



State of New Hampshire



*New Hampshire Department of
Education—Leading the Way
for a Public Domain Education Data
Warehouse—including
Student-Teacher Connections That
Inform Instructional Change*

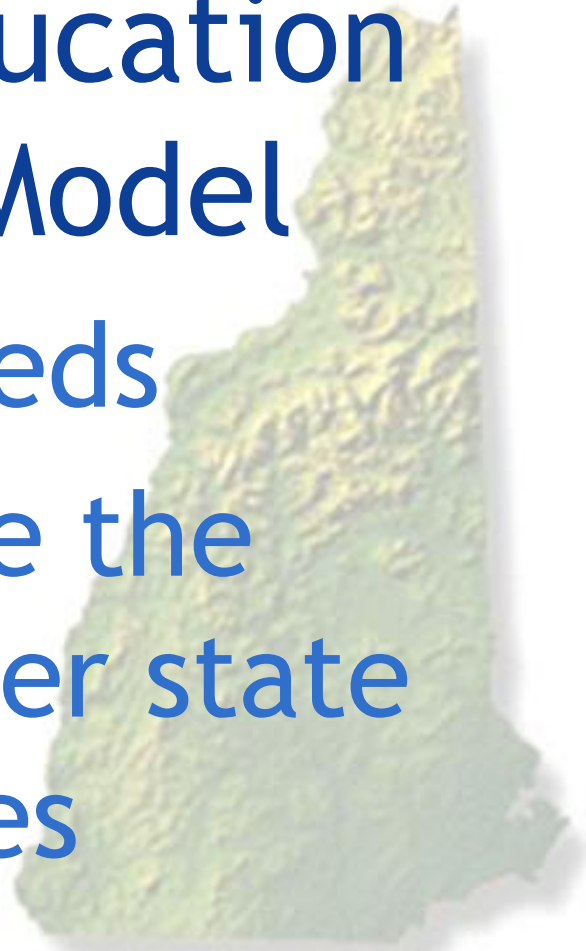
March 3, 2010

Agenda

1. The Scope of NH's Public Data Model
 2. The Process and Considerations in Building NH's Public Data Model
 3. How NH's Public Data Model will Improve Education
 4. Collaborating Across the Country
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The Scope of NH's Public Data Model

- Public Domain Education Data Warehouse Model
 - ◆ Fully meet NH needs
 - ◆ Collaborate: share the resource with other state education agencies

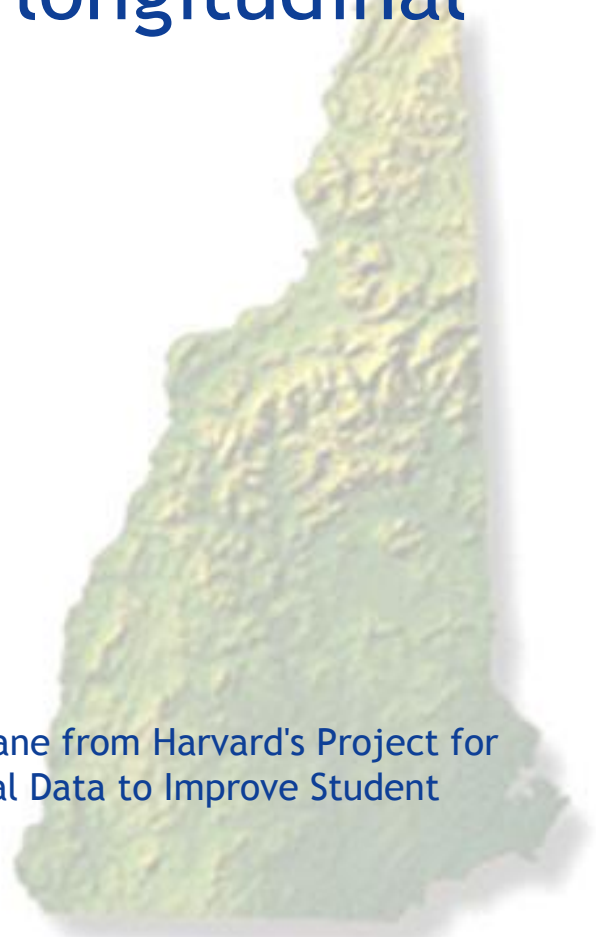


Background: NH DOE Vision

Three categories of uses for longitudinal data:

1. Incent
2. Evaluate
3. Empower

(Source: 2006 presentation by Jon Fullerton and Thomas Kane from Harvard's Project for Policy Innovation in Education, "Leveraging Longitudinal Data to Improve Student Achievement")



Initial Scope of the Data Model

Initial Uses:

- Federal Reporting
- State Reporting
- Analytics to inform Policy
- Feed data to assessment provider
- Feed data to decision support portal for educators



Initial Scope of the Data Model

Initial Collections:

- Student
- School
- District
- Program
- Educator
- Policy data
- Census, geographic and tax data



Initial Scope of the Data Model

- I4see
- EIS
- CaTE
- NHSEIS
- Others...

