



Baseline Year Analyses

**2009 Value-Added Assessment
Baseline 1998
Updated Baseline 2009**

Superintendent Study Councils

Fall, 2009



What happened then...

- In 2003, Tennessee set state growth standards for each tested academic subject based on the **progress rate** of the state's students in 1998. Since that time, all TCAP Criterion Referenced Test (CRT) scale scores have been converted into state normal curve equivalents (NCEs) consistent with the base year (1998).



What we know...

- This **conversion** provided a way for the TVAAS analyses to measure achievement and academic gain for each district and each school against a **consistent metric**, expressed in 1998 state NCEs as students moved from grade to grade.



What we know now...

- Over this past decade the state has made **progress** in raising academic achievement and this progress has been documented, not only in the TVAAS results, but also in the state's student performance on NAEP and ACT. And over time, many districts and schools have **regularly** met the state's growth standard.



Where we are going...

- However in 2010, the state is implementing new curriculum and assessment standards more reflective of national and international student performance in the 21st Century. To meet these standards new **expectations** for student academic **progress** will be necessary.



Why change now???

- The 2009 data are the last data from the previous CRT assessments. (This gives us a Footprint in the previous curriculum standards and assessments.)
- The 1998 baseline is over ten years old and was based in the NRT (Terra Nova) assessment. (This gave us a Footprint in the previous curriculum standards and assessment.)
- Unlike the 2003 setting of the 1998 baseline, the 2009 data had the benefit of 5 years of additional assessments in the CRT format for all subjects and grades.



Why change now???

- Legitimate academic attainment and progress have occurred over the last five years distancing itself from the 1998 base in most subjects and grades.
- The 2009 baseline provides for a conversion that breaks the previous five year trend line.
- The 2009 baseline provides a static transition point prior to the implementation of “new” curriculum standards and assessments.
 - New Assessment, New Accountability Process, and Request of Waiver from USED



What are the changes???

- In the delivery of the 2009 TVAAS results, the Tennessee Department of Education has **reset** the growth standard to reflect the state's average student performance in 2009. These new standards should be viewed as the **minimal** expectation for student academic progress. (Just like the 1998 base.)
- For a single year (2009), a transparent adjustment to scaling is provided using intra-year NCEs based on the testing of the state population in the administration year.
- This NCE calculation of the current and previous years CRT administrations included the 1998 baseline mean in the annual calculation to provide a static point from which to measure.



How were the changes made???

- For the 2009 TVAAS analyses, prior scale scores from the 2005, 2006, 2007 and 2008 administrations, as well as those from 2009, were **converted** to state NCEs **within** the administration year.
- The previous CRT assessment years have provided the basis for the TVAAS calculations and have been **annually** re-calculated (1) based on the current results to precisely estimate future expectant scores and (2) consistent with the 1998 baseline (growth standard) and well.



How were the changes made???

- The 2009 “new” base and all previous years NCE calculations had to be “separated” from the 1998 baseline.
- Intra year State NCEs were calculated for each test administration.
- The 2005, 2006, 2007, 2008 and 2009 data are free of the 1998 baseline and the NCE re-calculations are now stand alone in preparation for the new 2009 baseline.



What will happen in future years???

- In subsequent years, the scale scores will be converted into state NCEs that reflect the performance of the state's students in 2009.
- This new baseline will allow the possibility for all schools to meet these new and higher standards in the future years.



NCE Example State Non-Normal Distribution

- **State NCE Calculation Example:** The 1998 growth standard is based on the 1998 assessments' Mean Scale Scores and Standard Deviations by grade and subject. These Mean Scale Scores and Standard Deviations are used in the annual NCE calculations for the current year with re-estimation taking place for previous years.

NCE Example State Non-Normal Distribution Continued

- 2008 Grade 3 Student Score = 550
- 1998 base Grade 3 Mean = 503
- 1998 base Standard Deviation = 34

A z-score must be calculated.

$$\text{z-score} = \frac{\overset{\boxed{2008}}{550} - \overset{\boxed{1998}}{503}}{34 \text{ (SD)}} = \boxed{1.38} \leftarrow \boxed{\text{Z-score}}$$

$$\text{NCE Score} = 50 + (21.06 \times 1.38) = \boxed{79} \leftarrow \boxed{\text{NCE}}$$

Not Actual Data

TN's Non-normal scale score distribution requires SAS to use Annual Percentiles to assist with Mapping of current year data to the baseline.

NCE Example State Non-Normal Distribution Continued

- 2008 Grade 3 Student Score = 550
- 2008 base Grade 3 Mean = 510
- 2008 base Standard Deviation = 33

A z-score must be calculated.

$$\text{z-score} = \frac{\overset{\boxed{2008}}{550} - \overset{\boxed{2008}}{510}}{33 \text{ (SD)}} = \boxed{1.21} \leftarrow \boxed{\text{Z-score}}$$

$$\text{NCE Score} = 50 + (21.06 \times 1.21) = \boxed{76} \leftarrow \boxed{\text{NCE}}$$

Not Actual Data

All years were recalculated in the same manner. (2005, 2006, 2007, 2008, 2009)

NCE Example State Non-Normal Distribution Continued

- 2009 Grade 3 Student Score = 550
- 2009 base Grade 3 Mean = 520
- 2009 base Standard Deviation = 32

A z-score must be calculated.

$$\text{z-score} = \frac{\overset{\boxed{2009}}{550} - \overset{\boxed{2009}}{520}}{32 \text{ (SD)}} = \boxed{0.9375} \leftarrow \boxed{\text{Z-score}}$$

$$\text{NCE Score} = 50 + (21.06 \times 0.9375) = \boxed{70} \leftarrow \boxed{\text{NCE}}$$

Not Actual Data

NCE Example State Non-Normal Distribution Continued

- 2010 Grade 3 Student Score = 550
- 2009 base Grade 3 Mean = 520
- 2009 base Standard Deviation = 32

A z-score must be calculated.

$$\text{z-score} = \frac{\boxed{2010} \text{ score} - \boxed{2009} \text{ mean}}{\text{SD}} = \boxed{0.9375}$$

← Z-score

$$\text{NCE Score} = 50 + (21.06 \times 0.9375) = \boxed{70}$$

← NCE






Not Actual Data



Changes in 2009 and beyond...

- The implementation of the new baseline year offers an opportunity to delineate among schools that have, on average, made more than expected progress with its students.
- Those schools between 0.0 SE and +1.00 SE will be shaded **light green** and those schools greater than +1.00 SE will be shaded **dark green** in value-added reports.

Changes in 2009 and beyond...

-  G* - Estimate mean NCE gain greater than the growth standard by at least 1 standard error.
-  G - Estimate mean NCE gain equal to or greater than the growth standard but by less than 1 standard error.
-  Y - Estimate mean NCE gain below the growth standard by 1 standard error or less.
-  R - Estimate mean NCE gain more than 1 standard error below the growth standard but by 2 standard errors or less.
-  R* - Estimate mean NCE gain below the growth standard by more than 2 standard errors.

