Going Vertical: Up, Up, and Away

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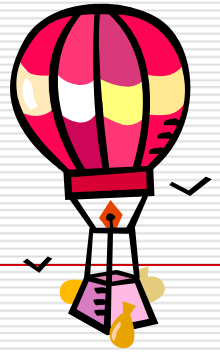
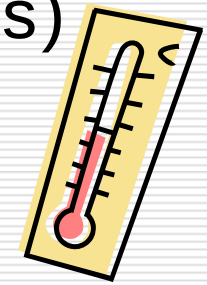
Session Overview



1. Vertical Scale
2. TAKS Performance Standards Review
3. Texas Projection Measure

Scaling

- We use different types of scales everyday
  - Temperature (°F, °C, °K)
  - Time (days, hours, minutes, seconds)
  - Length (m, cm, ft, in)
  - Speed (miles/hr, km/hr)
  - Currency ($, ¢, ¥, £)
  - Etc…



Scaling

- Scaling is the process of associating a system of quantities (numbers) to some characteristic or quality of interest

100°F

Scaling Test Performance

- A raw score is often used as an indicator of a student's performance on a particular test
  - Example: 41 out of 50 (or 82%)
- However, raw scores may have different meaning between two tests if the tests are of different difficulty levels
  - Does "41/50 (82%)" indicate the same level of performance on an easy test vs. a hard test?

Raw Scores - Subtraction

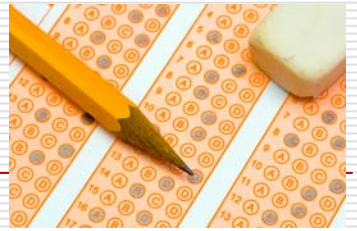
4 Correct

- 13 - 2 =
- 276 - 35 =
- 45 - 23 =
- 894 - 94 =
- 637 - 16 =
- 3,962 – 2,241 =

4 Correct

- 13 - 8 =
- 276 - 39 =
- 45 - 7 =
- 834 - 55 =
- 637 - 140 =
- 3,962 – 2,974 =

Scale Score



- A scale score is a conversion of the raw score onto a “scale” that is common to all test forms for that assessment.
  - The scale score takes into account the difficulty level of the specific set of questions

36/50 → 3750 ← 41/50

Harder Test Form

Easier Test Form

TAKS Horizontal Scale

- For TAKS, the scale scores were defined such that the Met Standard and Commended Performance cuts were always to same scale values across forms and grades
  - Met Standard = 2100
  - Commended Performance = 2400
- This is known as a horizontal scale

Horizontal Scales

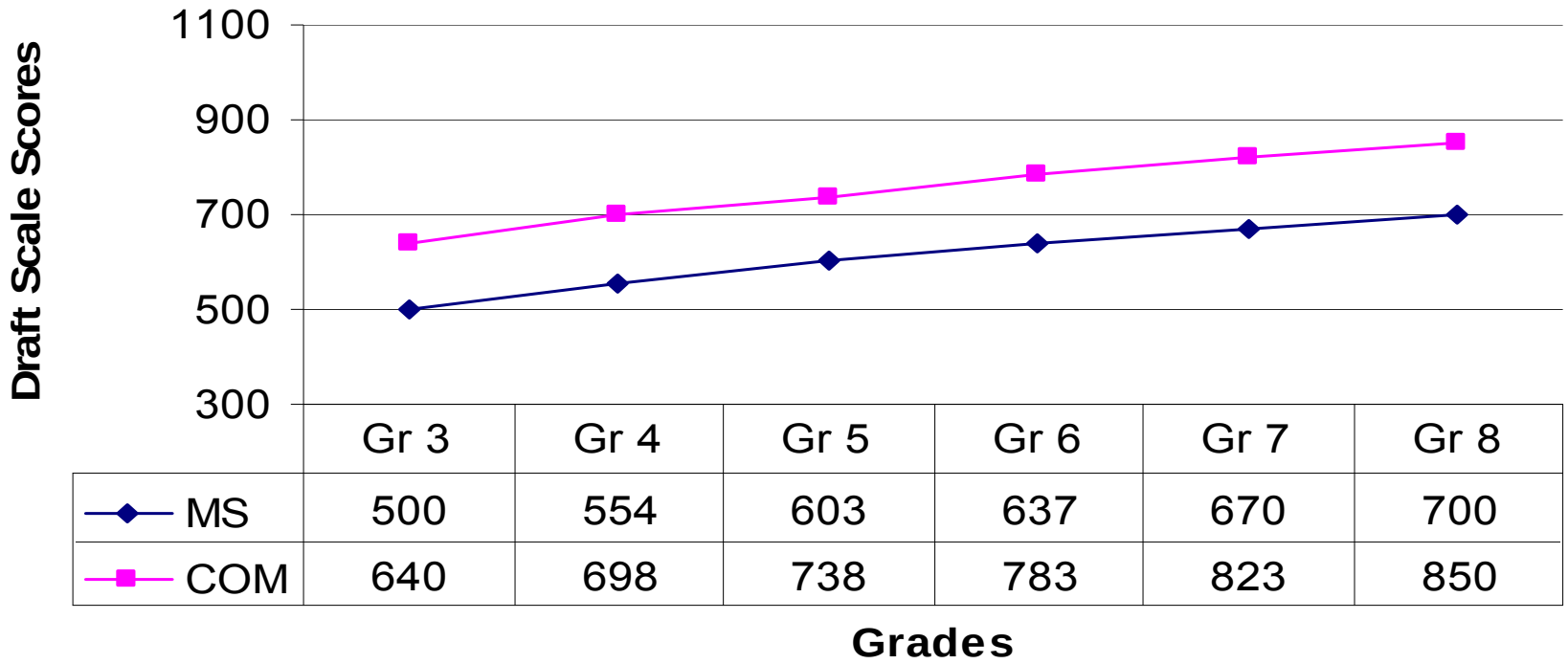
- Limitations of horizontal scales
  - Scale scores across test forms can be compared within a grade, but not across grades for a subject
  - Performance standards (i.e. Met Standard and Commended) cannot be numerically compared across grade levels
    - Example: 2100 in Grade 5 ≠ 2100 in Grade 6
  - It is difficult to evaluate individual student progress from grade-to-grade

TAKS Vertical Scale

- A vertical scale allows scores to be compared across grade levels for a subject
  - Useful for tracking a student's progress in performance across years
  - Performance standards (i.e. Met Standard and Commended) can be numerically compared across grade levels

Recommended Performance Standards on Vertical Scale

TAKS English Mathematics



	Gr 3	Gr 4	Gr 5	Gr 6	Gr 7	Gr 8
MS	500	554	603	637	670	700
COM	640	698	738	783	823	850

Vertical Scales

Common Misunderstanding

- Suppose…
  - A 5th grader gets a 3720 on the grade 5 test
  - The Met Standard cut at grade 7 is 3667
- Does that mean…
  - This 5th grader has already Met the Standard at grade 7?

