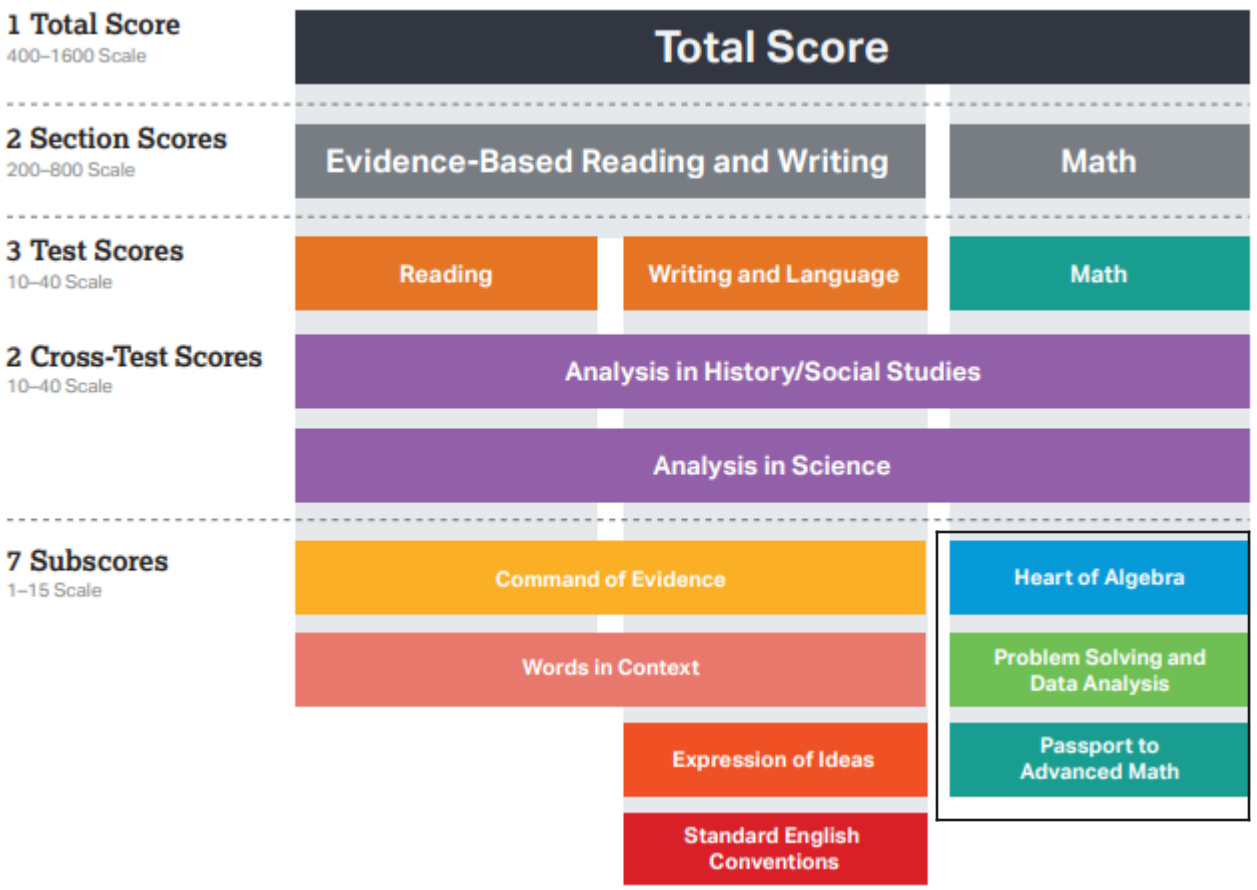
The SAT® Suite of Assessments

Math That Matters Most:
Heart of Algebra
Problem Solving and Data Analysis
Passport to Advanced Math
Additional Topics in Math