2009 Example TVAAS System Value Added Report Math

TVAAS Home Search Admin My Account Help Contact Us Logout

Back Print Reports Systems Tests Subjects

2009 TVAAS System Value Added Report for TCAP CRT Math

The Tennessee Department of Education has reset the growth standard to reflect the state's present student progress. Shading below is consistent with this new minimal expectation for systems and schools. The Help link above includes the specific details of this transition year.

Estimated System Mean NCE Gain								
Grade:	3	4	5	6	7	8	Mean NCE Gain over Grades Relative to	
Growth Standard:		0.0	0.0	0.0	0.0	0.0	Growth Standard	State
State 3-Yr-Avg:		-0.3	-0.1	0.3	0.1	-0.4		
2007 Mean NCE Gain:		1.1 G*	1.2 G*	2.1 G*	-0.9 R	-2.9 R*	0.1	0.2
Std Error:		0.7	0.7	0.6	0.6	0.6	0.3	0.3
2008 Mean NCE Gain:		0.1 G	0.7 G*	5.2 G*	0.4 G	-1.1 R	1.0	1.1
Std Error:		0.7	0.7	0.6	0.6	0.6	0.3	0.3
2009 Mean NCE Gain:		0.1 G	-1.8 R*	4.2 G*	-0.2 Y	1.1 G*	0.7	0.8
Std Error:		0.7	0.7	0.6	0.6	0.6	0.3	0.3
3-Yr-Avg NCE Gain:		0.4 G*	0.1 G	3.8 G*	-0.2 Y	-1.0 R*	0.6	0.7
Std Error:		0.4	0.4	0.4	0.3	0.3	0.1	0.1
Estimated System Mean NCE Scores								
Grade:	3	4	5	6	7	8		
New State Baseline:	50.0	50.0	50.0	50.0	50.0	50.0		
State 3-Yr-Avg:	48.9	48.4	48.3	47.9	48.1	47.9		
2006 Mean:	51.1	50.0	49.8	54.2	54.8	52.0		
2007 Mean:	53.2	52.3	51.4	52.1	53.2	51.6		
2008 Mean:	53.6	53.2	52.9	56.8	52.5	51.9		
2009 Mean:	51.3	53.9	51.4	57.1	56.4	53.3		

- G* - Estimated mean NCE gain above the growth standard by at least 1 standard error.
- G - Estimated mean NCE gain equal to or greater than growth standard but by less than 1 standard error.
- Y - Estimated mean NCE gain below the growth standard by 1 standard error or less.
- R - Estimated mean NCE gain more than 1 standard error below the growth standard but by 2 standard errors or less.
- R* - Estimated mean NCE gain below the growth standard by more than 2 standard errors.

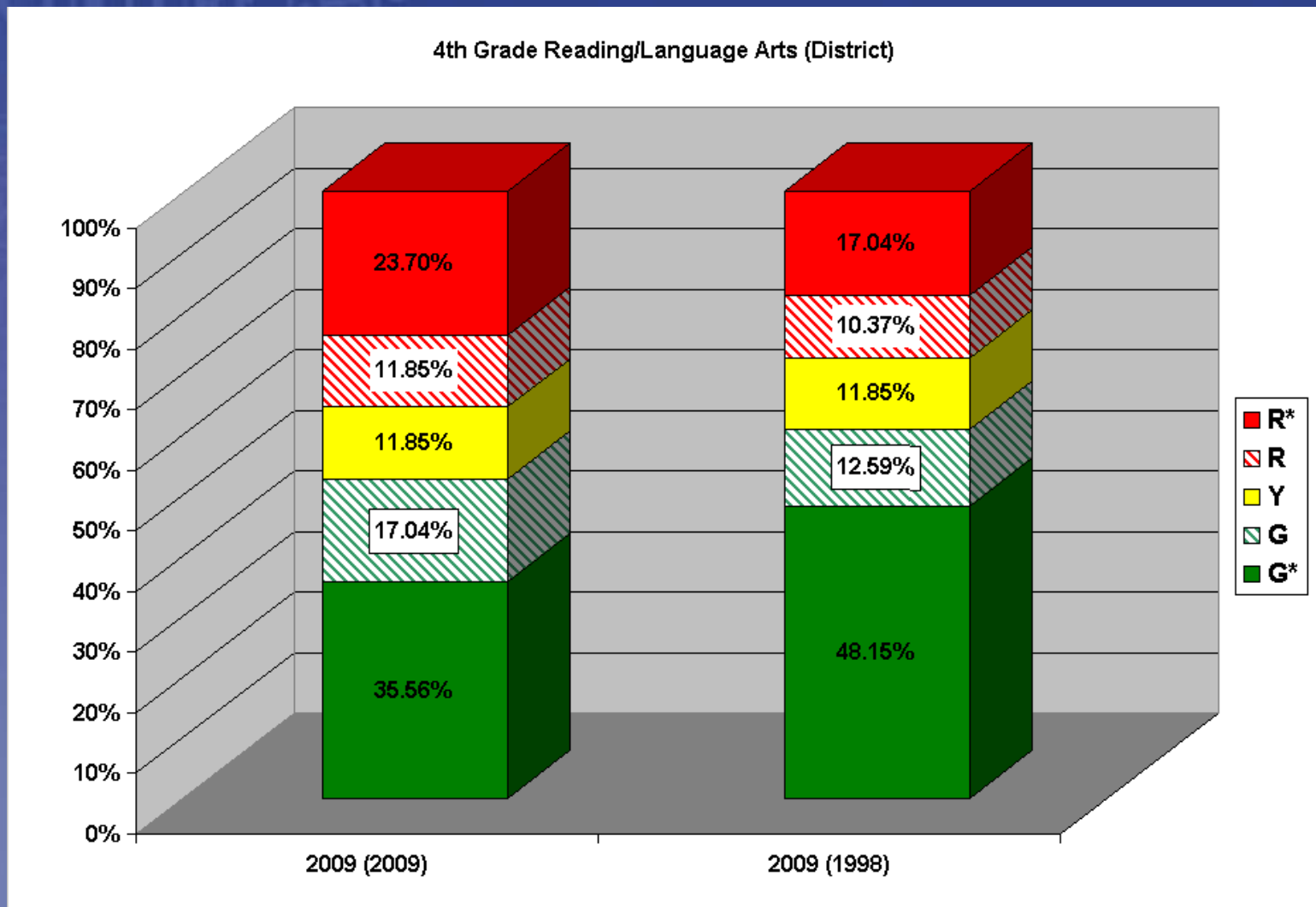


Changes in 2009 and beyond...

