

Measuring growth in student performance on MCAS:

The growth model

Overview

- What is growth? Why are we doing this?
- How do we measure growth for students and groups?
- What have we learned so far?
- What will be available this fall?



What is growth?

- MCAS shows how each student is achieving relative to state standards
 - Is John proficient in 6th grade mathematics?
 - Cannot compare John's scaled scores from year to year
- Growth measures change in an individual student's performance over time
 - How much did John improve in mathematics from 5th grade to 6th grade?
 - Did John improve more or less than his academic peers?



Why measure growth?

- A way to measure progress for students at all performance levels
 - A student can achieve at a low level but still improve relative to his academic peers
 - Another could achieve well but not improve much from year to year
- Provides evidence of improvement even among those with low achievement
- Gives high achieving students and schools something to strive for beyond proficiency



Uses of growth data

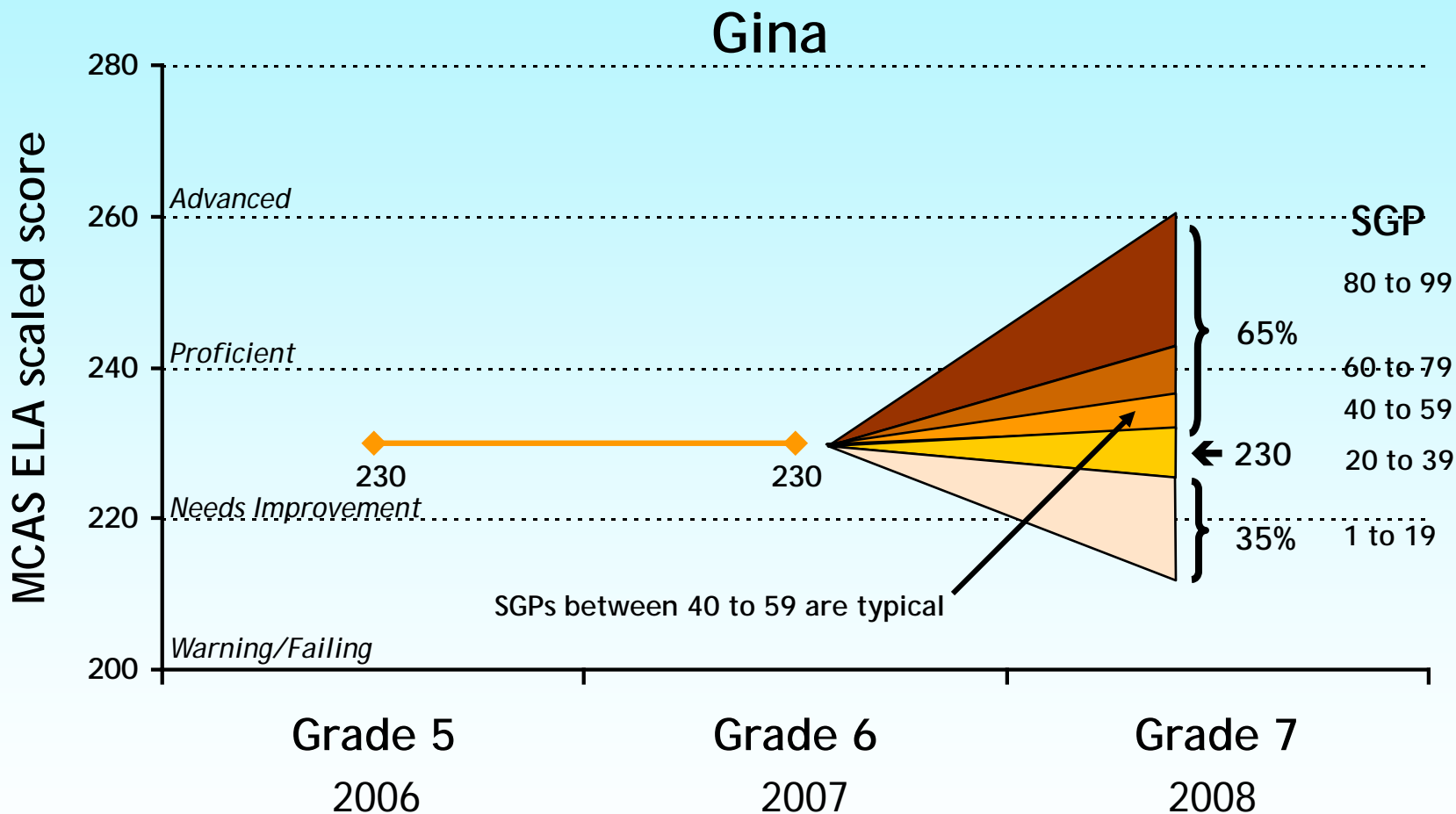
- Reconceptualizing performance
Performance = achievement + growth
- Identifying strengths and weaknesses in student performance beyond traditional achievement data
- Targeting assistance
- Conducting program evaluations
- Eventually, making accountability decisions