CollegeBoard

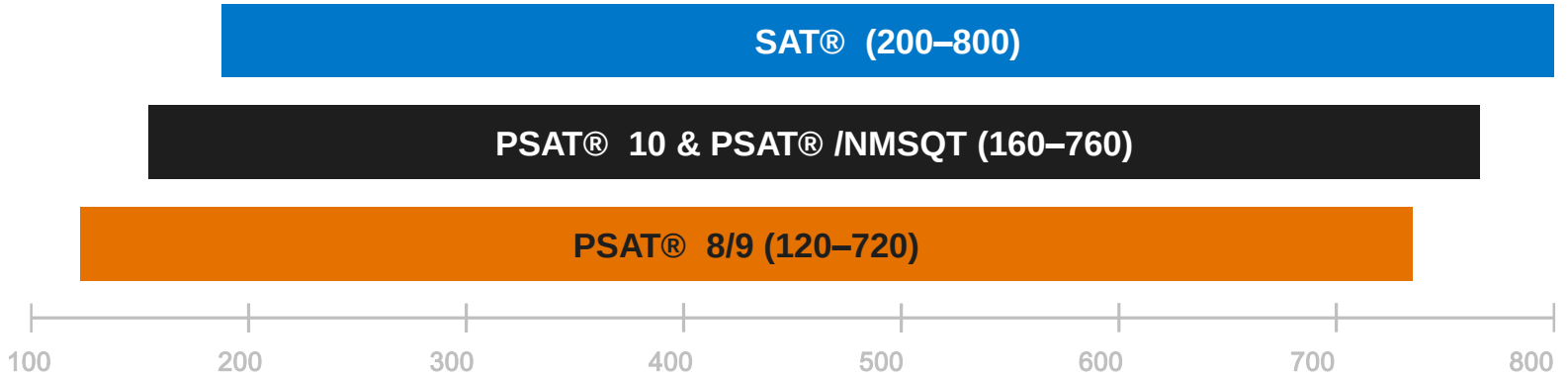
What is the purpose of today's training?

Score Reporting on the SAT® Suite of Assessments

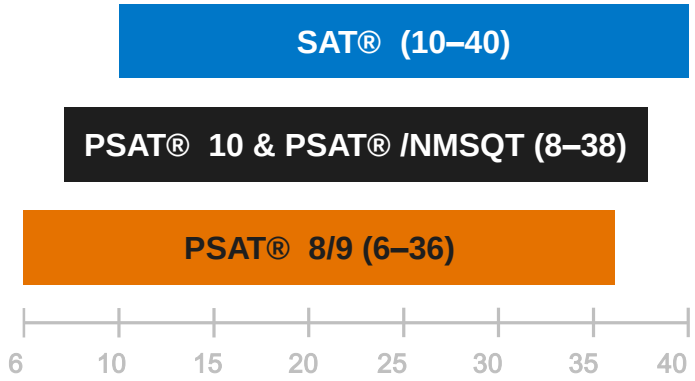


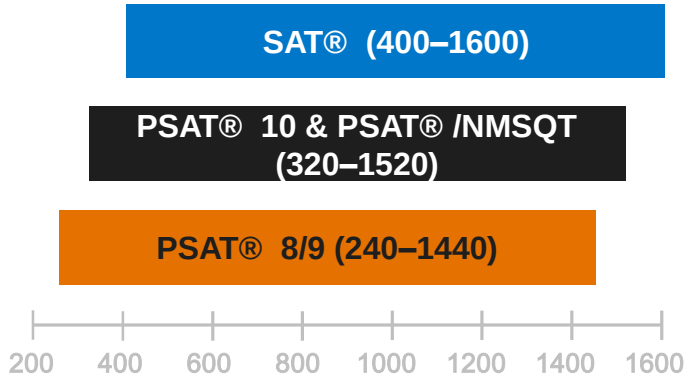
Longitudinal Progress Monitoring

Section Scores are placed on a vertical scale.



The same concept holds true for the **Test, Cross-Test Scores,** and **Total Score**.





Subscores

Subscores on the assessments are not vertically aligned; they are on the same scale.

Overview of the SAT® Math Test

Math Test Information

The overall aim of the SAT® Math Test is to assess fluency with, understanding of, and ability to apply the mathematical concepts that are the prerequisites for, and are useful across, a wide range of college majors and careers.

