Top-to-Bottom (TTB) Ranking 2013-2014

Understanding How
the Ranking is Calculated

Presentation Focus

- Top-to-Bottom (TTB) Description
- How to interpret results
- Brief overview of z-scores
- Overview of TTB metric calculations
- Summary of TTB modifications from 2011-12 to last year (2012-13)

Diagnostic use of the TTB

- Move from previous metrics as designation only (i.e. a "stick") to leveraging the metric as a diagnostic tool for schools
- Resist urge for "more data" until we understand the metrics available; avoids "dying in data"

Overall Results

- Statewide ranking of most schools
- Bottom 5% overall are Priority schools
- Also used for Focus and Reward:
  - Focus schools uses achievement gap component only
  - Reward schools uses top 5% overall and improvement component

Components of TTB

Each component applies to each subject for a school:

- Achievement
- Improvement in achievement over time
- Achievement gap measure between top scoring 30% of students versus the bottom scoring 30% of students

Individual components tell schools something about their overall performance and can be used for diagnostic purposes

Graduation Rate

- Applies only to schools with a graduation rate (i.e. 9-12, 7-12, k-12)
- Included in two ways:
  - Graduation rate
  - Improvement in graduation rate over time
  - Uses the best of a buildings 4, 5 or 6 year cohort rate

Which schools receive a ranking?

Schools with 30 or more full academic year (FAY) students in the two most recent years in at least two state-tested content areas

Some schools do not receive a ranking if they:

- Have too few FAY students
- Only have one year of data
- Have a grade span that does not include two tested areas

Tests and Feeder Schools

- Tested Grades and Subjects
  - Reading: Grades 3-8 and 11
  - Mathematics: Grades 3-8 and 11
  - Writing: Grades 4, 7 and 11
  - Science: Grades 5, 8 and 11
  - Social Studies: Grades 6, 9 and 11

- Feeder Building - Since Michigan tests in grades 3-8 in the fall - these tests reflect learning from the previous school year

Grade Span Difference

- For Mathematics and Reading in grades 3-8, testing every year allows us to calculate improvement in achievement based upon individual student performance level change
- All other subjects and grades use a slope calculation based upon cohorts of students

What About Reconfigured Schools?

- A school must change by four or more grades in order to get a new code
  - Example: A K-2 building becoming a K-6 building
  - New codes are NOT granted when a school is reopened as a charter
- If not, the school retains the old code and continues to have data "point" to it from all students for whom that code is their feeder school

What is a z-score?

Quick Reference for z-scores

Why Do We Use z-scores?

- z-scores are a standardized measure that help compare individual student (or school) data to the state average data (average scores across populations)
- z-scores "level the playing field" across grade levels and subjects

Why Do We Use z-scores?

- Each z-score corresponds to a value in a normal distribution. A z-Score will describe how much a value deviates from the mean
- z-scores are used throughout the ranking to compare a school's value on a certain component to the average value across all schools

z-score "Tip Sheet"

Student z-score =

(Student Scale Score) – (Statewide average of scale scores)
Standard Deviation of Scale Score

$$z_i = \frac{[SS_i - \hat{\mu}_{SS}]}{\hat{\sigma}_{SS}}$$

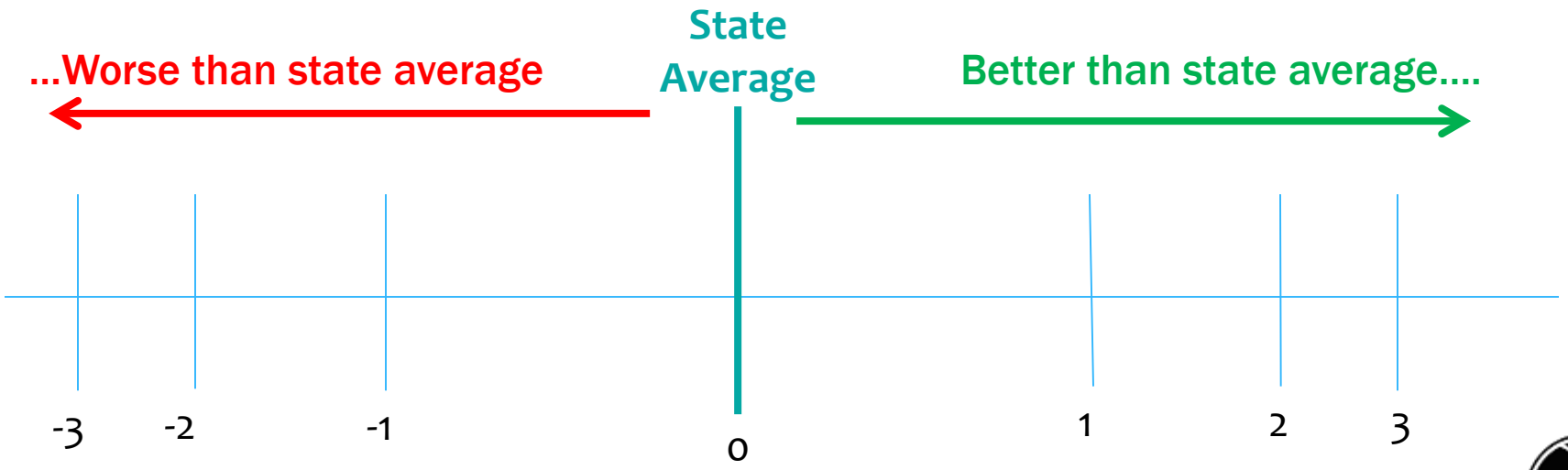
School z-score =

(School Value) – (Statewide average of that value)
Standard deviation of that value

$$\hat{\mu}_{zj} = \frac{[(N_{tj3}\hat{\mu}_{zj3}) + (N_{tj2}\hat{\mu}_{zj2})]}{[(N_{tj3} + N_{tj2})]}$$

z-Score "Tip Sheet"

- z-scores are centered around zero
- Positive numbers mean the student or school is ***above*** the state average
- Negative numbers mean the student or school is ***below*** the state average



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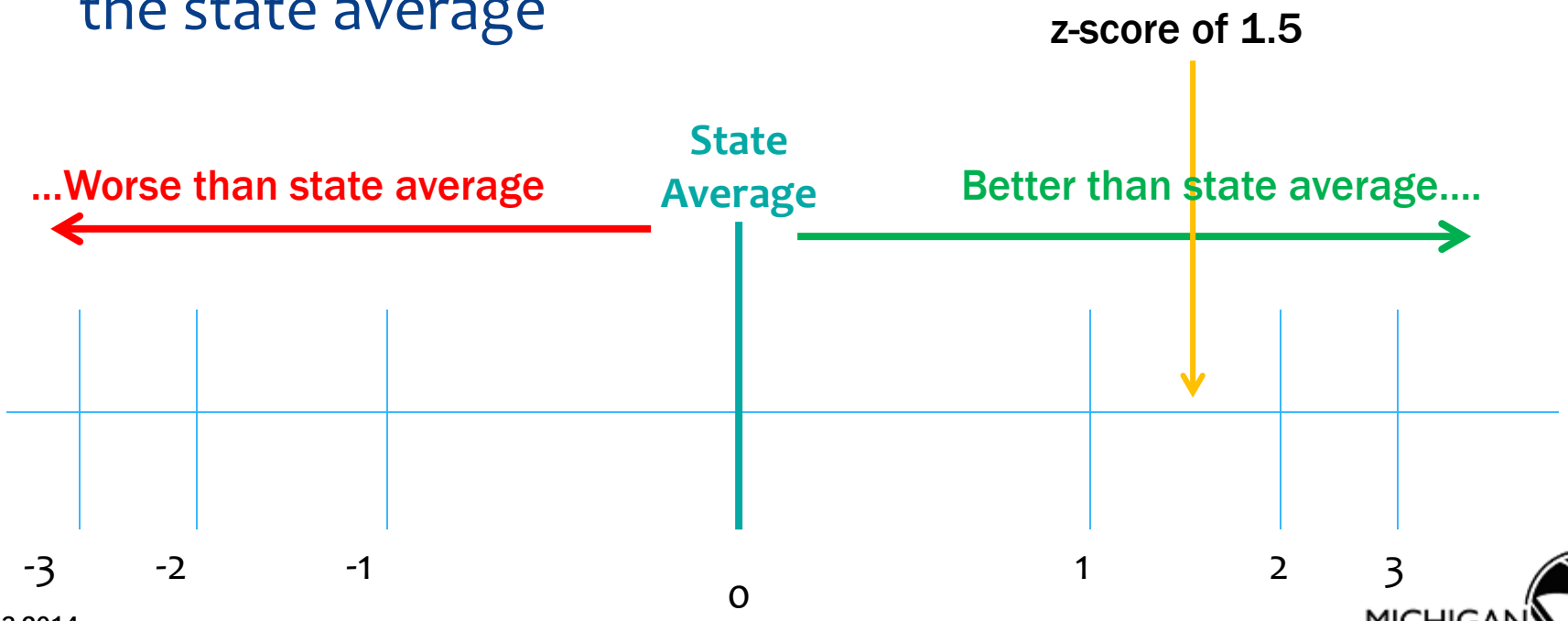
z-score Examples