New Hampshire Educator Information System
New Hampshire Department of Education
Commissioner Virginia M. Barry, Ph.D.

mfschwartz Michael Schwartz (DO Specialist)

Home Educators Tools

Educator Search Screen

EdID#: SSN:
 Last Name: smith First Name:
 Birthdate: Educator Status:

Search Educators Clear Search

Educators Show 50 items per page Page: 1

**New Hampshire Department Of Education
Initiative for School Empowerment and Excellence
i4see**

Home WorkQueue Upload Files Students Analysis Admin Help LogOut

Welcome to the i4see Workbench. If you have any questions, please call Mike Cote at 271-2775.

Hello Michael Schwartz Color Scheme: Choose:

District: 399 - Newmarket Newmarket

SAU: 31 - Newmarket SAU Office

[School Data](#)

WorkQueue

Verify View Detail Edit Batch Delete Batch Refresh

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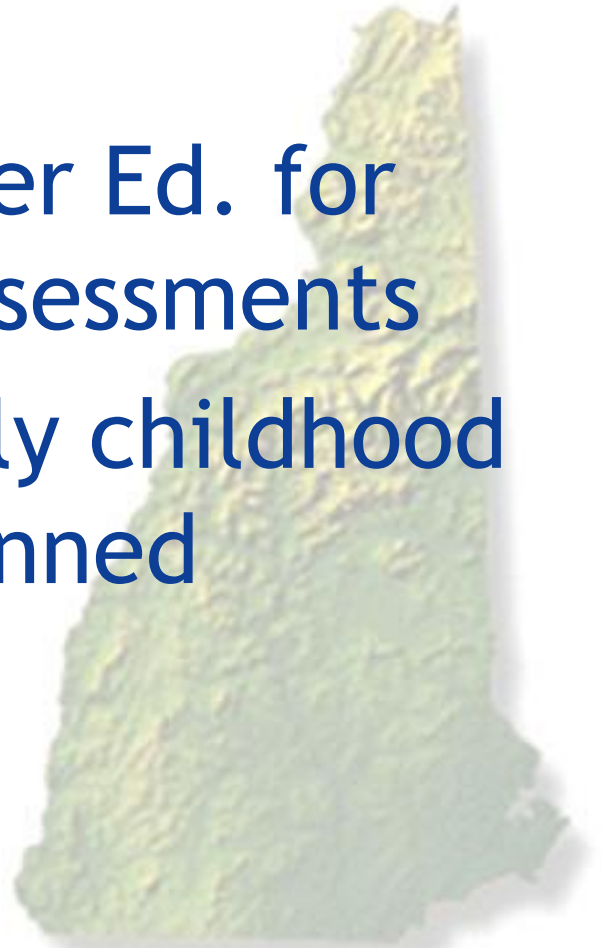
<< Prev Next >>

	Batch ID	Submission	Submission Year	Submitted	Last Updated	Status	Total Records Unloaded	SASID's Assigned	Duplicate Records	User	Comment	Email
<input type="button" value="Select"/>	39083	NECAP and Alt Labels	2010	2/10/2010 10:34:22 AM	2/10/2010 11:43:09 AM	Batch Verified with	8			SPuchlopek1		Spuchlopek@newmarke

Initial Scope of the Data Model

P-20

- Supports K-12 and Higher Ed. for data such as student assessments
- Further support for early childhood and workforce data planned



The Process and Considerations in Building NH's Public Data Model

■ WHY this model?

◆ U

◆ F

◆ O



The Process and Considerations in Building NH's Public Data Model



- WHY this model?
 - ◆ Usability
 - ◆ Flexibility
 - ◆ Open Standards



■ WHY this model?