The SAT® Math Test has two portions:

- *Calculator Portion (38 questions) 55 minutes*
- *No-Calculator Portion (20 questions) 25 minutes*

Total Questions on the SAT® Math Test: 58 questions

- *Multiple Choice (45 questions)*
- *Student-Produced Response (13 questions)*

Calculator and No-Calculator Portions

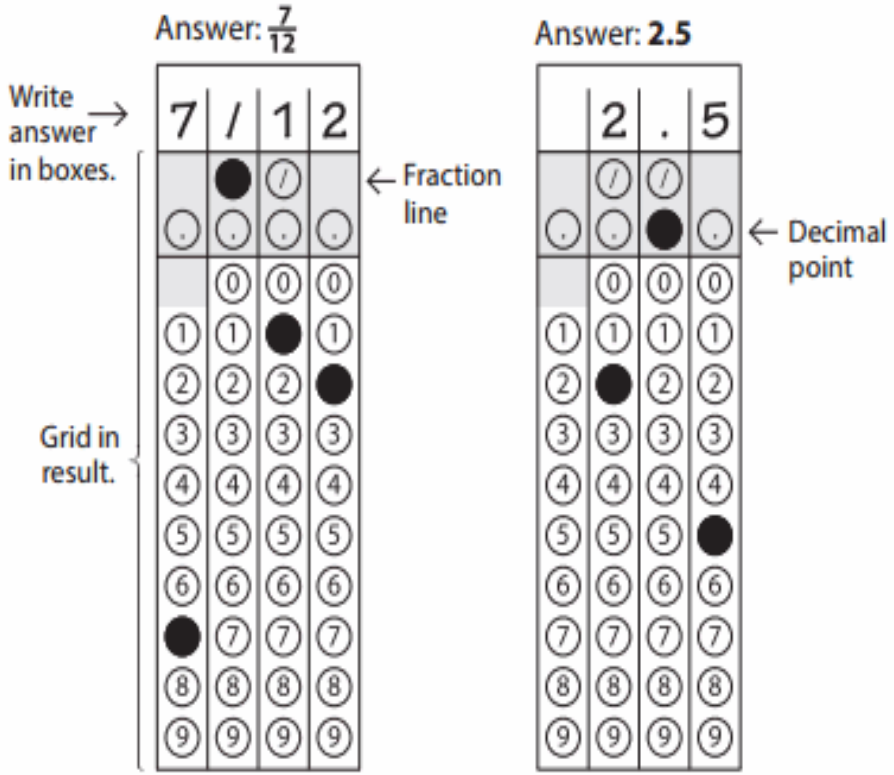
The Calculator portion:

- *Provides insight into students' capacity to use appropriate tools strategically.*
- *Includes more complex modeling and reasoning questions to allow students to make computations more efficiently.*
- *Includes questions in which the calculator could be a deterrent to expedience.*

The No-Calculator portion:

- *Allows the SAT® Suite to assess fluencies valued by postsecondary instructors and includes conceptual questions for which a calculator won't be helpful.*

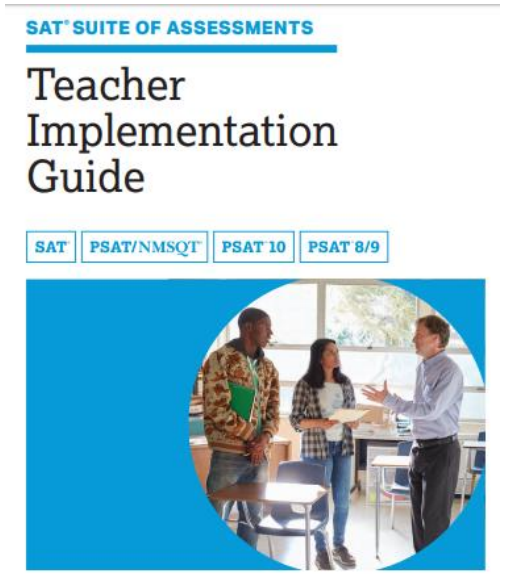
Student-Produced Response Questions



Student-produced response questions or grid-ins:

- *The answer to each student-produced response question is a number (fraction, decimal, or positive integer) that will be entered on the answer sheet into a grid such as the one shown at the left.*
- *Students may also enter a fraction line or a decimal point.*