NO!

Vertical Scales
Common Misunderstanding

- Why not?
  - The 5th graders score of 3720 is based on his knowledge and skills of 5th grade curriculum
  - The Met Standard cut of 3667 for grade 7 was set on the specific PLDs and curriculum at 7th grade
  - Even on a vertical scale, <u>scores</u> obtained in one grade cannot be directly measured against <u>standards</u> in another grade

Why Texas Created a Vertical Scale?

- Section 39.036 of Senate Bill 1031
- Required TEA to develop a vertical scale for assessing student performance on the TAKS assessments
- Reading and mathematics
  - English grades 3-8
  - Spanish grades 3-6

Score Range of Vertical Scale

- Potential score range from approximately 0 to 1000
- Vertical scale scores in grades 3-6 will be preceded by an “E” or an “S” to indicate language
  - Grade 4 mathematics examples
    - E-562
    - S-585

Old Scale vs. New Scale

Old Scale

- Range 1200-3300 for each grade
- Cannot subtract scores across grades to evaluate progress
- Cutscores for performance levels
  - 2100 Met Standard
  - 2400 Commended Performance

New Scale

- Range 0-1000 across grades 3-8
- Can subtract scores across grades to evaluate progress
- Cutscores for performance levels

Grade	Met Standard	Commended Performance
3	500	640
4	554	698
5	603	738
6	637	783
7	670	823
8	700	850

Which TAKS Will NOT Have a Vertical Scale?

- Writing
- Science
- Social Studies
- High School Assessments
- End-of-Course Assessments

What about TAKS (Accommodated) TELPAS, Alternate Assessments, and EOC Assessments

- TAKS (Accommodated) will be reported on the same vertical scale as TAKS
- TELPAS will be reported on a vertical scale with score range from approximately 0-1000
- TEA is considering a vertical scale for TAKS-M
- No plans currently in place for a vertical scale for TAKS-Alt or EOC assessments

Spring 2009 Reporting Changes

- Same basic reporting information as past years
  - Old scale with 2100 as Met and 2400 as Commended Performance
  - Same graph on Confidential Student Report (CSR)
- New Information
  - Vertical scores added near Lexile/Quantile scores
  - Data file
    - Vertical scale scores for 2009
    - Vertical scale scores for 2008 (converted)
  - Parent brochure explaining new information
  - Blackline master

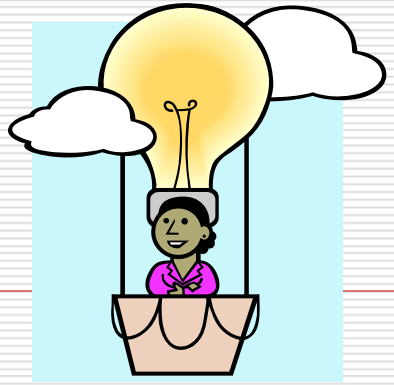
Interpretation Hints

- Compare student scores on old scale to 2100 and 2400
- Compare vertical scale score to the cut point indicating Met Standard and Commended Performance

GRADE	MET STANDARD	COMMENDED PERFORMANCE
3	500	640
4	554	698
5	603	738
6	637	783
7	670	823
8	700	850

Interpretation Hints

- Subtract 2008 vertical scale score from 2009 vertical scale score (in data file)
- Subtract 2008 Met Standard vertical scale score from 2009 Met Standard vertical scale score for the same grades as a comparison of what is expected



An Example in Mathematics

DESCRIPTION	SCORE
2009 Vertical Scale Score for Grade 6 Student	650
2009 Vertical Scale Score for Met Standard	637
2008 Vertical Scale Score For Student in Grade 5	580
2008 Vertical Scale Score for Met Standard	603
2009 Met Standard – 2008 Met Standard	637-603=34
2009 Student Gr. 6 Score – 2008 Student Gr. 5 Score	650-580=70

TAKS Standards Review

- Performance standards are the cut points that separate the performance levels
  - Did Not Meet Standard
  - Met the Standard
  - Commended Performance
- The TAKS performance standards for most grades and subjects were set initially in 2002