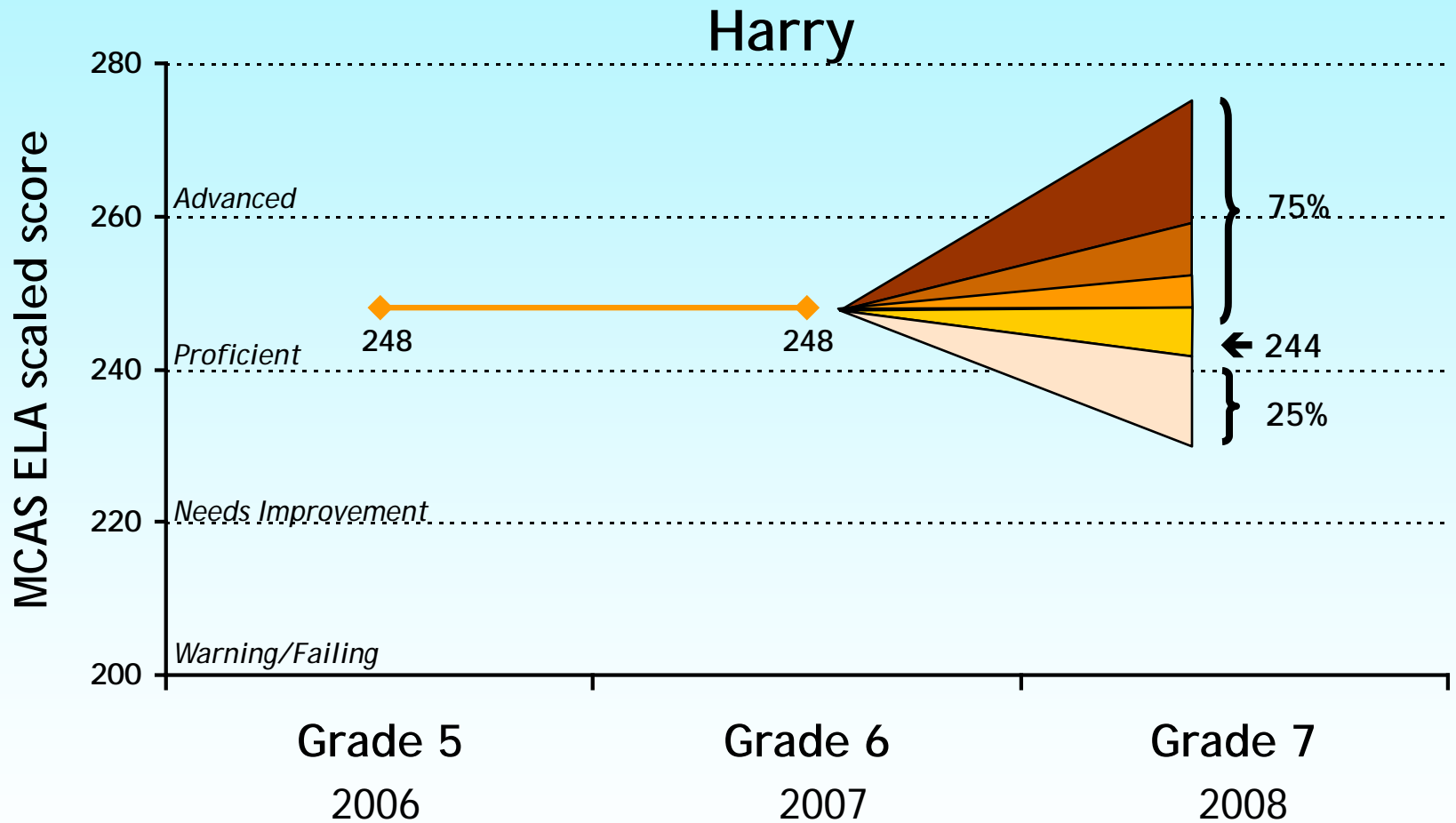
Student growth percentiles

- Each student's rate of change is compared to other students with a similar test score history ("academic peers")
- The rate of change is expressed as a percentile.
 - How much did John improve in mathematics from 5th grade to 6th grade, relative to his academic peers?
 - If John improved more than 65 percent of his academic peers, then his student growth percentile would be 65.