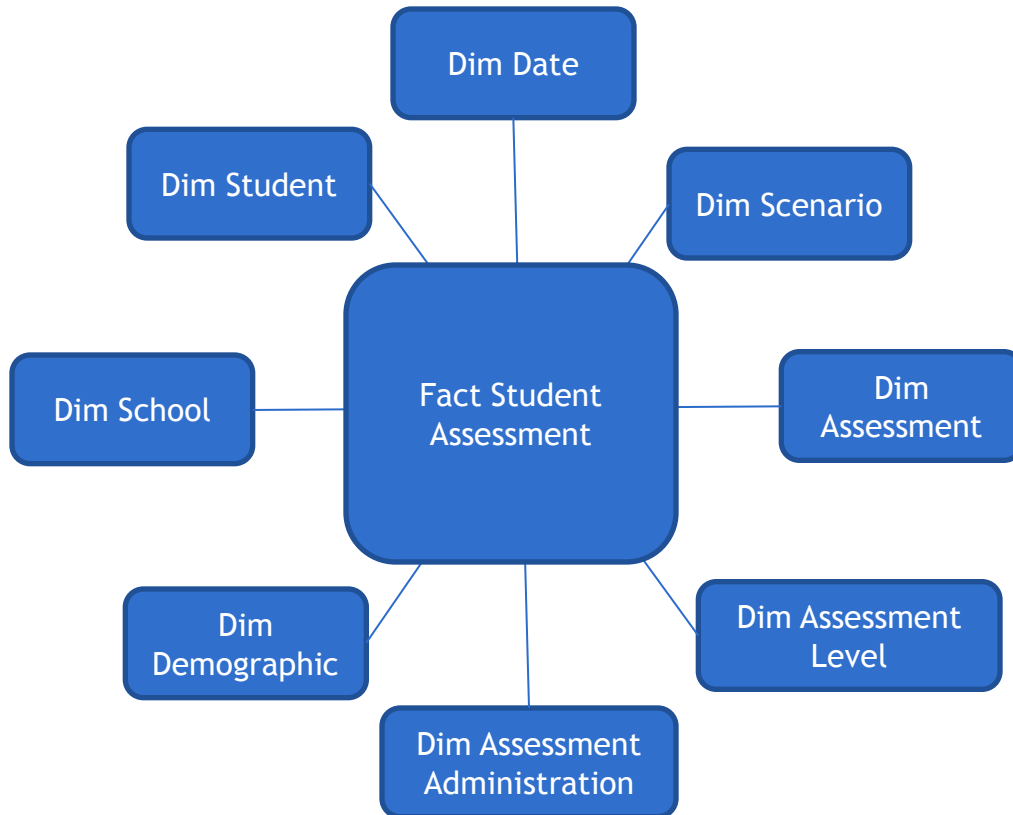
◆ Usability

◆ F

◆ O

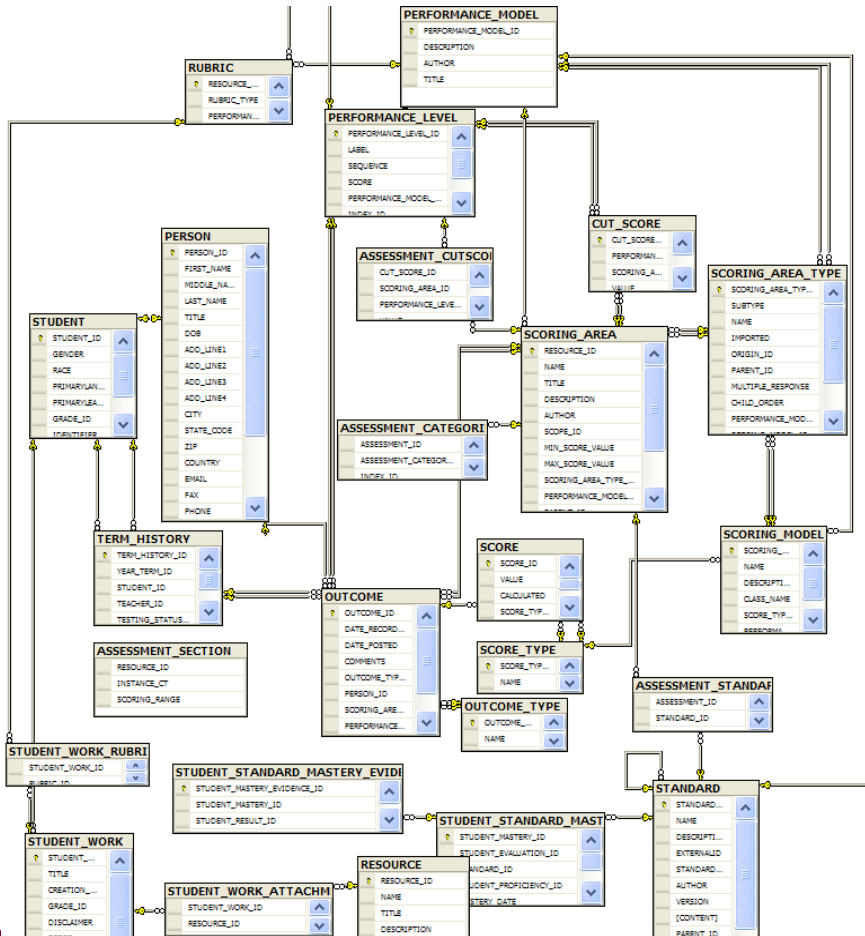


Dimensional Model



Usability

Normalized Assessment Data

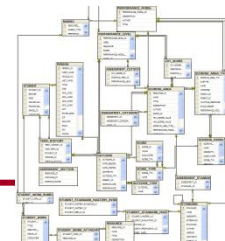




Dimensional Model

```
SELECT  ASSESSMENT.PERFORMANCE_LEVEL, dimSTUDENT.RACE,  
        dimSCHOOL.SHORTNAME, dimDATE.ACCADEMIC_YEAR  
FROM    ASSESSMENT INNER JOIN  
        dimDATE ON ASSESSMENT.DATE_ID = dimDATE.DATE_ID INNER JOIN  
        dimSTUDENT ON ASSESSMENT.STUDENT_ID = dimSTUDENT.STUDENT_ID INNER JOIN  
        dimSCHOOL ON ASSESSMENT.SCHOOL_ID = dimSCHOOL.SCHOOL_ID  
WHERE   dimSTUDENT.GENDER = [MALE]  
GROUP BY dimSCHOOL.SHORTNAME, dimDATE.ACCADEMIC_YEAR, STUDENT.GENDER
```