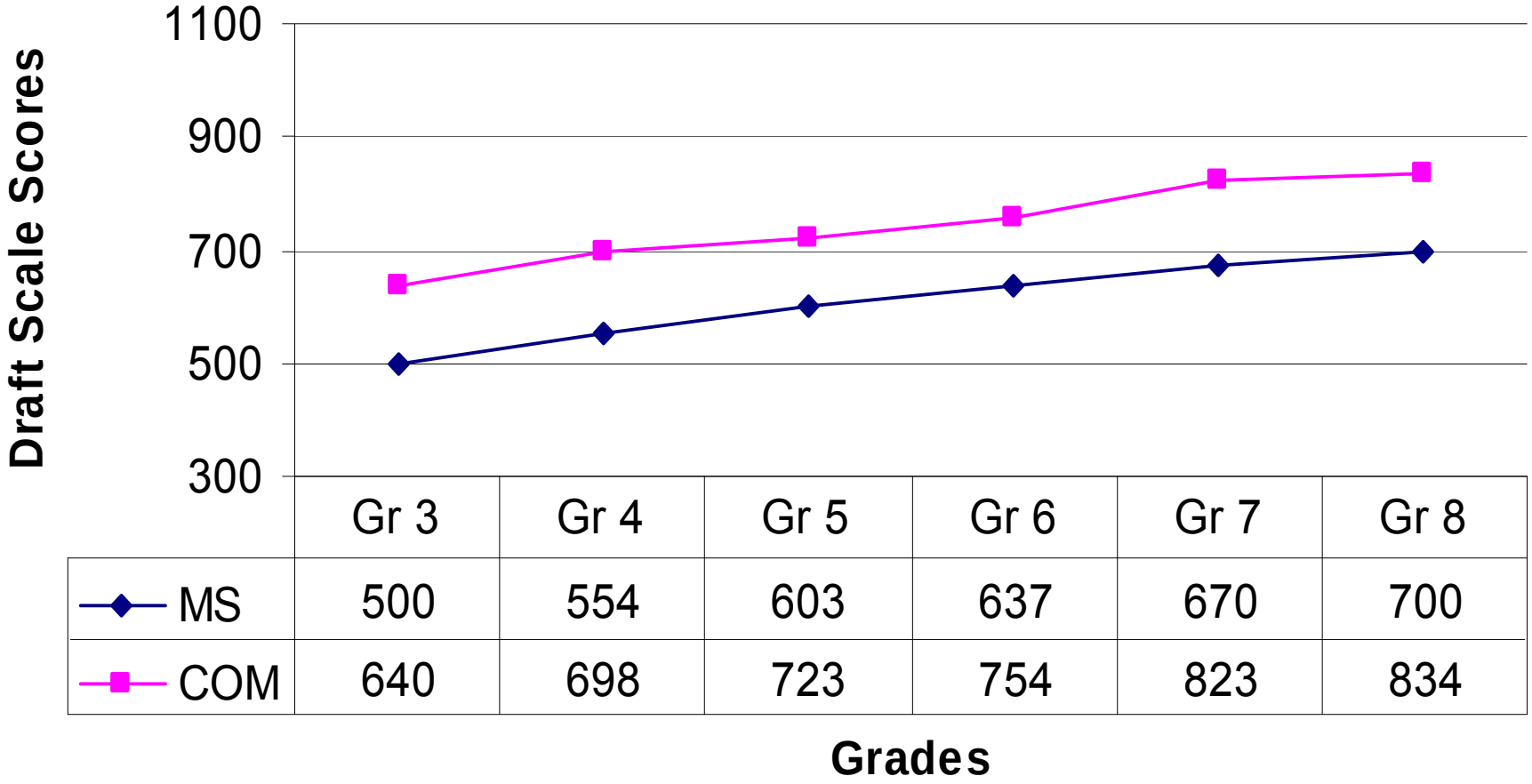
TAKS Standards Review

- Once the performance standards were put on the vertical scale, the progression of student expectations over grades could be compared
- A standards review was needed to determine if the performance standards across grade levels still made sense

Fall 2008 Panel Meetings

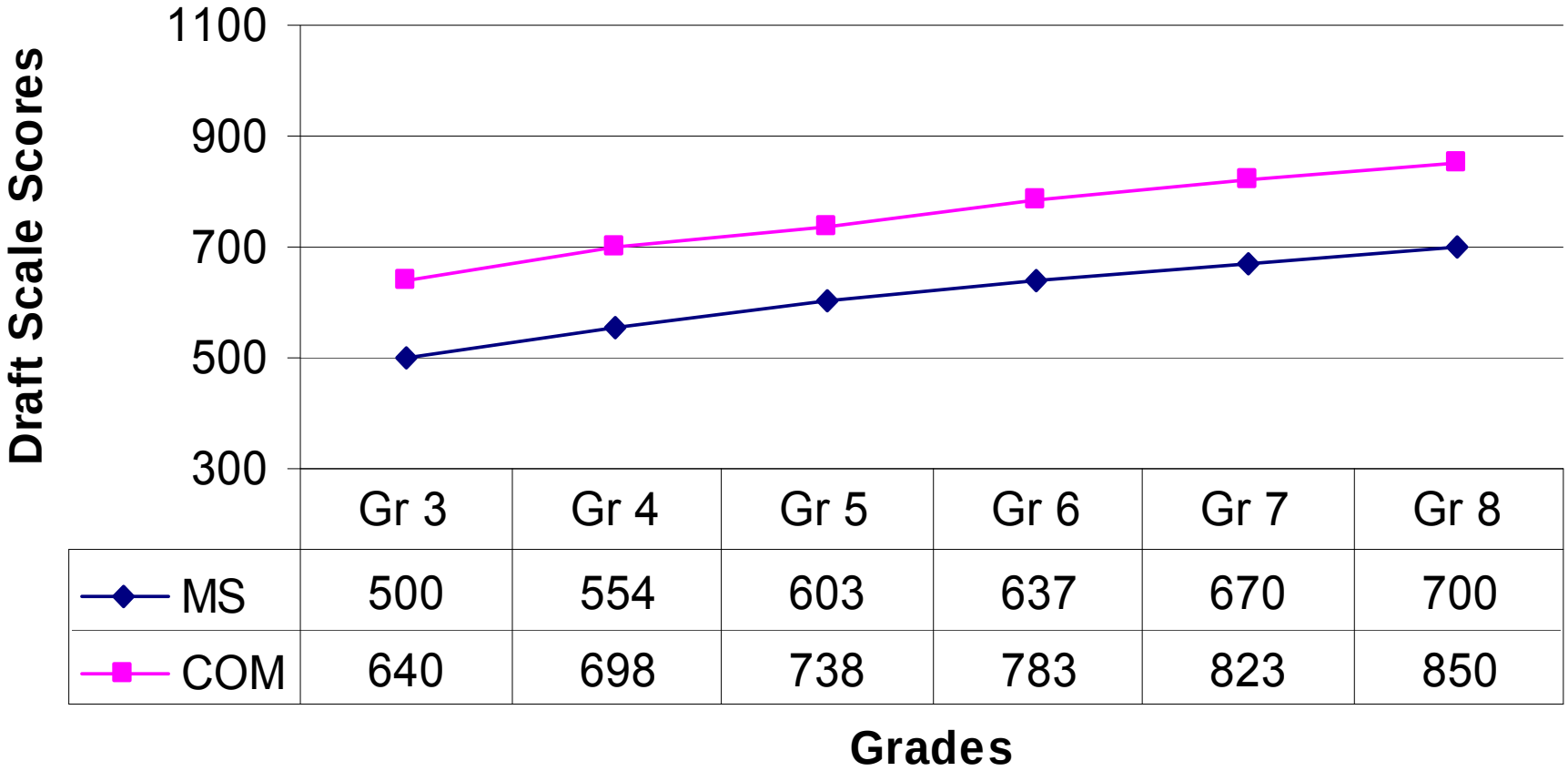
- 4 panels (113 Panelists)
  - English Mathematics (39 Panelists)
  - English Reading (35 Panelists)
  - Spanish Mathematics (24 Panelists)
  - Spanish Reading (15 Panelists)
- Panelists selected from educational organization nominations, SBOE member nominations, and the educator database
- Panels selected to balance factors such as gender, ethnicity, geographic representation, experience, and grade level taught