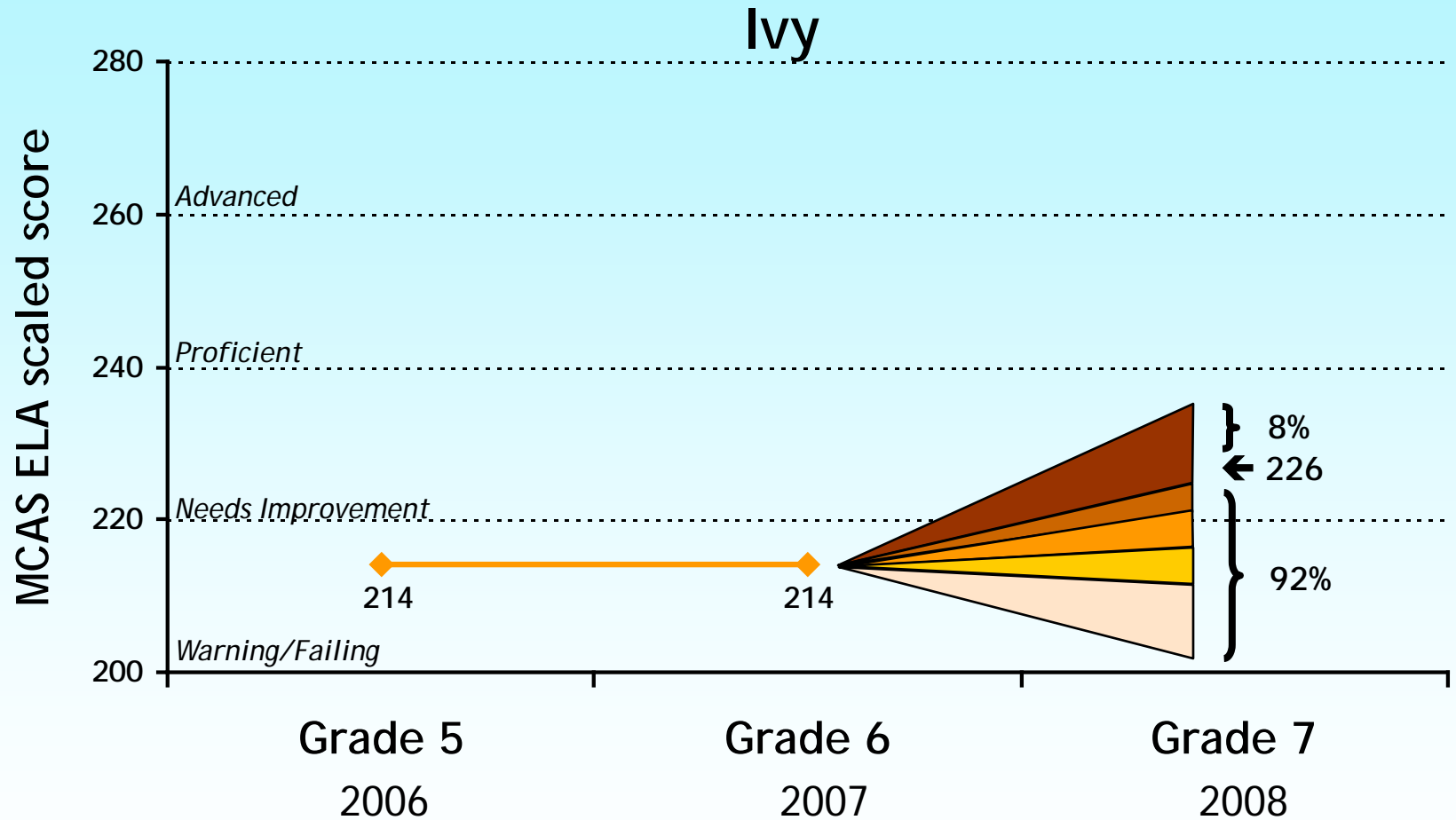
Growth to grade 7: Three students



Growth to grade 7: Three students

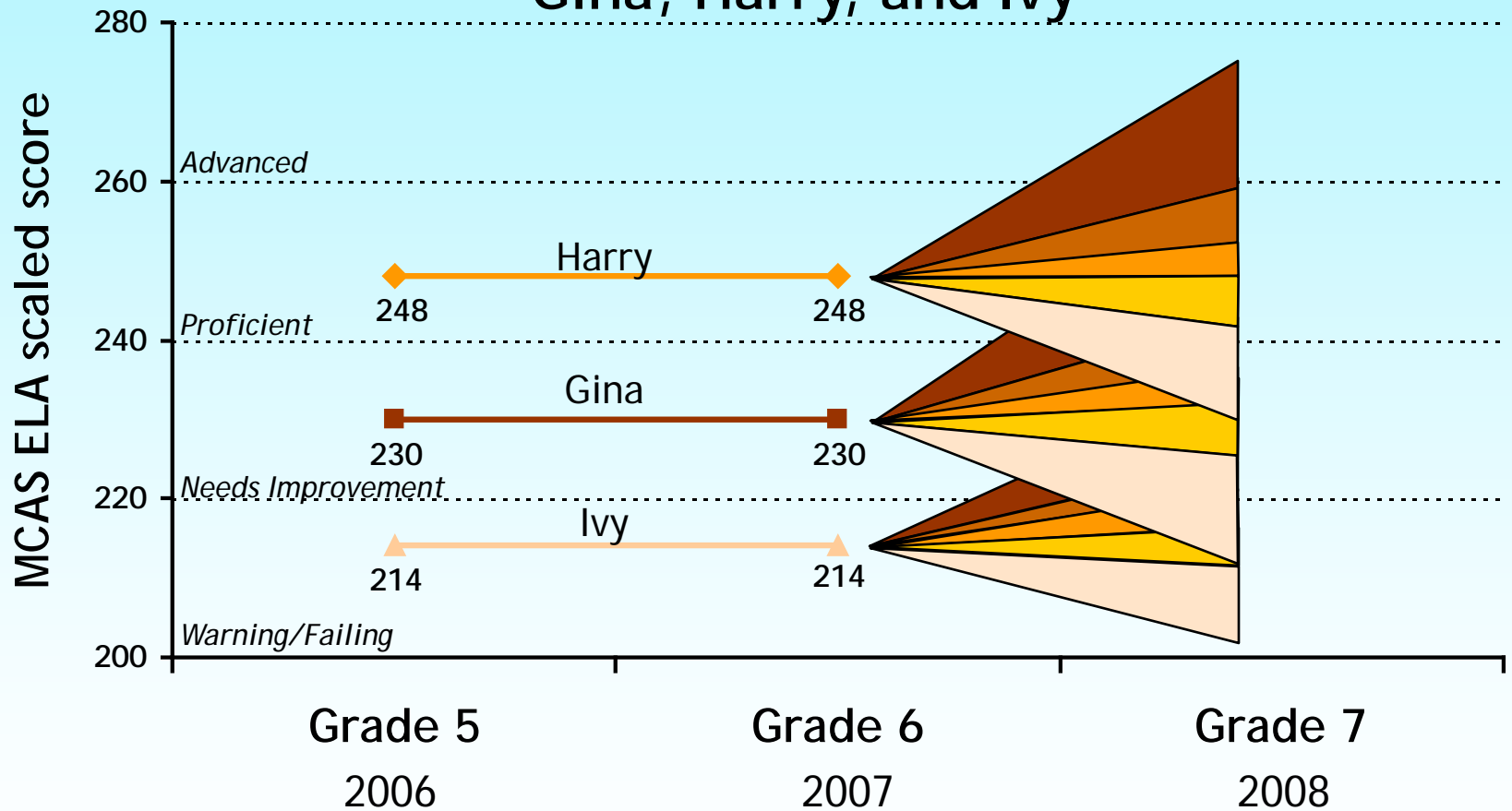


Growth to grade 7: Three students



Growth to grade 7: Three students

