

OFFICE OF INSTRUCTIONAL ENHANCEMENT AND INTERNAL OPERATIONS
Summary of State Board of Education Agenda Items
February 17-18, 2011

OFFICE OF RESEARCH AND STATISTICS

07. Presentation on the Mississippi Accountability Model Growth Component

No Action: Discussion Only

Backup material attached



Mississippi Department of Education

Mississippi State Board of Education

Presentation on

Understanding the

Mississippi Growth Model

Office of Research and Statistics
Ken Thompson, Director
February 17, 2011



State Accountability Model

The State Accountability Model consists of three components:

1. Achievement
2. Growth
3. High School Completion



What is the QDI?

- The Quality of Distribution Index (QDI) is a measurement of student performance on a particular day
- QDI doesn't consider past performance.
- QDI measures how well schools are moving students between proficiency levels (i.e. “crossing the bar”.)



What is the QDI?

The formula for the Quality of Distribution (QDI) is:

$$\text{QDI} = \% \text{ Basic} + (2 \times \% \text{ Proficient}) + (3 \times \% \text{ Advanced})$$

The QDI can range from a low of “0” to a high of “300”



What is Growth?

- Growth is a measurement of whether a student scored as well as predicted.
- Growth doesn't look at how students are moving between proficiency levels (“crossing the bar”).
- Growth describes changes in scores rather than proficiency levels.

