

CONNECTICUT STATE DEPARTMENT OF EDUCATION

The Early Indication Tool (EIT)

How to Interpret and Use the EIT Report

Presented by

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September 11, 2018

Goals for today's session

- EIT Overview
- Year in review: Pilot year for EIT Grades 1 to 6
- The year ahead:
 - Grades 7 to 9 EIT Model
 - Grades 10 to 12 EIT Model ^{****}
 - 2018-19 rollout plan
- Getting the most out of the EIT Report
- Solicit feedback and suggestions



Vhat is the EIT? Image: Stress of the output of the text of tex of text of tex of text of tex

A data analytics and visualization tool that uses statistical methods to systematically predict and improve student outcomes



Primary Purpose of the EIT

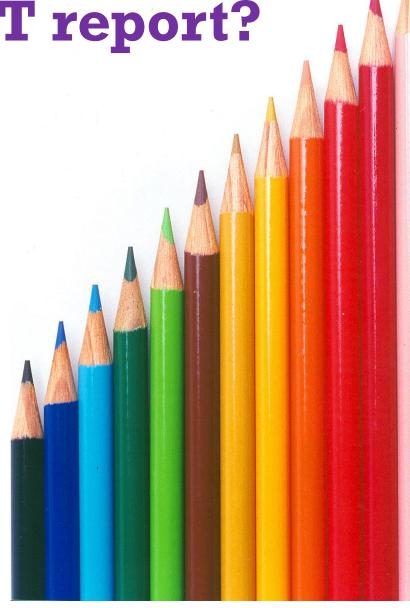
To *allow for timely student interventions* by district/school staff with the ultimate goal of *improving student engagement and outcomes*



What does the EIT report?

Secure student-level data

- Demographics
- Attendance Rates
- Suspensions
- Mobility
- Achievement
- Course performance
- Targeted support level
 - High, Medium, or Low





UChicago Consortium on School Research (CCSR)



Effective indicators are...

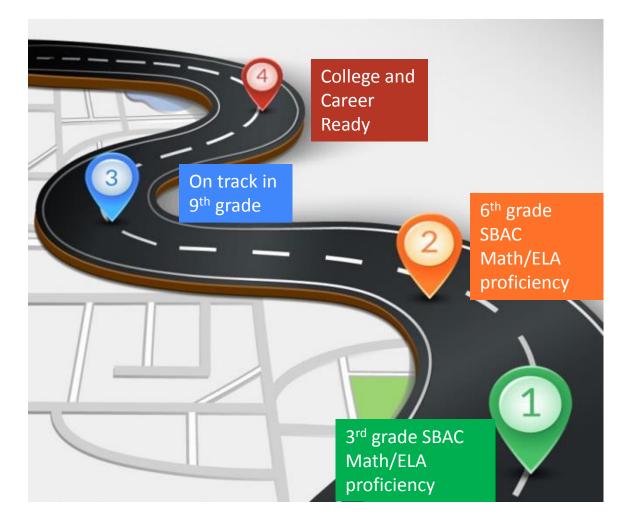
- Valid for the intended purpose
- Actionable by schools
- Meaningful and easily understood
- Aligned with district and school priorities



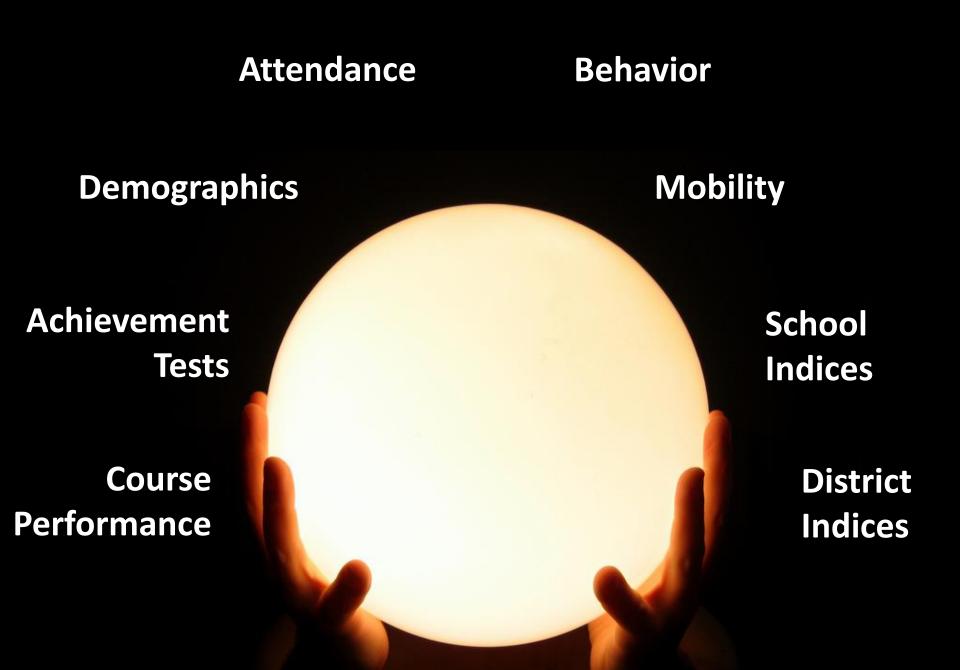
Source: CCSR (2014)