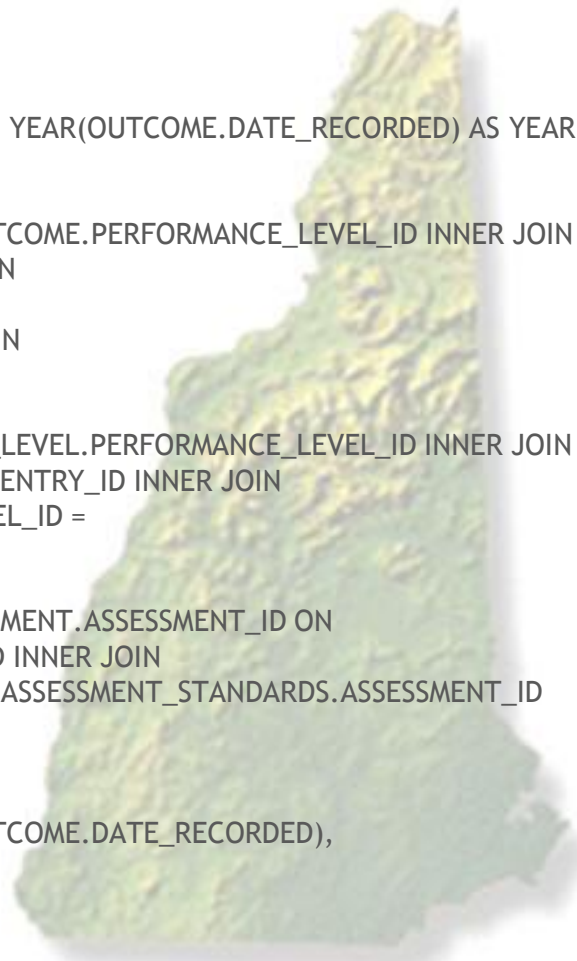




Normalized Assessment Data

```

SELECT PERFORMANCE_LEVEL.LABEL, STUDENT.RACE, LS_GROUP.GROUP_NAME, YEAR(OUTCOME.DATE_RECORDED) AS YEAR
FROM ASSESSMENT_CUTSCORE INNER JOIN
    PERFORMANCE_LEVEL INNER JOIN
    OUTCOME ON PERFORMANCE_LEVEL.PERFORMANCE_LEVEL_ID = OUTCOME.PERFORMANCE_LEVEL_ID INNER JOIN
    SCORE ON SCORE.OUTCOME_ID = OUTCOME.OUTCOME_ID INNER JOIN
    PERSON ON OUTCOME.PERSON_ID = PERSON.PERSON_ID INNER JOIN
    STUDENT ON PERSON.PERSON_ID = STUDENT.STUDENT_ID INNER JOIN
    SCHOOL ON SCHOOL.GROUP_ID = OUTCOME.SCHOOL_ID INNER JOIN
    LS_GROUP ON LS_GROUP.GROUP_ID = SCHOOL.GROUP_ID ON
    ASSESSMENT_CUTSCORE.PERFORMANCE_LEVEL_ID = PERFORMANCE_LEVEL.PERFORMANCE_LEVEL_ID INNER JOIN
    ASSESSMENT_ENTRY ON OUTCOME.ENTRY_ID = ASSESSMENT_ENTRY.ENTRY_ID INNER JOIN
    ASSESSMENT_SCORES ON PERFORMANCE_LEVEL.PERFORMANCE_LEVEL_ID =
ASSESSMENT_SCORES.PERFORMANCE_LEVEL_ID INNER JOIN