TAKS English Mathematics Performance Standards
Original Panel Recommended



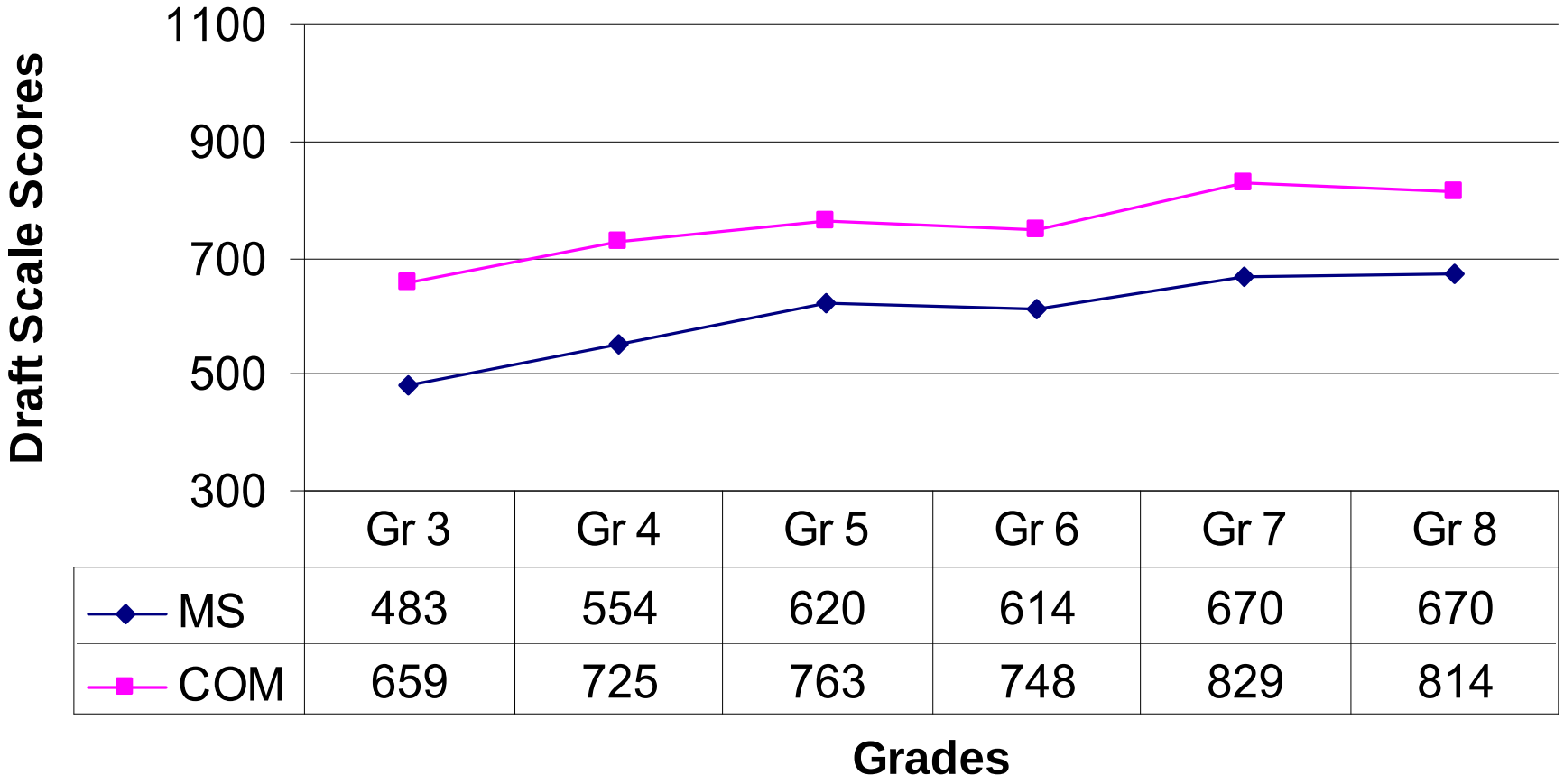
	Gr 3	Gr 4	Gr 5	Gr 6	Gr 7	Gr 8
MS	500	554	603	637	670	700
COM	640	698	723	754	823	834

TAKS English Mathematics Performance Standards Review Panel Recommended



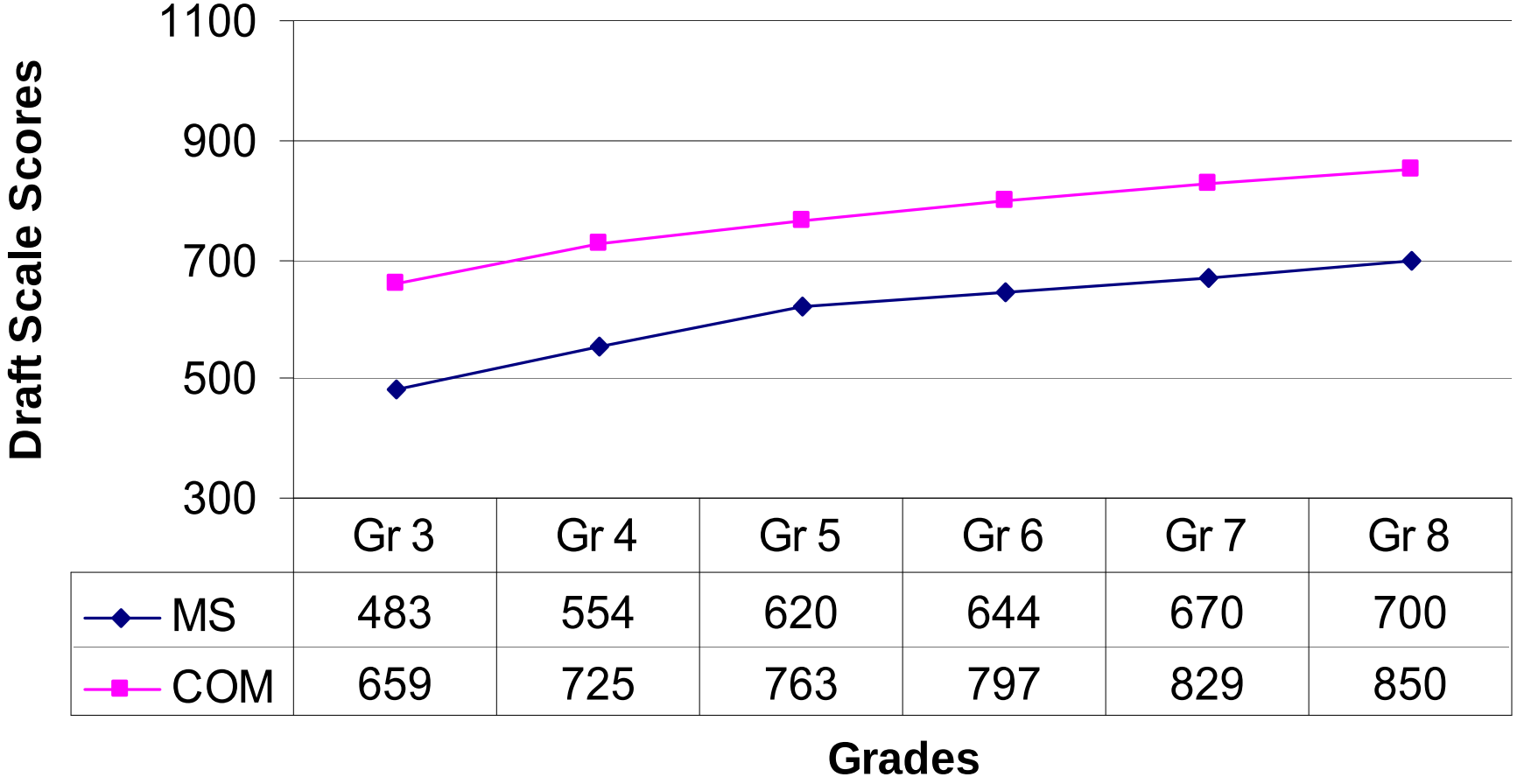
	Gr 3	Gr 4	Gr 5	Gr 6	Gr 7	Gr 8
MS	500	554	603	637	670	700
COM	640	698	738	783	823	850

