National Center on Assessment and Accountability for Special Education

A State Overview of Pennsylvania
March 7, 2012
Washington, D.C.

NCAASE: PA Team

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General State Assessment Overview

PA Assessment and Accountability System:
Legacy of Assessment Development
PA Assessment and Accountability System

**PSSA**
- Reading
- Math
- Writing
- Science

Reading and Math: 3-8 and 11
Writing: 5, 8 and 11
Science: 4, 8 and 11

**PSSA-Modified**
- Reading
- Math
- Science

Reading and Math: 4-8 and 11
Science: 8 and 11

**PASA**
- Reading
- Math
- Science

Reading and Math: 3-8 and 11
Science: 4, 8 and 11

Timeline for the Development of the PSSA

- **1996**: Reading and Math grades 5, 8, and 11 added
- **2003**: Reading and Math grade 3 added
- **2006**: Reading and Math grades 4, 6, 7 added
- **2007-2009**: Science added grades 4, 8, and 11
Timeline for the Development of the PASA

- **2001**: Reading and Math • Gr. 5, 8, 11
- **2003**: Reading and Math • Gr. 3 added
- **2006**: Reading and Math • Gr. 4, 6, 7 added
- **2007**: Science • Gr. 4, 8, 11

Pennsylvania Develops A Modified Assessment

- Pennsylvania developed an alternate assessment based on modified academic achievement standards
- The PSSA-Modified or PSSA-M **Math** assessment became operational in **2010**
- The PSSA-M **Reading and Science** became operational in **2011**
Assessment Participants

- **PSSA**
  - May use or not use accommodations
- **PSSA-M**
  - Must meet 4 eligibility criteria
- **PASA**
  - Must meet 6 eligibility criteria

The PSSA-M criteria are subject specific. A student may participate in the PSSA-M and PSSA.

On-going Assessment Development

- Pennsylvania will *likely* be incorporating 3 end of course exams at the HS level
  - Algebra I, Biology, and Literature
  - Keystone Exams would serve as a graduation requirement **AND** AYP
  - If all goes as planned, exams will replace the PSSA in 11th grade beginning in 2012-2013
On-going Assessment Development

- The PSSA is being realigned to the PA Common Core.
- Transition will be as follows:
  - Grades 3-5 in 2014
  - Grades 6-8 in 2015
- The PSSA-M will be phased out with the transition to the realigned PSSA
- The PSSA Reading and Writing assessment may transition to an ELA test

Assessment Accommodations

- An Accommodations Manual for:
  - Students with IEPs and 504 Plans
  - ELL
  - All students
- Request for audio, electronic readers, and unique accommodations are reviewed at the department
  - IEP is considered
Retesting

- A 12th grade retest is offered to students in 12th grade who were not proficient on the PSSA in 11th grade
  - Window in in October
Math 2012

- Criterion Referenced
- 5 Reporting Categories
  - Numbers and Operations
  - Measurement
  - Geometry
  - Algebra
  - Data Analysis

<table>
<thead>
<tr>
<th>Grade</th>
<th>Estimated Time of Test</th>
<th>Common Multiple Choice Items</th>
<th>Common Equating Block Items</th>
<th>Field Test Items</th>
<th>Common Open-Ended Items</th>
<th>Equating Block Items</th>
<th>Field Test Items</th>
<th>Total Number of Score Points</th>
</tr>
</thead>
<tbody>
<tr>
<td>3-8 and 11</td>
<td>180 minutes 3 sessions</td>
<td>60</td>
<td>2</td>
<td>10</td>
<td>3</td>
<td>0</td>
<td>1</td>
<td>60+12=72</td>
</tr>
</tbody>
</table>