- The following slides compare Value-Added Three Year Averages of Districts and Schools for Reading.
 - 2009 data using the 1998 Baseline Year
 - 2009 data using the 2009 Baseline Year
 - Each Column is divided into different sections based on the percentage of districts whose value-added three year average for reading fall within the different categories of progress (green, light green, yellow, light red and red). The Legend is as follows:
 - Green = G*
 - Light Green = G
 - Yellow = Y
 - Light Red = R
 - Red = R*

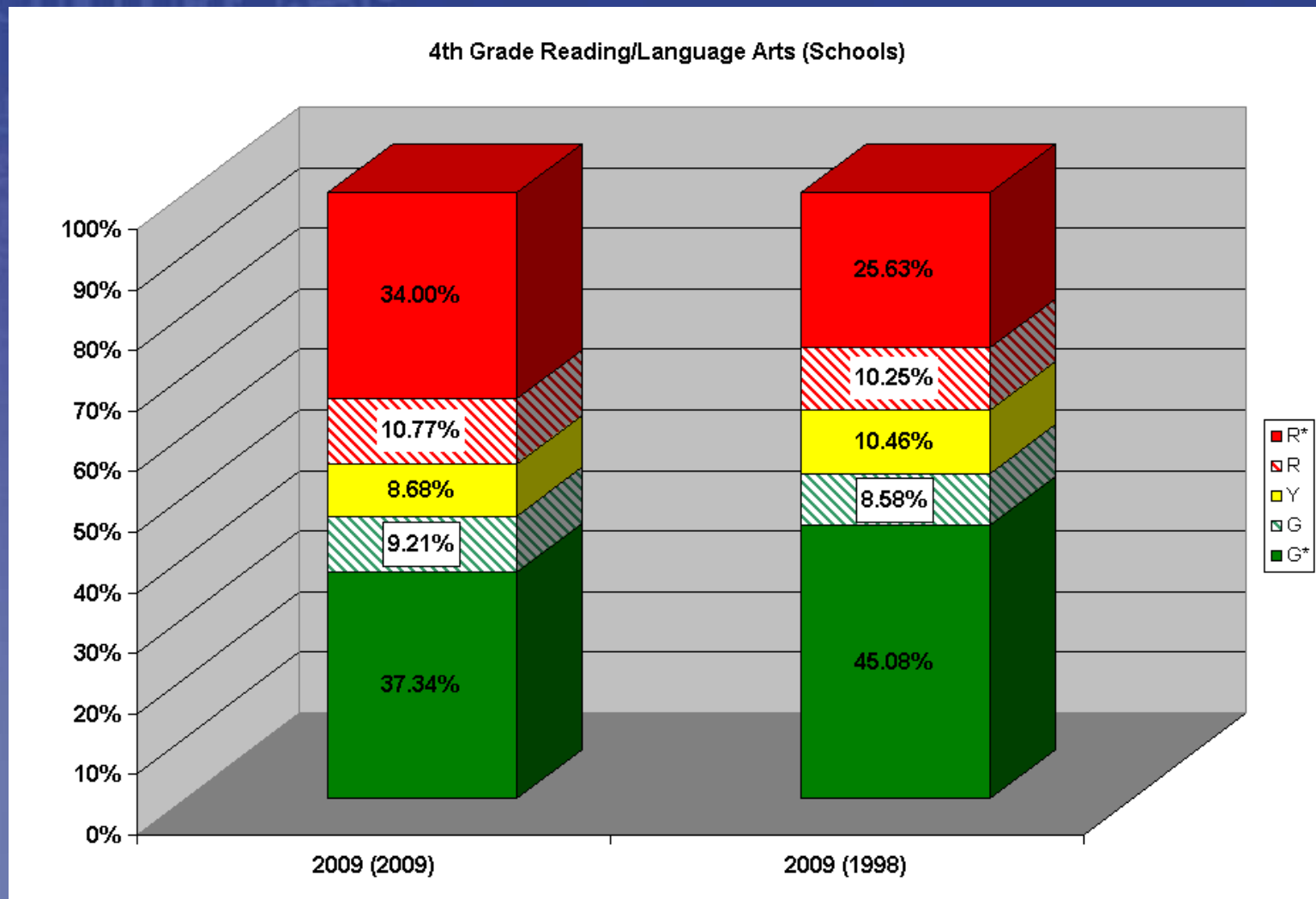


Value-Added Three Year Averages of Districts, 4th Grade Reading



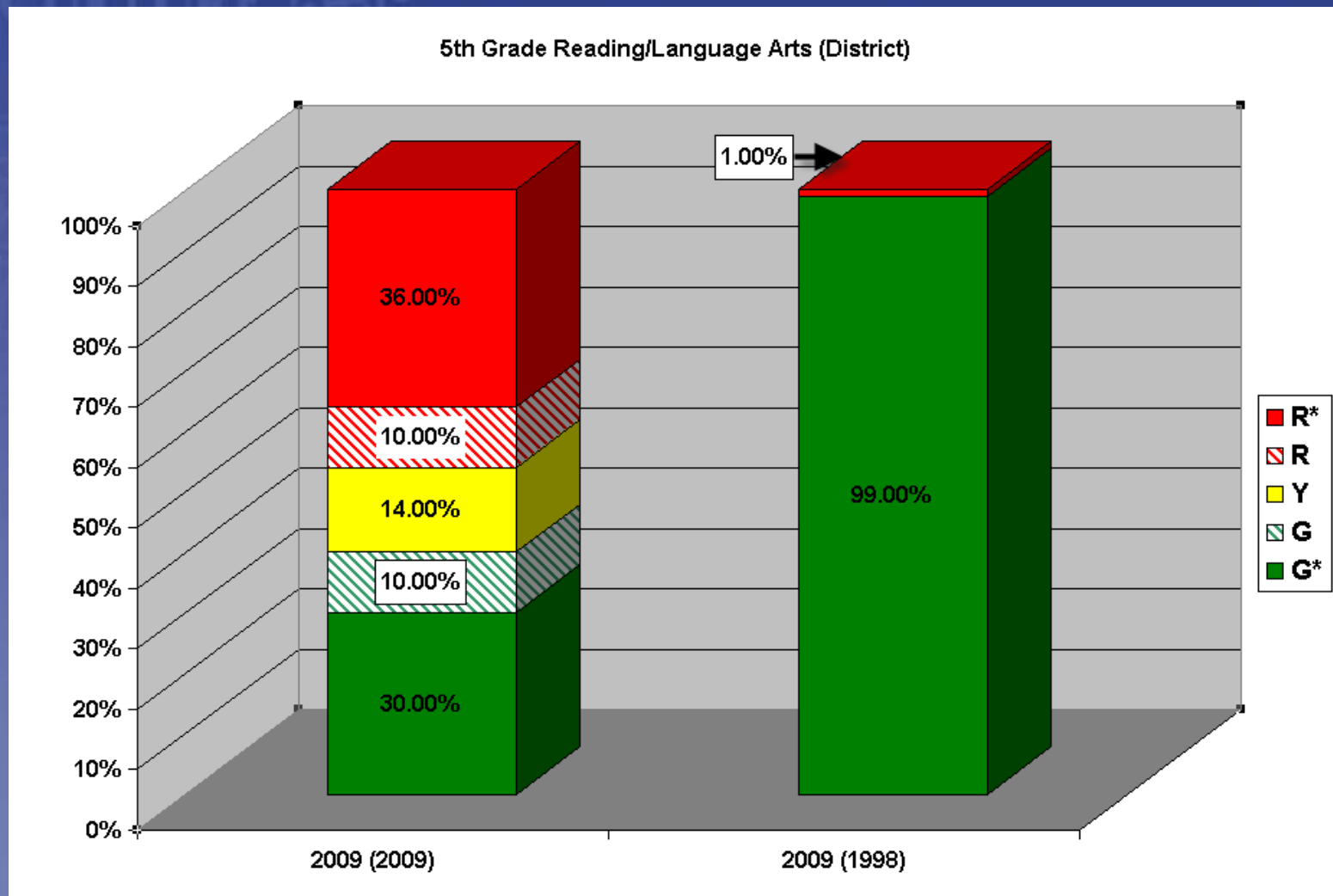


Value-Added Three Year Averages of Schools, 4th Grade Reading