Math Test Specifications



The Teacher Implementation guide is available at https://collegereadiness.collegeboard.org/pdf/redesigned-sat-k12-teacher-implementation-guide.pdf

Question Type	SAT®	PSAT/NMSQT® and PSAT™ 10	PSAT™ 8/9
Total Questions	58	48	38
Multiple Choice	45	40	31
Student-produced response	13	8	7
Contribution of Questions to Subscores			
Heart of Algebra	19	16	16
Problem Solving and Data Analysis	17	16	16
Passport to Advanced Math	16	14	6
Additional Topics in Math*	6	2	0
Contribution of Questions to Cross-Test Scores			
Analysis in Science	8	7	6
Analysis in History/Social Studies	8	7	6
*Questions under Additional Topics in Math contribute to the total			

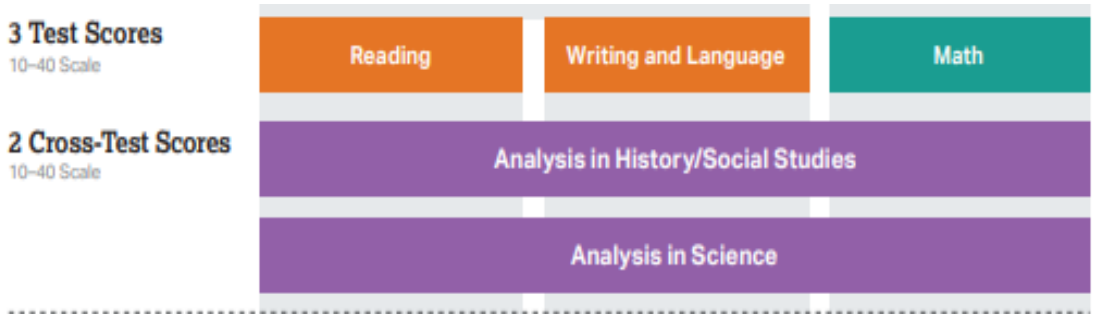
Math Test Subscores

Four Math Subscores

1. Heart of Algebra
    a. Linear equations
    b. Fluency
2. Problem Solving and Data Analysis
    a. Ratios, rates, proportions
    b. Interpreting and synthesizing data
3. Passport to Advanced Math
    a. Quadratic, exponential functions
    b. Procedural skill and fluency
4. Additional Topics in Math
    a. Essential geometric and trigonometric concepts

How Does the SAT® Suite Relate to Instruction in Science and History/Social Studies Courses?

- **Cross-test scores** *include scores for Analysis in Science and Analysis in History/Social Studies, derived from questions on all three tests.*
  - *Some passages used for analysis on the Reading Test and the Writing & Language Test have foundations in science and history/social studies.*
  - *One passage used on the Reading Test will be a U.S. founding document or from the Great Global conversations.*
  - *Tables, graphs, and data accompanying some passages relate to topics in science and/or history/social studies.*
  - *Some math questions will have science or social science contexts.*



Heart of Algebra

What is “Heart of Algebra”?

- *Algebra is the language of high school mathematics; students must be proficient in order to be successful in most of the other math classes they may take in high school.*
- *The ability to use linear equations to model scenarios and represent unknown quantities is powerful across the curriculum and in the classroom as well as in the workplace.*
- *Algebra is a prerequisite for advanced mathematics.*

Heart of Algebra: Assessed Skills

- *Analyzing and fluently solving equations and systems of equations*
- *Creating expressions, equations, and inequalities to represent relationships between quantities and to solve problems*
- *Rearranging and interpreting formulas*

Problem Solving and Data Analysis

What is "Problem Solving and Data Analysis"?

- *Quantitative Reasoning*
- *Analysis of Data*
  - *Ratios*
  - *Percentages*
  - *Proportional Reasoning*
- *In Problem Solving and Data Analysis, students will encounter an important feature of the SAT® Suite of Assessments* – **multi-part questions**:
  - *Asking more than one question about a given scenario allows students to do more sustained thinking and to explore situations in greater depth.*
  - *Students will generally see longer problems in their postsecondary work.*

Problem Solving and Data Analysis: Assessed Skills

- *Creating and analyzing relationships using ratios, proportions, percentages, and units.*
- *Describing relationships shown graphically.*
- *Summarizing qualitative and quantitative data.*

Passport to Advanced Math

What is “Passport to Advanced Math”?