- If a school has a z-score of 1.5 then the school is above the state average



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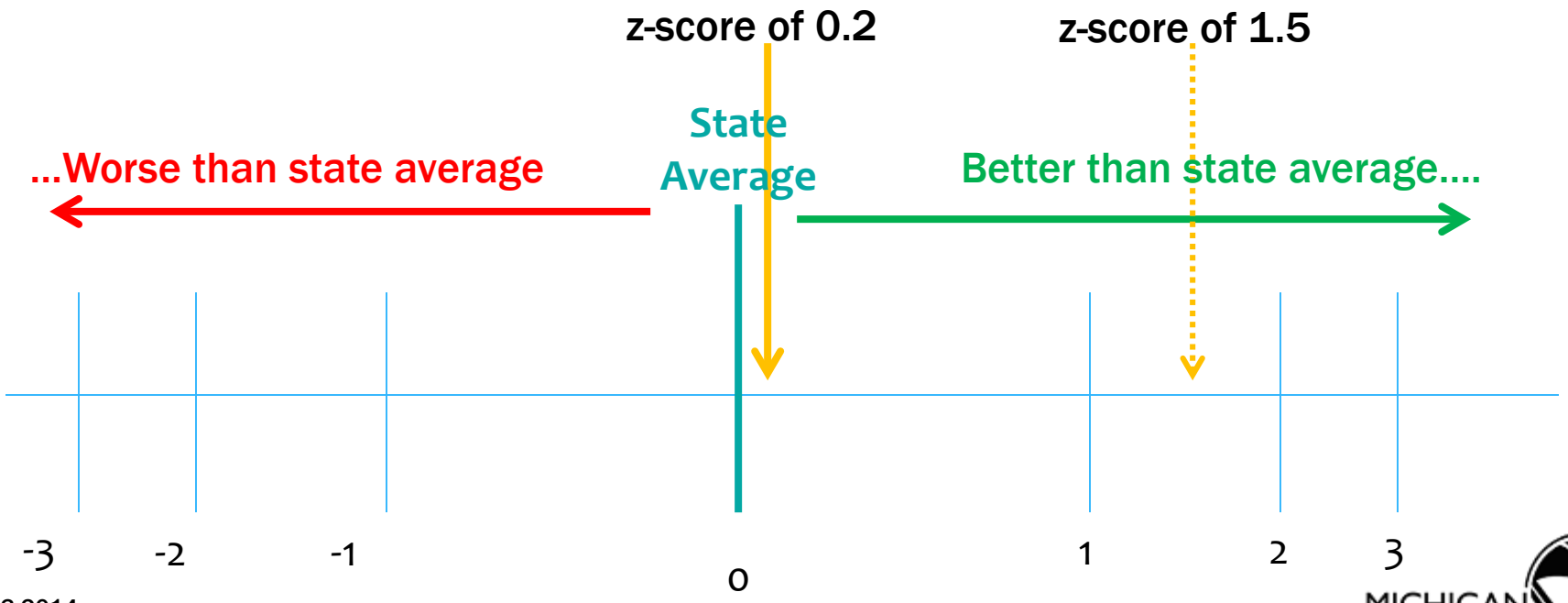
z-score Examples

- If a school has a z-score of .2 then the school is above the state average, but only by a small margin.



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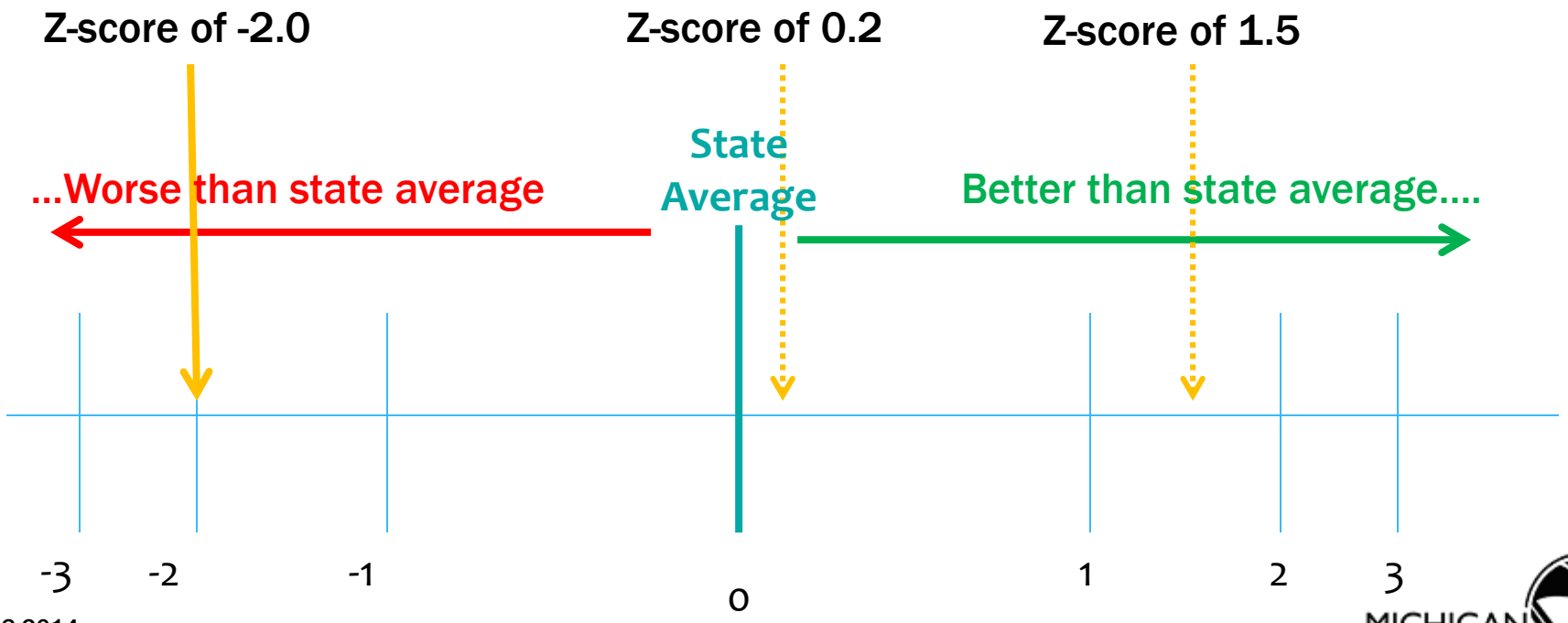
z-score Examples

- If a school has a z-score of -2.0 then the school is far below state average



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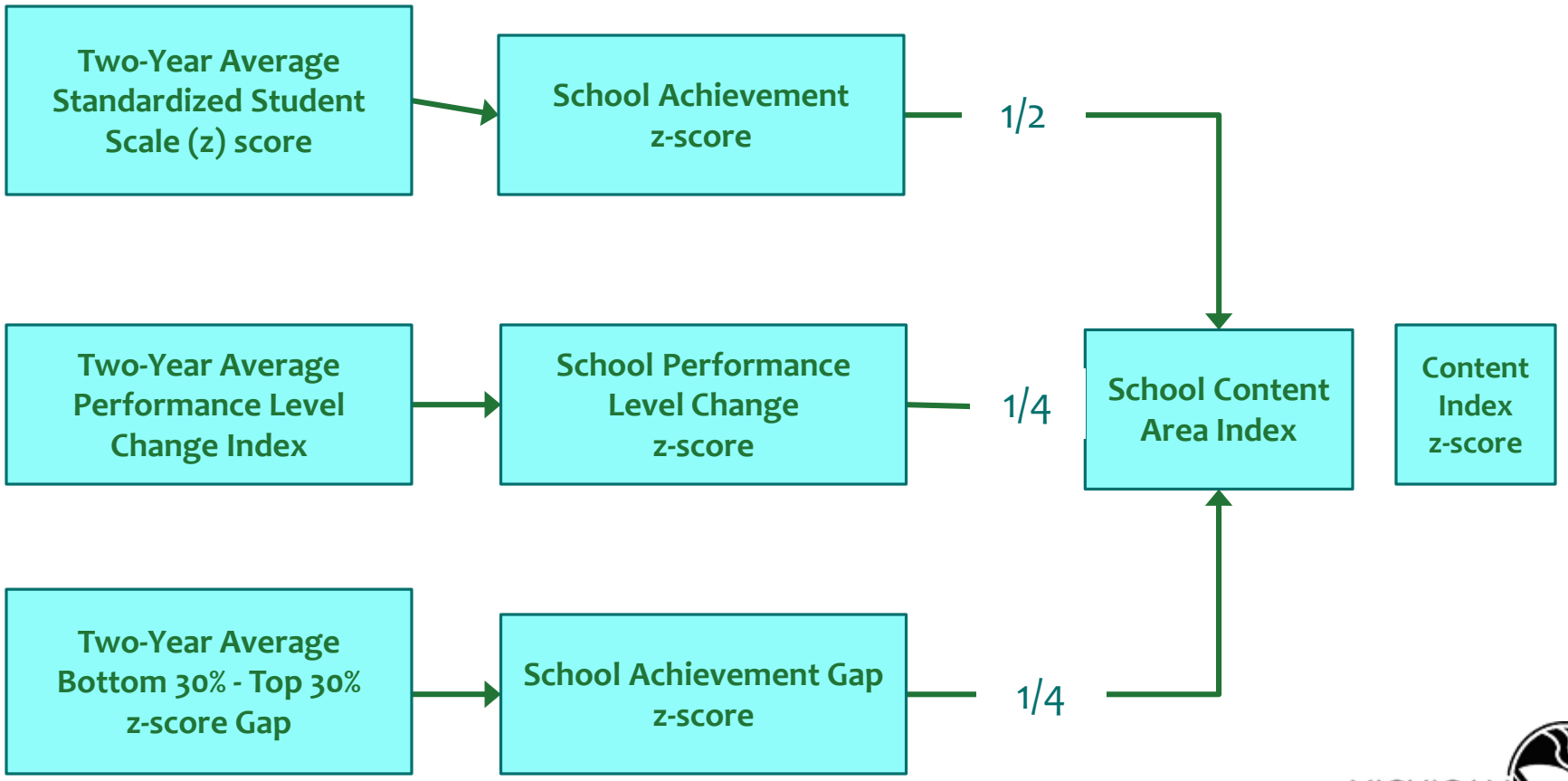
How Is the Top to Bottom Ranking Calculated?