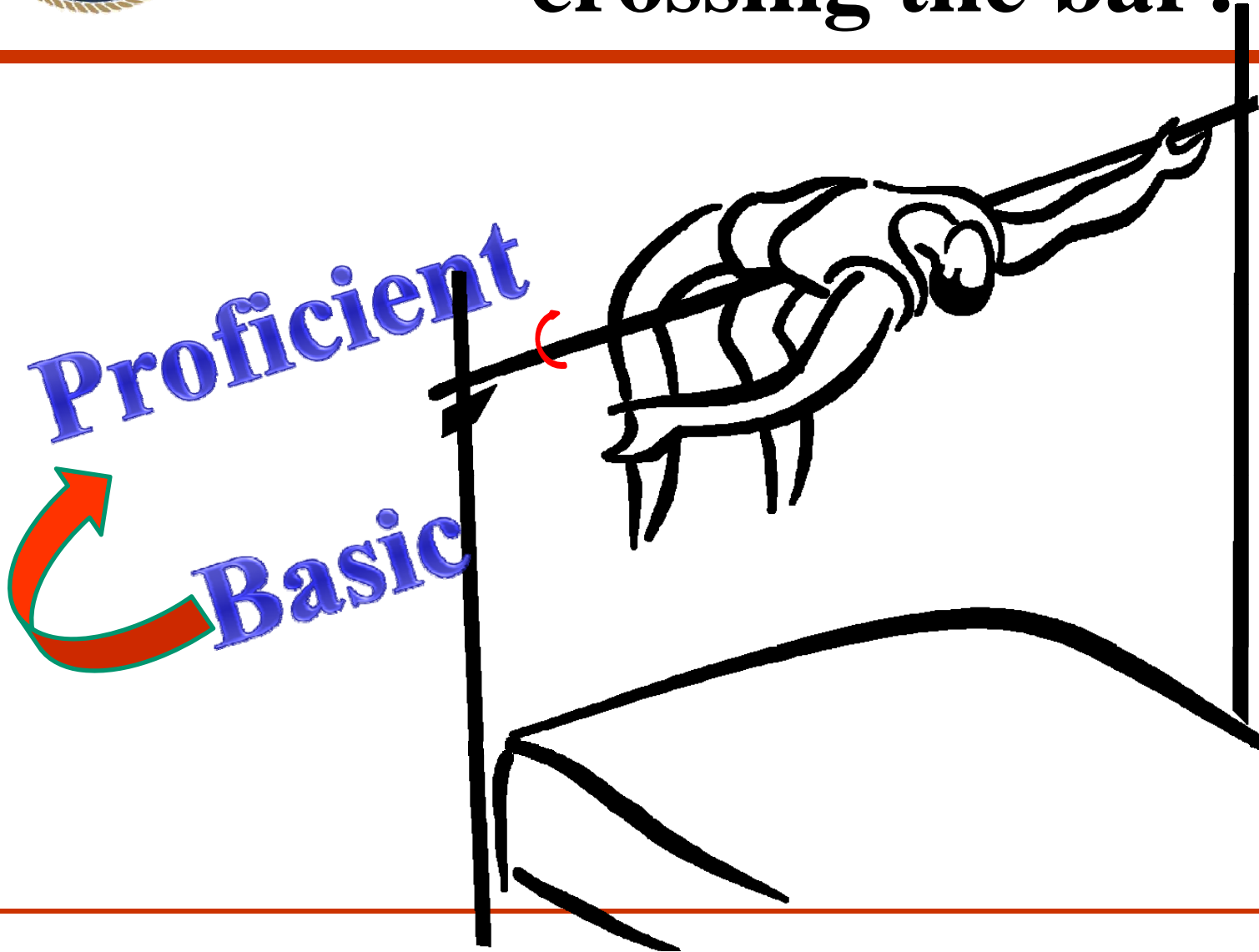


Most Asked Questions by Schools

- How can my QDI go up, but I still didn't meet growth?
- How can my QDI go down, but I met growth?
- How do I compute growth?



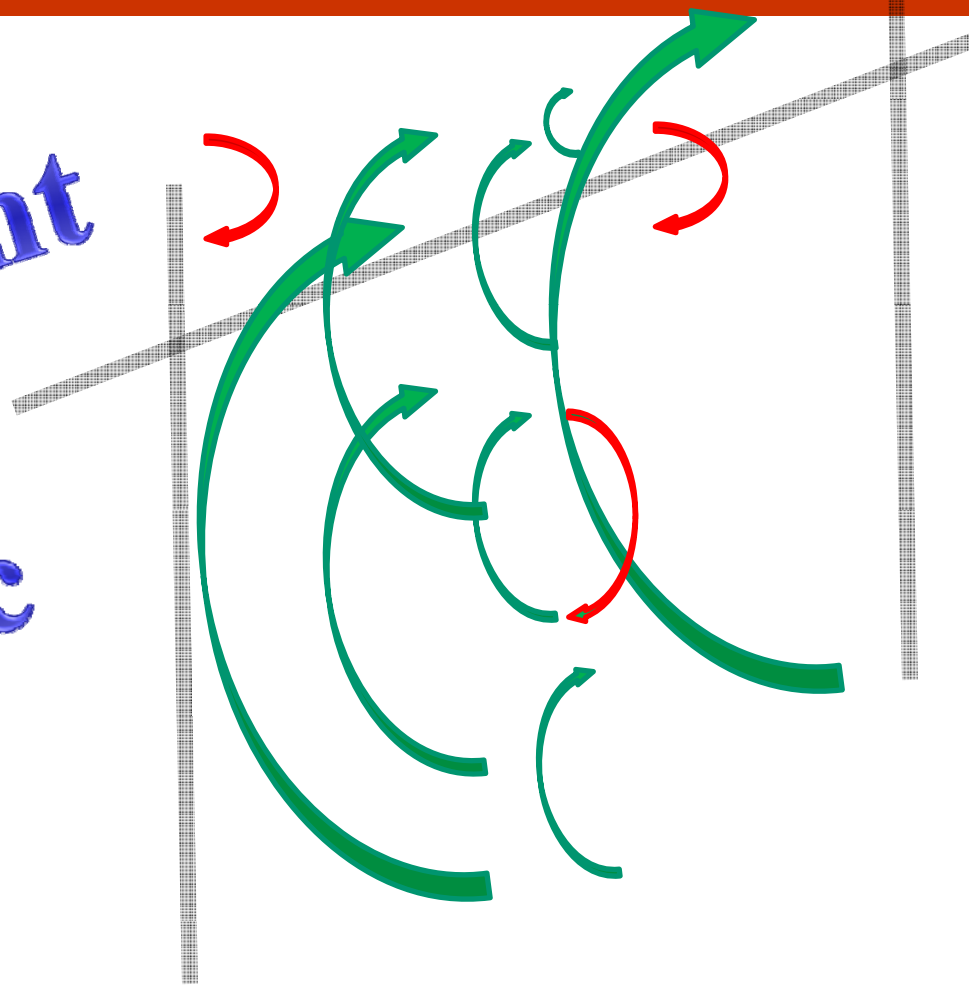
QDI measures how many are crossing the bar?