TAKS English Reading Performance Standards
Original Panel Recommended



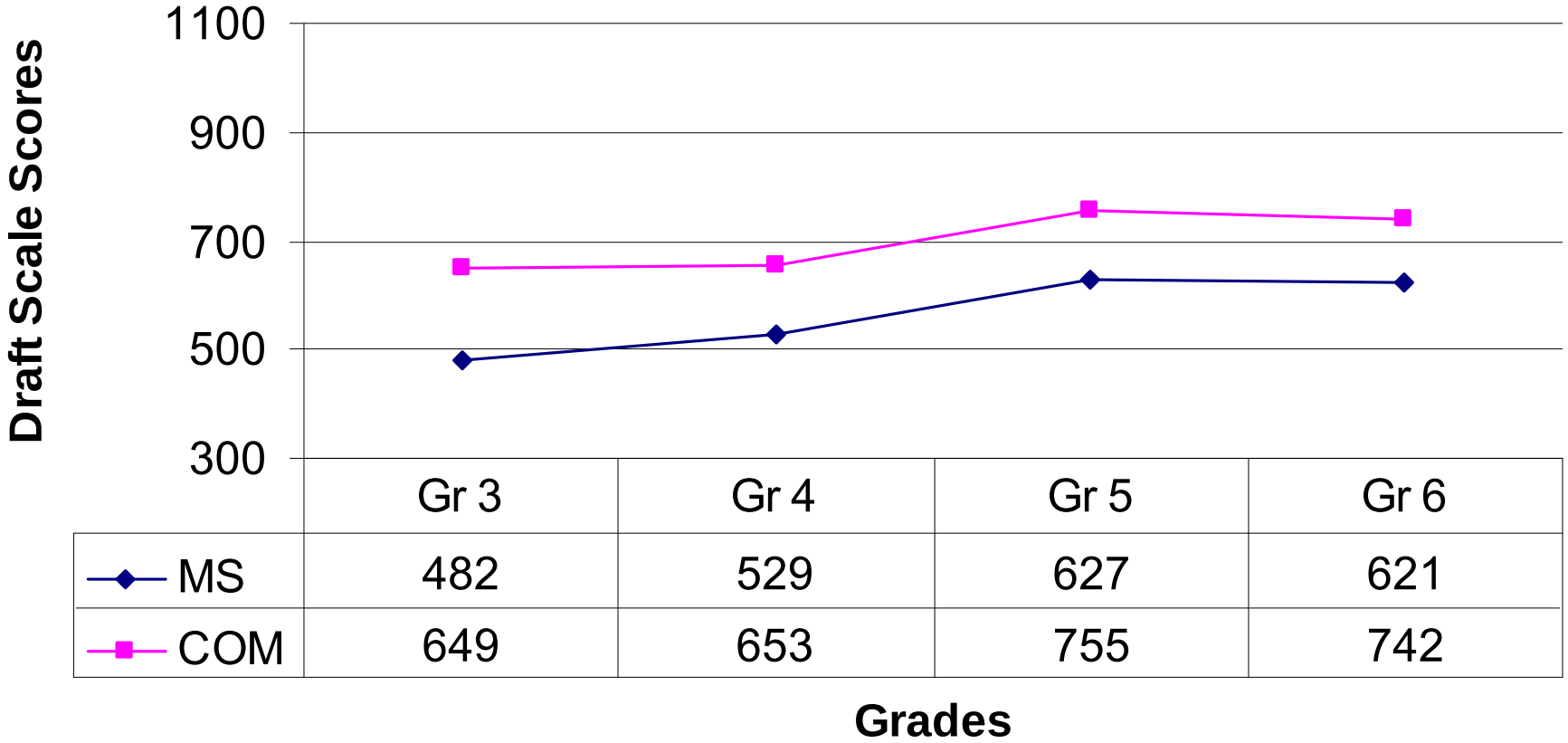
	Gr 3	Gr 4	Gr 5	Gr 6	Gr 7	Gr 8
MS	483	554	620	614	670	670
COM	659	725	763	748	829	814