For grades 3-8 Reading and Mathematics



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Standardized Scale Scores for Each Student

Create a *student-level z-score* for each student in each content area by comparing:

- MEAP to MEAP
- MEAP-Access to MEAP-Access
- MME to MME
- MI-Access
  - Participation to Participation
  - Supported Independence to Supported Independence
  - Functional Independence to Functional Independence

Standardized Scale Scores for Each Student

- Step 1: Take each student's score on the test they took and compare that score to the statewide average for students who took that same test in the same grade and year.

- Step 2: Once each student has a z-score for each content area (based on the test they took), we take all of the students in a school and rank order the students within the school.

What do we do with those standardized scores?

- Step 3: Add up all z-scores and take the average. This is now the average standardized student scale score.
- Step 4: Define the top and bottom 30% subgroups, based on that rank ordering.

Student level example

Student	Test Taken	z-score
Tommy	Mi-Access, Participation	2.0
Sally	MEAP	2.0
Maura	MI-Access, SI	1.9
Fred	MEAP	1.5
Elias	MEAP-Access	1.0
Freud	MEAP	0.8
Maybelle	MI-Access, FI	0.7
Destiny	MEAP	0.5
Harold	MEAP	-0.2
Bickford	MI-Access, FI	-0.5
Silas	MEAP-Access	-0.7
Francine	MEAP	-1.2
Joey	MEAP	-1.9
William	MEAP	-2.0

Student	Test Taken	z-score
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Harold		-0.2
Bickford		-0.5
Silas	MEAP-Access	-0.7
Francine	MEAP	-1.2
Joey	MEAP	-1.9
William	MEAP	-2.0

Average z-score (average standardized student scale score): 0.28
(sum all z-scores, divide by 14)

Student	Test Taken	z-score
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Sally		2.0
Maura		1.9
Fred	MEAP	1.5
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Bickford	MI-Access, FI	-0.5
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Francine		-1.2
Joey		-1.9
William	MEAP	-2.0

Top 30%

Bottom 30%

Student	Test Taken	z-score
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Joey		-1.9
William	MEAP	-2.0

Top 30%
Average: 1.85

Bottom 30%
Average: -1.45

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Joey		-1.9
William	MEAP	-2.0

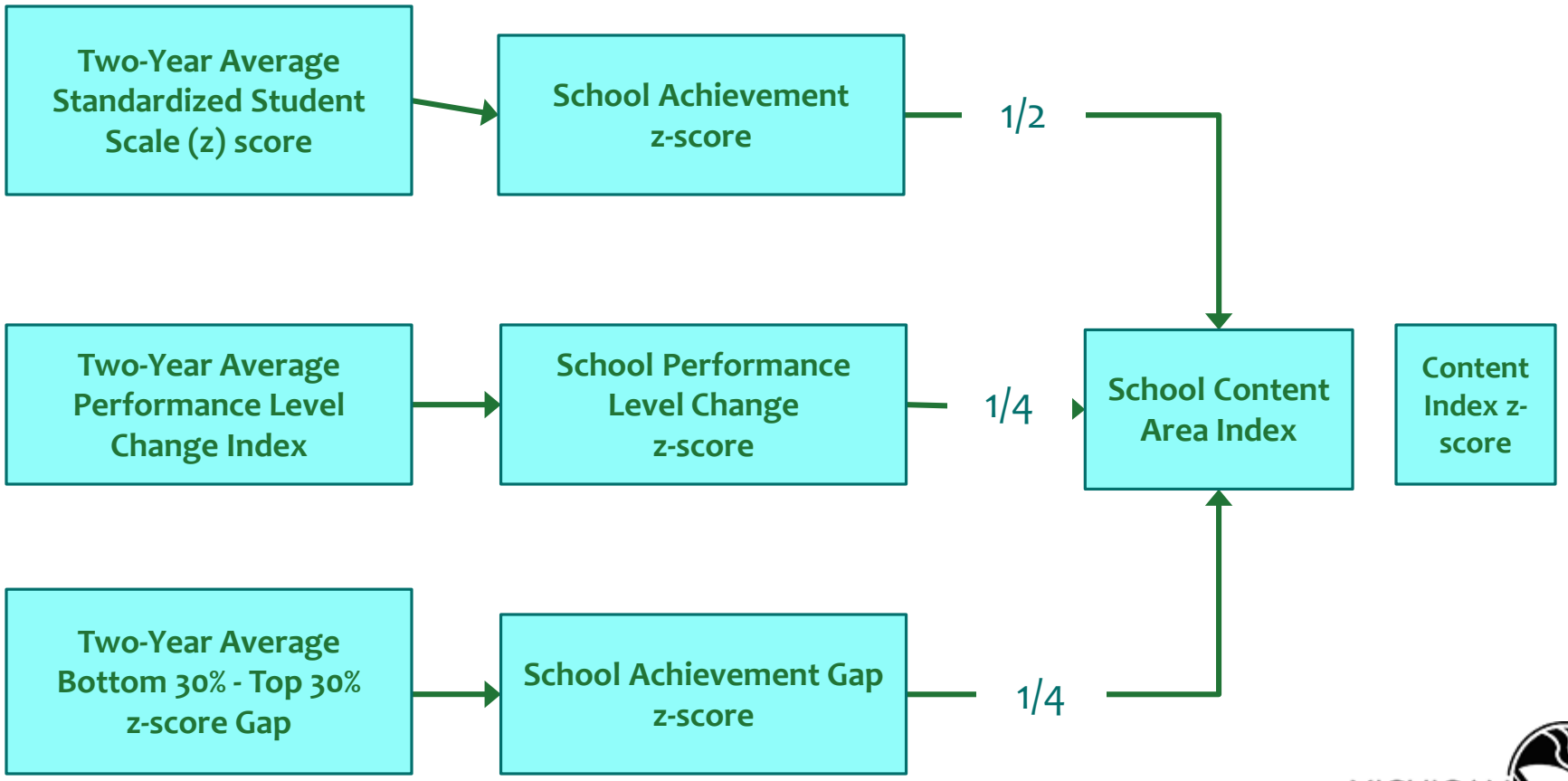
Top 30%
Average: 1.85

Gap Index
-1.45 – 1.85 = -3.3

Bottom 30%
Average: -1.45

How Is the Top to Bottom Ranking Calculated?

For grades 3-8 Reading and Mathematics



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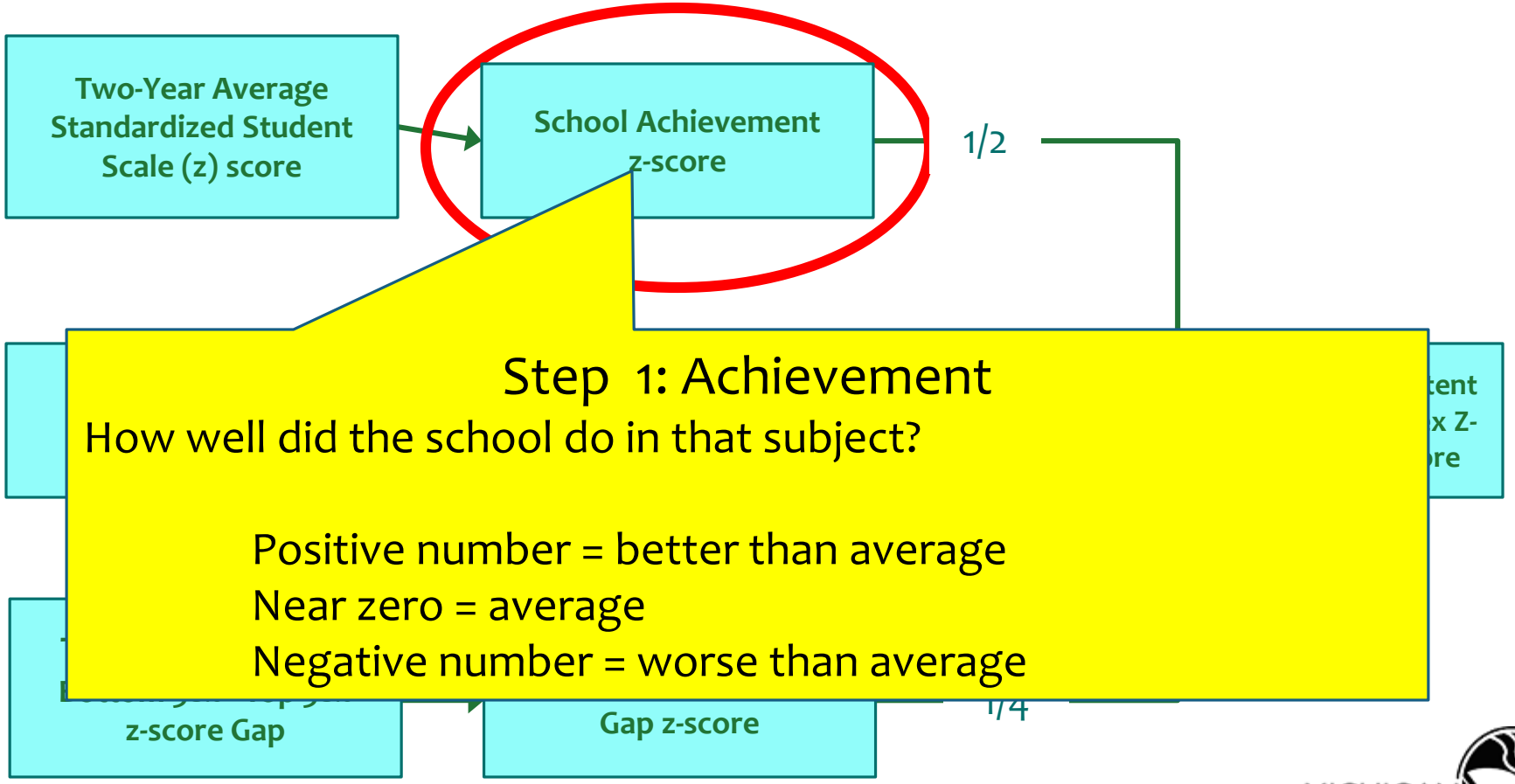
What is Important to show schools?

