2018 Smarter Balanced & NGSS Field Test Assessments
Parent Information Session

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Assistant Superintendent of Curriculum, Instruction, & Assessments
2017-18 District Goal

• The 2017-18 district goal is to strengthen student achievement with an emphasis on critical/creative thinking and communication skills for all learners, particularly in the area of writing across the curriculum.
  – Strengthen the PreK-12 alignment of curriculum and instruction to the Connecticut Core Standards.
  – Continue the development of Assured Performance-Based Assessments (APBA).
  – Social and emotional development will be a significant factor in positioning all students for success.
Tonight’s Goal

• We will provide basic background information on the Smarter Balanced & NGSS Field Test assessments for grades 6-8 students
The District remains engaged in continuous improvement of . . .

<table>
<thead>
<tr>
<th>Curriculum</th>
<th>What are students being asked to learn?</th>
</tr>
</thead>
<tbody>
<tr>
<td>Instruction</td>
<td>How are students being asked to learn?</td>
</tr>
<tr>
<td>Assessment</td>
<td>How are students receiving information on how well they have learned?</td>
</tr>
<tr>
<td>Grade</td>
<td>Literacy</td>
</tr>
<tr>
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</tr>
<tr>
<td>Grade 3</td>
<td>3 of 20</td>
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<tr>
<td>Grade 3</td>
<td>3 of 20</td>
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<tr>
<td>Grade 4</td>
<td>15 of 20</td>
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<td>Grade 4</td>
<td>9 of 20</td>
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<td>Grade 5</td>
<td>9 of 20</td>
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<td>Grade 5</td>
<td>9 of 20</td>
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<tr>
<td>Grade 6</td>
<td>19 of 20</td>
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<td>Grade 6</td>
<td>12 of 20</td>
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<td>Grade 7</td>
<td>19 of 19</td>
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<td>Grade 7</td>
<td>17 of 19</td>
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<tr>
<td>Grade 8</td>
<td>19 of 19</td>
</tr>
<tr>
<td>Grade 8</td>
<td>19 of 19</td>
</tr>
</tbody>
</table>
SB 2016-17 Achievement in Literacy, DRG B

State of CT Literacy (54.2%)

Trumbull Literacy (81.4%)

Brookfield
Madison
Newtown
West Hartford
New Fairfield
Granby
Orange
Fairfield
South Windsor
Greenwich
Region No. 15
Woodbridge
Cheshire
Simsbury
Trumbull
SB 2016-17 Achievement in Literacy, DRG A & DRG B

State of CT Literacy (54.2%)

Trumbull Literacy (81.4%)
SB 2016-17 Achievement in Literacy, Trumbull & DRG A
SB 2016-17 Achievement in Math, DRG B

State of CT Math (45.6%)

Trumbull Math (77.3%)

West Hartford
Brookfield
Granby
Madison
New Fairfield
Cheshire
Fairfield
Newtown
Region No. 15
Monroe
Simsbury
Orange
South Windsor
Greenwich
Woodbridge
Glastonbury
Farmington
Avon
Guilford
Trumbull
SB 2016-17 Achievement in Math, DRG A & DRG B

State of CT Math (45.6%)

Trumbull Math (77.3%)
SB 2016-17 Achievement in Math, Trumbull & DRG A
## Standardized Assessments 2018

<table>
<thead>
<tr>
<th>Assessed Content Areas</th>
<th>Smarter Balanced</th>
<th>NGSS Field Test</th>
</tr>
</thead>
</table>
| 1. English language arts / literacy  
2. Mathematics | 3-8 | 5, 8, 11 |

<table>
<thead>
<tr>
<th>Grades</th>
<th>Smarter Balanced</th>
<th>NGSS Field Test</th>
</tr>
</thead>
<tbody>
<tr>
<td>5, 8, 11</td>
<td>3-8</td>
<td>5, 8, 11</td>
</tr>
</tbody>
</table>
What is Smarter Balanced?

• SBAC developed a summative assessment as required by federal and state law. Since 2015, this summative assessment – often called the “Smarter Balanced test” – has provided information regarding the level of student, school, or program success in literacy and mathematics at the end of grades 3-8.
What is the NGSS Field Test?