    ASSESSMENT_CATEGORIES INNER JOIN
    ASSESSMENT ON ASSESSMENT_CATEGORIES.ASSESSMENT_ID = ASSESSMENT.ASSESSMENT_ID ON
    ASSESSMENT_SCORES.ASSESSMENT_ID = ASSESSMENT.ASSESSMENT_ID INNER JOIN
    ASSESSMENT_STANDARDS ON ASSESSMENT_ENTRY.ASSESSMENT_ID = ASSESSMENT_STANDARDS.ASSESSMENT_ID
CROSS JOIN
    ASSESSMENT_SECTION
WHERE STUDENT.GENDER = [MALE]
GROUP BY LS_GROUP.GROUP_NAME, STUDENT.GENDER, STUDENT.RACE, YEAR(OUTCOME.DATE_RECORDED),
    PERFORMANCE_LEVEL.LABEL,
    SCHOOL.SCHOOLCODE, SCORE.VALUE
    
```

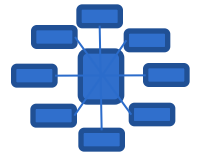




■ WHY this model?

- ◆ Usability
- ◆ Flexibility
- ◆ 0

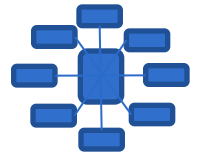




- Fine Grain
- Conformed Dimensions
- Many Dimensional Attributes

= Slice & Dice, Roll-up, Drill Down



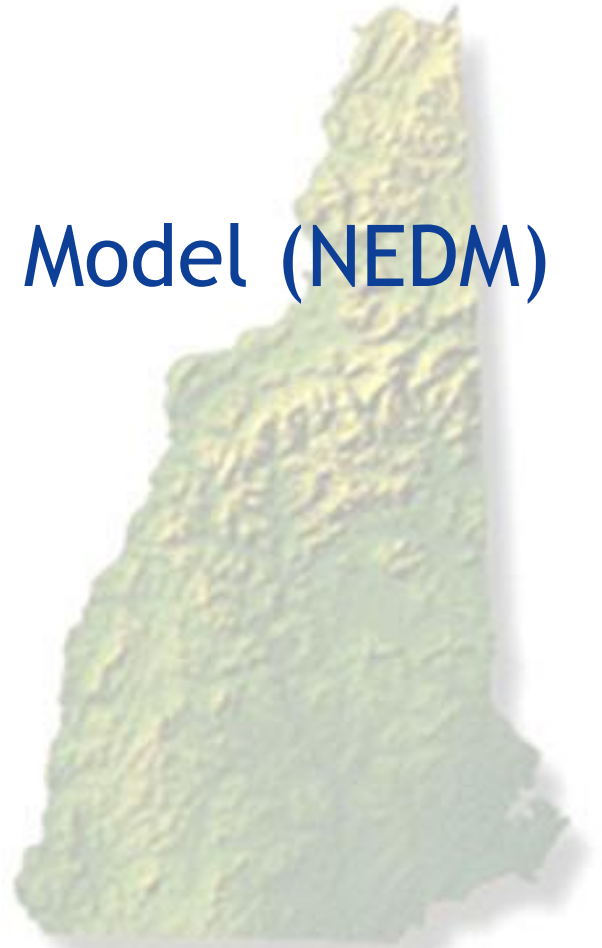


- WHY this model?
 - ◆ Usability
 - ◆ Flexibility
 - ◆ Open Standards





- ◆ NCES Handbooks
- ◆ EDEN/EDFacts
- ◆ National Education Data Model (NEDM)
- ◆ Others