MILE MARKER APPROACH

Markers serve as targets for students, and as dependent variables in the EIT model







EIT Predictors (grade-invariant)

The following are included in all EIT models:

- Attendance
- Behavior
- Mobility
- High Needs status
- Retention



EIT Predictors (grade-dependent)

	Model for Grades			
Variable	1-3	4-7	8-9	10-12
Assessments				
Kindergarten Entry Inventory	Х			
(KEI; Language, Literacy, Numeracy)				
SBAC ELA and Math		Х	Х	Х
PSAT/SAT				Х
CTAA		Х	Х	Х
Course performance			Х	Х



Grades 1 to 6: Person-centered approach

- Describes similarities and differences among individuals with respect to how variables relate to each other
- Assumes that the population is *heterogeneous* with respect to the relationships between variables





Grades 1 to 6 EIT: Results

Relative to students in lower support levels, students in higher support levels* *on average* had:

- Lower Exam Scores
- Higher rates of:
 - Absenteeism
 - Discipline events
 - Mobility
 - Repetition



* In ascending order, the support levels are Low, Medium, and High

Grades 1 to 6 EIT: Results (continued)

Relative to students identified for Low support, students in need of High or Medium support were more likely to be:

- High Needs students
- Students with Disabilities
- English Learners
- Males



EIT Pilot Year Feedback

District users:

- Appreciated having a tool that allowed them to view and export two years of student data
- Found Support Level designations to be accurate
- Requested additional years of attendance data
- Would prefer to have the updated report available prior to course scheduling and student placements





State of Connecticut



- 87.8% On-track to Graduate
 87.4% 4-year Graduation
 Rate
 - (All Students; 2016 Cohort)
 - Target: 94%



Getting Focused

Criteria for *On-track in 9th grade* indicator

- No more than one semester F in core courses (English, math, social studies, science)
- At least five full-year credits earned across all courses in Grade 9





Machine Learning

Data mining techniques and computer algorithms to understand patterns in data to solve problems









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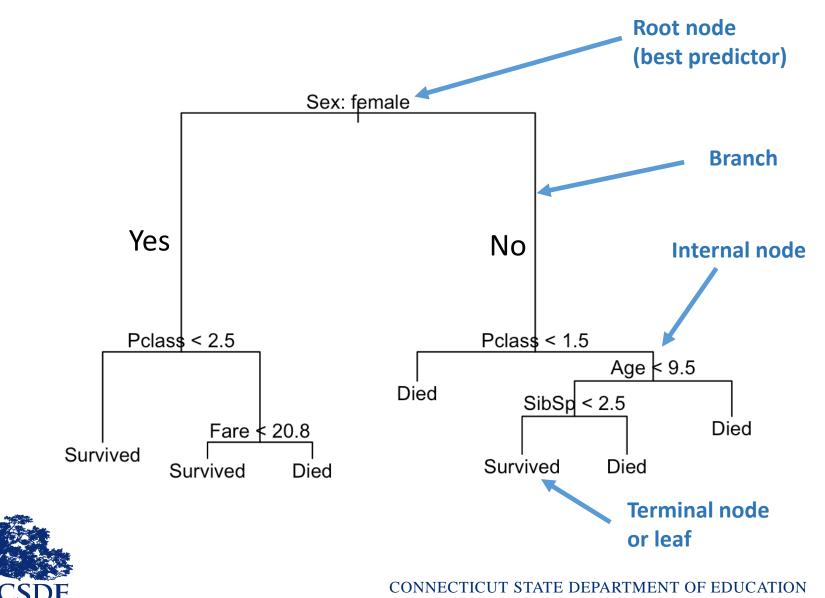
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Classification (or Decision) Trees

- Supervised learning algorithm that predicts a categorical outcome (e.g., on-track)
- Only uses those predictors necessary to create the optimal decision tree
- Can report predicted class probabilities



Sample Tree: Titanic Survival







Random Forests

- Supervised learning algorithm that predicts a categorical outcome
- Ensemble method: Aggregates predictions of a "forest" of decision trees created using many random samples of observations and predictors from the training data
- Class probabilities = Proportion of "votes"



ADVANTAGES of Random Forests

- Decorrelates the decision trees
- Impressive predictive accuracy—even with large number of correlated predictors
- Not constrained by assumptions
- Can handle large numbers of variables and complex interactions



All variables get a chance to shine

Graduation Rates SWD

Subgroup	Four-Year Graduation Rate	Five-Year Graduation Rate
Students without Identified Disabilities	67.10%	69.60%
Two+ Years below Grade Level	45.50%	49.00%
Learning Disability	47.80%	52.70%
Mild Cognitive Disability	41.70%	47.20%
Emotional Disturbance	18.70%	23.50%
Speech/Language Disabilities	58.10%	63.50%
Physical/Sensory Disabilities	75.00%	77.50%