Scores come from the COMMON ONLY.
# Math Test Blueprint

<table>
<thead>
<tr>
<th>Reporting Category</th>
<th>Grade 3</th>
<th>Grade 4</th>
<th>Grade 5</th>
<th>Grade 6</th>
<th>Grade 7</th>
<th>Grade 8</th>
<th>Grade 11</th>
</tr>
</thead>
<tbody>
<tr>
<td>Numbers and Operations</td>
<td>40-50%</td>
<td>43-47%</td>
<td>41-45%</td>
<td>28-32%</td>
<td>20-24%</td>
<td>18-22%</td>
<td>12-15%</td>
</tr>
<tr>
<td>Measurement</td>
<td>12-15%</td>
<td>12-15%</td>
<td>12-15%</td>
<td>12-15%</td>
<td>12-15%</td>
<td>12-15%</td>
<td></td>
</tr>
<tr>
<td>Geometry</td>
<td>12-15%</td>
<td>12-15%</td>
<td>12-15%</td>
<td>15-21%</td>
<td>15-21%</td>
<td>15-20%</td>
<td>12-18%</td>
</tr>
<tr>
<td>Algebraic Concepts</td>
<td>12-15%</td>
<td>12-15%</td>
<td>13-17%</td>
<td>15-20%</td>
<td>20-27%</td>
<td>25-30%</td>
<td>36-42%</td>
</tr>
<tr>
<td>Data Analysis and Probability</td>
<td>13-16%</td>
<td>12-15%</td>
<td>12-15%</td>
<td>15-20%</td>
<td>15-20%</td>
<td>15-20%</td>
<td>12-18%</td>
</tr>
<tr>
<td><strong>Total Points</strong></td>
<td>72 Points</td>
<td>72 Points</td>
<td>72 Points</td>
<td>72 Points</td>
<td>72 Points</td>
<td>72 Points</td>
<td></td>
</tr>
</tbody>
</table>

# Math Performance Level Cut Scores

<table>
<thead>
<tr>
<th>Performance Level</th>
<th>Grade 3</th>
<th>Grade 4</th>
<th>Grade 5</th>
<th>Grade 6</th>
<th>Grade 7</th>
<th>Grade 8</th>
<th>Grade 11</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Advanced</strong></td>
<td>1370-1509</td>
<td>1445-1509</td>
<td>1483-1509</td>
<td>1476-1509</td>
<td>1472-1509</td>
<td>1446-1509</td>
<td>1509-1509</td>
</tr>
<tr>
<td><strong>Proficient</strong></td>
<td>1180-1304</td>
<td>1246-1445</td>
<td>1312-1482</td>
<td>1298-1475</td>
<td>1298-1471</td>
<td>1284-1445</td>
<td>1304-1508</td>
</tr>
<tr>
<td><strong>Basic</strong></td>
<td>1044-1167</td>
<td>1156-1311</td>
<td>1158-1297</td>
<td>1174-1297</td>
<td>1183-1283</td>
<td>1171-1303</td>
<td></td>
</tr>
<tr>
<td><strong>Below Basic</strong></td>
<td>750-1043</td>
<td>700-1155</td>
<td>700-1157</td>
<td>700-1173</td>
<td>700-1182</td>
<td>700-1170</td>
<td>700-1166</td>
</tr>
</tbody>
</table>
PSSA-M Math Administration

- 2 sections, not 3
- 30 MC and 2 OE
- Recommended to be administered in a separate setting
- Recommended to administer all sections of one content area, then all sections of the other (e.g. all Math then all Reading)
- All accommodations available for the PSSA are also available for the PSSA-M

Math PSSA-M Performance Level Cut Scores

<table>
<thead>
<tr>
<th>Performance Level</th>
<th>Grade 4</th>
<th>Grade 5</th>
<th>Grade 6</th>
<th>Grade 7</th>
<th>Grade 8</th>
<th>Grade 11</th>
</tr>
</thead>
<tbody>
<tr>
<td>Advanced</td>
<td>1356 and up</td>
<td>1374 and up</td>
<td>1381 and up</td>
<td>1364 and up</td>
<td>1395 and up</td>
<td>1403 and up</td>
</tr>
<tr>
<td>Proficient</td>
<td>1275-1355</td>
<td>1275-1373</td>
<td>1275-1380</td>
<td>1275-1363</td>
<td>1275-1394</td>
<td>1275-1402</td>
</tr>
<tr>
<td>Basic</td>
<td>1150-1274</td>
<td>1150-1274</td>
<td>1150-1274</td>
<td>1150-1274</td>
<td>1150-1274</td>
<td>1150-1274</td>
</tr>
<tr>
<td>Below Basic</td>
<td>1075-1149</td>
<td>1075-1149</td>
<td>1075-1149</td>
<td>1075-1149</td>
<td>1075-1149</td>
<td>1075-1149</td>
</tr>
</tbody>
</table>
PSSA READING
2012

Test Specifics

- Three Reading Sections on the PSSA
- Math and Reading sections alternate
  - Math: Sections 1, 3, 5
  - Reading: Sections 2, 4, 6
- Alignment with PA Academic Standards: Assesses knowledge and skills described in the Assessment Anchor Content Standards
- Target Passage Types
  - Eligible passage genres identified at each grade level
Grade 3