TAKS English Reading Performance Standards
Review Panel Recommended



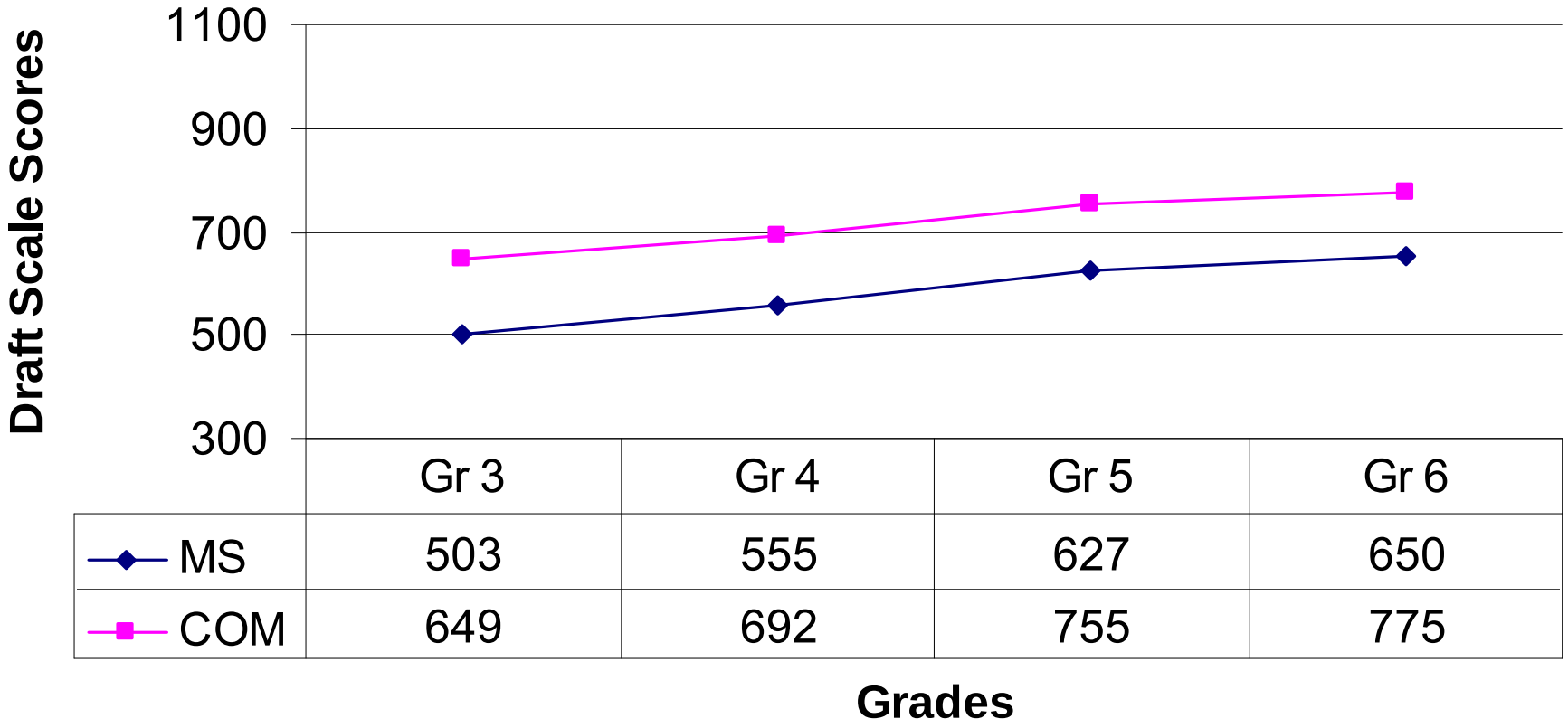
	Gr 3	Gr 4	Gr 5	Gr 6	Gr 7	Gr 8
MS	483	554	620	644	670	700
COM	659	725	763	797	829	850

TAKS Spanish Mathematics Performance Standards
Original Panel Recommended



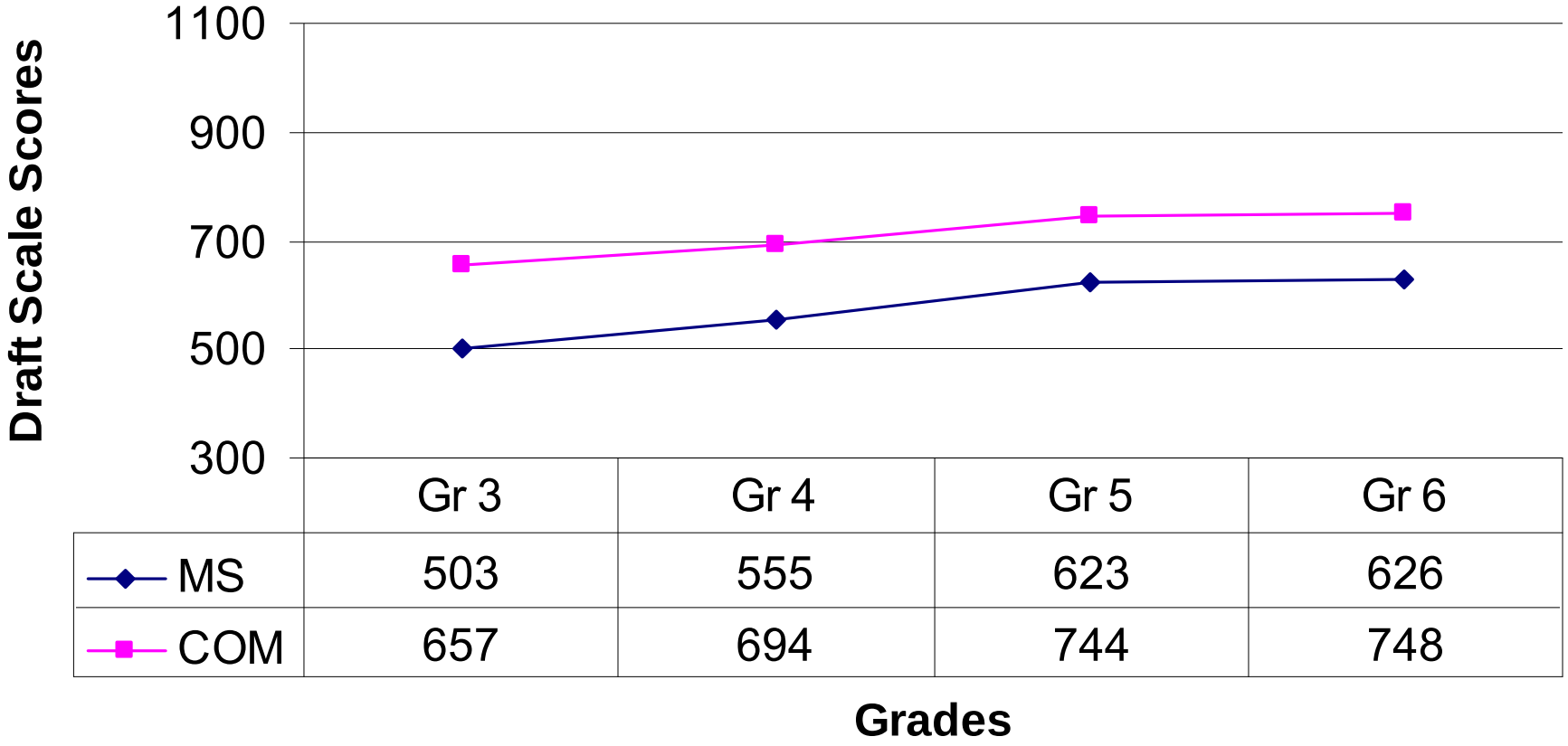
	Gr 3	Gr 4	Gr 5	Gr 6
MS	482	529	627	621
COM	649	653	755	742