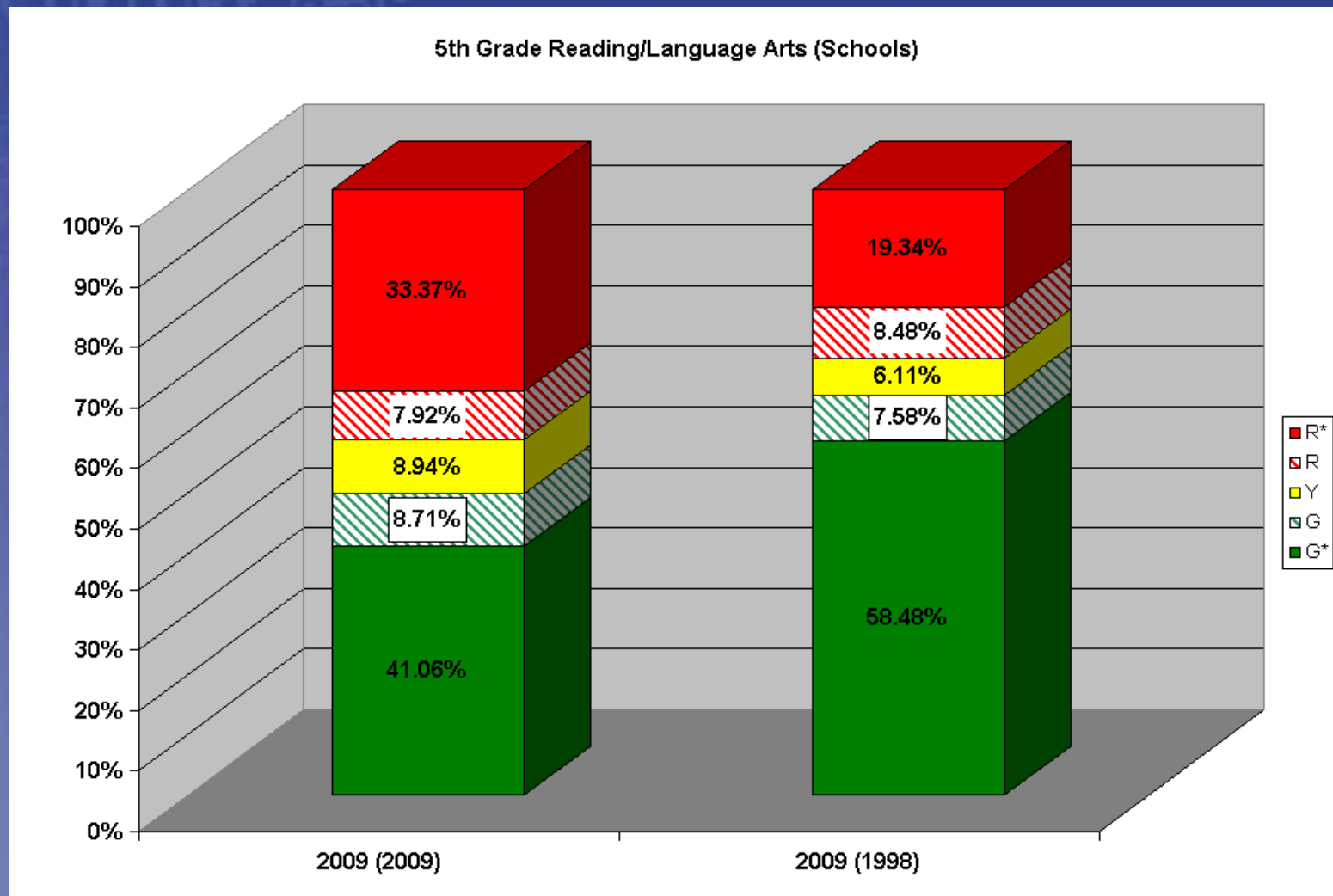


Value-Added Three Year Averages of Districts, 5th Grade Reading



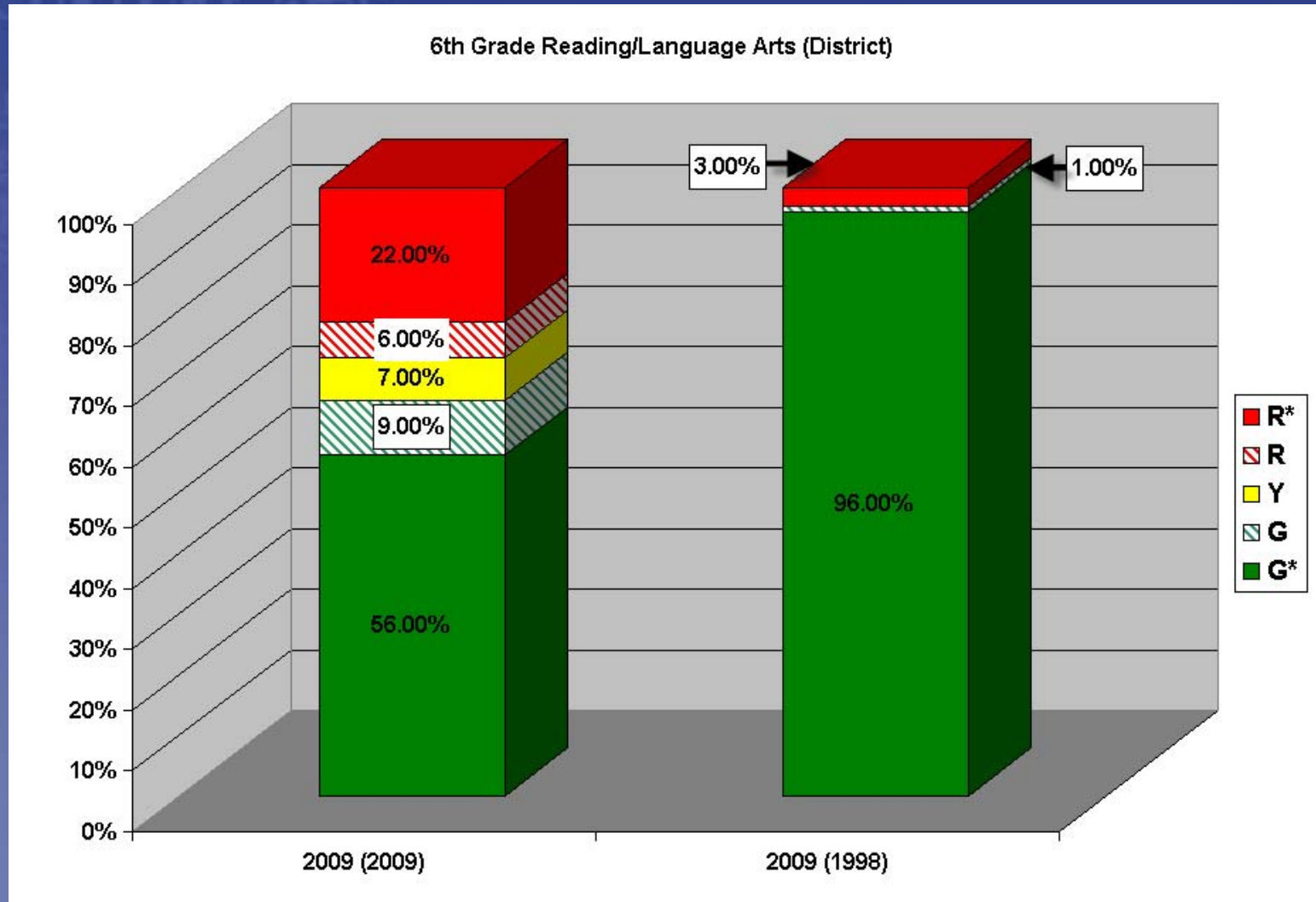


Value-Added Three Year Averages of Schools, 5th Grade Reading





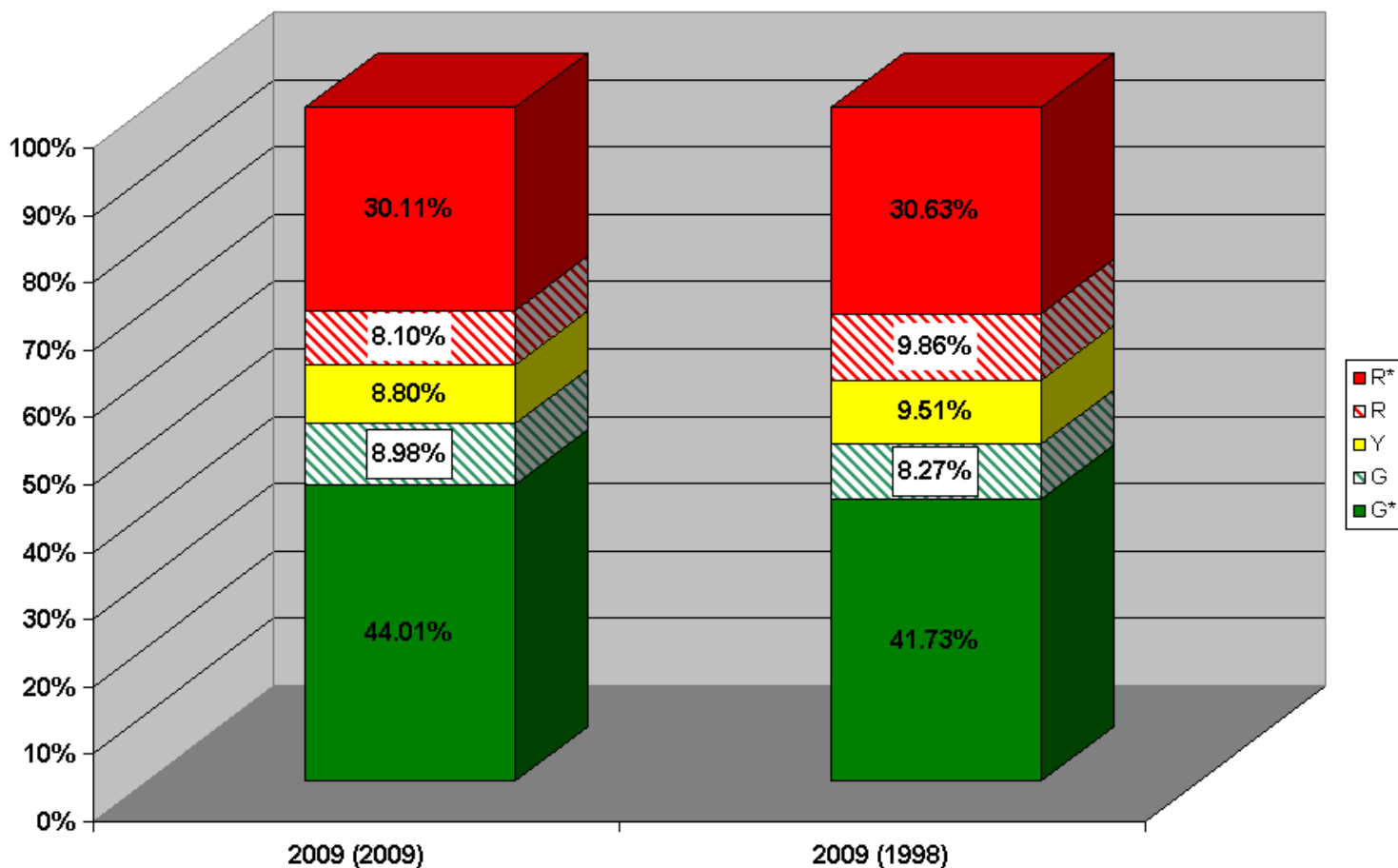
Value-Added Three Year Averages of Districts, 6th Grade Reading