Source: Gwynne, J., Lesnick, J., Hart, H. M., & Allensworth, E. M. (2009)

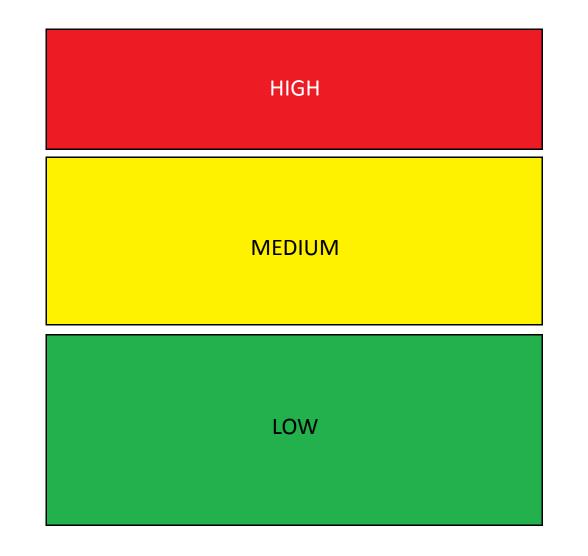
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Special Education K-12 Connecticut 2016-17

	Overall	Within Special Education	
Disability	Prevalence Rate (%)	Prevalence Rate (%)	
All Disabilities	13.9	100.0	
Autism	1.7	11.9	
Emotional Disturbance	1.0	7.5	
Intellectual Disability	0.5	3.5	
Learning Disability	4.9	35.4	
Other Disabilities	1.1	7.7	
Other Health Impairment	2.9	20.9	
Speech Language Impairment	1.8	12.9	



