or a solution to a problem.

Influence of Science, Engineering and Technology on Society and the Natural World
All human activity draws on natural resources and has both short and long-term consequences, positive as well as negative, for the health of people and the natural environment.
| NGSS Evidence Statement(s) | 2a | (2) Identifying relationships  
(a) Students use appropriate analysis techniques (e.g., qualitative or quantitative analysis; basic statistical techniques of data and error analysis) to analyze the data and identify relationships within the datasets, including relationships between the design solutions and the given criteria and constraints. |
|--------------------------|----|---|
|                          | 3a & b | (3) Interrupting data  
(a) Students use the analyzed data to identify evidence of similarities and differences in features of the solutions.  
(b) Based on the analyzed data, students make a claim for which characteristics of each design best meet the given criteria and constraints. |
| Item Type | CR | --- |
District of Columbia educators and science experts were engaged in the development of the assessment through:

- Item and content review
- Bias and sensitivity review
- Performance level setting
Designing Performance Level Descriptors

- **Conceptual Understanding:** Demonstrates understanding of the major concepts of science and the connections among them. This dimension includes *NGSS* crosscutting concepts (CCCs), disciplinary core ideas (DCIs), and the nature of science and engineering concepts included in the (CCCs).

- **Performances:** Uses scientific and engineering practices (SEPs) to answer questions and solve problems relative to natural phenomena and engineering-based problems.

- **Application:** Applies evidence and develops arguments based on evidence to answer scientific questions about the world and solve engineering problems; applies specific concepts and practices in the presentation of scientific arguments.

- **Communication:** Communicates in a variety of ways and demonstrates methods that reflect understanding of scientific issues and English Language Arts and Mathematics.
## Performance Level Descriptors

<table>
<thead>
<tr>
<th>Level 5</th>
<th>Level 4</th>
<th>Level 3</th>
<th>Level 2</th>
<th>Level 1</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Exceeded Expectations</strong></td>
<td><strong>Met Expectations</strong></td>
<td><strong>Approached Expectations</strong></td>
<td><strong>Partially Met Expectations</strong></td>
<td><strong>Did Not Meet Expectations</strong></td>
</tr>
<tr>
<td>Students' performances demonstrate an in-depth understanding of scientific concepts to explain natural phenomena. Performance across all three science disciplines plus engineering is exemplary.</td>
<td>Students' performances demonstrate a solid understanding of scientific concepts to explain natural phenomena. Performances demonstrate understanding across all three disciplines of science plus engineering but performances across disciplines may be inconsistent.</td>
<td>Students' performances demonstrate a working, but limited understanding of scientific concepts to explain natural phenomena and solve problems. Performance related to one or more of the science disciplines or engineering may be weak or missing.</td>
<td>Students' performances demonstrate evidence of a marginal understanding of scientific concepts to explain natural phenomena and solve problems. Performances may demonstrate understanding of only one or two disciplines.</td>
<td>Students' performances demonstrate very little or no evidence of understanding of scientific concepts to explain phenomena and solve problems.</td>
</tr>
<tr>
<td><strong>Performance</strong></td>
<td><strong>Performance</strong></td>
<td><strong>Performance</strong></td>
<td><strong>Performance</strong></td>
<td><strong>Performance</strong></td>
</tr>
<tr>
<td>Students' performances identify and establish several different appropriate connections within the science and with the scientific and engineering practices.</td>
<td>Students' performances identify and establish more than one substantial connection within the sciences and with the scientific and engineering practices.</td>
<td>Students' performances partially identify and establish appropriate connections within the sciences and with the scientific and engineering practices, or identify only one such connection.</td>
<td>Students' performances may attempt to identify or make marginally appropriate connections among the sciences and with science and engineering practices.</td>
<td>Students' performances do not identify or make connections among the sciences and with science and engineering practices.</td>
</tr>
<tr>
<td><strong>Application</strong></td>
<td><strong>Application</strong></td>
<td><strong>Application</strong></td>
<td><strong>Application</strong></td>
<td><strong>Application</strong></td>
</tr>
<tr>
<td>Students use logical and appropriate arguments to explain multiple perspectives of scientific phenomena. Arguments are detailed, relevant, and free of misconceptions.</td>
<td>Students use logical and appropriate arguments to explain more than one perspective of scientific phenomena. Arguments are relevant and free of misconceptions.</td>
<td>Students use logical and appropriate arguments to explain at least one aspect of scientific phenomena. Arguments are somewhat relevant with some misconceptions or are incomplete.</td>
<td>Students attempt to use some logical and appropriate arguments to explain scientific issues. Arguments are not relevant and contain misconception, or are not attempted.</td>
<td>Students use illogical and inappropriate arguments to explain scientific phenomena.</td>
</tr>
<tr>
<td><strong>Communication</strong></td>
<td><strong>Communication</strong></td>
<td><strong>Communication</strong></td>
<td><strong>Communication</strong></td>
<td><strong>Communication</strong></td>
</tr>
<tr>
<td>Communication is comprehensive, clear, and convincing, using a variety of methods. Computations are complete and accurate.</td>
<td>Communication is comprehensive and clear and uses more than one method. Computations are complete and accurate.</td>
<td>Communication is generally clear, nearly complete, and may use more than one method. Computations are incomplete and marginally accurate.</td>
<td>Communication may apply to phenomena, but lacks completeness and/or clarity. Computations are incomplete and may be inaccurate.</td>
<td>Communication is unclear and incomplete and computations are incorrect and inappropriate or missing.</td>
</tr>
</tbody>
</table>
The DC Science Assessment has five performance levels:

1. Did Not Yet Meet Expectations
2. Partially Met Expectations
3. Approached Expectations
4. Met Expectations
5. Exceeded Expectations

Receiving a level 4 or 5 on the assessment indicates that a student has met or exceeded the expectations of the NGSS for that grade or course.
Overview of Performance Level Setting Process

- The District of Columbia used an Extended Modified Angoff approach for performance level setting.
- This process is used to set cut scores for the performance levels on the assessment.
- In this model, each assessment item is rated individually. This approach consists of the following key steps:
  - Orientation
  - Multiple rounds of rating
  - Discussion and feedback between rating rounds
  - Analysis of impact
  - Evaluation
The DC Science Assessment Performance Level Setting panels met in April and May, 2017.

Panels included:

- **Educator Judgment Panels**
  - 7–10 expert educators for each of the three panels (Grade 5, Grade 8, High School Biology)

- **Policy Review Committee**
  - 5 policy leads at the SEA level

*NGSS lead writer and co-developer of the DC Science performance level descriptors, Roger Bybee, spoke to the panelists at the Performance Level Setting Meeting about the NGSS innovations and performance level descriptor design.*
**Performance Level Setting Timeline**

**DC Science Performance Level Setting Process**

1. **Design test and develop performance level descriptors**
   - 2013–14: DC designed an assessment aligned to the Next Generation Science Standards and developed performance level descriptors, in partnership with content experts and NGSS writers. Educators participated in item content and bias reviews.
   - 2014–15: DC conducted a field test to test how the items performed.

2. **Administer assessment**
   - 2015–16: Administration of the operational DC Science test took place for the first time in the 2015–16 school year.

3. **Recommend performance levels**
   - Winter 2017: Extended Modified Angoff performance level setting methodology was approved.
   - April 12–13, 2017: Performance level panels of educators met to make cut score recommendations for Grade 5, Grade 8, and High School Biology.

4. **Adopt performance levels**
   - May 2017: OSSE Policy Level Committee reviewed the panel recommendations and finalized cut scores and performance levels to present to SBOE.
   - June 7, 2017: SBOE convened for a working group session to review the proposed cut scores.
   - June 21, 2017: SBOE convened for a public session to vote on the approval of the cut scores for the DC Science assessment.