Gina, Harry, and Ivy



Growth to grade 7: Three students

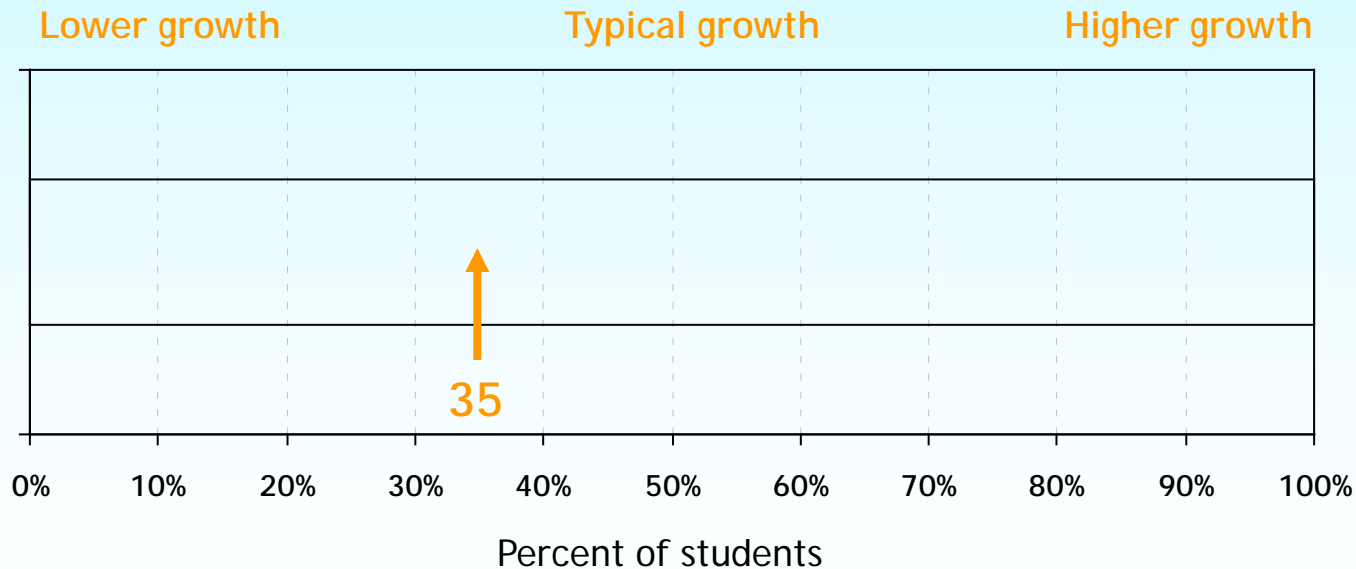
English language arts

	Grade 5 2006	Grade 6 2007	Grade 7 2008	SGP 2008
Gina	230	230	230	35
Harry	248	248	244	25
Ivy	214	214	226	92