• The CMT Science serves as CT’s statewide science assessment required by state and federal legislation. 2018 will represent a statewide Field Test, which will precede a full implementation in 2019. The assessment is designed to provide information regarding the level of student, school, or program success in science at the end of grades 5, 8, & 11.
## Structures of Assessments

<table>
<thead>
<tr>
<th></th>
<th>Smarter Balanced</th>
<th>NGSS Field Test</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Mode of testing</strong></td>
<td>Computer-adaptive, technology-enhanced</td>
<td>Computer-adaptive, technology-enhanced</td>
</tr>
<tr>
<td><strong>Assessed content areas</strong></td>
<td>• English language arts / literacy</td>
<td>Science</td>
</tr>
<tr>
<td></td>
<td>• Mathematics</td>
<td></td>
</tr>
<tr>
<td><strong>Aligned Content Standards</strong></td>
<td>Connecticut Core Standards</td>
<td>Next-Generation Science Standards</td>
</tr>
</tbody>
</table>
SB: Computer-Adaptive

• Based on student responses, the computer program adjusts the difficulty of questions throughout the test, providing more accurate measurement of student achievement.
SB: Technology-Enhanced

• Contains a variety of item types
  – Multiple-choice
  – Write-in response
  – Items that use multimedia
SB: English Language Arts / Literacy

- Assesses literacy in four key domains across the curriculum:
  - Reading
  - Writing / Research
  - Listening
  - Viewing
<table>
<thead>
<tr>
<th>SB: ELA / Literacy</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Reading</strong></td>
</tr>
<tr>
<td>- Close reading of literary &amp; informational texts</td>
</tr>
<tr>
<td>- Increasingly complex texts</td>
</tr>
<tr>
<td><strong>Writing / Research</strong></td>
</tr>
<tr>
<td>- Opinion / Persuasive</td>
</tr>
<tr>
<td>- Informational</td>
</tr>
<tr>
<td>- Narrative</td>
</tr>
<tr>
<td>- Revising, editing, and rewriting</td>
</tr>
<tr>
<td><strong>Listening</strong></td>
</tr>
<tr>
<td>- Effective listening to determine main ideas, summarize, or analyze</td>
</tr>
</tbody>
</table>
Connecticut Core Standards
Literacy Example #1

• Reading Informational Text, Grade 8:
  – A student will cite the textual evidence that most strongly supports an analysis of what the text says explicitly as well as inferences drawn from the text.
The reader can infer that the Perlmans believe in both practice and passion. Which sentence from the text best supports this inference?

(a) “First of all, you have to love what you do. That’s number one. And number two, you have to have some sort of discipline.”

(b) “All students must also sing in the chorus, where they harmonize and experience a different form of musical expression. Time for recreational sports and arts and crafts rounds out the program.”

(c) “Mrs. Perlman said, ‘At the end of the session, we have two concerts. One is an evening of orchestral and choral music, and then we have a chamber music marathon.’”

(d) “Everybody who comes to visit gets it. They’re there for a minute and a half and they want to stay forever.”

* Grade 8.
Sample SB Literacy Question #1

[After reading informational text “Master of Beautiful Music”]

The reader can infer that the Perlmans believe in both practice and passion. Which sentence from the text best supports this inference?

(a) “First of all, you have to love what you do. That’s number one. And number two, you have to have some sort of discipline.”

(b) “All students must also sing in the chorus, where they harmonize and experience a different form of musical expression. Time for recreational sports and arts and crafts rounds out the program.”

(c) “Mrs. Perlman said, ‘At the end of the session, we have two concerts. One is an evening of orchestral and choral music, and then we have a chamber music marathon.’”

(d) “Everybody who comes to visit gets it. They’re there for a minute and a half and they want to stay forever.”

* Grade 8.
Connecticut Core Standards
Literacy Example #2

• Reading Informational Text, Grade 8:
  – A student will determine a theme or central idea of a text and analyze its development over the course of the text, including its relationship to the characters, setting, and plot; a student will provide an objective summary of the text.
Sample SB Literacy Question #2

[After reading informational text "Master of Beautiful Music"]

Summarize the author’s message about the Perlman's' dedication to the camp. Use evidence from the text to support your summary.

* Grade 8.
Sample SB Literacy Question #2

[After reading informational text “Master of Beautiful Music”]

Summarize the author’s message about the Perlman’s’ dedication to the camp. Use evidence from the text to support your summary.