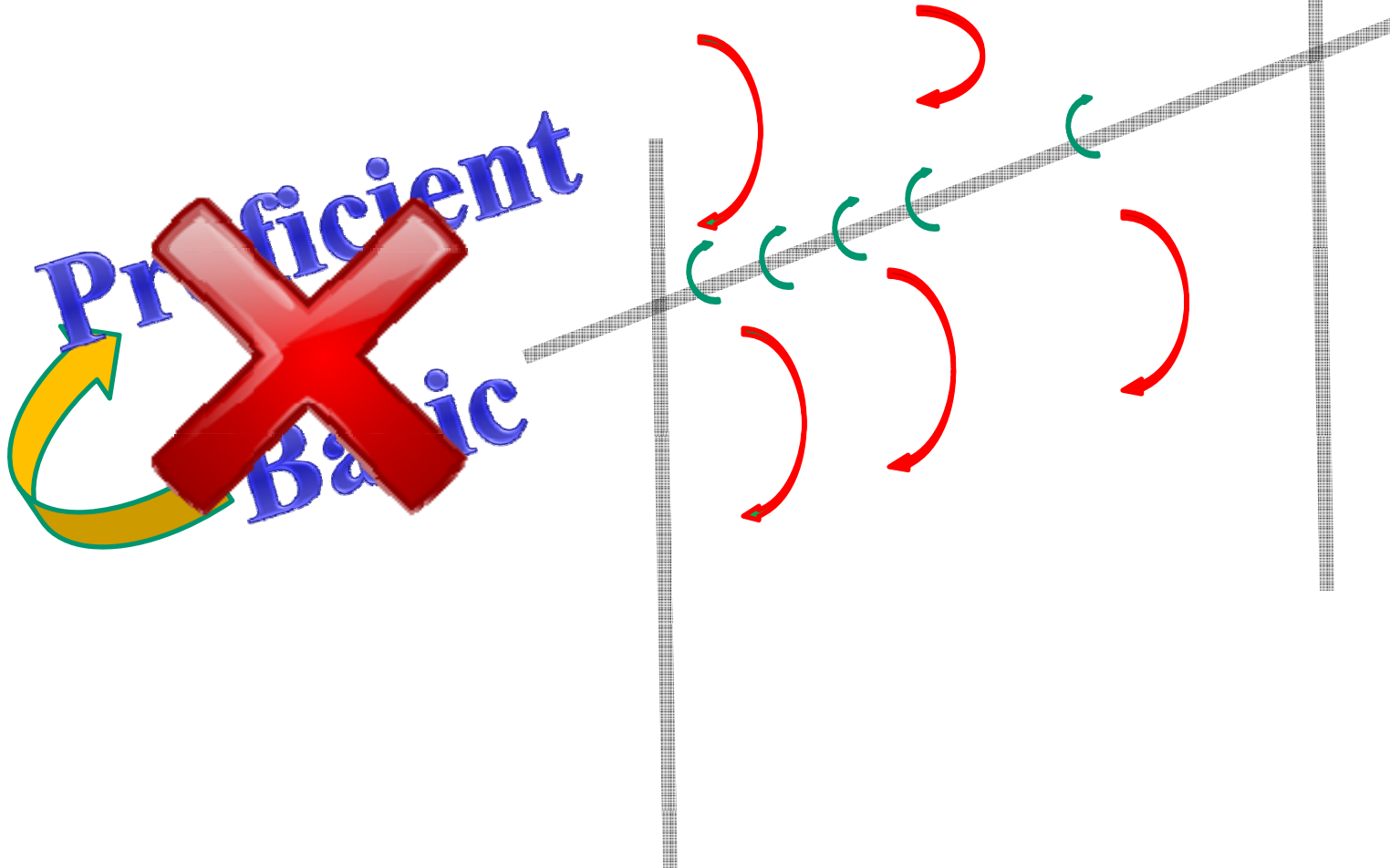
Growth measures how much higher / lower, but not if you cross the bar