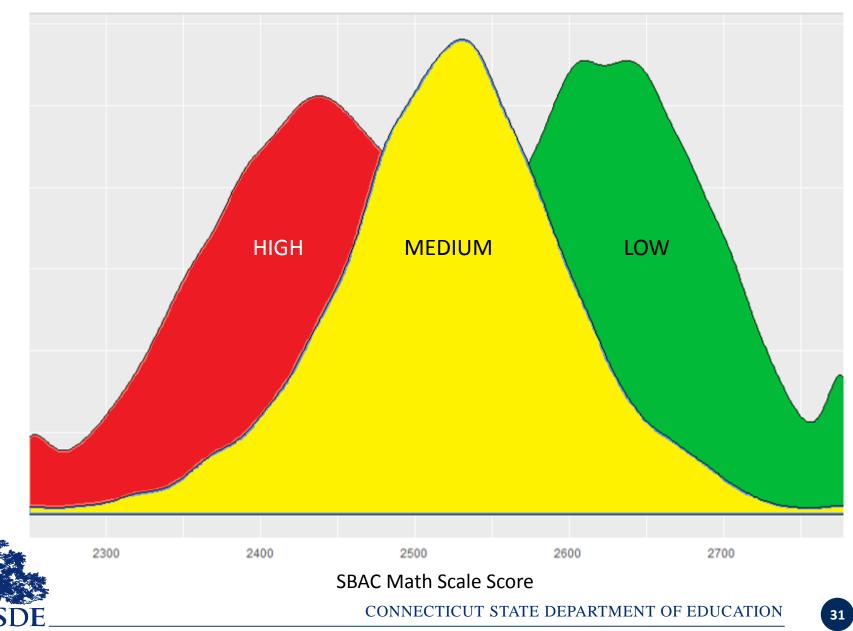
Support Levels for Grade 8



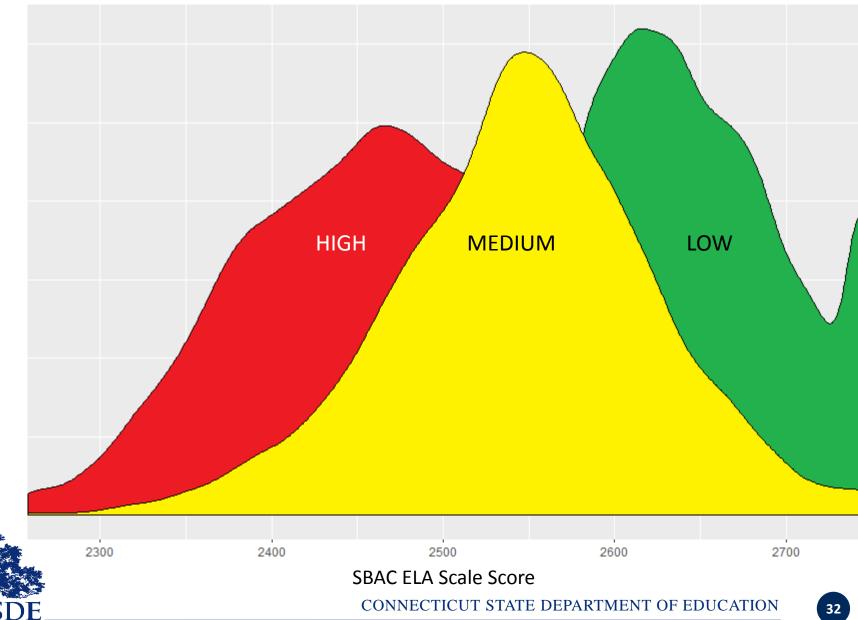


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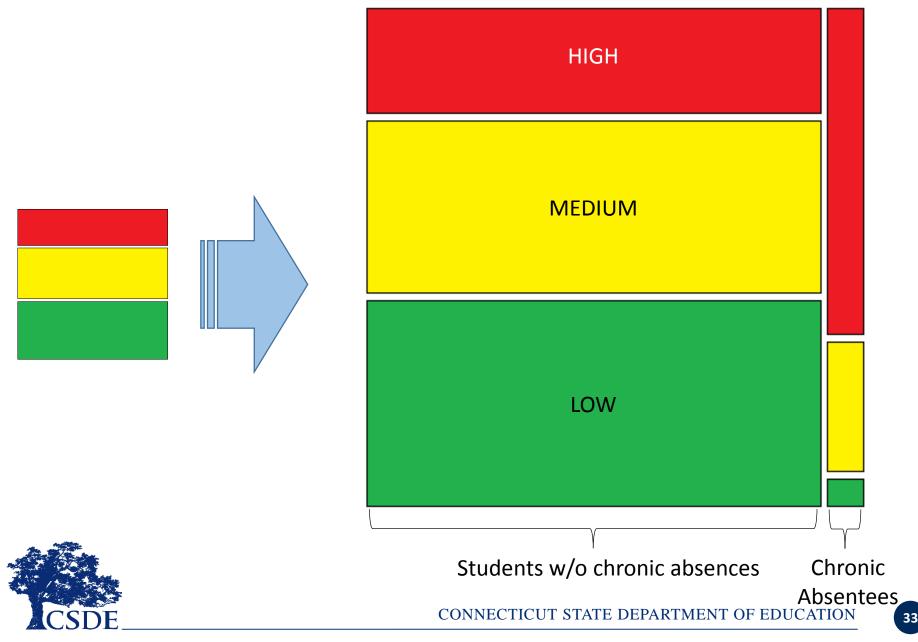
SBAC Math by Support Level for Grade 8