For grades 3-8 Reading and Mathematics



Step 1: Achievement

How well did the school do in that subject?

Positive number = better than average
Near zero = average
Negative number = worse than average

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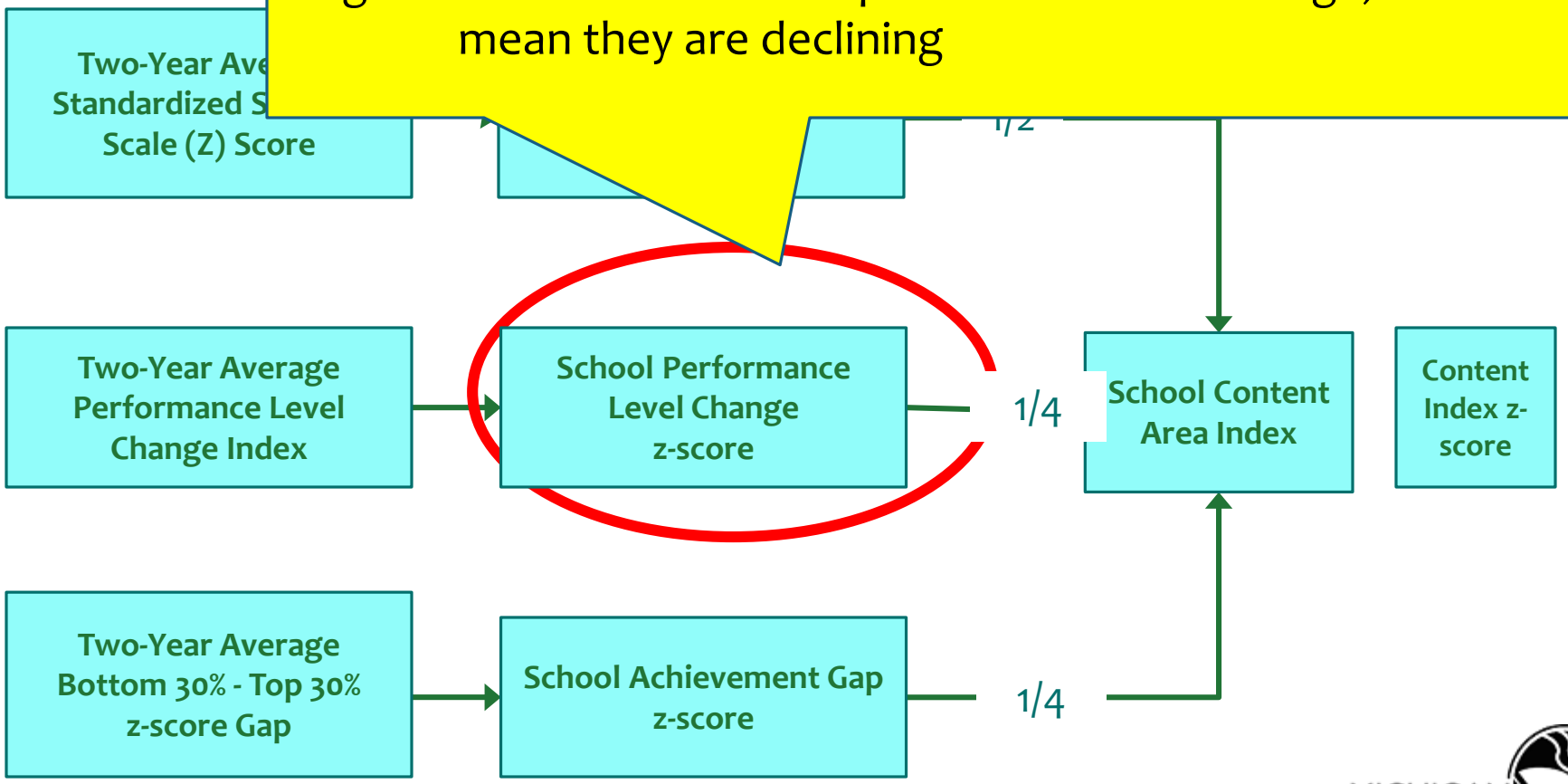
What

Step 2: Improvement

Is the school improving in that subject?

Positive number = greater rate of improvement than average
Near zero = average improvement
Negative = slower rate of improvement than average; can also mean they are declining



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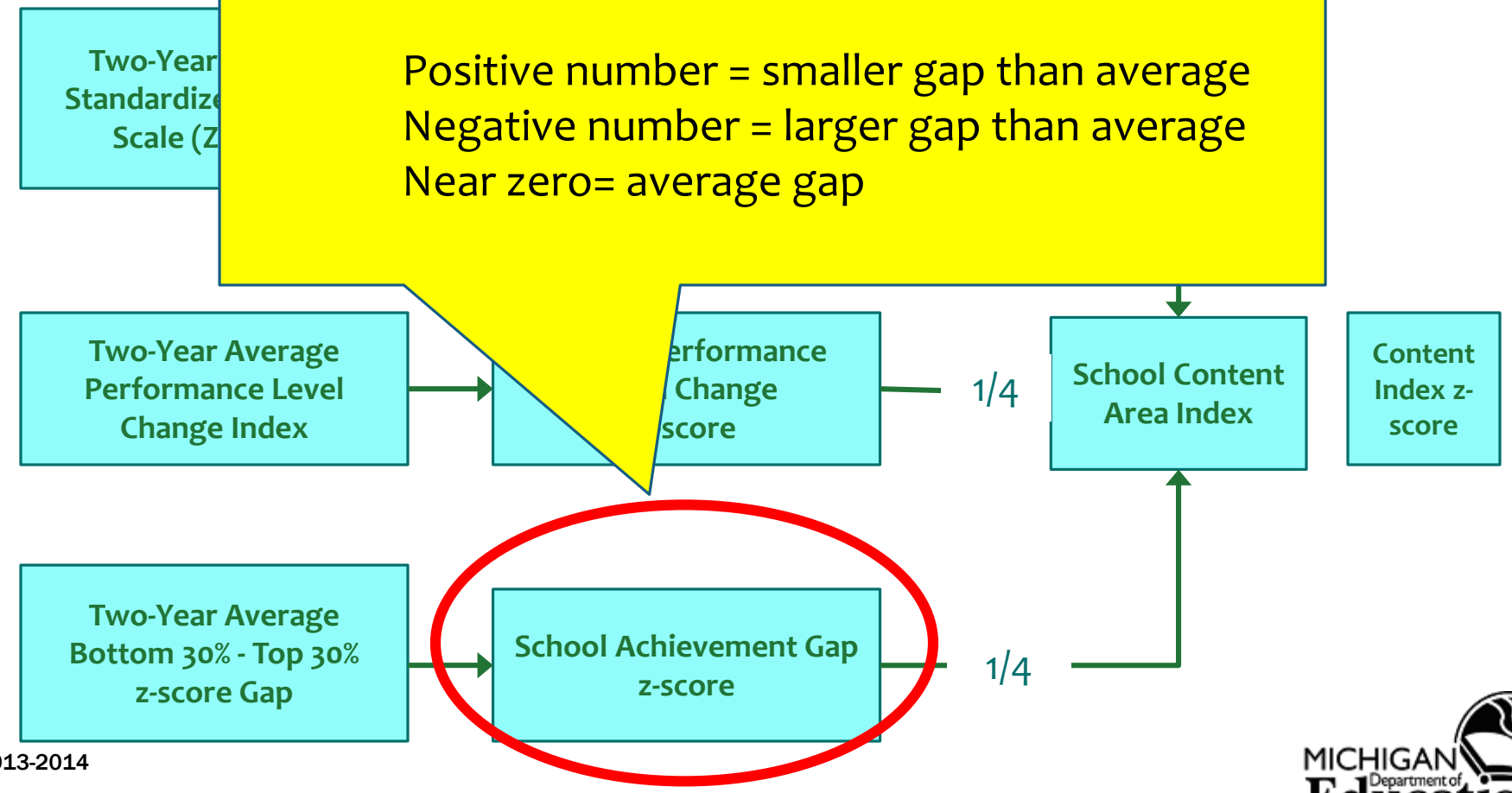
What is Important to Show Schools?