- 3 sessions
- Sections 2, 4, & 6 (alternates w/Math)
- Approximately 50 - 70 minutes each
- Target Passage Types for Common Passages
  - 2 Stories
  - 1 Poem
  - 1 Informational
  - 1 Autobiography/Biography or 1 Practical/How-to/Advertisement
- 58 Multiple-choice items (40 common items)
- 3 Open-ended items (2 common items)
- Students write ALL answers in test booklet

Grade 3 Test Format

<table>
<thead>
<tr>
<th>Approximate length</th>
<th>Number of Multiple-Choice Items (1 point each)</th>
<th>Number of Open-Ended Items (3 points each)</th>
</tr>
</thead>
<tbody>
<tr>
<td>50 - 70 minutes each section</td>
<td>Common Equating Block Field Test</td>
<td>Common Equating Block Field Test</td>
</tr>
<tr>
<td></td>
<td>40 8 10</td>
<td>2 0 1</td>
</tr>
<tr>
<td>Total 155 – 215 minutes</td>
<td>Student score (Common Only): 46 points</td>
<td>Total points on each test: 67</td>
</tr>
</tbody>
</table>

Student score (Common Only): 46 points
Total points on each test: 67
Grades 4-8 & 11

- 3 sessions
- Sections 2, 4, & 6 (alternates w/Math)
- Approximately 50 –75 minutes each
- Target Passage Types (mix varies by grade)
  - Story (all grades)
  - Poem (all grades)
  - Informational (all grades)
  - Autobiography/Biography (eligible at all grades)
  - Practical/How-to/Advertisement
  - Essay/Editorial (grades 5, 6, 7, 8, & 11)
- 58 Multiple-choice items (40 common items)
- 5 Open-ended items (4 common items)
- Students write answers in answer booklet

Grades 4–8 & 11 Test Format

<table>
<thead>
<tr>
<th>Approximate length</th>
<th>Number of Multiple-Choice Items (1 point each)</th>
<th>Number of Open-Ended Items (3 points each)</th>
</tr>
</thead>
<tbody>
<tr>
<td>50 - 75 minutes each section</td>
<td>Common</td>
<td>Equating Block</td>
</tr>
<tr>
<td></td>
<td>40</td>
<td>8</td>
</tr>
<tr>
<td>Total 155 – 185 minutes</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Reading Reporting Clusters

<table>
<thead>
<tr>
<th>Grade</th>
<th>Comprehension and Reading Skills (Category A)</th>
<th>Interpretation and Analysis (Category B)</th>
</tr>
</thead>
<tbody>
<tr>
<td>3</td>
<td>60-80 %</td>
<td>20-40 %</td>
</tr>
<tr>
<td>4</td>
<td>60-80 %</td>
<td>20-40 %</td>
</tr>
<tr>
<td>5</td>
<td>60-80 %</td>
<td>20-40 %</td>
</tr>
<tr>
<td>6</td>
<td>50-70 %</td>
<td>30-50 %</td>
</tr>
<tr>
<td>7</td>
<td>50-70 %</td>
<td>30-50 %</td>
</tr>
<tr>
<td>8</td>
<td>40-60 %</td>
<td>40-60 %</td>
</tr>
<tr>
<td>11</td>
<td>40-60 %</td>
<td>40-60 %</td>
</tr>
</tbody>
</table>

Reading Scale Score Ranges by Performance Level and Grade

<table>
<thead>
<tr>
<th>Level</th>
<th>Grade 3</th>
<th>Grade 4</th>
<th>Grade 5</th>
<th>Grade 6</th>
<th>Grade 7</th>
<th>Grade 8</th>
<th>Grade 11</th>
</tr>
</thead>
<tbody>
<tr>
<td>Advanced*</td>
<td>1442 and up</td>
<td>1469 and up</td>
<td>1497 and up</td>
<td>1456 and up</td>
<td>1470 and up</td>
<td>1473 and up</td>
<td>1492 and up</td>
</tr>
<tr>
<td>Proficient</td>
<td>1235-1441</td>
<td>1255-1468</td>
<td>1275-1496</td>
<td>1278-1455</td>
<td>1279-1469</td>
<td>1280-1472</td>
<td>1257-1491</td>
</tr>
<tr>
<td>Basic</td>
<td>1168-1234</td>
<td>1112-1254</td>
<td>1137-1274</td>
<td>1121-1277</td>
<td>1131-1278</td>
<td>1146-1279</td>
<td>1112-1256</td>
</tr>
<tr>
<td>Below Basic</td>
<td>1000-1167</td>
<td>700-1111</td>
<td>700-1136</td>
<td>700-1120</td>
<td>700-1130</td>
<td>700-1145</td>
<td>700-1111</td>
</tr>
</tbody>
</table>