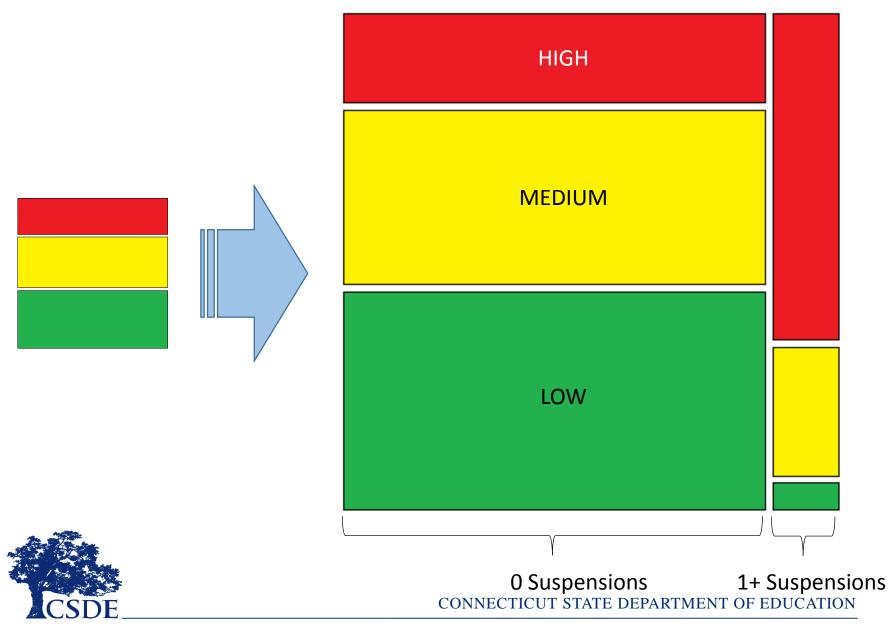
SBAC ELA by Support Level for Grade 8



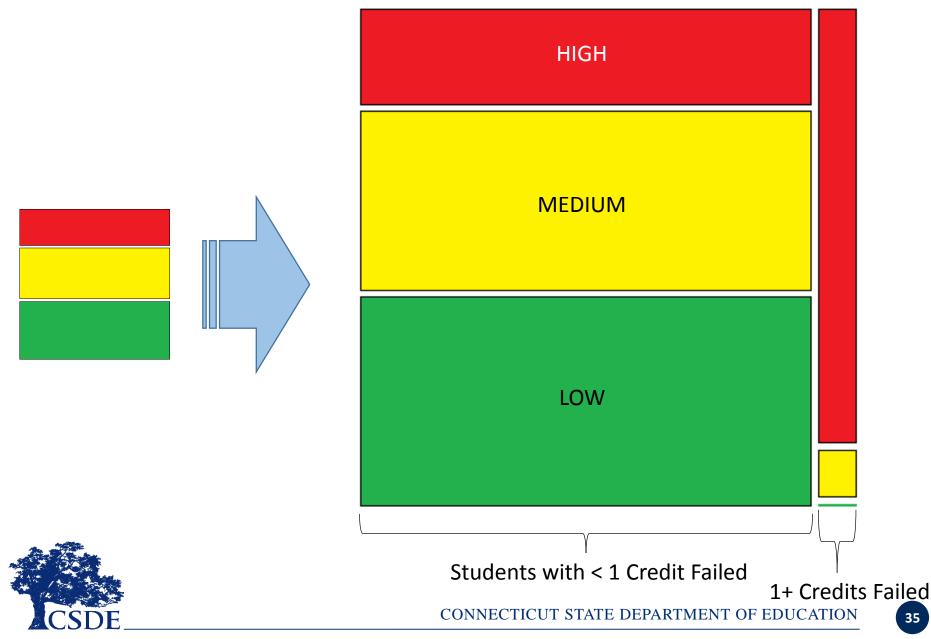
Support Levels by Chronic Absentee Status



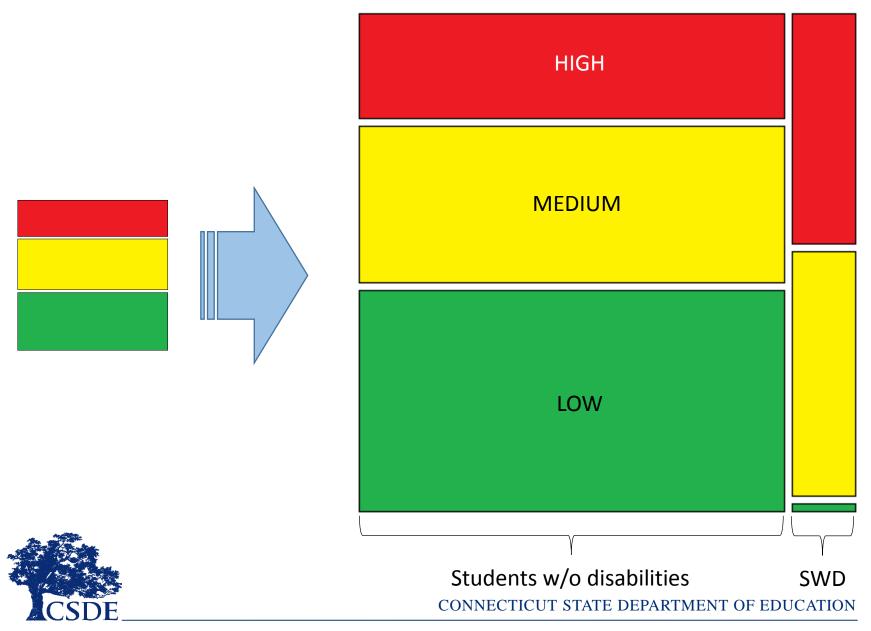
Support Levels by Suspensions



Support Levels by Grade 7 Course Failures



Support Levels by SWD Status



Grades 10 to 12

The EIT models for Grades 10 to 12 will consider **College and Career Readiness**