Interpreting student growth percentiles

Gina's SGP was 35. This means her SGP in grade 7 was higher than 35 percent of her academic peers (and less than 65 percent).

- Is that amount of growth typical?



Key concepts

- Growth is distinct from achievement
 - A student can achieve at a low level but grow quickly, and vice versa
- Each student is compared only to their statewide academic peers, not to all students statewide
 - Others with a similar test score history
 - All students can potentially grow at the 1st or 99th percentile
- Growth is subject-, grade-, and year-specific
 - Different academic peer groups for each subject, grade, and year
 - Therefore, the same change in scaled scores can yield different student growth percentiles
- The percentile is calculated on the change in achievement, not the absolute level
 - Differs from more familiar norm-referenced measures



Growth for groups

- How to report growth for groups of students?
 - Districts, schools, grades, subgroups, classrooms
- Median student growth percentile
 - The point at which half of the students in the group have a higher growth percentile and half lower
- Growth distribution charts
 - The percentage of students in the group growing less than, similar to, or more than their academic peers

Median student growth percentile

Last name	SGP
Lennon	6
McCartney	12
Starr	21
Harrison	32
Jagger	34
Richards	47
Crosby	55
Stills	61
Nash	63
Young	74
Joplin	81
Hendrix	88
Jones	95

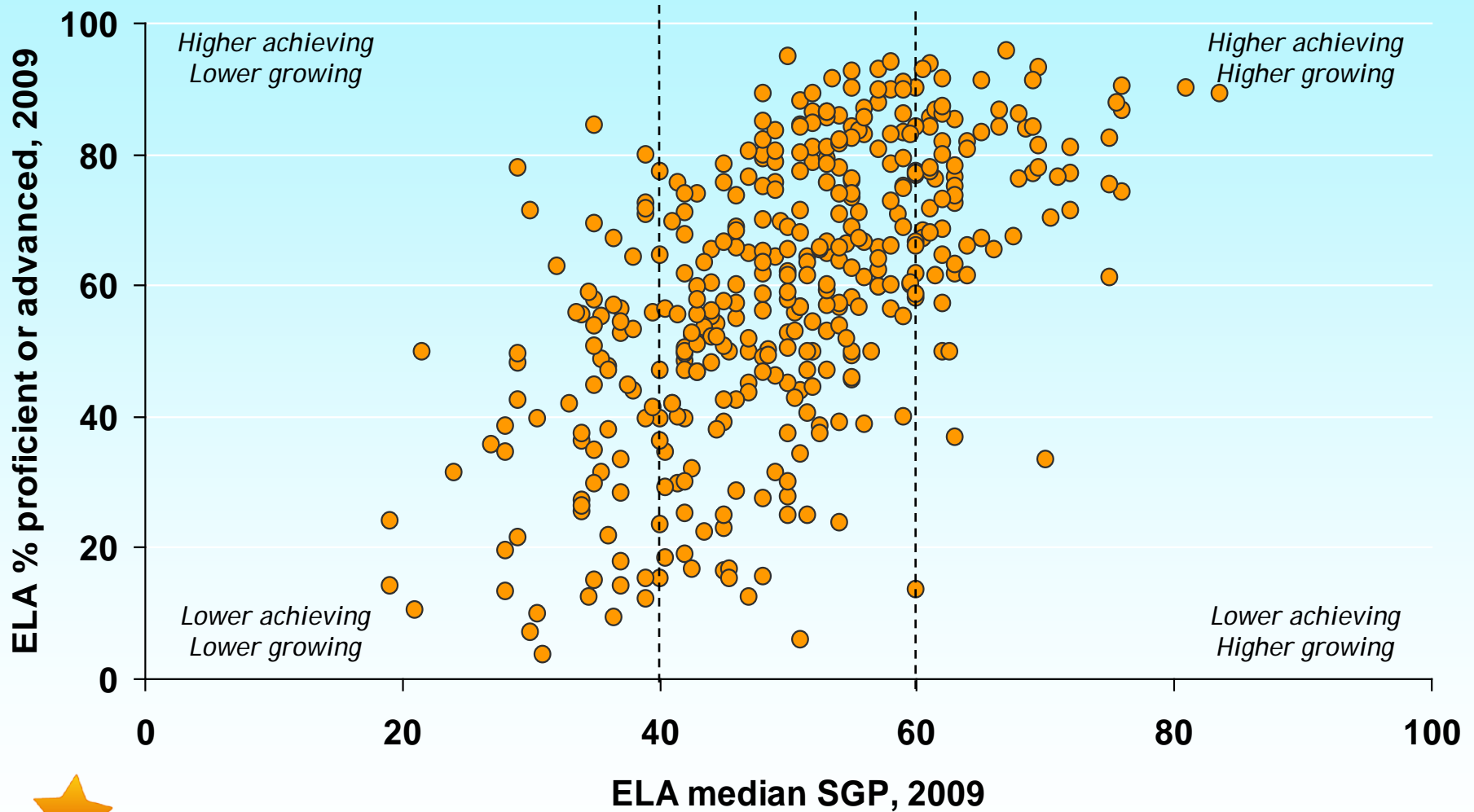
Imagine that the list of students to the left are all the students in your 6th grade class. Note that they are sorted from lowest to highest SGP.