* Grade 8.
Connecticut Core Standards
Literacy Example #3

• Reading Informational Text, Grade 8:
  – A student will compare and contrast the structure of two or more texts and analyze how the differing structure of each text contributes to its meaning and style.
Sample SB Literacy Question #3

[After reading informational text “Master of Beautiful Music”]
Reread paragraph 1 (“From personal experience”).
Select the phrases that best explain why the author chose to include this paragraph. Select two options.

(a) to show that Perlman loves discipline more than he loves music
(b) to show that Perlman suggests that music students practice more than they relax
(c) to show that Perlman uses his own life experiences to help guide the music students
(d) to show that Perlman does not wish for students to choose to participate in normal activities
(e) to show that Perlman feels that programming students will cause them to lose love for their art
(f) to show that Perlman believes that students can benefit greatly from having structured schedules

* Grade 8.
Sample SB Literacy Question #3

[After reading informational text “Master of Beautiful Music”]
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(e) to show that Perlman feels that programming students will cause them to lose love for their art
(f) to show that Perlman believes that students can benefit greatly from having structured schedules

* Grade 8.
Connecticut Core Standards
Literacy Example #4

• Writing Narratives, Grade 8:
  – A student will write narratives to develop real or imagined experiences or events using effective technique, relevant descriptive details, and well-structured event sequences. The student will engage and orient the reader by establishing a context and point of view and introducing a narrator and/or characters; the student will organize an event sequence that unfolds naturally and logically.
A student is writing a narrative for her English teacher about a recipe gone wrong. The student wants to revise the draft to better organize its details. Read the draft of the narrative and complete the task that follows.

Recipe Gone Wrong
The recipe was simple enough: flour, baking powder, salt, eggs, and milk; what could go wrong? I gathered the dry ingredients and dumped them in the mixing bowl; flour floated in the air, sticking on my lips and lashes. Many types of flour exist, but I chose bread flour because it is high in protein. Cracking the eggs was much more difficult than I had expected. Shell pieces floated in the bowl, and I used my fingers to pick them out one by one. Eventually, all the ingredients were amassed and ready inside my mixing bowl. My mixer is a swanky, bright blue stand-up type with a large bowl—very impressive, if I do say so myself. As soon as I turned it on, sticky yellow batter flew from the bowl and dotted the counters, cabinets, and me. "How do you turn this thing down?" I yelled to Mom in the next room.

Click on the two sentences that are distracting or interrupt the flow of the narrative.

* Grade 8.
SB: Mathematics

• Assesses numeracy in four key domains:
  – Concepts & procedures
  – Problem solving
  – Modeling & data analysis
  – Communicating reasoning
<table>
<thead>
<tr>
<th>SB: Mathematics</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Concepts &amp; Procedures</strong></td>
</tr>
<tr>
<td>• Explain/apply math concepts</td>
</tr>
<tr>
<td>• Interpret/carry out math procedures with precision and fluency</td>
</tr>
<tr>
<td><strong>Problem Solving</strong></td>
</tr>
<tr>
<td>• Solve a range of complex well-posed problems, both pure and applied</td>
</tr>
<tr>
<td><strong>Modeling &amp; Data Analysis</strong></td>
</tr>
<tr>
<td>• Analyze complex, real-world scenarios</td>
</tr>
<tr>
<td>• Construct/use math models to interpret/solve problems</td>
</tr>
<tr>
<td><strong>Communicating Reasoning</strong></td>
</tr>
<tr>
<td>• Construct viable arguments to support own reasoning &amp; critique reasoning of others</td>
</tr>
</tbody>
</table>
Connecticut Core Standards
Mathematics Example #1

• Concepts and Procedures, Grade 8:
  – A student will graph proportional relationships, interpreting the unit rate as the slope of the graph. The student will compare two different proportional relationships represented in different ways. For example, the student will compare a distance-time graph to a distance-time equation to determine which of two moving objects has greater speed.
This graph shows a proportional relationship between the distance traveled by Tim on a road trip and the number of hours for which he traveled.
Sample SB Mathematics Question #1

Which statement identifies the correct slope and the correct interpretation of the slope for this situation?

(a) The slope of the line is 50/1, so the distance traveled by Tim is 50 miles every hour.

(b) The slope of the line is 50/1, so the distance traveled by Tim is 1 mile every 50 hours.

(c) The slope of the line is 1/50, so the distance traveled by Tim is 50 miles every hour.