- Coursework
- Exams



How to Get the Most out of the EIT EdSight Secure Report

Sections By Student Grade Levels

Bar Charts of Support Levels

Filters, lattices, flyovers, info windows

Data lists

Numerical and Character Filters

Color coded data display

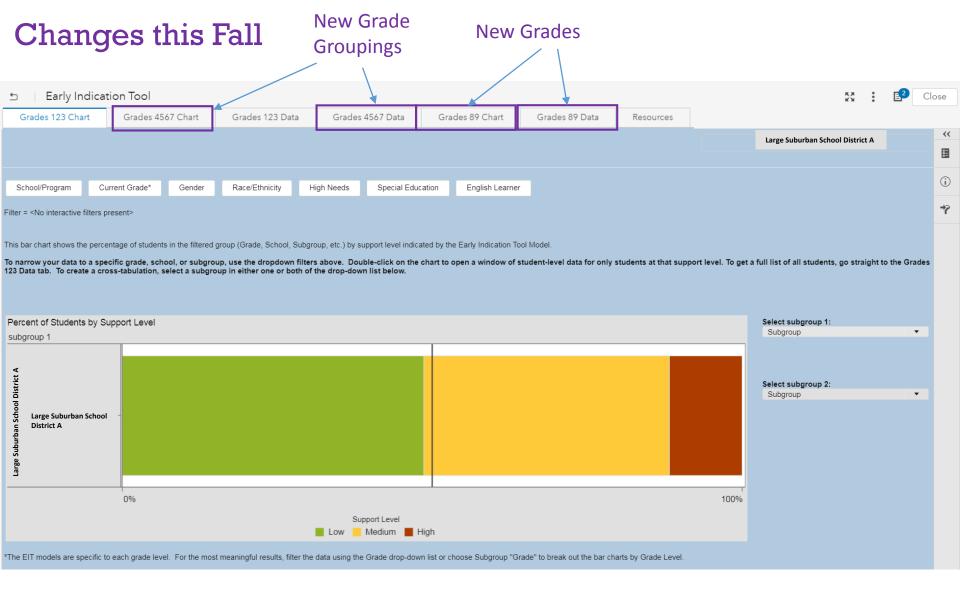
Sorting student-level data

Resources tab

Support links

Student support best practices links







Changes to EIT this Fall

New Data Fields

Support Level	On-time Flag	Attendance Rate (Last yr)	Attendance Rate (2yrs ago)	SB ELA Score (Last yr)	Perf. Level ELA (Last yr)	SB Math Score (Last yr)	Perf. Level MATH (Last yr)	Total School Moves	Total ISS (2 yrs)	Total OSS (2 yrs)	Core Courses Failed Grd 8	Core Courses Failed Grd 7
HIGH	1	93.4%	95.0%	2452	1	2468	1	2	1	1	Sc	Sc
HIGH	1	99.4%	97.2%	2409	1	2423	1	2	0	2	Sc	SS
HIGH	1	95.6%	92.3%	2534	2	2469	1	3	4	1	Ма	Sc
HIGH	1							3			EnSc	Sc
	1	54.7%	88.4%					2	3	7	EnSc	Ма
HIGH	0	95.6%	94.5%	2455	1	2408	1	3	4	0	EnMaScSS	SS
HIGH	1	89.0%	86.2%	2362	1	2460	1	8	2	1	EnMaSc	EnMaScSS
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Using the EIT Report in Edsight Secure

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Large Suburban School District A	Select subgroup 2: Subgroup
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*The EIT models are specific to each grade level. For the most meaningful results, filter the data using the Grade drop-down list or choose Subgroup "Grade" to break out the bar charts by Grade Level.	



Early Indication Tool											
Grades 123 Chart	Grades 456 Chart	Grades 123 Data	Grades 456 Data	Resources							
Resources				How-To Doc	uments						
Best Practices in Instruction	onal Support			How To Use the EIT F	Report						
PBIS Interventions: Tier II				Secure Reports_Unde	erstanding and Creating Charts						
Chronic Absenteeism				Overview of the EIT -	Technical Report						
Supporting and Respondir	ng to Behavior			EIT Glossary and Dat	a Definitions						
School Climate and Discip	line Resources										



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Grades 123 Chart	Grades 456 Chart	Grades 123 Data	Grades 456 Data	Resources						
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School Climate and Discipli		hool Climate and Di	scipline Resources							



Early Indication Tool										
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Resources					Documents					
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Resources

Best Practices in Instructional Support

PBIS Interventions: Tier II

Chronic Absenteeism

Supporting and Responding to Behavior

School Climate and Discipline Resources

How-To Documents

How To Use the EIT Report

Secure Reports_Understanding and Creating Charts

Overview of the EIT - Technical Report

EIT Glossary and Data Definitions



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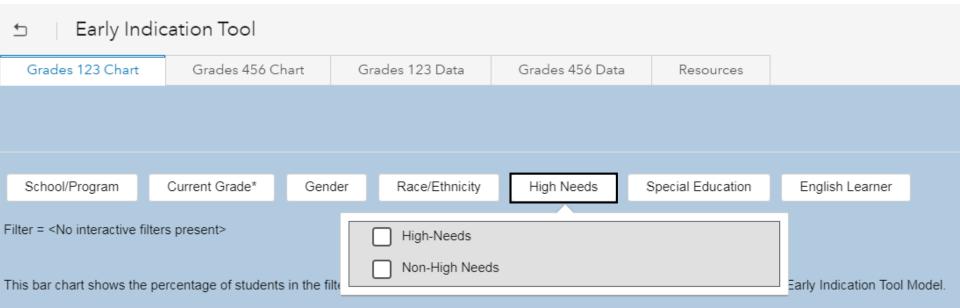
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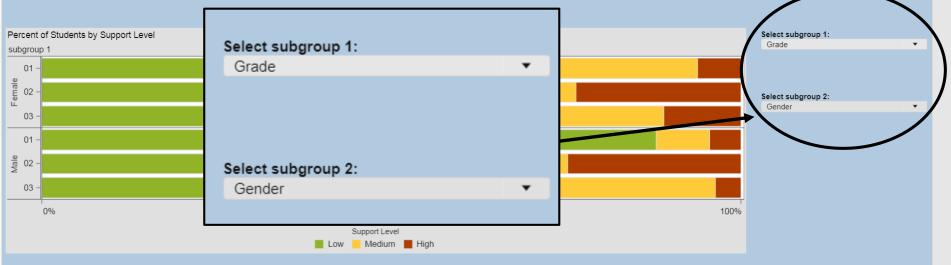
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Early Indication Tool ≏ 55 Close Grades 456 Chart Grades 123 Data Grades 456 Data Resources Grades 123 Chart << Large Suburban School District A 1 1 1 (j) School/Program Current Grade* Race/Ethnicity High Needs Special Education English Learner Gender 7 Filter = <No interactive filters present>