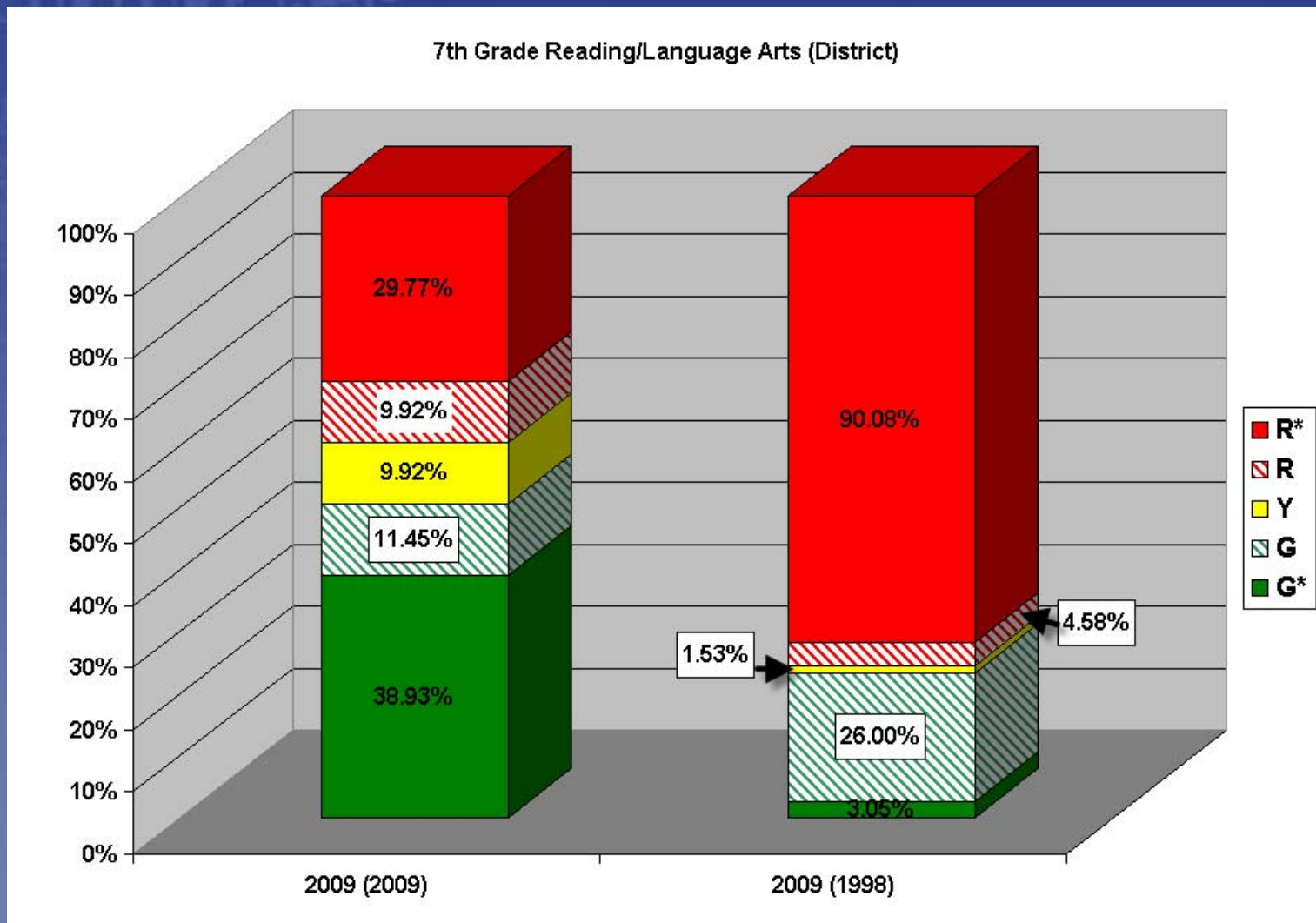
Value-Added Three Year Averages of Schools, 6th Grade Reading

6th Grade Reading/Language Arts (Schools)