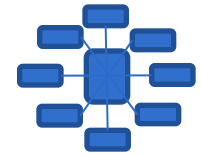




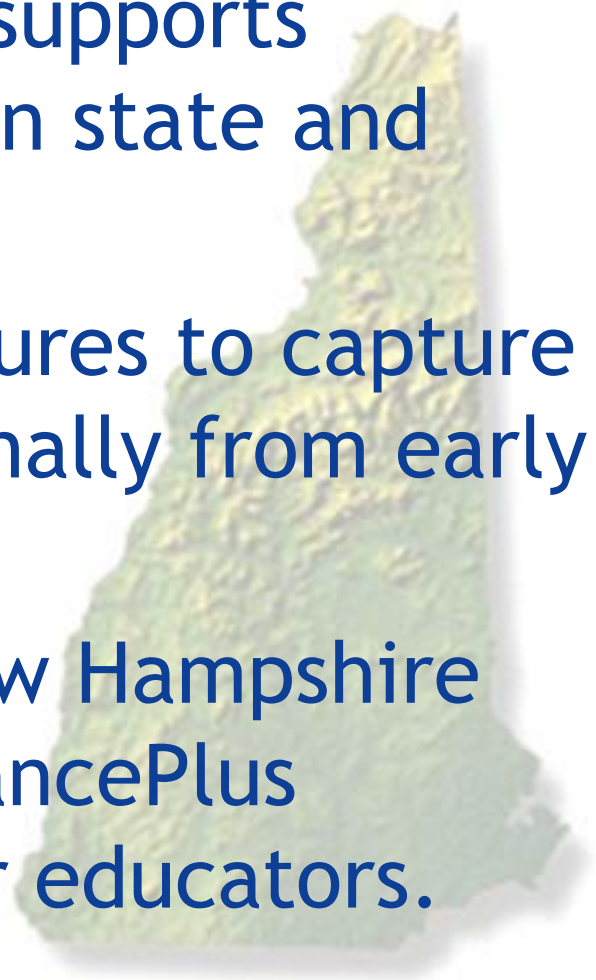
- Informed by the work of key national organizations such as the Data Quality Campaign and the Schools Interoperability Framework Association.



Dimensional Data Model



- The public domain model supports vertical alignment between state and local education agencies.
- The model contains structures to capture student learning longitudinally from early childhood through adult.
- The data warehouse in New Hampshire will feed data to PerformancePlus decision support portal for educators.



How NH's Public Data Model will Improve Education

Current Uses:

- PerformancePlus (data to schools & classrooms)
- EDEN/EdFacts
- School/District Report Cards
- Legislative Reports (inform policy)
- Data Quality (feedback)
- Research

Future Uses:

- P-20
- Early Childhood
- Workforce
- Social Services (e.g. foster care)



Multiple Channels of Access

Use the BreadCrumbs instead of the BACK button
Report Filter -> Proficient vs Not Proficient - Pie Chart

Report: Proficient vs Not Proficient - Pie Chart
Subject: Mathematics
Grade: Fourth Grade
Filter: Assessments: NECAP 2007 - Math - Grade 4 10/15/2007, Sections: Math Scale Score

District StudentID:
Name:
Organization: Dist-002, NH (Demo)
Grade / School: Sixth Grade - Middle School
Gender / Race: Female - White non-Hispanic
State Student ID: 9993303738
Active Begin Date: 9/1/2004 End Date:
PerfTrackerID: 387295
Modified: Import BulkImport Students 2007-08 on 1/31/2008 10:59:25 PM
Created: Import BulkImport Students 2004-05 on 3/16/2007 9:22:33 PM

Report Filter -> Question Detail

Display 10 items
Pages: 1 2

Subject: Mathematics
Grade: Third Grade
Filter: Assessments: NECAP 2007 - Math - Grade 3 10/15/2007, Sections: Math Scale Score

Content Builder - View Question...
https://dev.altperf.com/content_builder/question_view_popup

Look at these blocks.

Key
[Block] represents 1

Question 1
Question: Look at these blocks.
Points: 1 Level: DOK
Click here to view

Answer	Count	Fr
A	668	4.5%
B (Correct)	10935	73.3%
C	2920	19.9%
D	239	1.6%
BLANK	83	0.5%
MULT	6	0.0%

Question 2
Question: Answer:
Points: 1 Level: DOK
Click here to view

What is the value of these blocks?