TAKS Spanish Mathematics Performance Standards
Review Panel Recommended



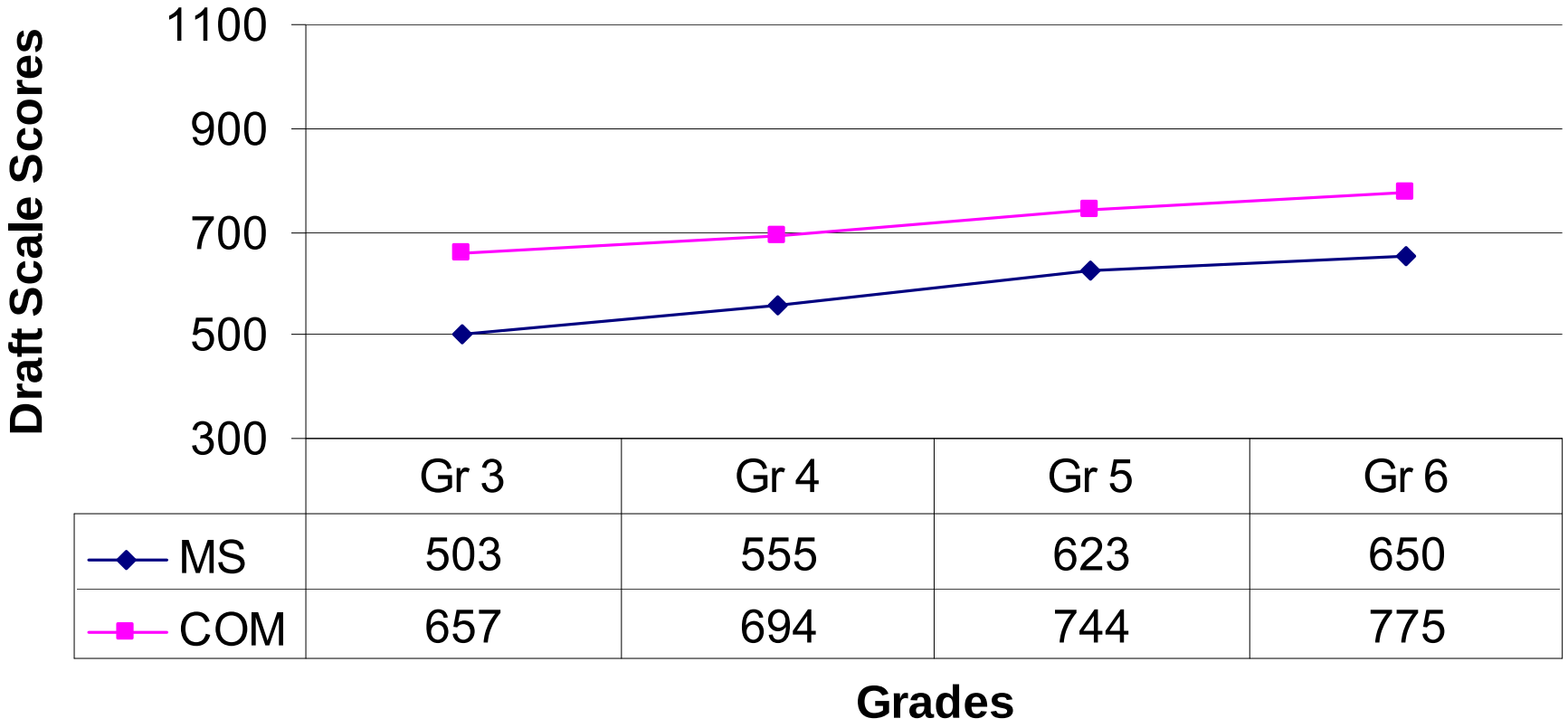
	Gr 3	Gr 4	Gr 5	Gr 6
MS	503	555	627	650
COM	649	692	755	775

TAKS Spanish Reading Performance Standards
Original Panel Recommended



	Gr 3	Gr 4	Gr 5	Gr 6
MS	503	555	623	626
COM	657	694	744	748

TAKS Spanish Reading Performance Standards
Review Panel Recommended



	Gr 3	Gr 4	Gr 5	Gr 6
MS	503	555	623	650
COM	657	694	744	775

Why the Texas Projection Measure (TPM)?

- House Bill 1
  - TEA to measure annual improvement in student achievement
  - Use a student's previous years' performance data to define expected improvement
  - The agency is required to report the measure to districts
  - Districts are required to report results to teachers who taught the student in the subject assessed and to parents
  - To the extent practicable, TEA needed to combine these reports with other reports
  - Implement 2007-2008 school year

Why the Texas Projection Measure (TPM)?

- Senate Bill 1031
  - Extended requirements to end-of-course assessments
  - Each year, the report must state whether the student fell below, met, or exceeded the necessary target for improvement
  - Vertical scale
    - TAKS reading and math grades 3-8

What is the Texas Projection Measure (TPM)?

- Applied to TAKS, TAKS (Accommodated), and linguistically accommodated versions of TAKS
- A multi-level regression-based projection model
- Projects student performance separately for each subject in the next high-stakes grade (defined by the Texas legislation as grades 5, 8, and 11)

What is the Texas Projection Measure (TPM)?

Current Grade	Projection Grade
3	5
4	5*
5	8
6	8
7	8
8	11
9	11
10	11
11	N/A

Note. Grade 4 writing is projected to grade 7 writing.

What is the Texas Projection Measure (TPM)?

- Uses three predictors for reading and mathematics projections
  - students' current year scale score in reading
  - students' current year scale score in mathematics
  - average campus scale score in projection subject (i.e., reading for reading and mathematics for mathematics)
- For science, social studies, and writing, add student scale score for that subject, for a total of four predictors

Example: Grade 6 to 8 Reading

		Student Scores				
		0.4770	0.2511	0.0784		
	INTERCEPT	Reading Vertical SS	Math Vertical SS	Campus Vert. SS Reading	PROJECTION	Met TPM?
1	225.28	640	640	640	741	Y
2	225.28	775	775	775	850	Y
3	225.28	600	600	600	709	Y
4	225.28	650	550	650	724	Y
5	225.28	650	550	550	717	Y
6	225.28	550	550	550	669	N
7	225.28	550	640	550	691	N
8	225.28	550	550	700	681	N

Note. SS=scale score; Grade 8: Met Standard (Reading)=700, Commended Performance (Reading)= 850; Grade 6: Met Standard (Reading)=644, Commended Performance (Reading)= 797, Met Standard (Math)=637, Commended Performance (Math)=783

Example: Grade 10 to 11 Science

		Student Scores					
		0.405	0.0825	0.2238	0.0279		
	INTERCEPT	Science SS	Reading SS	Math SS	Campus SS Sci	PROJECTION	Met TPM?
1	608.16	2200	2200	2200	2200	2234	Y
2	608.16	1900	1900	1900	1900	2013	N
3	608.16	2200	1900	1900	2200	2142	Y
4	608.16	1900	2200	2200	1900	2104	Y
5	608.16	1900	2200	1900	1900	2037	N
6	608.16	1900	1900	2200	1900	2080	N
7	608.16	1900	1900	1900	2200	2021	N
8	608.16	2100	1900	1900	2000	2096	N

Note. SS=scale score, Met Standard Cut Point=2100, Commended Performance Cut Point=2400

What is the Texas Projection Measure (TPM)?