Step 3: Achievement Gap

The gap in a subject between top 30% and bottom 30%?

Positive number = smaller gap than average
Negative number = larger gap than average
Near zero= average gap



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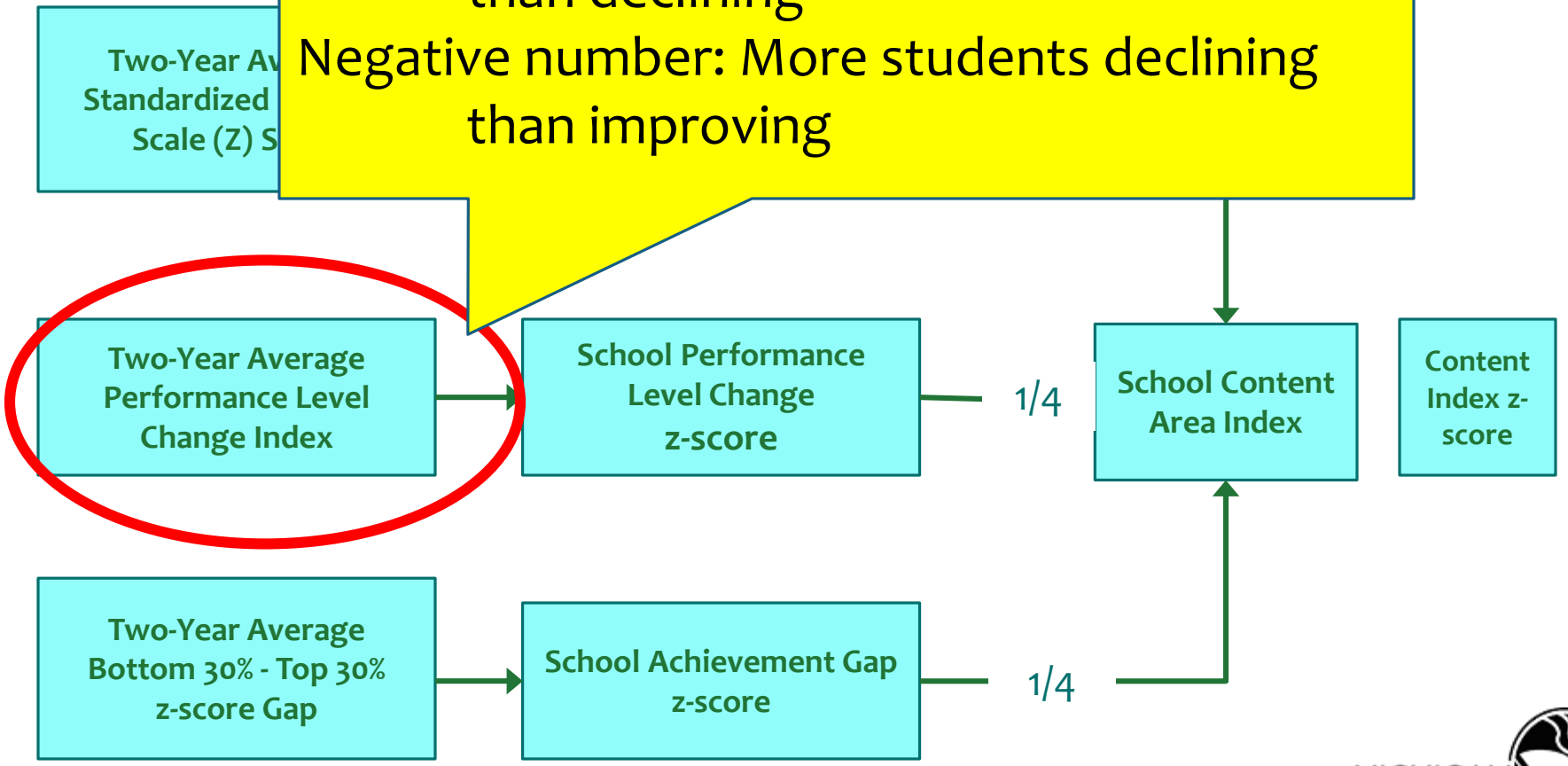
Step 4: Raw values are also meaningful:

Positive number: More students improving than declining

Negative number: More students declining than improving



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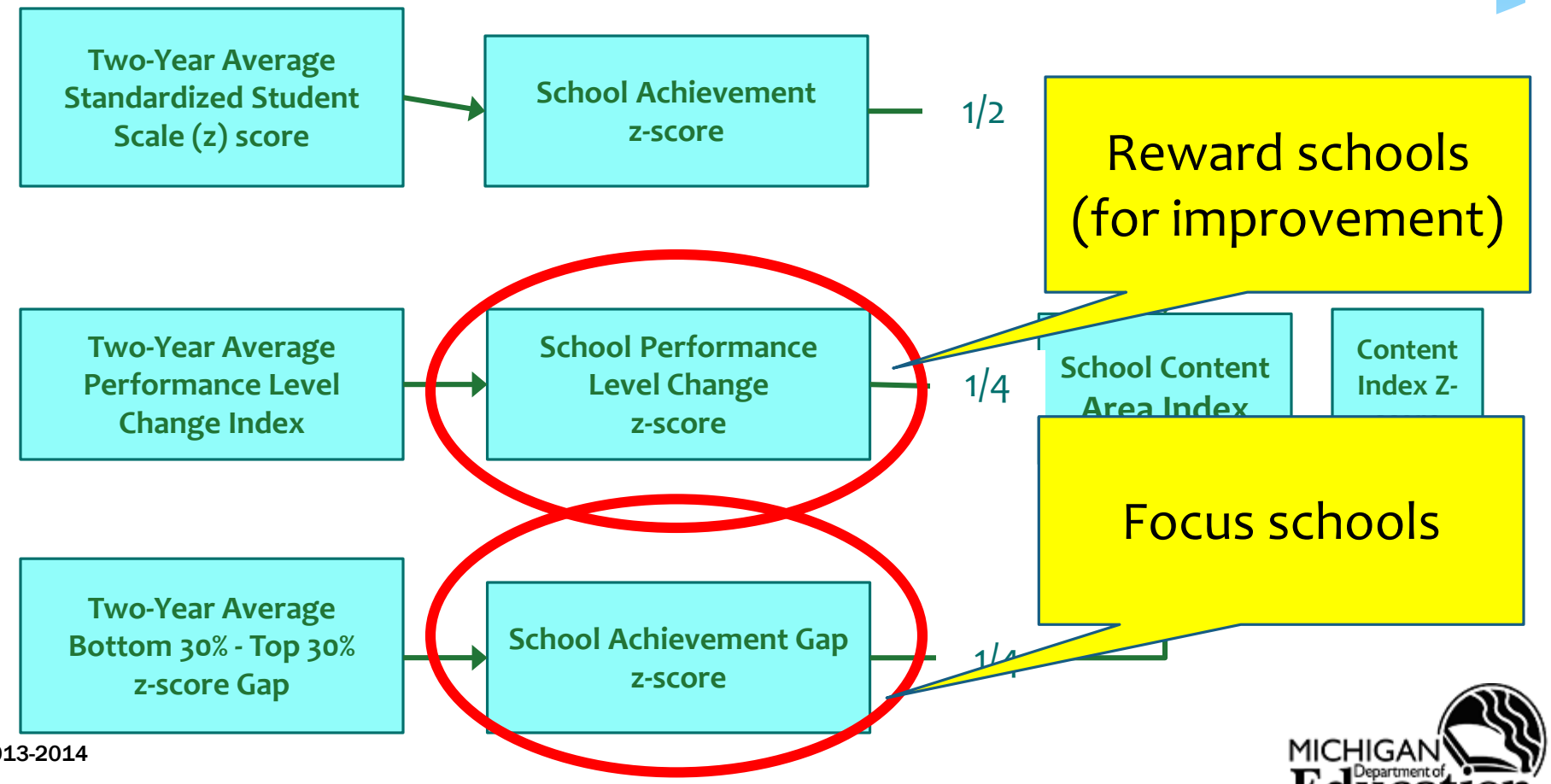
Diagnostic Discussion:

- What's the overall pattern?
  - Low achievement?
  - Declining achievement?
  - Large gaps?
- Where are the actionable areas?
  - Which subjects need the most attention?
  - Is everyone doing poorly (small gap, low achievement) or are some students doing well and others falling behind (decent achievement, but large gap)?

What is Important for schools?