Report: Standards Analysis
Subject: Mathematics
Grade: Fourth Grade
Filter: Assessments: NECAP 2007 - Math - Grade 5 10/15/2007
Assessment: NECAP 2007 - Math - Grade 5 10/15/2007

LEGEND:
RED Indicates your Success Rate is at least 5% points less than the average for all students who took the assessment.
GREEN Indicates your Success Rate is at least 5% points greater than the average for all students who took the assessment.

Success Rate Outscored Franklin
Franklin Outscored Success Rate
Scores In Common

Code	Performance Indicator	Question	Question Level	Question Type	Question Points	Correct/Incorrect	Your Success Rate	Total Success Rate
M.01.NO.4.1 (S)	Demonstrates conceptual understanding of rational numbers with respect to: whole numbers from 0 to 9...	1	Recall & Reproduction (DoK1)	Mult Choice	1	85 / 80	45.21%	58.35%
15		Skills & Concepts (DoK2)	Open Ended	4	36 / 110	38.18%	54.06%	
16		Skills & Concepts (DoK2)	Open Ended	21	36 / 110	45.22%	53.46%	
M.01.NO.4.2 (S)	Demonstrates understanding of the relative magnitude of numbers from 0 to 999,999 by ordering or com...	2	Recall & Reproduction (DoK1)	Mult Choice	1	115 / 131	78.77%	84.53%
3		Skills & Concepts (DoK2)	Mult Choice	1	45 / 101	36.62%	48.29%	
M.01.NO.4.3 (S)	Demonstrates conceptual understanding of mathematical operations by describing or illustrating the r...	4	Skills & Concepts (DoK2)	Mult Choice	1	57 / 62	59.67%	49.45%
5		Skills & Concepts (DoK2)	Mult Choice	1	86 / 60	58.90%	71.93%	
M.02.GM.4.1 (S)	Uses properties or attributes of angles (number of angles) or sides (number of sides, length of side...	12	Skills & Concepts (DoK2)	Open Ended	2	48 / 100	32.00%	43.67%
17		Skills & Concepts (DoK2)	Open Ended	2	48 / 100	32.00%	42.70%	
M.02.GM.4.5 (S)	Demonstrates conceptual understanding of similarity by applying scales on maps, or applying characte...	11	Skills & Concepts (DoK2)	Open Ended	1	48 / 100	41.95%	54.87%

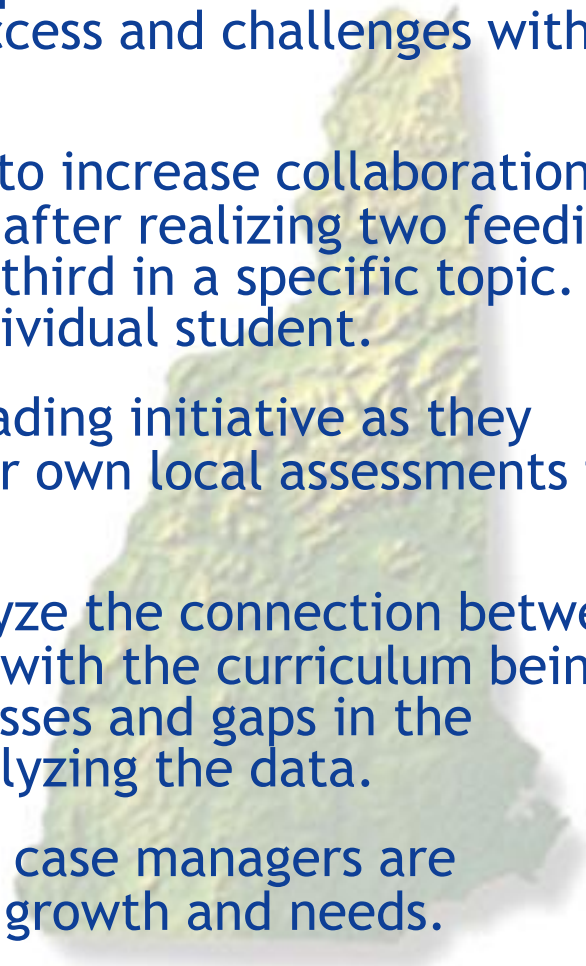
B (Correct)	66	45.21%	Click to view
C	13	8.90%	Click to view
D	18	12.33%	Click to view
BLANK	3	2.05%	Click to view
MULT	0		