- Equations
  - Developed the year before they are applied
  - Shared across the state
  - Updated annually
  - Different for English and Spanish versions
- Potentially used for 2009 AYP reporting
- Can only improve AYP ratings

Choice of Predictors

- The decision to use only current year scores in the projection equations was made to
  - balance transparency and validity
  - maintain current reporting timelines
  - maximize the numbers of students that will receive projections

TAKS-M and TAKS-Alt

- Same approach for TAKS-M
- Need data to determine equations, so phasing in TPM starting in 2010
- For TAKS-Alternate (TAKS-Alt), Texas will implement a transition table approach
  - Subdivide performance levels
  - Same expectations as for TAKS
  - Progress across subdivisions described

Estimated Impact on AYP

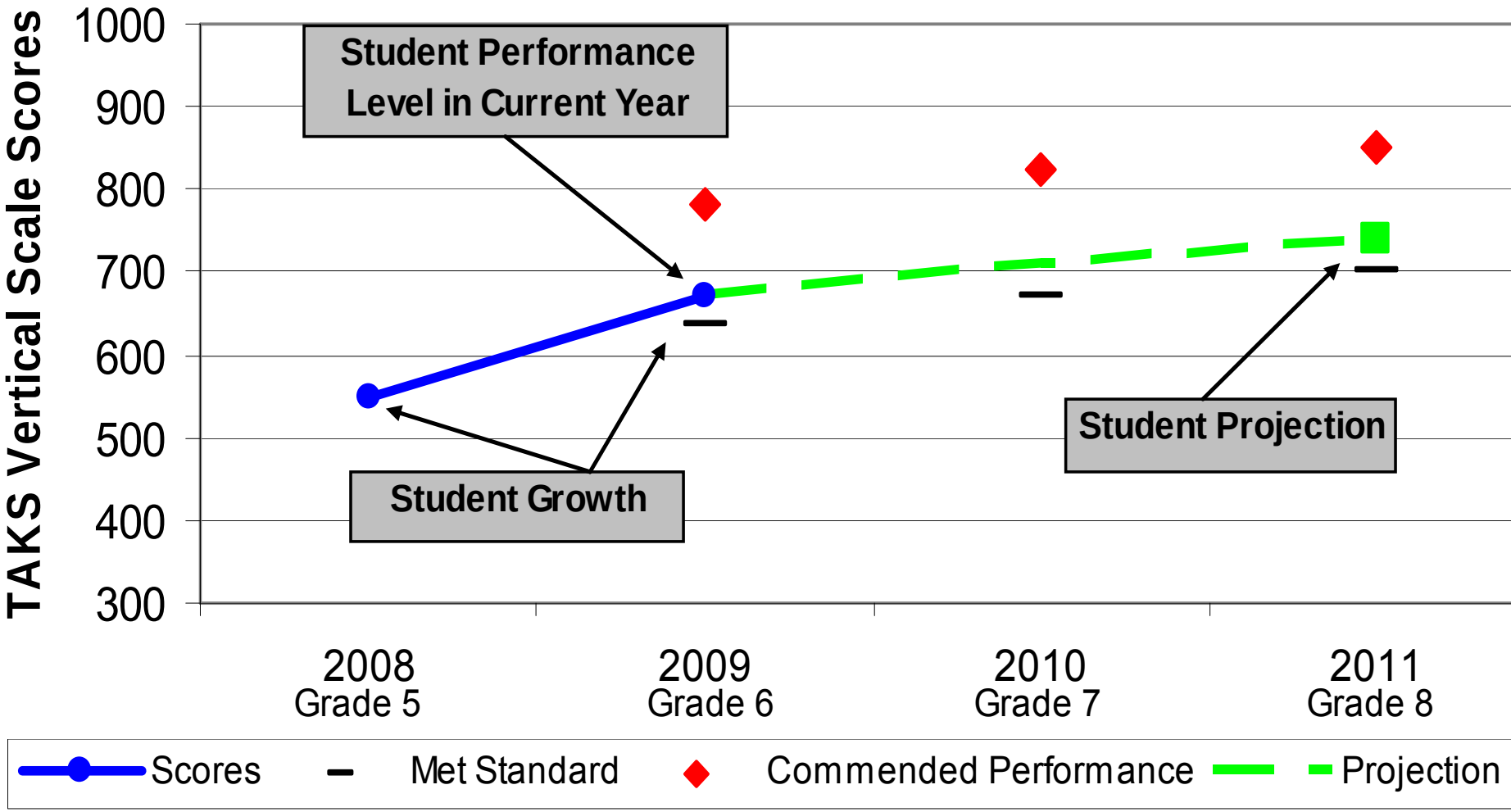
- Projections* for all students in 2008
- Recalculation of 2008 AYP
- Results
  - Without including the proposed projection measure
    - 66% of districts met AYP in 2008
    - 75% of campuses met AYP in 2008
  - With proposed projection measure
    - 77% of districts met AYP in 2008
    - 80% of campuses met AYP in 2008
    - 136 districts (11%) would have met due to TPM
    - 411 campuses (5%) would have met due to TPM

Note. *These estimates were made using a previous version of the TPM with four predictors.

How do the TPM and Vertical Scale Differ?

- Vertical scale allows an evaluation of past progress
- TPM projects to future
- TPM not limited to grades and subjects with a vertical scale
- More comprehensive information
  1. Current status
  2. Vertical scale score changes
  3. Projection

Mathematics Growth and Projection
Example for Student in Grade 6



Reporting Spring 2009

- On Confidential Student Report
  - Indicator (yes/no) about whether student projected to meet the standard in the next high stakes grade

For reading/ELA and math
- Grades 3 and 4 to 5
- Grades 5, 6, and 7 to 8
- Grades 8, 9 and 10 to 11

For science
- Grade 5 to 8
- Grade 8 to 11 (2010)
- Grade 10 to 11

For social studies
- Grades 8 and 10 to 11

For writing
- Grade 4 to 7

Reporting Spring 2009

- Projection indicator reported for
  - April administration 5 & 8 mathematics
  - April administration 3-11 reading and mathematics
  - May administration 5 & 8 mathematics retests
- Projections used in AYP final for April 3-11 administration except for grades 5 & 8
- For grades 5 & 8, any student retesting will have projections recalculated for all subjects

Current Plans for Reporting Summer 2009

- Online reports
- Student level
  - 2008 vertical scale score
  - 2009 vertical scale score
  - Projection
  - Graph summarizing information
- Summary reports at the campus, district, region, and statewide levels
  - Number and percent Met Standard
  - Number and percent Met TPM
  - Number and percent Met Standard OR Met TPM

More Information

- Final USDE proposal on TEA website under What's New
- Parent brochure with reports
- Q and A (black line master)
- FAQ
- Equations and practice spreadsheets
- Step-by-Step

We are working as fast as we can to get information to you!

Thank You!

Questions?