For grades 3-8 Reading and Mathematics



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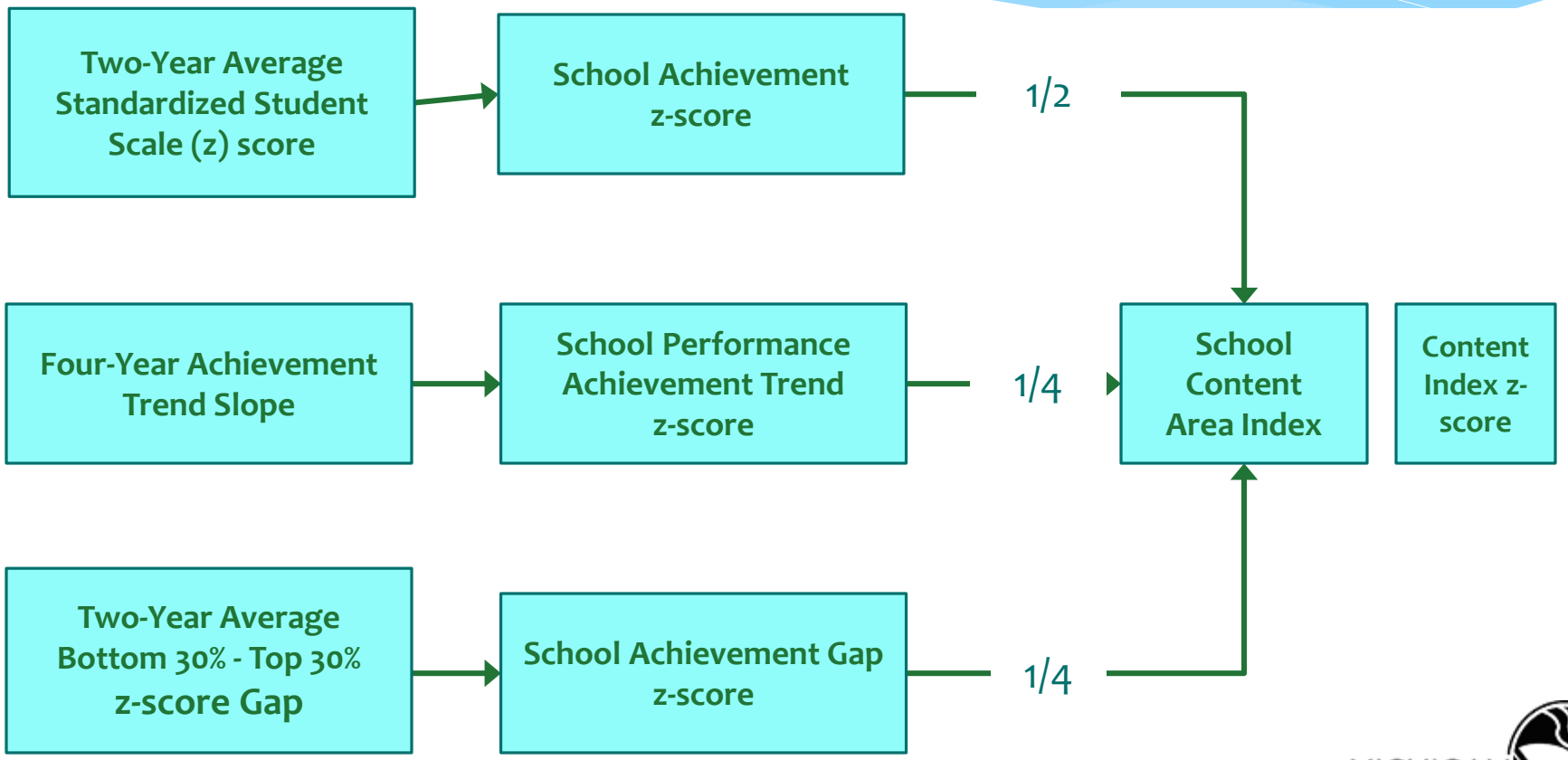
Weighted Performance Level Change

Previous Proficiency	Significant Decline	Decline	Maintain	Improvement	Significant Improvement
Not Previously Proficient	-2	-1	0	1	2
Previously Proficient	-2	-1	1	1	2

- In grades 3-8 reading and mathematics improvement is calculated using a weighted composite of individual student performance level change
- Rewards large improvements more heavily and rewards maintenance of proficiency if a student was already proficient

How Is the Top to Bottom Ranking Calculated?

Science, Social Studies, Writing and all Grade 11 tested subjects



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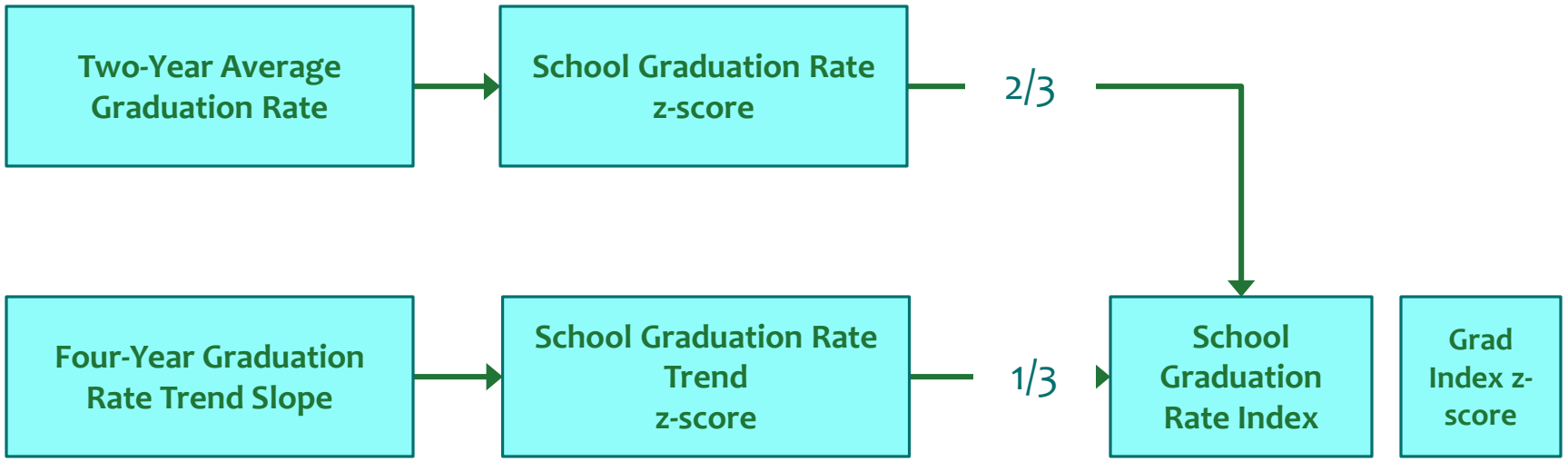

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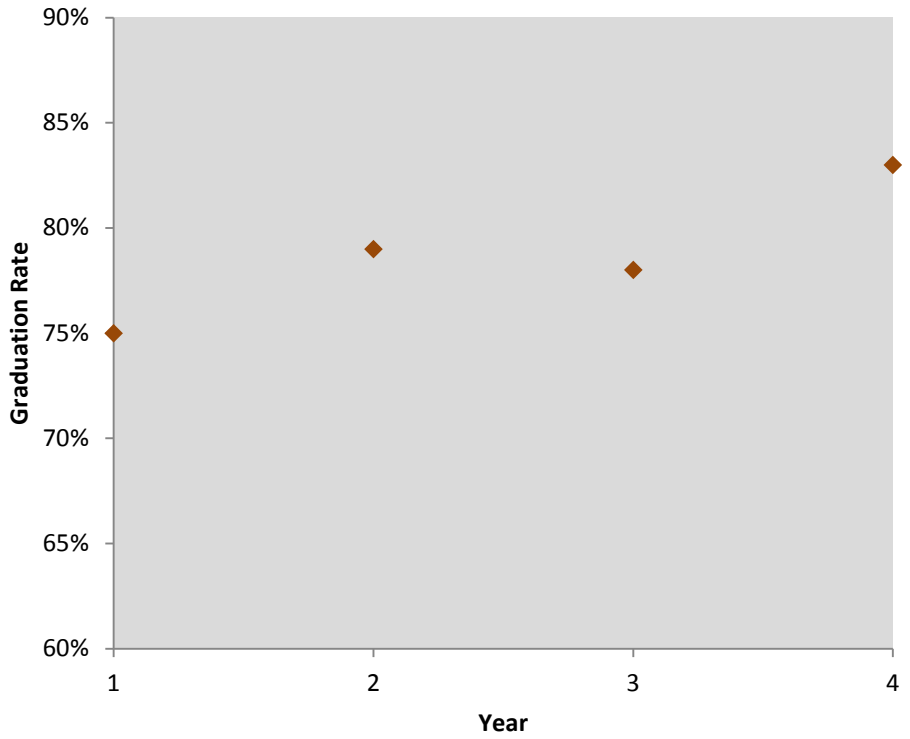

- Plot the school's graduation rate for the last four years

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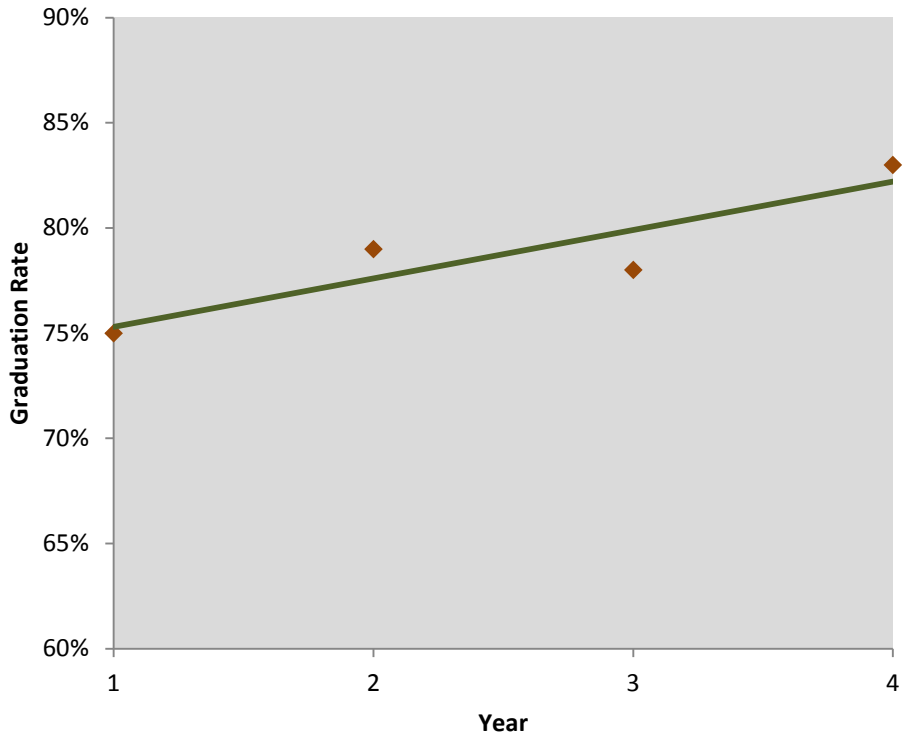
How Is the Top to Bottom Ranking Calculated?