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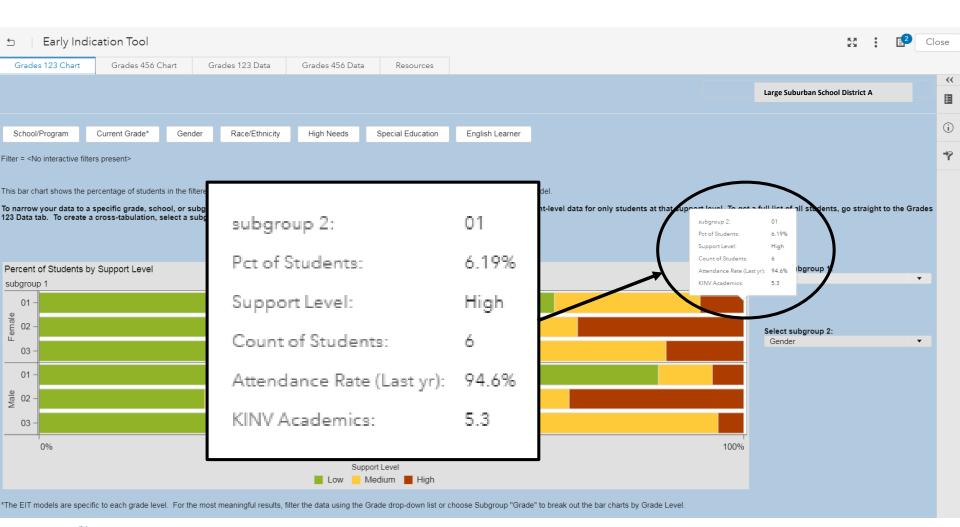


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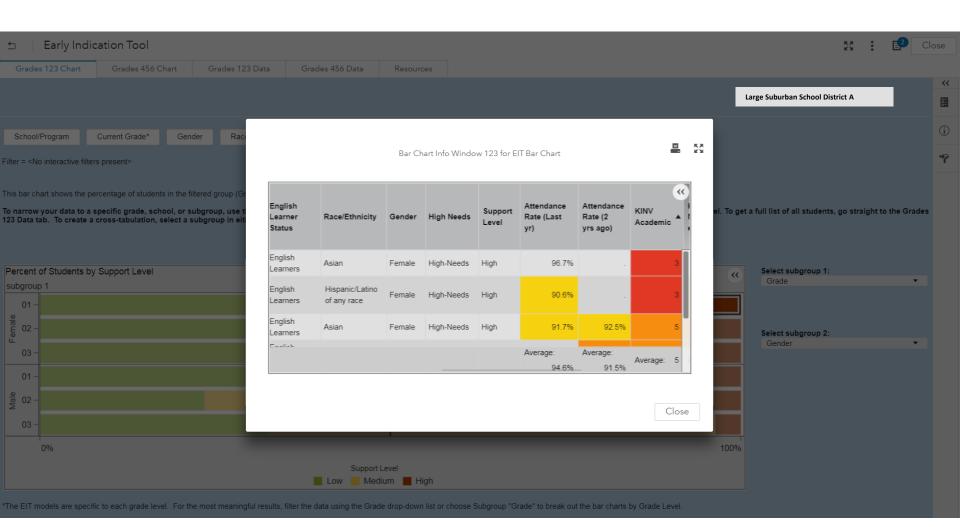


Early Indication Tool ≏ 53 Close Grades 456 Chart Grades 123 Chart Grades 123 Data Grades 456 Data Resources << Large Suburban School District A 8i School/Program Current Grade* Race/Ethnicity High Needs English Learner Gender Special Education 7 Filter = <No interactive filters present> This bar chart shows the percentage of students in the filtered group (Grade, School, Subgroup, etc.) by support level indicated by the Early Indication Tool Model. To narrow your data to a specific grade, school, or subgroup, use the dropdown filters above. Double-click on the chart to open a window of student-level data for only students at that support level. To get a full list of all students, go straight to the Grades 123 Data tab. To create a cross-tabulation, select a subgroup in either one or both of the drop-down list below. Percent of Students by Support Level Select subgroup 1: Grade • subgroup 1 01 emale 02 Select subgroup 2: Ľ. Gender • 03 01 20 Male 03 100% 0% Support Level Low Medium High *The EIT models are specific to each grade level. For the most meaningful results, filter the data using the Grade drop-down list or choose Subgroup "Grade" to break out the bar charts by Grade Level.