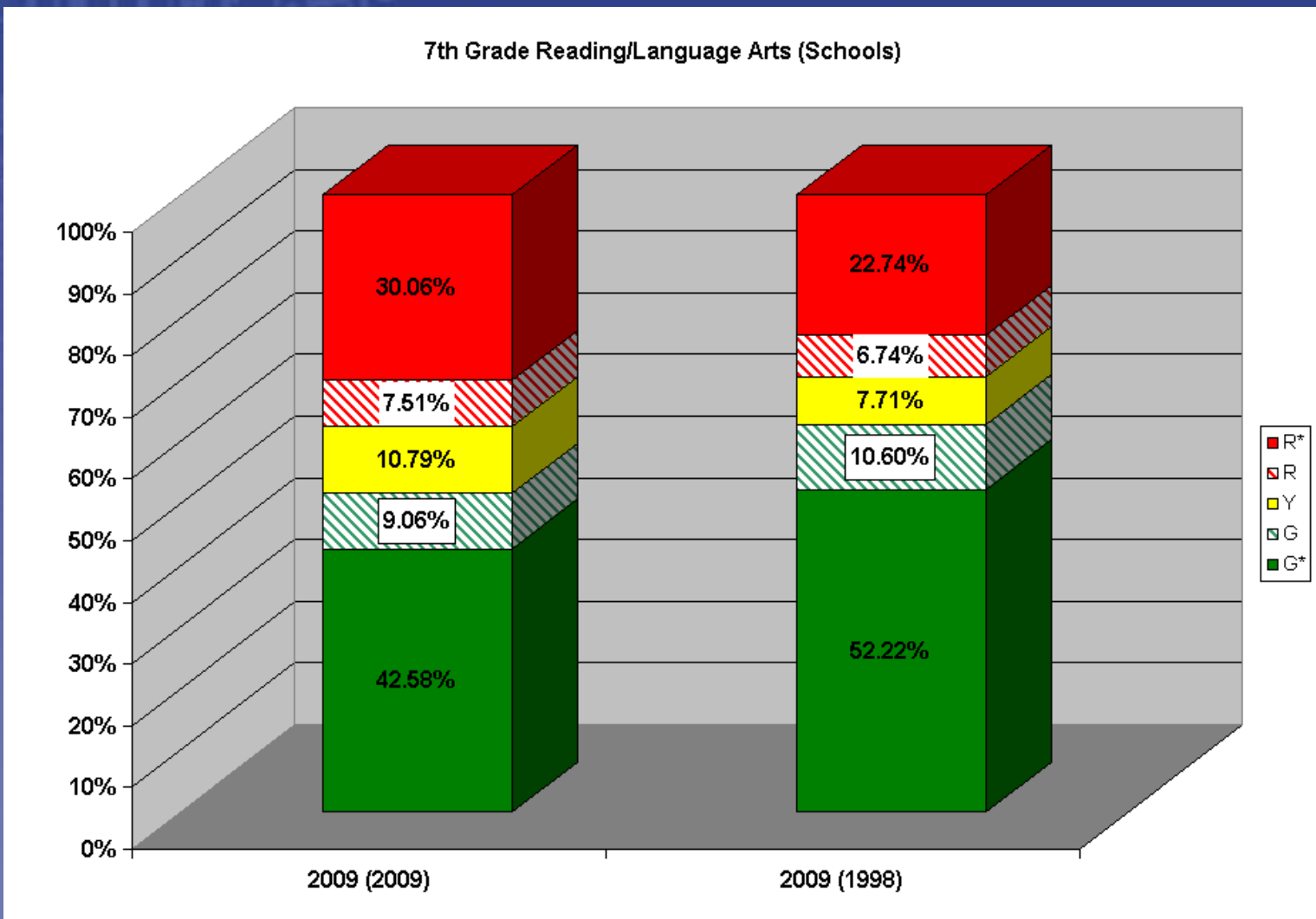


Value-Added Three Year Averages of Districts, 7th Grade Reading



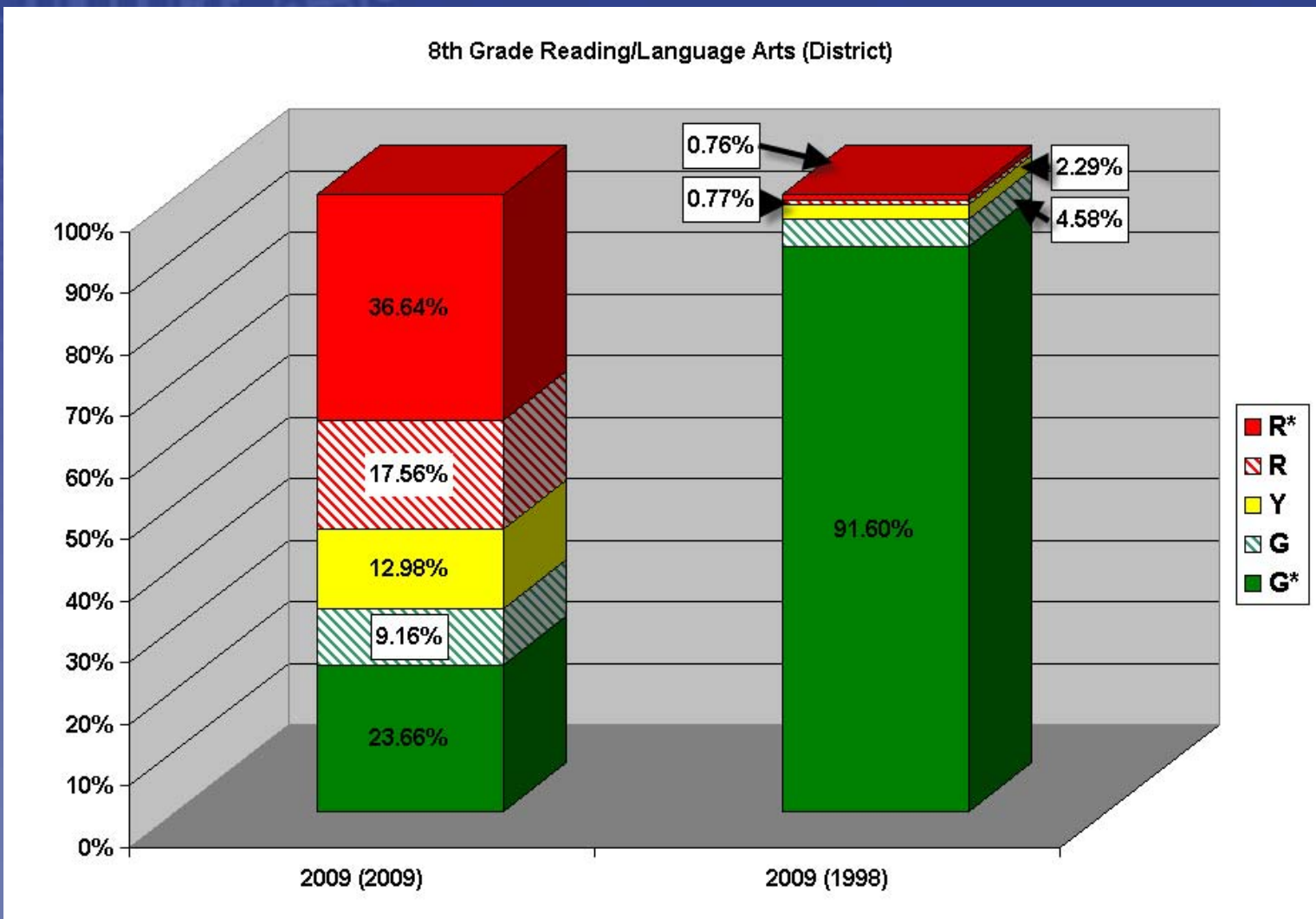


Value-Added Three Year Averages of Schools, 7th Grade Reading



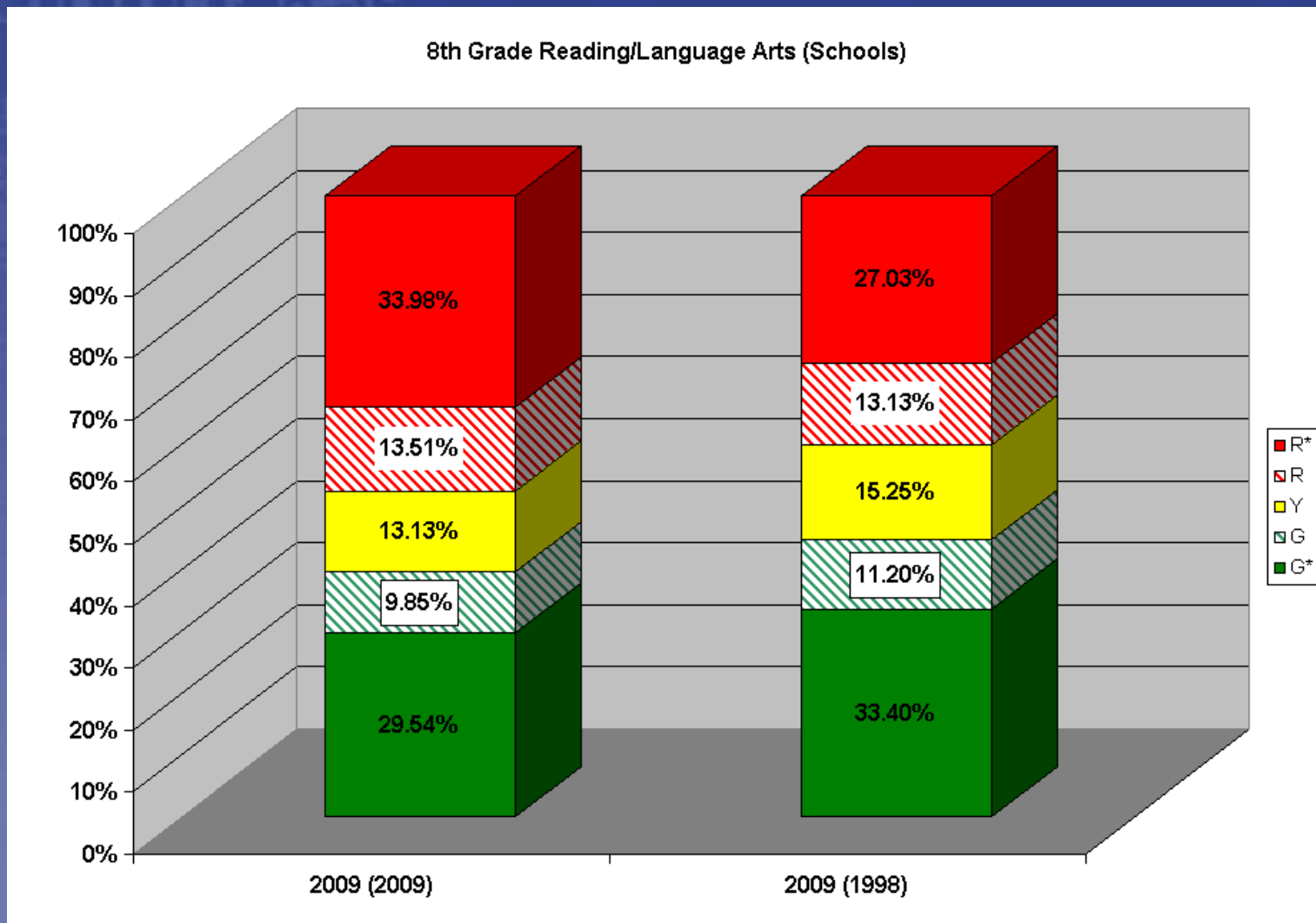


Value-Added Three Year Averages of Districts, 8th Grade Reading





Value-Added Three Year Averages of Schools, 8th Grade Reading



2008 Report Card



TDOE Report Card

Report Card Explained	Report Card Terms	Benchmarks & Documents
Data Explanation	Print Version	Grade Scale

TENNESSEE DEPARTMENT OF EDUCATION
Report Card
2008

STATE WIDE
 Governor: Phil Bredesen
 Commissioner: Dr. Timothy K. Webb

Report Card for 2008 ▾

State System School

- Profile
- NCLB (AYP)
- Achievement
- Value-Added**
- Attendance and Graduation
- Discipline
- Teacher
- Special Education
- Career Technical Education

Academic Growth (Value Added)

Grades K-8 Value Added - Growth Standard ?