Proficient
Basic





Think of the size of the arrow as relative growth





Translate that to students...

Student	LA SS	LA Prof Level	MTH SS	MTH Prof Level	Alg I SS	Alg I Prof Level
#1	133	Minimum	152	Proficient	652	Proficient
#2	150	Proficient	147	Basic	657	Proficient
#3	139	Basic	143	Basic	648	Basic
#4	136	Basic	148	Basic	648	Basic
#5	150	Basic	147	Proficient	655	Proficient



8th Grade QDI

Student	LA Prof Level	MTH Prof Level
#1	Minimum	Proficient
#2	Proficient	Basic
#3	Basic	Basic
#4	Basic	Basic
#5	Basic	Proficient

Proficiency Level	Count	Percent
Minimum	1	0%
Basic	6	60%
Proficient	3	30%
Advanced	0	0%
Total Scores	10	100%

$$\begin{aligned}
 \text{QDI} = & \quad \% \text{ Basic} \\
 & + (2 \times \% \text{ Proficient}) \\
 & + (3 \times \% \text{ Advanced})
 \end{aligned}$$

$$\begin{aligned}
 \text{Minimum} &= 1/10 = 10\% = 10 \times 0 = 0 \\
 \text{Basic} &= 6/10 = 60\% = 60 \times 1 = 60 \\
 \text{Proficient} &= 3/10 = 30\% = 30 \times 2 = 60 \\
 \text{Advanced} &= 0/10 = 0\% = 0 \times 3 = 0
 \end{aligned}$$

$$\text{QDI} = 120$$



Algebra I QDI

Student	Algebra I Prof Level
#1	Proficient
#2	Proficient
#3	Basic
#4	Basic
#5	Proficient

Proficiency Level	Count	Percent
Minimum	0	0%
Basic	2	60%
Proficient	3	30%
Advanced	0	0%
Total Scores	5	100%

$$\begin{aligned} \text{QDI} = & \quad \% \text{ Basic} \\ & + (2 \times \% \text{ Proficient}) \\ & + (3 \times \% \text{ Advanced}) \end{aligned}$$

$$\text{Minimum} = 0/5 = 0\% = 0 \times 0 = 0$$

$$\text{Basic} = 2/5 = 40\% = 40 \times 1 = 40$$

$$\text{Proficient} = 3/5 = 60\% = 60 \times 2 = 120$$

$$\text{Advanced} = 0/5 = 0\% = 0 \times 3 = 0$$

$$\text{QDI} = 160$$

QDI increase of 40



How about growth...

While QDI uses proficiency levels to measure performance on one administration of the assessment ...

Growth uses scale scores to compare student performance with expected student performance.



Calculating Growth

Student	8th Grade Language Arts Scale Score	8th Grade Mathematics Scale Score
#1	133	152
#2	150	147
#3	139	143
#4	136	148
#5	150	147

As with QDI, Growth has a formula. To calculate growth, substitute the scale scores into the growth formula.



Positive QDI Change with Negative Growth

Student	LA SS	MTH SS	Predicted Alg 1 SS	Actual Alg 1 SS	Difference (Residual)
#1	133	152	652.2604	652	-0.2604
#2	150	147	653.48645	657	3.51355
#3	139	143	649.79698	648	-1.79698
#4	136	148	651.22883	648	-3.22883
#5	150	147	653.48645	655	1.51355

Overall Residual: - 0.25911

QDI Change: + 40



Questions or Comments