

III. The Oregon Growth Model

An important new feature in the Next Generation rating system is the evaluation of individual student growth. By growth we mean the year-to-year change in a student's statewide assessment scores in reading and mathematics. The model implemented is the Colorado Growth Model, adapted to Oregon's assessment and school accountability system.³ This section gives an overview of the growth model and how it is used to calculate growth.

Overview of the Growth Model

Past accountability models in Oregon relied largely on student status, meaning the percent of students meeting or exceeding on statewide assessments. Status has long been viewed as a one-dimensional look at school performance. What is missing from a status model is a measure of how a student's score changes over time. This change over time on the reading and mathematics statewide assessments is often called "growth." Interest in growth models has been growing in Oregon and throughout the nation.

While growth is simply the change in a student's year-to-year test scores in reading and in mathematics, there are many ways to evaluate this growth. Oregon's existing growth model focused on students below standard and provided each of those students a target score for the current year. For more information on this model, see:

<http://www.ode.state.or.us/search/page/?id=2495>.

What was missing from this growth model was an evaluation of the growth of students at or above standard. The Colorado Growth model, as adapted to Oregon's standards and assessments, provides a gauge of student growth for all students, including those who are meeting or exceeding standard.

The adopted growth model does the following:

- Students with two consecutive years of test scores are included in the model.
 - Extended assessments are not included in the model.
- A Student's growth is compared to "academic peers," who are students with similar score histories. Loosely speaking, this means that:
 - The growth of a low performing student is compared to that of other low performing students; and
 - The growth of high performing students is compared to that of other high performing students.
- A student's growth is expressed as a percentile.
 - For example, a student growth percentile of 60 means the student grew as much or more than 60 percent of students with similar test score histories.
- The growth model also produces a growth target for future years, also expressed as a percentile.
 - This percentile represents the growth needed in order for the student to meet or continue to meet standard in three years.
 - All students receive this growth target, whether they are currently above or below standard.

³ More information on Colorado's implementation of the growth model can be found at <http://www.cde.state.co.us/research/GrowthModel.htm>.

Both the growth percentile and the target growth percentile are incorporated into the rating system.

Student Inclusion Rules

As outlined above, the most important output from the growth model is the calculation of a growth percentile for all students with two or more test scores. To ensure that as many students as possible are included in the growth model, the model includes the best score each year from students who are:

- Enrolled on the first school day in May, as submitted in Third Period Cumulative ADM.
- Enrolled in grades 3, 4, 5, 6, 7, 8, or 11.
- Have a valid assessment score which is not an Extended Assessment
- Are not a first year Limited English Proficient student.

These are the students who are required to be tested each year and whose scores are reported on school and district public assessment reports.

For student in grade 4 to 8 we use up to four years of available test scores. High school student’s growth is based on growth from grades 7 and 8 to high school. The table below shows the student test scores that are included in the model, according to the current grade of the student.

Student Test Inclusion by Grade

Current Grade	Tests Included for each student, when available						
	3	4	5	6	7	8	11*
3	X						
4	X	X					
5	X	X	X				
6	X	X	X	X			
7		X	X	X	X		
8			X	X	X	X	
11*					X	X	X

*- Grade 10 for growth calculated for 2009-10 and earlier.