(3 year average)* CRT	2007		2008		2008 State
	Status	Mean Gain	Status	Mean Gain	Growth Std
Math	A	1.8	B	0.9	0
Reading/Language	A	2.8	A	2.5	0
Social Studies	A	1.5	A	0.8	0
Science	A	2.2	A	1.4	0

*Reported in state CRT NCE's basis 1998

Report Card Transition 2009: Value Added

DRAFT

Report Card Value Added Comparison		CURRENT	NEW
Grade	Status	Mean Gain Range 2008 Reading/ Language	Mean Gain Range 2009 Reading/ Language
A	Exceptional	> 1.2	>=1.75
B	Exceeds State Growth Standard	0.7 to 1.2	0.5 to 1.74
C	Maintains State Growth Standard	- 0.1 to 0.6	-0.49 to 0.49
D	Below State Growth Standard	-0.6 to -0.2	-2 to -0.50
F	Deficient	< -0.6	< -2.0
Grade	Status	Mean Gain Range 2008 Math	Mean Gain Range 2009 Math
A	Exceptional	>1.5	>=1.75
B	Exceeds State Growth Standard	0.5 to 1.5	0.5 to 1.74
C	Maintains State Growth Standard	-0.5 to 0.4	-0.49 to 0.49
D	Below State Growth Standard	-1.9 to -0.6	-2 to -0.50
F	Deficient	< -1.9	< -2.0
Grade	Status	Mean Gain Range 2008 Science	Mean Gain Range 2009 Science
A	Exceptional	>0.6	>=1.75
B	Exceeds State Growth Standard	-0.2 to 0.6	0.5 to 1.74
C	Maintains State Growth Standard	-1.1 to -0.3	-0.49 to 0.49
D	Below State Growth Standard	-1.9 to -1.2	-2 to -0.50
F	Deficient	< -1.9	< -2.0
Grade	Status	Mean Gain Range 2008 Social Studies	Mean Gain Range 2009 Social Studies
A	Exceptional	>0.4	>=1.75
B	Exceeds State Growth Standard	-0.1 to 0.4	0.5 to 1.74
C	Maintains State Growth Standard	-0.8 to -0.2	-0.49 to 0.49
D	Below State Growth Standard	-1.6 to -0.9	-2 to -0.50
F	Deficient	< -1.6	< -2.0

Report Card Transition 2009: Value Added

DRAFT

Grades K-8 Value Added - Growth Standard

?

(3 year average)*	2009		2009 State
	CRT	Status	Mean Gain
Math	B	0.9	0
Reading/Language	A	2.5	0
Social Studies	A	1.8	0
Science	A	1.9	0

(Note: *Reported in state CRT NCE's basis 2009.) (2008 3 yr-average in state CRT NCE's basis 1998.)

2008 Report Card



TDOE Report Card

Report Card Explained

Report Card Terms

Benchmarks & Documents

Data Explanation

Print Version

Grade Scale

TENNESSEE DEPARTMENT OF EDUCATION

**Report Card
2008**

STATE WIDE

Governor: Phil Bredesen

Commissioner: Dr. Timothy K. Webb

Report Card for 2008

State System School

Profile

NCLB (AYP)

Achievement

Value-Added

Attendance and Graduation

Discipline

Teacher

Special Education

Career Technical Education

Academic Achievement Grades Additional Academic Achievement Data

Academic Achievement Grades

Grades 3-8: TCAP Criterion Referenced Academic Achievement

[View Chart ?](#)

(3 year average) CRT	2006			2007			2008		
	Score	Grade	Trend	Score	Grade	Trend	Score	Grade	Trend
Math	55	B	-	57	A	+	58	A	NC
Reading/Language	53	B	-	56	B	NC	57	A	+
Social Studies	52	C	-	54	B	+	55	B	NC
Science	52	C	-	55	B	+	56	B	NC

(Note: 3-yr average of state CRT NCE's, basis 1998.)

Report Card Transition 2009: Achievement

DRAFT

Report Card Achievement Comparison		CURRENT	NEW
Grade	Status	Achievement 2008 Reading/ Language	Achievement 2009 Reading/ Language
A	Exemplary	57 to 99	≥55
B	Above Average	52 to 56	50 to 54
C	Average	46 to 51	45 to 49
D	Below Average	41 to 45	40 to 44
F	Deficient	0 to 40	≤39
Grade	Status	Achievement 2008 Math	Achievement 2009 Math
A	Exemplary	56 to 99	≥55
B	Above Average	51 to 55	50 to 54
C	Average	46 to 50	45 to 49
D	Below Average	39 to 45	40 to 44
F	Deficient	0 to 38	≤39
Grade	Status	Achievement 2008 Science	Achievement 2009 Science
A	Exemplary	59 to 99	≥55
B	Above Average	54 to 58	50 to 54
C	Average	49 to 53	45 to 49
D	Below Average	42 to 48	40 to 44
F	Deficient	0 to 41	≤39
Grade	Status	Achievement 2008 Social Studies	Achievement 2009 Social Studies
A	Exemplary	60 to 99	≥55
B	Above Average	54 to 59	50 to 54
C	Average	48 to 53	45 to 49
D	Below Average	41 to 47	40 to 44
F	Deficient	0 to 40	≤39

Report Card Transition 2009: Achievement

DRAFT

Grades 3-8: TCAP Criterion Referenced Academic Achievement

?

(3 year average)*

2009

CRT	Score	Grade	Trend
Math	58	A	-
Reading/Language	57	A	-
Social Studies	54	B	-
Science	53	B	-

(Note: 2009 3-yr average of state CRT NCE's, basis 2009.) (2007 and 2008 were based on 3-yr average of state CRT NCE's, basis, 1998)



Summary

- In preparation for implementation of Tennessee's 2010 Curriculum and Assessment Standards, TVAAS reports, previously based on 1998 achievement levels, have been updated to reflect the **current status** of educational **attainment** and student academic **progress** in the state. For 2005-2009, TCAP CRT results were converted to intra-year NCEs. For this reason, previous year gains may differ from those reported in 2008. In subsequent years, scale scores will be converted into state NCEs, **basis 2009**.