- *Problems in Passport to Advanced Math cover topics that have great relevance and utility for college and career work.*
  - *Understand the structure of expressions.*
  - *Analyze, manipulate, and rewrite expressions.*
  - *Be able to reason with more complex equations.*
  - *Interpret and build functions.*

Passport to Advanced Math: Assessed Skills

- *Create and solve quadratic and exponential problems.*
- *Create and solve radical and rational equations.*
- *Solve systems of equations.*
- *Understand the relationship between zeros and factors of polynomials.*

Additional Topics in Math

What Is "Additional Topics in Math"?

The SAT® requires the geometric and trigonometric knowledge that is most relevant to postsecondary education and careers.

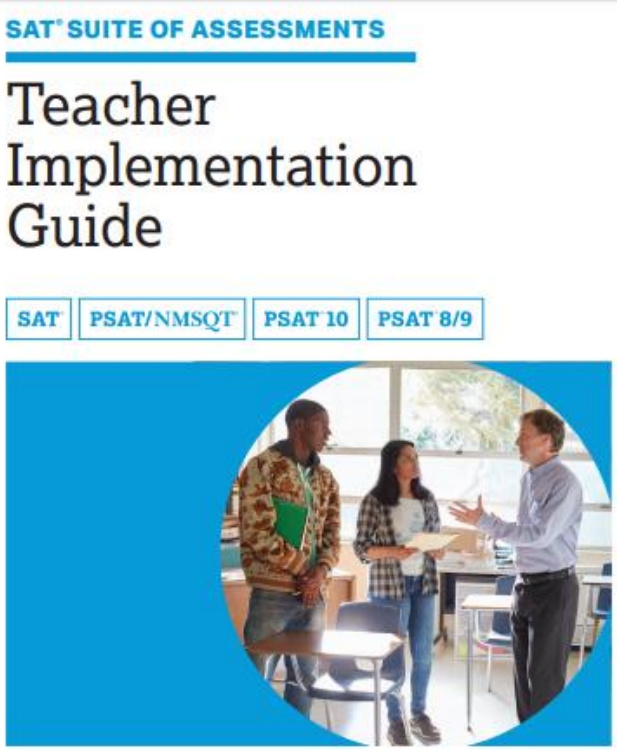
- **Geometry**
  - *Analysis*
  - *Problem Solving*
- **Trigonometry**
  - *Sine*
  - *Cosine*
  - *Tangent*
- **Pythagorean Theorem**

Additional Topics in Math: Assessed Skills

- *Solve problems using volume formulas.*
- *Solve problems involving right triangles.*
- *Apply theorems about circles.*
- *Solve problems about lines, angles, and triangles.*

Connecting the Math Test with Classroom Instruction

General Instructional Strategies for the Math Test



Ensure that students **practice solving multi-step problems.**

Organize students into small working groups. Ask them **to discuss how to arrive at solutions**.

Assign students math problems or create classroom-based **assessments that don't allow the use of a calculator**.

Encourage students to **express quantitative relationships in meaningful words and sentences** *to support their arguments and conjectures.*

Instead of choosing a correct answer from a list of options, ask students to solve problems and **enter their answers in grids** *provided on an answer sheet in your classroom or on common assessments.*

The Teacher Implementation guide is available at https://collegereadiness.collegeboard.org/pdf/redesigned-sat-k12-teacher-implementation-guide.pdf

Additional Skill-Building Strategies

Provide students with explanations and/or equations that incorrectly describe a graph and, ask them to correct the errors.

Ask students to create pictures, tables, graphs, lists, models, and/or verbal expressions to interpret text and/or data to help them arrive at a solution.

Organize students in small groups and have them work together to solve problems.

Use “Guess and Check” to explore different ways to solve a problem when other strategies for solving aren’t obvious.