- Plot the school's graduation rate for the last four years
- Plot a linear regression line through the points

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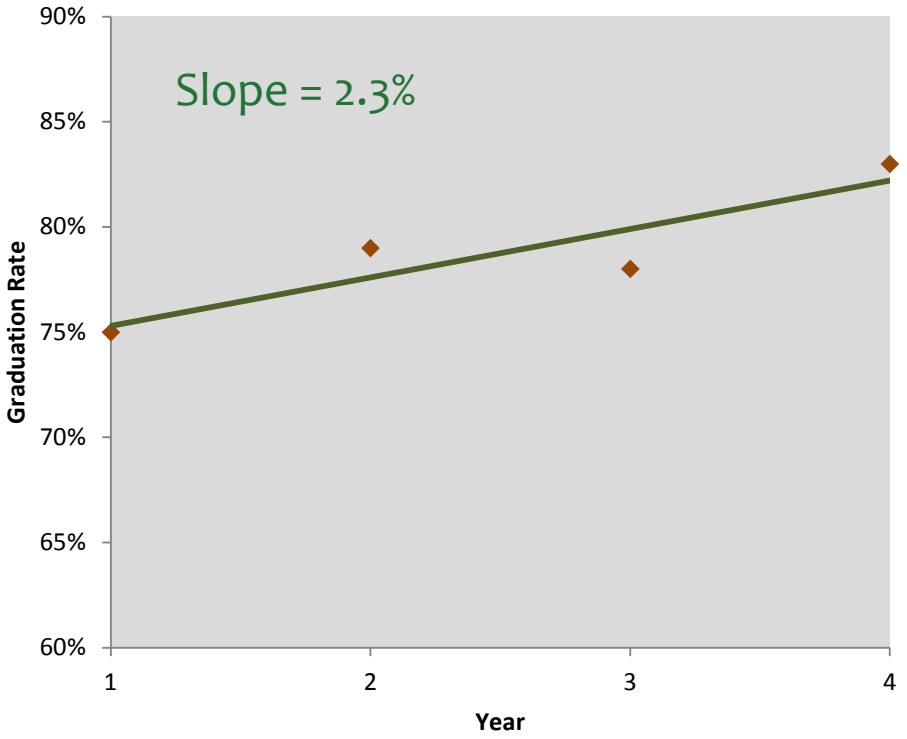
How Is the Top to Bottom Ranking Calculated?

Calculating a four-year slope (e.g., graduation rate)



- Plot the school's graduation rate for the last four years
- Plot a linear regression line through the points
- Calculate the slope of the line (gives the school's annual improvement rate)

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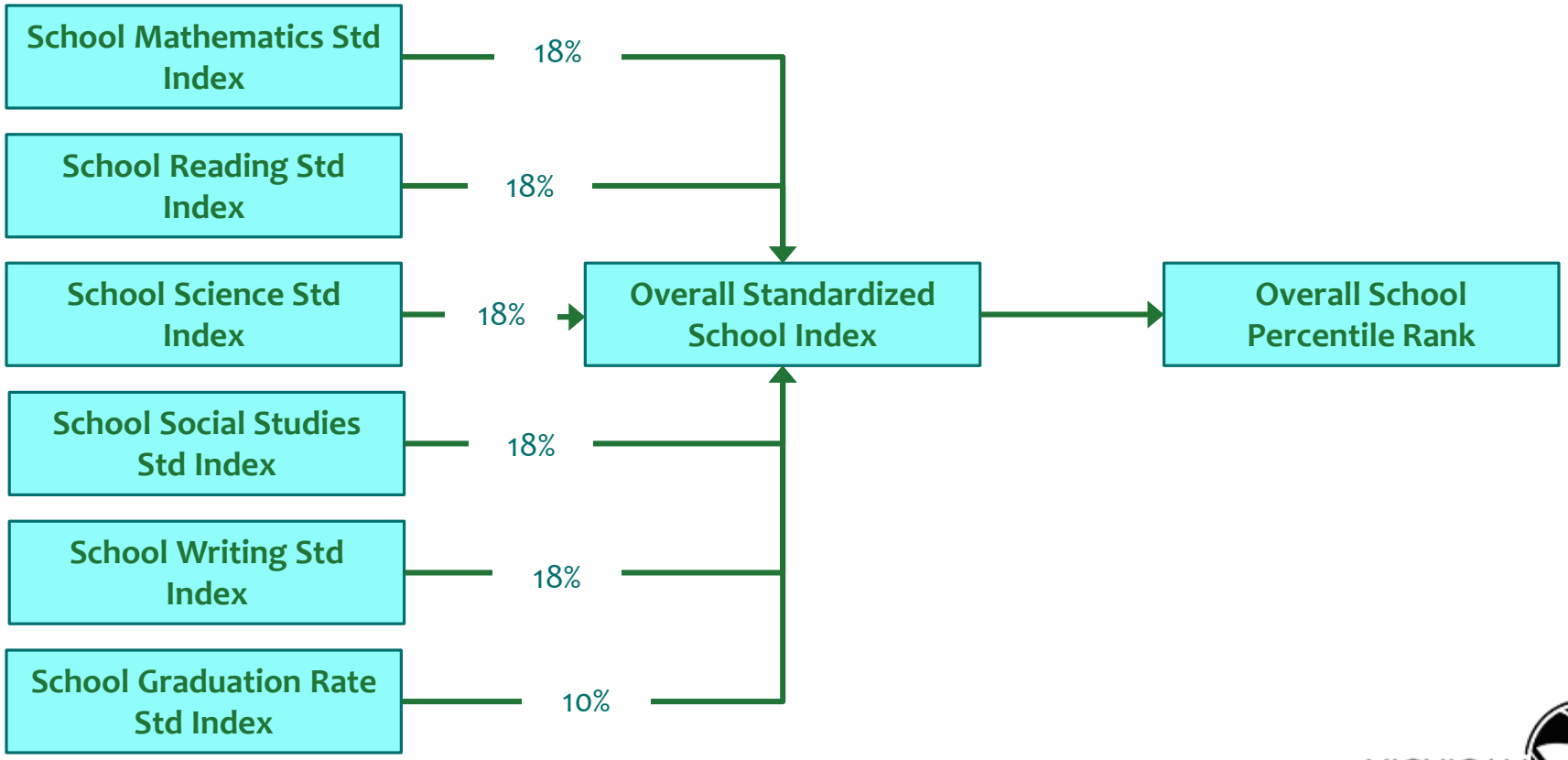
How Is the Top to Bottom Ranking Calculated?

Calculating an overall ranking for a school with a graduation rate



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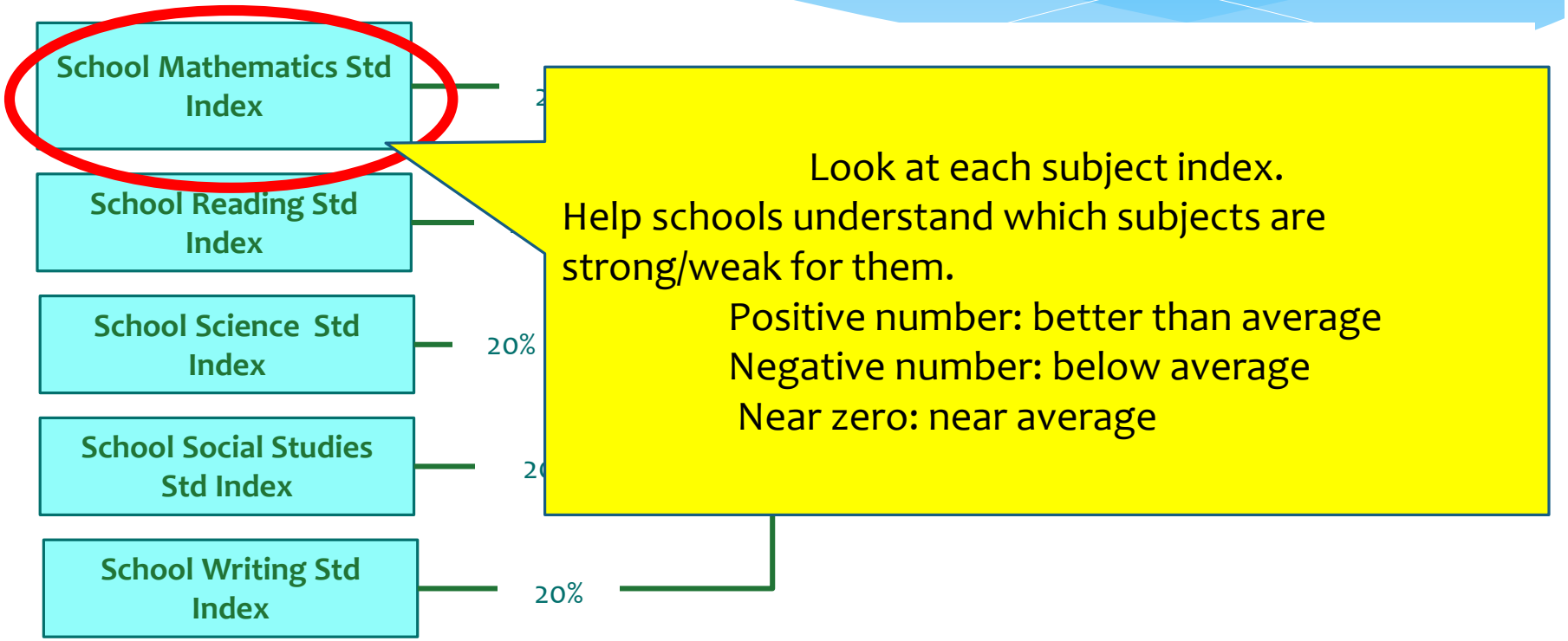
How Is the Top to Bottom Ranking Calculated?