*The highest possible score is determined yearly when raw-to-scale is determined. Upper limit for advanced is posted annually after public release of results.
PSSA-M READING
2012

Test Characteristics of the Reading PSSA-M

- 2 sessions
- Sections 1, 2 (separate content booklet; does not alternate w/Math)
- Approximately 50 –75 minutes each
- Target Passage Types - Same eligible passage genres as identified at each grade level for the general PSSA (mix varies by grade)
- 30 Multiple-choice items (all common items)
- 2 Open-ended items (all common items)
- Students write answers in test booklet
### 2012 PSSA-M Reading Blueprint

<table>
<thead>
<tr>
<th>Reporting Category</th>
<th>Grade 4</th>
<th>Grade 5</th>
<th>Grade 6</th>
<th>Grade 7</th>
<th>Grade 8</th>
<th>Grade 11</th>
</tr>
</thead>
<tbody>
<tr>
<td>A. Comprehension and Reading Skills</td>
<td>60% - 80%</td>
<td>60% - 80%</td>
<td>50% - 70%</td>
<td>50% - 70%</td>
<td>40% - 60%</td>
<td>40% - 60%</td>
</tr>
<tr>
<td>B. Interpretation and Analysis of Fiction and Nonfiction Text</td>
<td>20% - 40%</td>
<td>20% - 40%</td>
<td>30% - 50%</td>
<td>30% - 50%</td>
<td>40% - 60%</td>
<td>40% - 60%</td>
</tr>
</tbody>
</table>

### Grades 4–8 & 11 PSSA-M Test Format

<table>
<thead>
<tr>
<th>Number of Multiple-Choice Items (1 point each)</th>
<th>Number of Open-Ended Items (3 points each)</th>
</tr>
</thead>
<tbody>
<tr>
<td>30</td>
<td>2</td>
</tr>
</tbody>
</table>

Total points on each test: 36
(approximately one-half the number on general PSSA)
# PSSA-M Reading Scale Score Ranges by Performance Level and Grade

<table>
<thead>
<tr>
<th>Level</th>
<th>Grade 4</th>
<th>Grade 5</th>
<th>Grade 6</th>
<th>Grade 7</th>
<th>Grade 8</th>
<th>Grade 11</th>
</tr>
</thead>
<tbody>
<tr>
<td>Advanced</td>
<td>1363 – and up</td>
<td>1391 – and up</td>
<td>1381 – and up</td>
<td>1385 – and up</td>
<td>1399 – and up</td>
<td>1433 – and up</td>
</tr>
</tbody>
</table>

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# PVAAS: Pennsylvania’s Growth Model
PA Methodology for Growth and Value-Added: EVAAS

- EVAAS: Educational Value-Added Assessment System
  - SAS EVAAS for K-12, Cary, NC
  - PVAAS: Pennsylvania Value-Added Assessment System

- 2002-2005: Pilot with 100 Districts
- 2006: Statewide Implementation
- 2011: Public Reporting Added
- Annual Reporting provided to:
  - Districts
  - Charter Schools and Cyber charter Schools
  - Full Time Career and Technology Centers

Detailed History of PVAAS

- Pilot from 2002-2005: 100 Districts
- Fall 2006: Reporting Grades 4 and 6 Reporting to all 501 Districts
- Fall 2007: Grades 4-8 Reporting to all Districts
- Fall 2008: Grades 4-8, 11 Reporting to all Districts
- Fall 2009: Full Reporting to 500 Districts, Charters, FT CTCs
  - Math, Reading, Science, Writing; Grades 4-8, 11
  - Used as provision to meet AYP for NLCB – AYP Growth Model
- Annual Fall Release
PVAAS Reporting

- Currently PVAAS analyzes PSSA
  - Not PSSA-M (2%) or PASA (1%)
  - Issue has been small number of students per district/school
- Grades and Subjects:
  - Math and Reading: Grades 4-8, 11
  - Science: Grades 4, 8, 11
  - Writing: Grades 5, 8, 11
- Future:
  - PSSA Aligned to PA Common Core
  - Reading/ Writing
  - Keystone Exams: Algebra I, Bio, Eng Literature

PVAAS Reporting

- Reporting Provided on:
  - District
  - School
  - Grade
  - Subgroups
    - Including Students with IEPs
  - Student
PVAAS Provides:

Looking Back/Evaluation…

Value-added Growth Reports For Groups of Students

• 4-8
• 9-11
• Math, Science, Reading, Writing

Looking Forward/Planning…

PVAAS Projection Reports For Individual Students and Groups of Students

AYP Growth Model Provision
PVAAS Provides:

Looking Back/Evaluation…

Value-added Growth Reports For Groups of Students

- 4-8
- 9-11

• Math, Science, Reading, Writing

Looking Forward/Planning…

PVAAS Projection Reports For Individual Students and Groups of Students

Calculation of Growth: PVAAS Methodologies

- Consecutive Grades of Testing:
  - Math and Reading, Grades 3-8
  - PVAAS: Growth Standard Methodology
    - Multivariate Response Model (MRM)
- Non-Consecutive Grades of Testing:
  - Math and Reading, Grades 9-11
  - Science, Grades 4, 8 and 11
  - Writing, Grades 5, 8 and 11
  - PVAAS: Predictive Methodology
    - Univariate Response Model (URM)
Calculation of Growth:
Multivariate Response Model (MRM)

- Multivariate, longitudinal, linear mixed model, otherwise known as a repeated-measures model
- Entire set of observed test scores belonging to each student is fitted simultaneously
  - Measurement error is dampened/minimized
  - Demographics are inherently controlled for as students are serving as their own control
- Students are not excluded due to missing data

- Note: When the data have been scaled or transformed to allow comparable expectations of progress, evaluated over many schools and/or districts, regardless of entering levels of groups of students, then the MRM approach is preferred. Done with NCEs in this methodology

Calculation of Growth:
Univariate Response Model (URM)

- Similar to traditional analysis of covariance (ANCOVA)
  - Response – A particular year/subject/grade
  - Covariates – All prior test scores for each student
  - Categorical – Educational entity (district, school, teacher)

- Differs from traditional ANCOVA in that
  - the categorical variable is treated as a random effect rather than a fixed
  - All possible prior scores are included for each student without excluding students with missing data
Calculation of Growth:  
Univariate Response Model (URM) Cont’d

- URM has much in common with certain hierarchical linear models (HLMs) that have been used for value-added analyses.
- All available prior achievement test scores for each student are used
  - Students with missing data are not excluded to minimize the selection bias
  - Demographics are inherently controlled for as all prior data is used
  - Measurement error is dampened/minimized –

- Note: To minimize bias caused by measurement error in the predictor variables, the URM requires that each student must have at least three prior scores in any subject and grade.

Common Challenges with  
Growth Models: PVAAS/EVAAS

- Missing data and measurement error
- All PVAAS/EVAAS methodologies use all available data on each individual student with out excluding students with missing data
  - The inclusion of all test scores dampens the effect of measurement error
  - Selection bias is removed by not excluding students with missing data
PVAAS Reporting for Students with IEPs

- PVAAS Performance Diagnostic Report
- PVAAS Custom Diagnostic Report - User Defined Group
- PVAAS Custom Analyses of Special Education for PA

PVAAS Performance Diagnostic

Same School – Same Grade – Same Subject

4th Grade PSSA Math

Question for Educators:
How do our subgroups compare to the entire grade level?
Pennsylvania Science Assessment Anchors Rollout

Pennsylvania State Assessments 2012
Tom Corbett, Governor • Ronald J. Tomalis, Secretary of Education

2011 Custom Diagnostic Report
Jazzberry Jam Elementary School in Large Urban School District
5th Grade PSSA Math

PVAAS Custom Diagnostic Report: User Defined Group

PVAAS Student Projection Report
PVAAS Custom Analyses: Special Education for PA

**Purpose:** Analyses to compare differences among schools in their effectiveness in teaching students with IEPs

**2 Research Questions:**
1. Was the progress of students with IEPs measurably different from non-IEP students within a school?
   - IEP > Non-IEP
   - IEP = Non-IEP
   - IEP < Non-IEP
2. For the students with IEPs within each grade and subject, is there variability in effectiveness among schools?
   - Progress Above the Average School
   - Progress Not Detectably Different from the Average School
   - Progress Below the Average School

**Info Requested from PA**

- **Scores on a Common Scale**
  - Not needed in EVAAS URM type methodologies
  - NCEs are used in EVAAS MRM type methodologies
- **How Student and School Level Growth Outcomes are Reported**
  - Growth reported at group level, not student level
  - Projections are reported at student level
- **Handling of Missing Data**
  - See previous slides
- **Calculation of Growth**
  - MRM and URM
  - Depends on grades of testing
- **Handling of Non-Linear Growth – NCEs**
Data Collection for Students with Disabilities: Assessment and Demographics