Scores and Reporting: K-12 Assessment Reporting Portal

K-12 Assessment Reporting Portal

- *Access a wide array of standard reports.*
- *Configure interactive, actionable reports that inform instruction*

My College Board Professional Account

My Tools And Services

Tool or Service	My Role	Expires*	Manage Access
AP Potential™	AP Potential Region	31-Dec-2018	edit
AP® Online Reports	OSR Regional Staff	24-Jun-2018	edit
AP® Teacher Community	N/A	N/A	
K-12 Assessment Reporting	multiple roles	multiple dates	edit
Test Ordering	multiple roles	multiple dates	edit
College Board Institutional Ordering	N/A	N/A	
Managing Access to support K-12 Assessment Reporting	multiple roles	multiple dates	edit
Test Administration Training for the SAT Suite of Assessments	N/A	N/A	

Which Reports Will Help You the Most?

Student Intervention	*Curriculum and Instruction Review*	*School Improvement*
Scores by Institution	Scores by Institution	Scores by Demographics
Roster Reports	Essay Scores by Institution	Essay Scores by Demographics
Student Reports	Instructional Planning	Benchmarks by Demographics
	Question Analysis	

Scores & Benchmarks

School Level

PSAT 10 Spring 2018, 10th - Scores & Benchmarks

School	District	State	Total Group
Mean Score	Mean Score	Mean Score	Mean Score
927	929	929	929
Number of Participants 357	Number of Participants 737	Number of Participants 1278	Number of Participants 1278
Met Both Benchmarks 40%	Met Both Benchmarks 41%	Met Both Benchmarks 39%	Met Both Benchmarks 39%
Met ERW (430) 64%	Met ERW (430) 65%	Met ERW (430) 65%	Met ERW (430) 65%
Met Math (480) 42%	Met Math (480) 43%	Met Math (480) 42%	Met Math (480) 42%
Met None 34%	Met None 33%	Met None 33%	Met None 33%
Distribution of Scores	Distribution of Scores	Distribution of Scores	Distribution of Scores

Mean Total Score (320-1520)	
Total Score	927
Mean Section Scores (160-760)	
Evidence-Based Reading and Writing	469
Math	458
Mean Test Scores (8-38)	
Reading	24
Writing and Language	23
Math	23
Mean Cross-Test Scores (8-38)	
Science	23
History/Social Studies	23
Scores (1-15)	
of Evidence	8
Context	8
of Ideas	8
of English Contentions	8
lgebra	8
olving and Data Analysis	8
Advanced Math	8

Mean Total Score (320-1520)	
Total Score	929
Mean Section Scores (160-760)	
Evidence-Based Reading and Writing	470
Math	459
Mean Test Scores (8-38)	
Reading	24
Writing and Language	23
Math	23
Mean Cross-Test Scores (8-38)	
Analysis in Science	23
Analysis in History/Social Studies	24
Mean Subscores (1-15)	
Command of Evidence	8
Words in Context	8
Expression of Ideas	8
Standard of English Contentions	8
Heart of Algebra	8
Problem Solving and Data Analysis	8
Passport to Advanced Math	8