5. **Review, finalize and release results**
   - Summer 2017: LEAs will receive individual student scores for the 2015–16 administration.
   - Fall 2017: DC Science scores will be publicly released for 2015–16 and 2016–17.
State Board Approval

- The District of Columbia is required to obtain State Board of Education (SBOE) approval on cut scores for all new districtwide assessments.
- OSSE created a robust Board engagement strategy.
  - **March 30**: SBOE Working Group Session on DC Science Overview
  - **May 3**: SBOE Working Group Session on Performance Level Setting Methodology and Process
  - **May 17**: SBOE Public Meeting on Performance Level Setting Methodology and Process
  - **June 7**: SBOE Working Group Session on the DC Science Assessment Cut Scores
  - **June 21**: SBOE Public Meeting and Approval of the DC Science Assessment Cut Scores
LEAs will receive results from the first administration of the DC Science assessment this spring/summer.

To support LEAs and schools, OSSE will provide the following materials:
- Letter from the Superintendent
- Sample Individual Student Reports*
- Parent Guide to Understanding the Score Reports*
- Individual results in DC’s Statewide Longitudinal Education Data (SLED) system

* Translations available
Tools for LEAs and Schools

DC Statewide Longitudinal Education Data (SLED)

Welcome to the Office of the State Superintendent of Education (OSSE) Statewide Longitudinal Education Data (SLED) website. This site is intended to enable the sharing of critical information spanning a student’s public education experience in the District of Columbia, from early childhood through K12, postsecondary, and into adult education and employment.

Performance Summary

Percent of students who met or exceeded expectations for grade-level learning standards in 8th grade in the 2015-16 school year.

- **ENGLISH LANGUAGE ARTS/ LITERACY**: 63%
- **MATHEMATICS**: 50%
- **SCIENCE**: N/A

Percentage of students in each performance level:

- **Level 1**: Did Not Meet Expectations (7%)
- **Level 2**: Partially Met Expectations (14%)
- **Level 3**: Approached Expectations (20%)
- **Level 4**: Met Expectations (48%)
- **Level 5**: Exceeded Expectations (15%)

60% of students at Deal MS who took the Grade 8 test met or exceeded expectations.

Science

8th Grade Assessment Results

**Scott Testtaker**

Anywhere ES

**About This Assessment**

Scott took the DC Science Assessment in spring 2016. This assessment is aligned to the Next Generation Science Standards (NGSS). These standards reflect how science and engineering are practiced in the real world. The NGSS also make connections to DC’s reading and math standards. The DC Science Assessment asks students to think critically, analyze information, solve complex problems, interpret data, and make connections between science disciplines. These results are one of several ways to understand Scott’s needs and strengths. Based on this information, families may work with teachers and schools to identify resources to provide their child support. Schools may use the information in this report to better plan instruction and enrichment for students in the coming school year.

If you have questions about this report, please talk to Scott’s teacher or principal or contact DCPS at (202) 442-5885. If you have questions about the DC Science test, contact OSSE at (202) 727-6500.

**How Can You Use This Report?**

- How did Scott score on this assessment?
- What are Scott’s strengths and weaknesses in this subject?
- How did Scott’s score compare to that of other students?

**How Did Scott Perform on This Science Assessment?**

This section shows your student’s overall score on the assessment. This overall score determines which performance level your student is in.

**Performance Level**

- **Level 3**: Score 498

Students who scored in Level 3 approached expectations for 8th grade learning standards.

Want to Know More?

Turn to the next page to learn about how Scott performed on key areas of the assessment and how Scott’s results compare to those of other students.

**Levels 4-5.5 indicate that the student has met or exceeded the expectations of the NGSS**
Opportunities and Challenges

**Opportunities**
- Supporting implementation of the NGSS in schools
- Providing data to schools and families
- Emphasizing the importance of science education
- Connecting with states to share innovative items and increase item bank

**Challenges**
- Creating a robust item bank to support multiple item types and scenario- and simulation-based assessment
- Designing an assessment to support measurement of the NGSS dimensions
- Reporting on the NGSS dimensions
Assessment Solutions Perspectives

Commentary
Ways Forward

H. Gary Cook, WCER
Final Questions and Comments

Thank you!