The point where 50% of students have a higher SGP and 50% have a lower SGP is the median.

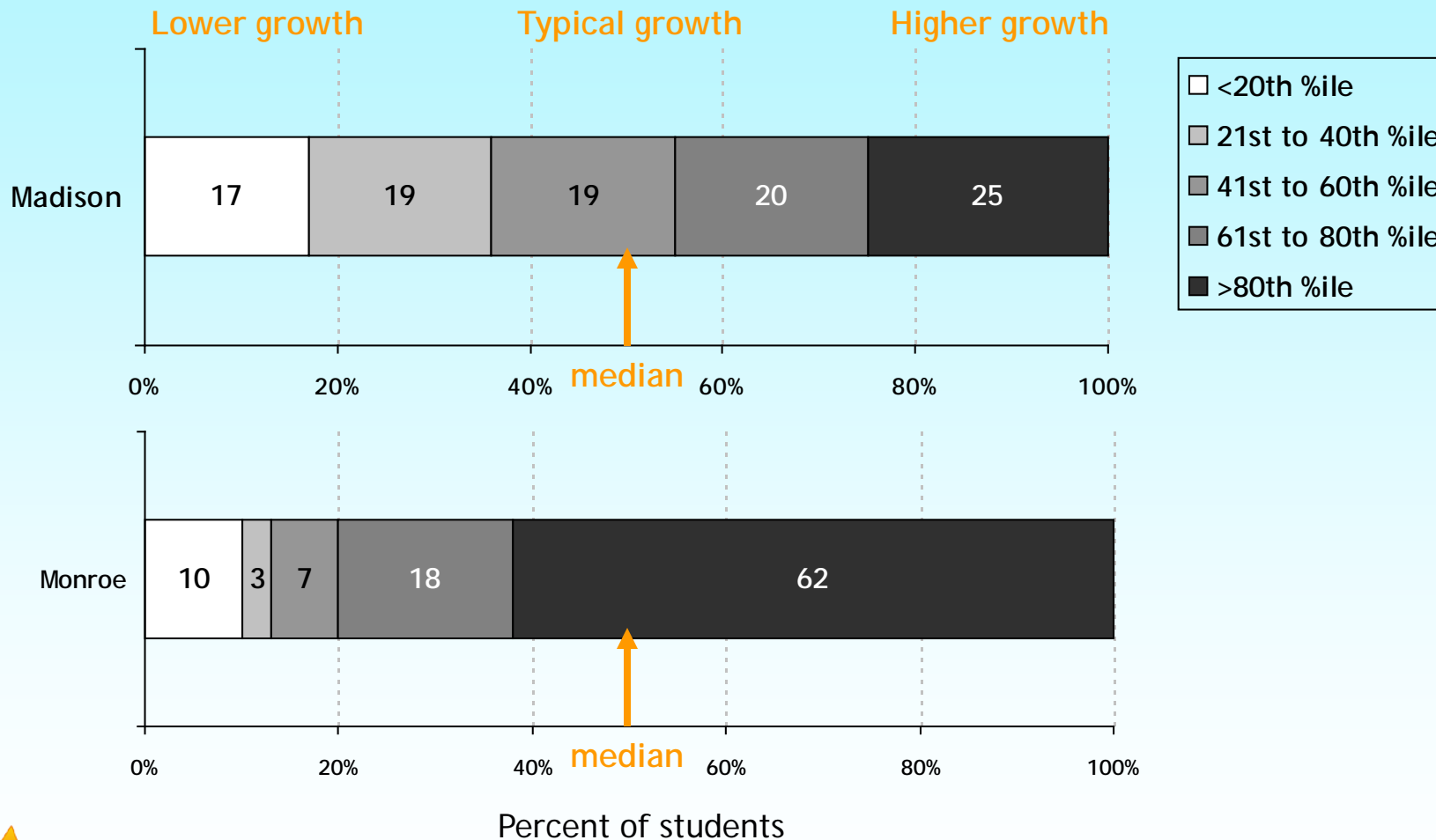
Median SGP for the 6th grade class



Using median student growth percentiles: growth by achievement for schools



Growth distribution charts





Rules of thumb

- Typical student growth percentiles are between about 40 and 60 on most tests.
- Students or groups outside this range has higher or lower than typical growth.
- Differences of fewer than 10 SGP points are likely not educationally meaningful.