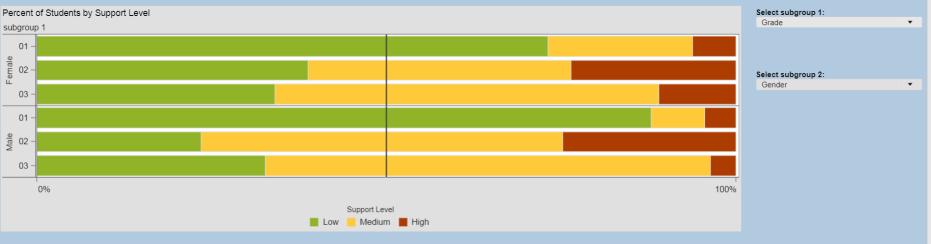




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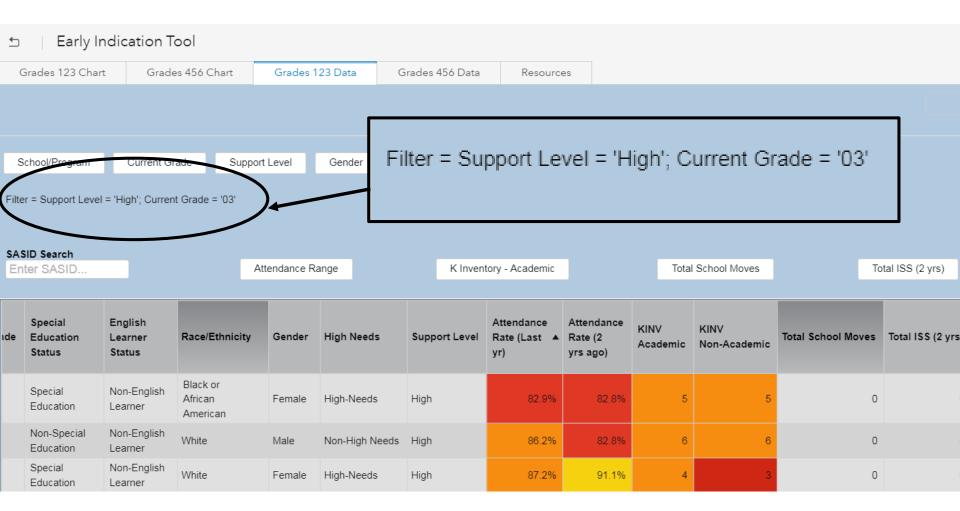
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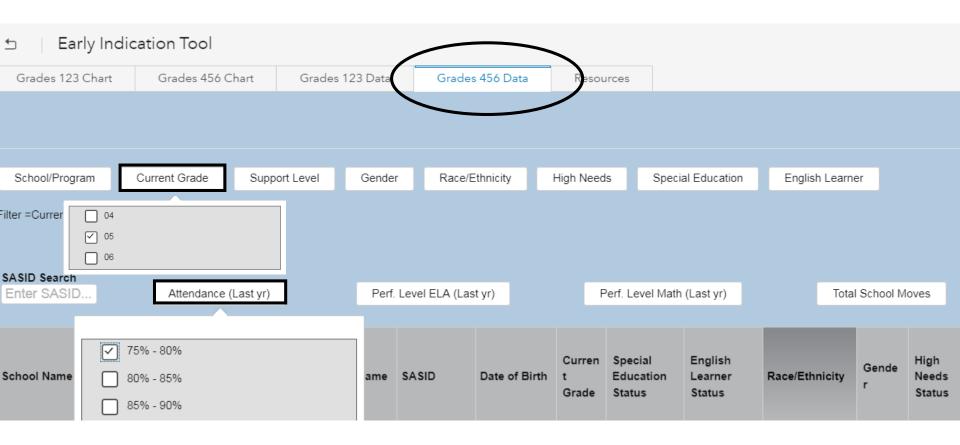




Filtering & Sorting:

An example with Grades 456 Data







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School/Program Current Grade Support Level Gender Race/Ethnicity High Needs Special Education Attendance Rate Filter =Current Grade = '05'																	
Filter = Current Grade = '05' SASID Search Enter SASID Attendance (Last yr) Perf. Level ELA (Last yr) Perf. Level Leth (Last yr)									to s	to sort by Attendance Rate						Total OS	
Current Grade	Special Education Status	English Learner Status	Race/Ethnicity	Gender	High Needs Status	Suppor Level	Attendance Rate (Last yr)	Attendance hate (2yrs go)	SB ELA Score (Last yr)	Perf. Level ELA (Last yr)	SB Math Score (Last yr)	Perf. Level Math (Last yr)	SB ELA Score (2 yrs ago)	SB Math Score (2 yrs ago)	Total School Moves	Total ISS (2 yrs)	Total OSS (2 yrs)
05	Non-Special Education	Non-English Learner	Black or African American	Female	High Needs	High	77.3%	85.2%	2516	3	2441	2	2356	2403	1	o	0
05	Non-Special Education	Non-English Learner	White	Male	High Needs	High	79.4%	82.8%	2407	1	2440	2	2461	2439	0	0	0





- Timeline: Grades 1 to 12 will "go live" in November 2018
- Training webinars
- Encourage district feedback and input
- Continuous improvement of models and reports
- Expand the Targeted Support Library





- Feedback & Suggestions
- Questions



THANK YOU!

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