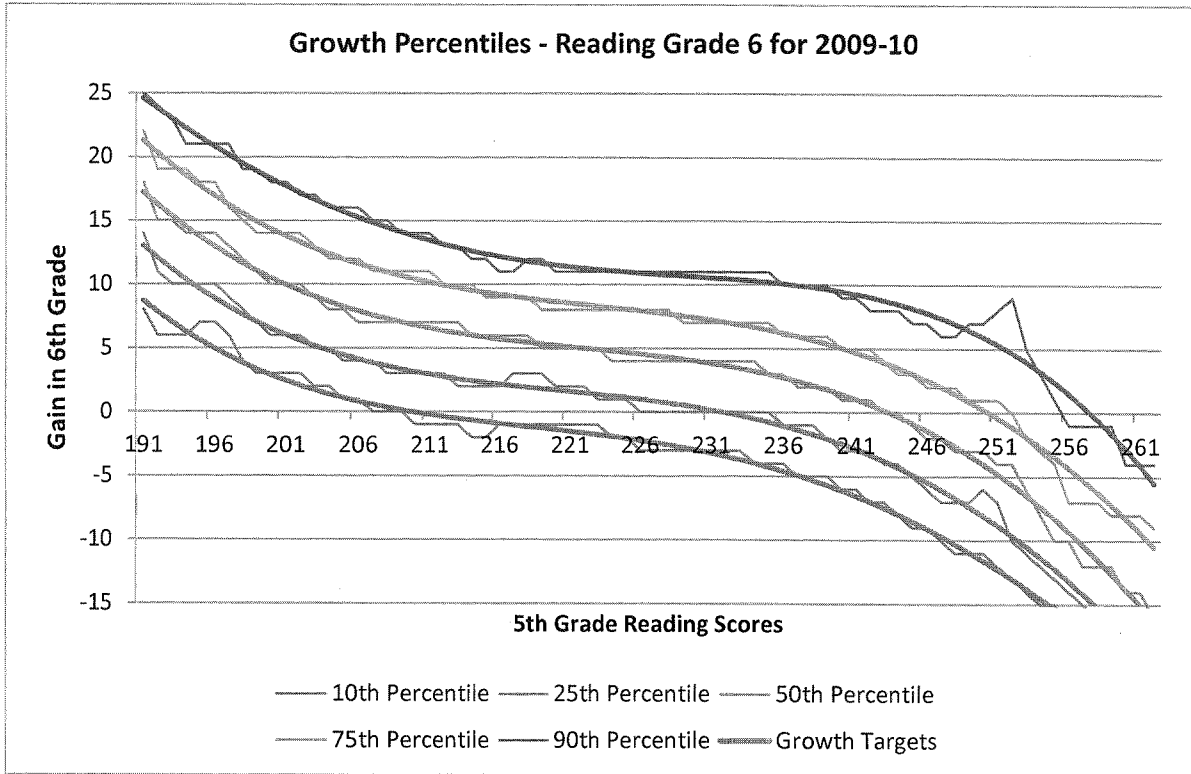
The majority of students, usually in excess of 80%, have test scores from all available grades included in the growth model. However, all students with at least two consecutive years of test scores receive growth percentiles, as described below. This means that about 90% of students in grades 4 to 8 and 11 are included in the growth model.

Student Growth Percentiles

The growth model computes a student growth percentile (SGP) for all students in grades 4 to 8 with assessment scores in the two most recent school year that are in consecutive grades, and for all 11th grade students with an 8th grade assessment score. It also compute growth targets (see below) for all students in grades 3 to 8 with an assessment.

The growth model is a regression model that uses two to four years of data for each student to determine each growth percentile. Growth percentiles are based on “academic peers,” which are students with the same test score history over the past one to three years. Since this is a

regression model, the percentile curves are subject to smoothing. Growth percentiles for 6th grade reading in 2009-10 are shown below.



There are similar growth percentile calculations based on two and three years of prior data. The growth model uses the percentile calculation based on the maximum years of data available.

Target Growth Percentiles

The model also computes target growth percentiles (TGP). These are the growth percentiles each student would need to maintain over the next three years in order to either move up to or remain at standard. While the student growth percentiles (SGPs) are an evaluation of the growth that happened in the previous year, the TGP are forward looking and indicate the growth needed for the future.

Grade Target Projected Grades

Current Grade	Target Grade
3	6
4	7
5	8
6	11
7	11
8	11
11	NA

By comparing the SGP with the TGP one can get an indication of whether a student is “on-track” to meeting or continuing to meet standard in three years. In particular if the SGP is less than the TGP, the student is not on-track to meeting in 3 years, whereas if the SGP is as high or higher than the TGP, that student is expected to be on-track to meeting standard in three years.

School Level Aggregations

For school accountability we aggregate both SGPs and TGPs at the school level. This is done using the school's median SGP and median TGP. The use of the median rather than the mean is the recommendation of the author of the growth model.⁴

An example of how the median scores are reported is shown below.

Subject	Median Growth Percentile			Median Target Percentile		
	2010-11	2011-12	Combined	2010-11	2011-12	Combined
Reading	45	51	47	34	37	36
Math	55	48	51	65	63	64

In the above example the typical (median) SGP in reading is higher than the typical TGP. This indicates that the typical student in this school is on-track in reading. By contrast, the data for math show that the typical student is not on-track in mathematics.

⁴ See pages 4 and 5 of “A Primer on Student Growth Percentiles” by Damian Betebenner. Available at: <http://www.cde.state.co.us/cdedocs/Research/PDF/Aprimeronstudentgrowthpercentiles.pdf>.

Possible Individual Student Growth Model based on Oregon Growth Model

Last Name	First Name	2011-12 Grade	Subject	2010-11 OAKS Score	2011-12 OAKS Score	2011-12 Growth Percentile	2012-13 Target Growth Goal (on track to standard)	2012-13 Typical Growth Goal (50th percentile)
Bridges	Jon	5	Reading	206	211	45	221	219

The higher of the two growth goals is the student's individual growth goal