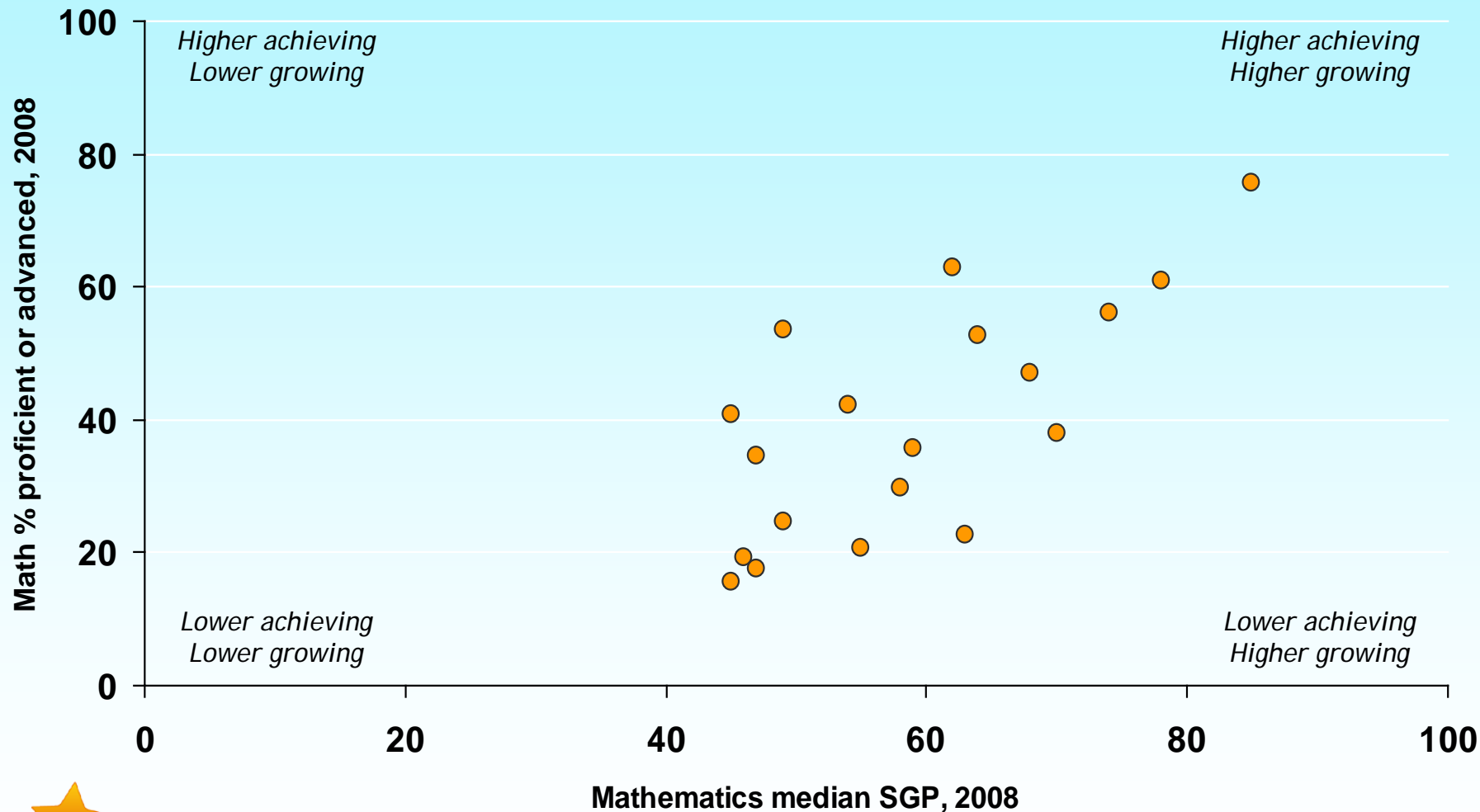


Growth model pilot

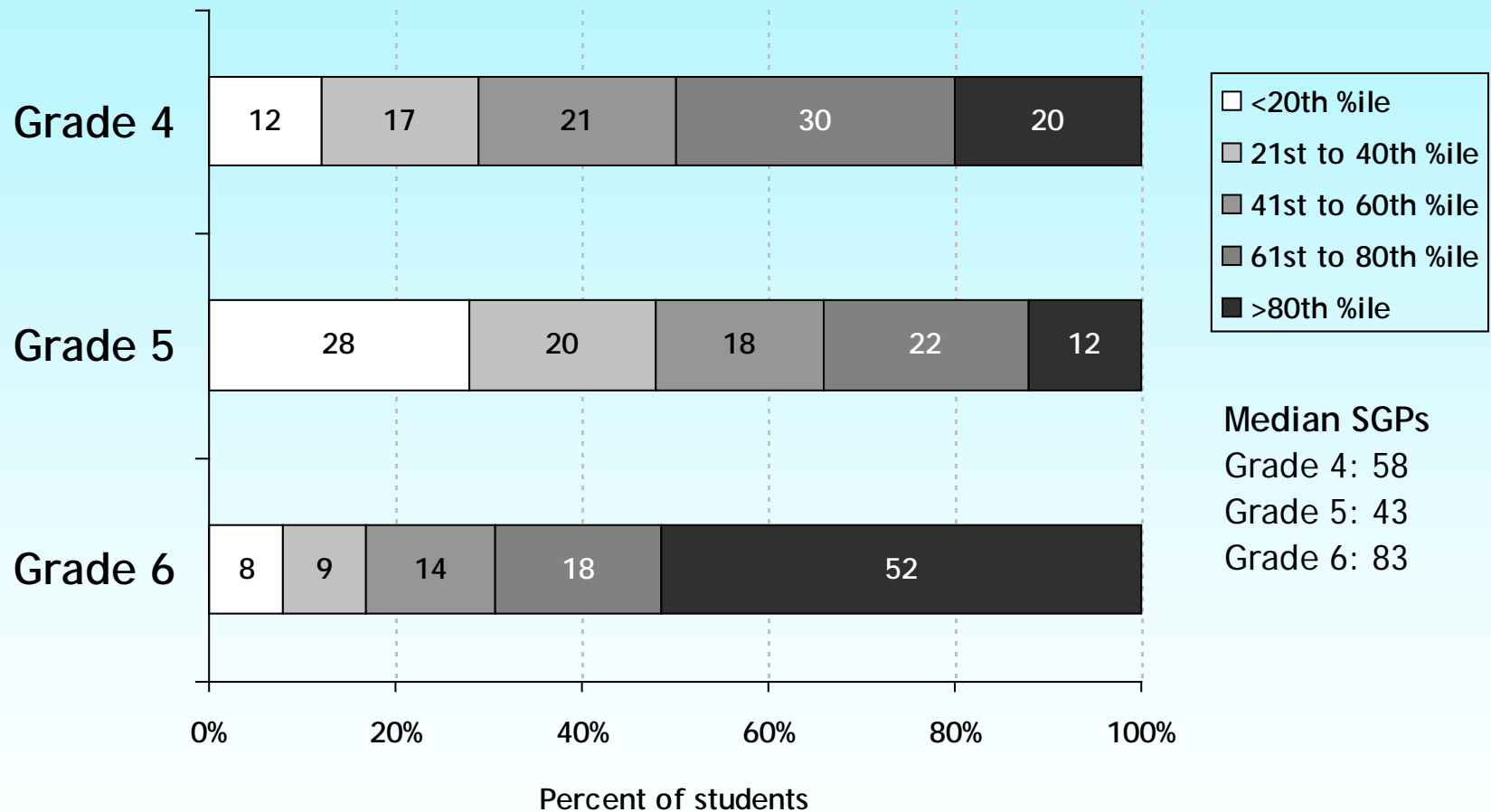
- Tested data, reports, and materials with nine districts, April to July 2009
 - Community Day Charter School, Franklin, Lowell, Malden, Newton, Northampton, Sharon, Springfield, Winchendon
- Suggestions were incorporated into this fall's statewide rollout

New insights: Growth vs. achievement

Grades 4, 5, 6 mathematics - All elementary schools in one district



New insights: Impact of a new K-5 curriculum





New insights: Changes in pilot districts

- One discovered that its median student grew at only the 15th percentile from grade 3 to grade 4
 - Reconfiguring schools to avoid building transition in grade 4
- One found that buildings with full-time math coaches had stronger growth than buildings with part-time coaches
 - Revised coaching jobs to ensure full-time coverage
- One implemented training on growth for all principals district-wide



What data are available?

- Grades 4 through 8, ELA and mathematics
 - 2008 and 2009
- Grade 10, ELA and mathematics (measures the change from grade 8 to grade 10)
 - Only available for 2009

Next steps

- Data were released to districts on Oct. 2nd in the Data Warehouse
- Public release of aggregate data on Oct. 27th
- Web site, written materials, workshops, and other communications and PD to help district staff understand and use the measure

For more information

Technical Questions (Accessing Data)

ESEdatacollect@doe.mass.edu

or

781-338-3282

Growth Data Interpretation Questions

growth@doe.mass.edu

<http://www.doe.mass.edu/mcas/growth/>