	A	B	C	D	E	F	G	H	I	J	K
NECAP 2007 - Math - Grade 6-Math Scale Score 10/15/2007	600	600	632	632	632	632	634	634	635	639	639
PL	L1	L1	L1	L1	L1	L1	L1	L1	L1	L1	L1
NECAP 2007 - Math - Grade 6-Numbers and Operations 10/15/2007	3	3	7	8	7	4	5	4	6	5	6
PL	L1	L1	L2	L1	L1	L1	L1	L1	L1	L1	L1
NECAP 2007 - Math - Grade 6-Geometry and Measurement 10/15/2007	2	2	7	4	6	8	4	5	5	5	4
PL	L1	L1	L2	L1	L1	L1	L1	L1	L1	L1	L1
NECAP 2007 - Math - Grade 6-Functions and Algebra 10/15/2007	0	1	3	3	5	6	4	5	5	5	4
PL	L1	L1	L1	L1	L1	L1	L1	L1	L1	L1	L1
NECAP 2007 - Math - Grade 6-Data Statistics, and Probability 10/15/2007	0	0	2	4	0	3	2	2	2	2	2
PL	L1	L1	L1	L1	L1	L1	L1	L1	L1	L1	L1



A Variety of Educational Improvements

- **Teachers** across the state are using multiple assessments to triangulate their understanding of student performance with quantitative data, to identify students' success and challenges with given state standards.
- **Districts** are looking across their schools to increase collaboration - for example, bringing together math leads after realizing two feeding elementary schools were out performing a third in a specific topic. They are considering the needs of each individual student.
- **Schools** are using data to inform their reading initiative as they focus on literacy. They are developing their own local assessments to monitor student progress.
- **Curriculum directors** are able to analyze the connection between their students' performance on standards, with the curriculum being taught in their schools. Strengths, weaknesses and gaps in the curriculum are quickly identified when analyzing the data.
- **Special education coordinators** and case managers are monitoring and tracking individual student growth and needs.



And many more uses (a few more examples)...

1. Incent

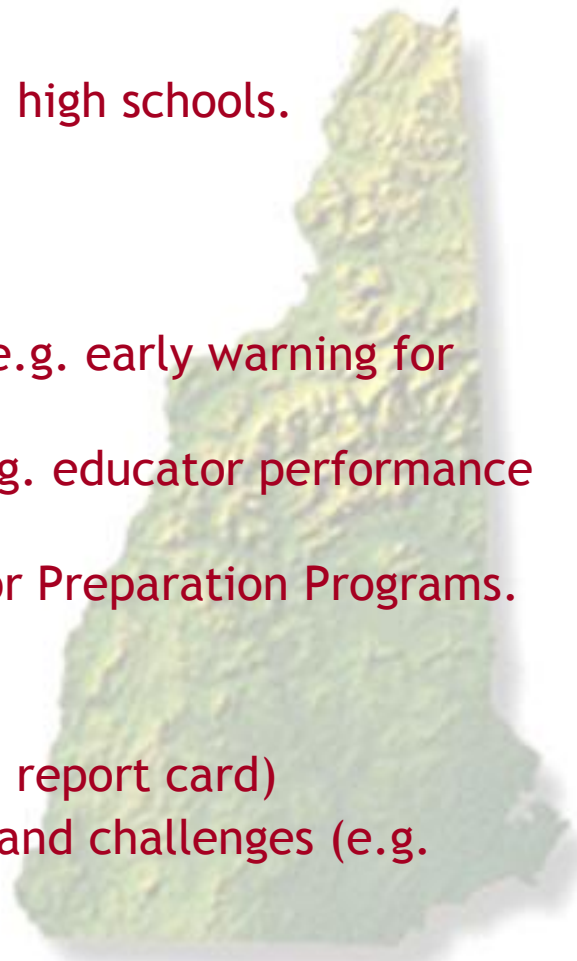
- § Collaboration between postsecondary and high schools.
- § Data analysis to inform education policy

2. Evaluate

- § Researchers to understand policy needs (e.g. early warning for dropouts)
- § LEAs to consider teacher performance (e.g. educator performance systems)
- § Institutes of Higher Ed to analyze Educator Preparation Programs.

3. Empower

- § Parents to consider school outcomes (e.g. report card)
- § Students to consider individual successes and challenges (e.g. NYTimes)



Collaborating Across the Country

<http://sites.google.com/site/EducationDataWarehouse>

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[NH Team will present vision at MIS Conference...](#)

A team from the NH DOE will present its vision for a