(d) The slope of the line is 1/50, so the distance traveled by Tim is 1 mile every 50 hours.

* Grade 8.
Connecticut Core Standards
Mathematics Example #2

• Problem Solving, Grade 8:
  – A student will find a percent of a quantity as a rate per 100 (e.g., 30% of a quantity means 30/100 times the quantity); a student will solve problems involving finding the whole, given a part and the percent. The student will solve systems of two linear equations in two variables algebraically, and estimate solutions by graphing the equations. The student will solve simple cases by inspection. For example, $3x + 2y = 5$ and $3x + 2y = 6$ have no solution because $3x + 2y$ cannot simultaneously be 5 and 6.
Sample SB Mathematics Question #2

There are a total of 500 students in grades 1 through 5 in an elementary school.

- 17% of the total number of students are in 1st grade.
- 19% of the total number of students are in 4th grade.
- The number of 3rd-grade students is 9 less than the number of 4th-grade students.
- The number of 2nd-grade students is 10 less than the number of 5th-grade students.

Complete the table to show the number of students in each grade.

* Grade 8.
## Sample SB Mathematics Question #2

<table>
<thead>
<tr>
<th>Grade</th>
<th>Number of Students</th>
</tr>
</thead>
<tbody>
<tr>
<td>1st</td>
<td></td>
</tr>
<tr>
<td>2nd</td>
<td></td>
</tr>
<tr>
<td>3rd</td>
<td></td>
</tr>
<tr>
<td>4th</td>
<td></td>
</tr>
<tr>
<td>5th</td>
<td></td>
</tr>
</tbody>
</table>

*Grade 8.*
Connecticut Core Standards Mathematics Example #3

• Communicating Reasoning, Grade 8:
  – A student will construct and interpret scatter plots for bivariate measurement data to investigate patterns of association between two quantities. The student will describe patterns such as clustering, outliers, positive or negative association, linear association, and nonlinear association.
Sample SB Mathematics Question #3

HEARTBEATS

In this task, you will use data to create a model that shows the relationship between animal body weight and pulse rate measures. Then you will examine additional data to evaluate your model.

A study states that the relationship between an animal’s pulse rate and body weight is approximately linear. The study data are below.

<table>
<thead>
<tr>
<th>Animal</th>
<th>Average Body Weight (in kilograms)</th>
<th>Average Pulse Rate (in beats per minute)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cat</td>
<td>3</td>
<td>130</td>
</tr>
<tr>
<td>Goat</td>
<td>28</td>
<td>75</td>
</tr>
<tr>
<td>Sheep</td>
<td>56</td>
<td>75</td>
</tr>
<tr>
<td>Pig</td>
<td>192</td>
<td>95</td>
</tr>
<tr>
<td>Ox</td>
<td>362</td>
<td>48</td>
</tr>
<tr>
<td>Cow</td>
<td>465</td>
<td>66</td>
</tr>
<tr>
<td>Horse</td>
<td>521</td>
<td>34</td>
</tr>
</tbody>
</table>

* Grade 8.
Sample SB Mathematics Question #3

(1) The data from Table 1 are plotted below. Use the Connect Line tool to create a linear model of these data.

(2) What is the equation of the line you drew in Item 1?

(3) Interpret the slope of the line from Item 1 in the context of the situation. Type your answer in the space provided.

(4) Based on the equation from Item 2, predict the average pulse rate, in beats per minute, of an animal that weighs 6000 kilograms.

(5) Explain whether your predicted average pulse rate is reasonable in the context of the situation.

(6) The body weight and pulse rate of a guinea pig and rabbit are given in the table below. If the study had included these data, would this change the model relating average body weight and average pulse rate? How do you know?

<table>
<thead>
<tr>
<th>Animal</th>
<th>Average Body Weight (in kg)</th>
<th>Average Pulse Rate (in beats per minute)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Guinea Pig</td>
<td>1</td>
<td>250</td>
</tr>
<tr>
<td>Rabbit</td>
<td>2.5</td>
<td>265</td>
</tr>
</tbody>
</table>

* Grade 8.*
# NGSS Assessment

<table>
<thead>
<tr>
<th>3-dimensional learning</th>
<th>• Scientific &amp; Engineering Practices</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>• Disciplinary Core Ideas</td>
</tr>
<tr>
<td></td>
<td>• Crosscutting Concepts</td>
</tr>
</tbody>
</table>
Sample NGSS Assessment Question

Using a lower-powered telescope, you can see four of Jupiter’s closest moons orbiting the planet.