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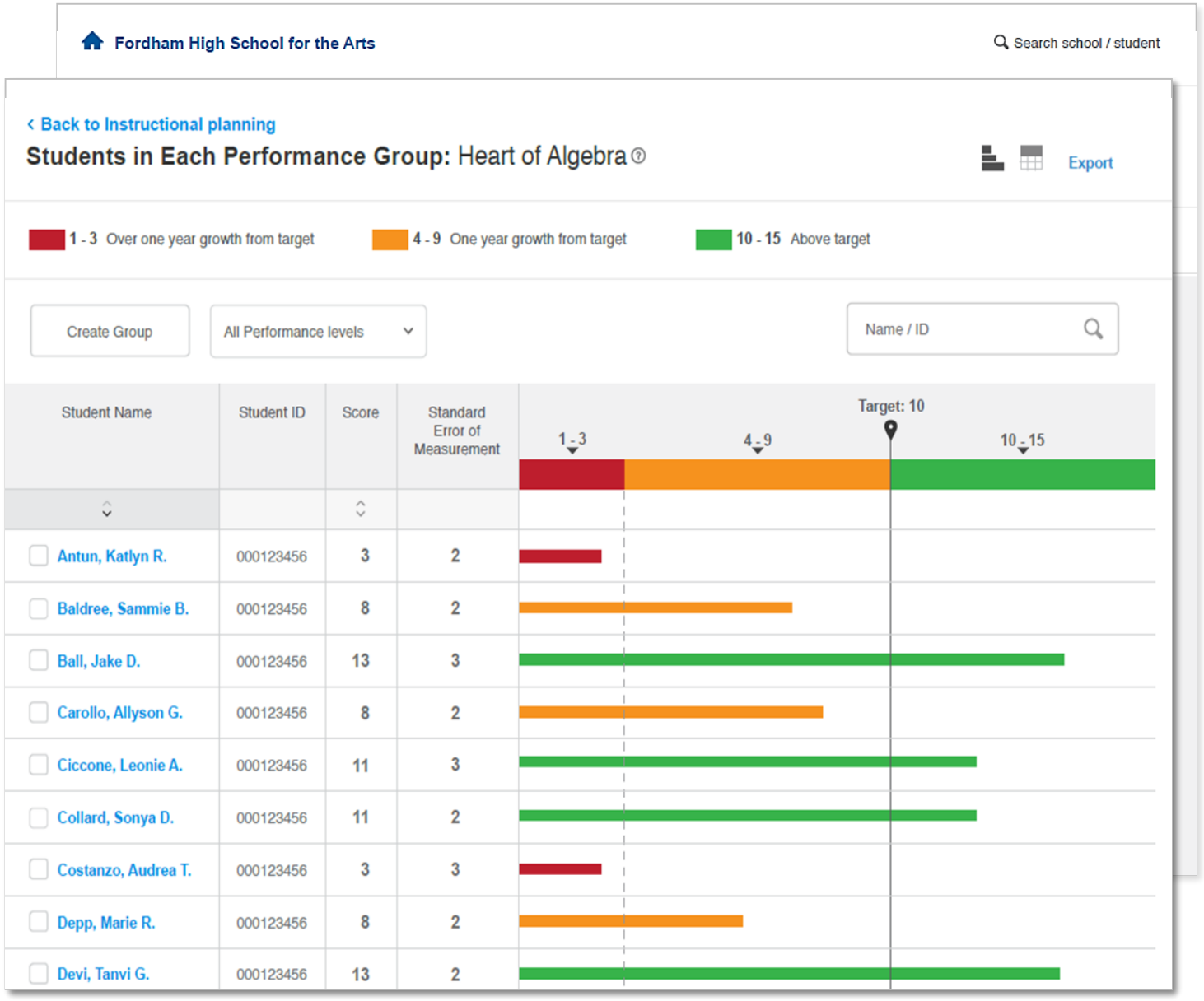
Instructional Planning: Focus Improvement Efforts



Question Analysis Report

Understand Student Achievement at a Detailed Level

PSAT 10 Spring 2018, 10th grade - Question Analysis - Form I

EXPORT

91 Evidence-based Reading and Writing Questions | 48 Math Questions

Correct Response %: All | Difficulty: All | Related Cross-test Scores and Subscores: All | Reset Filters

Print Questions

All	Test Portion	Question	Correct Answer	Percentage Correct by Group		Student Responses A%	B%	C%	D%	Omit%	Difficulty	Related Cross-test Scores and Subscores	Student Performance
☐	Math with Calculator	1	D	School	67%	10	13	9	67	1	Easy	Passport to Advanced Math	See Student Performance
				District	70%	10	9	9	70	2			
				State	69%	10	10	9	69	2			
				Total Group	69%	10	10	9	69	2			
☐	Math with Calculator	2	B	School	69%	17	69	9	4	0	Easy	Heart of Algebra	See Student Performance
				District	72%	16	72	7	5	1			
				State	74%	15	74	6	4	1			

Thank You!

- Questions or comments about this presentation or to request College Board support for your school or district, please email:

  ILSAT@collegeboard.org