Calculating an overall ranking for a school without a graduation rate



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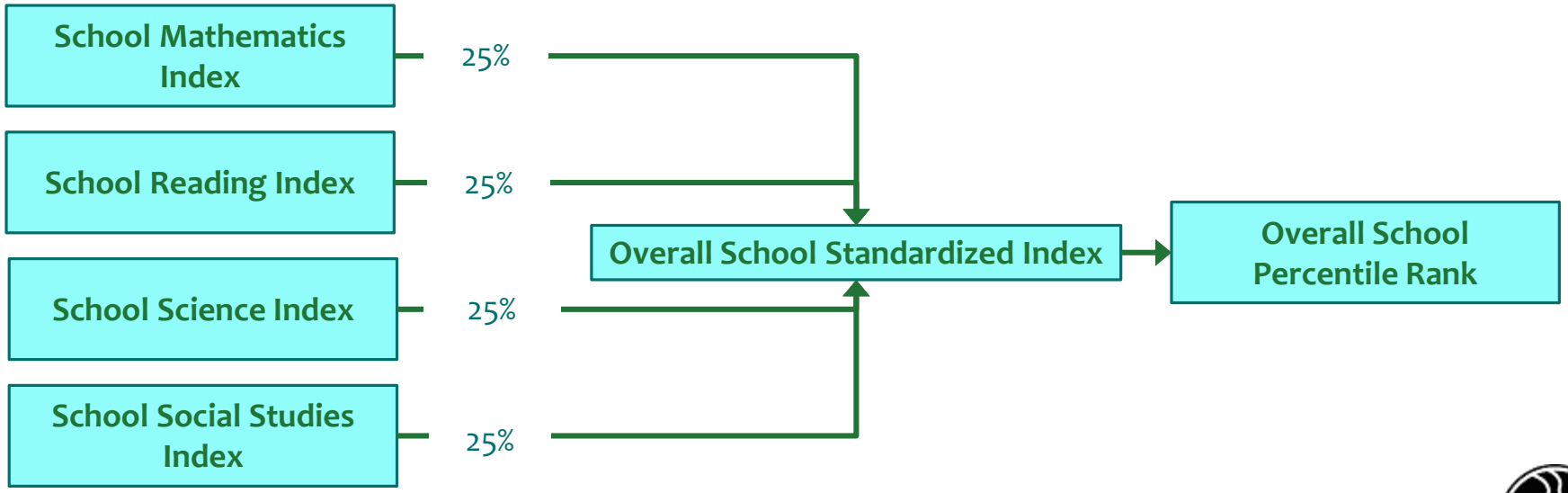
How Is the Top to Bottom Ranking Calculated?

Calculating an overall ranking for a school without a graduation rate and without a writing score



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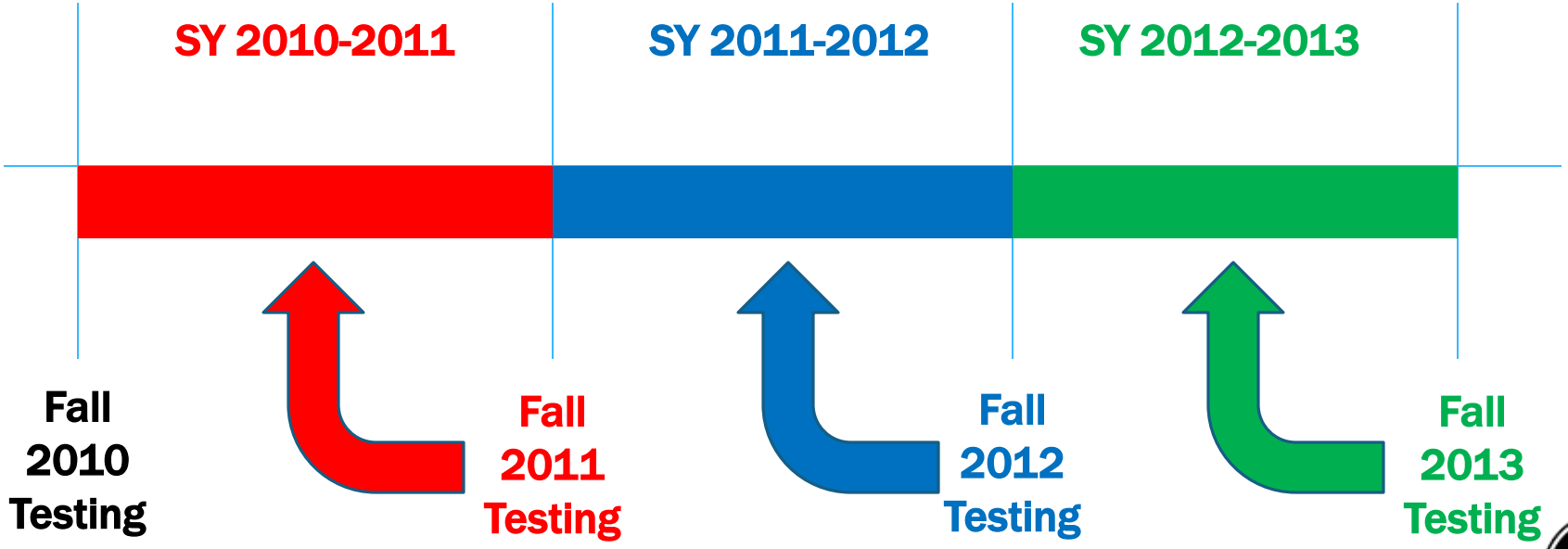
Which Years of Data Are in the Ranking?

2013-2014

For Elementary and Middle Schools

- Michigan tested in the fall through 2013
- These fall tests reflect the learning of students in the *previous* school year



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For High Schools

- Michigan tests students in the spring
- The spring test (MME and MI-Access) measures what students have learned from grades 9, 10 and grade 11 prior to the MME testing

What Does the 2013-2014 TTB Reflect?

- For elementary/middle schools:
  - Performance on the MEAP and MI-Access tests in fall 2012 and 2013
  - Represents learning from school year 2012-2013 and before
- For high schools:
  - Performance on the MME and MI-Access tests in spring 2013 and 2014
  - Represents learning from school year 2013-2014 (prior to testing) and before

Modifications to the TTB starting in the 2012-2013 school year

- Based upon feedback from the field
- Concern with outliers having an inordinate impact on the identification of focus schools
- Modified all student level scores
  - Normalize all student z-score distributions
  - Cap all student z-score distributions at -2 on the lower end and at +2 on the upper end

Focus School Status

- Started in 2012-2013
- Prohibit from appearing on the focus list any schools as defined by ***both*** of the following:
  - The school's bottom 30% group proficiency rate is higher than the state average proficiency rate in at least two subject areas
  - The school's top to bottom percentile rank is at least 75

Good-Getting-Great

- Applied in 2012-2013 Accountability Cycle

- Prohibit from appearing on the focus list any schools as defined by ***both*** of the following:
  - The school's bottom 30% group meets the safe-harbor requirement in all applicable subject areas as determined in the Accountability Scorecard
  - The school's top to bottom percentile rank is at least 75

Resources to Understand My Ranking

2013-2014

Resources Available

- Complete TTB list of all schools and their ranking
- At-A-Glance Document
- Individual school look-up to see your school's results
- Business rules by which the rankings were calculated
- Complete data file and validation file
- Links to separate pages for each of Priority, Focus and Reward schools

You can access these resources at www.mi.gov/ttb

Resources Available

- Separate pages for each of Priority, Focus and Reward schools
- At-A-Glance Documents
- PowerPoints for understanding each status
- Overview presentations with voice over
- Documentation for supports
- Look-up Tools

You can access these resources at www.mi.gov/priorityschools
www.michigan.gov/focusschools
www.michigan.gov/rewardschools

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Additional Assistance

You can also request individual assistance by contacting the Office of Evaluation, Strategic Research and Accountability (OESRA)

Call: 877-560-8378

Email: mde-accountability@michigan.gov

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