A ruler on the lens of the telescope is used to take measurements in centimeters. The animation shows the movements of the moons and Jupiter over the course of several days. Only part of the telescope view is shown. Click on the small gray arrow at the bottom left of the picture to begin the animation.

* Grade 8.
The table shows data on each of the moons.

Table 1. Data on Galilean Moons

<table>
<thead>
<tr>
<th></th>
<th>Diameter (km)</th>
<th>Mean Distance from Jupiter (km)</th>
<th>Orbital Period (days)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Callisto</td>
<td>4,800</td>
<td>2,000,000</td>
<td>16.7</td>
</tr>
<tr>
<td>Europa</td>
<td>3,318</td>
<td>700,000</td>
<td>3.5</td>
</tr>
<tr>
<td>Ganymede</td>
<td>5,262</td>
<td>1,000,000</td>
<td>7.2</td>
</tr>
<tr>
<td>Io</td>
<td>3,630</td>
<td>400,000</td>
<td>1.8</td>
</tr>
</tbody>
</table>
Sample NGSS Assessment Question

Your Task

In the questions that follow, you will identify each of the four moons viewed through the telescope by utilizing data from your observations.
Sample NGSS Assessment Question

Part A
Use the measuring tool in the animation to determine each moon’s maximum distance from Jupiter.

Complete the table by entering measurements to the closest 0.5 centimeter (cm) in the blank boxes.

<table>
<thead>
<tr>
<th></th>
<th>Maximum Distance from Jupiter in Animation (in cm)</th>
</tr>
</thead>
<tbody>
<tr>
<td>M1</td>
<td></td>
</tr>
<tr>
<td>M2</td>
<td></td>
</tr>
<tr>
<td>M3</td>
<td></td>
</tr>
<tr>
<td>M4</td>
<td></td>
</tr>
</tbody>
</table>
Sample NGSS Assessment Question

Part B

Use your measurements and the Data on Galilean Moons table to identify each moon.
Select the boxes to identify each moon by name.

<table>
<thead>
<tr>
<th></th>
<th>Callisto</th>
<th>Europa</th>
<th>Ganymede</th>
<th>Io</th>
</tr>
</thead>
<tbody>
<tr>
<td>M1</td>
<td>□</td>
<td>□</td>
<td>□</td>
<td>□</td>
</tr>
<tr>
<td>M2</td>
<td>□</td>
<td>□</td>
<td>□</td>
<td>□</td>
</tr>
<tr>
<td>M3</td>
<td>□</td>
<td>□</td>
<td>□</td>
<td>□</td>
</tr>
<tr>
<td>M4</td>
<td>□</td>
<td>□</td>
<td>□</td>
<td>□</td>
</tr>
</tbody>
</table>
Sample NGSS Assessment Question

Part C
M1 and M4 appear to intersect twice in the model. Enter the approximate distance from Jupiter, in kilometers, where one of these apparent intersections occur. [Calculator]
Part D
Compare the measurements you took to the distances in the Data on Galilean Moons table.
Which statement is true about the two measurements?

- The measurements you took are proportional to the data in the table.
- The measurements you took are not proportional to the data in the table because the table is wrong.
- There is not enough information to tell whether the measurements you took are proportional to the data in the table.
- The data you measured is not proportional to the data in the table because the ruler on the lens is not accurate at that distance.
Sample NGSS Assessment Question

Part E
Which relationship between properties of the moons is supported by the data?

- Diameter is related to orbit size.
- Orbital period is related to orbit size.
- Diameter is related to the orbital period.
- Orbital period is related to diameter and orbit size.
Integrating Standardized Assessments into TPS

<table>
<thead>
<tr>
<th>SB Literacy</th>
<th>Between April 25 &amp; May 10 on schedule designed by building principal to impact instructional time minimally</th>
<th>Untimed test, but average time = ~ 1:33</th>
</tr>
</thead>
<tbody>
<tr>
<td>SB Mathematics</td>
<td></td>
<td>Untimed test, but average time = ~ 2:00</td>
</tr>
<tr>
<td>NGSS Field Test</td>
<td>Week of May 14</td>
<td>Untimed test, but two 45-minute science classes allocated</td>
</tr>
</tbody>
</table>
Questions?