Committee on Education and Labor
U.S. House of Representatives

Committee Hearing: "*How Data Can be Used to Inform Educational Outcomes*"
April 14, 2010

Testimony of Richard J. Wenning,
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Thank you for inviting my testimony on behalf of the Colorado Department of Education at today's hearing. I'd like to provide my remarks in the context of Colorado's effort to create an aligned state and federal accountability system focused on all students reaching college and career readiness by high school graduation.

How is Colorado refining its use of student performance data to improve accountability for student growth, better inform school improvement efforts, and more clearly communicate with the public?

Educational accountability systems include three basic components: rewards, sanctions and public reporting. Colorado's approach to educational accountability attempts to balance these components to promote local ownership of high-quality performance information. We believe this local ownership drives insight and action by **users**: students, parents, educators, administrators, policymakers, business leaders, and the public-at-large.

Colorado believes that the results we expect must start with the end in mind: namely our statutory bright-line principle of all students becoming college- and career-ready by high school graduation. This universal goal clarifies our public responsibility and the focus of our accountability and performance management systems: we must maximize individual student academic growth toward the destination of college and career readiness. We were very pleased to see this principle reflected in the President's Blueprint for ESEA Reauthorization.

However, the Blueprint's intended use of the 2020 date for school vs. state accountability is unclear. Colorado feels strongly that an arbitrary date certain is not helpful for states to calibrate their school accountability systems. This is because a very credible date exists for every student, namely their graduation date. Growth models make it possible to establish ambitious growth expectations for every student, based on what they need to be on track and also allow a roll up for state and federal accountability purposes. This concept is discussed further below.

The clarity of the goal of readiness by exit, particularly in the context of common high standards, supports an essential, powerful and ongoing conversation between every student and his or her teachers and parents about how much growth the student is making, whether it is good enough to **catch up** to proficiency (if the student is not proficient), **keep up** at proficiency (if the student is already proficient), or to **move up** to advanced levels of achievement. Most important is a conversation about how each student, teacher and parent must work together to ensure that the student meets goals and standards. I refer to the capacity to constructively engage in this fundamental conversation, using information

effectively to make adjustments and achieve goals, as **Performance Management Capacity**. Plain and consistent language (like catch up and keep up) promotes meaningful conversations and illustrates the importance of **focusing on the user of information** when designing accountability systems.

The Results We Expect

- New bright line: **all kids ready by exit**

- Incentives focused on maximizing student progress toward college and career readiness

  - Requires definition of readiness and the standards leading there
    – CO Achievement Plan for Kids (SB 08-212)
  - Requires accountability system focused on the goal
    – Education Accountability Act of 2009 (SB 09-163)

The availability of outstanding **instructional improvement and social collaboration technologies** and incentives for using them (particularly through initiatives focusing on educator effectiveness) represent vital tools and opportunities for break-through performance improvements. Thanks to advantageous timing—major advances in technology coinciding with **Race to the Top**—the nation is in a position to provide students and educators the tools they need and deserve to achieve the outcomes we expect. We are primed to promote break-through educator collaboration about performance and practice. This is the essential role of state longitudinal data systems.

Key Catalysts for Performance

- Breakthrough educator collaboration about performance and practice
- Outstanding instructional improvement technologies drive insight and action by users at all levels
- Widespread understanding of performance motivates public pressure for sustained reform

Underpinning this collaboration in Colorado is a **new and broad public conversation about performance** fostered by SchoolView and the Colorado Growth Model (see figures below). SchoolView is a state-owned tool that we are happy to share with other states. The Colorado Growth Model uses an open-source methodology run on open-source software. We are making the display tools available at no cost to other states through a memorandum of understanding, including commitment to the Creative Commons intellectual property agreement we use.

SchoolView

Instructional Improvement System

- Access to Colorado Growth Model
- Hub for knowledge management
- Aligns accountability system's incentives and disclosure of results with information needs of each user
- Collaboration extends across states: Massachusetts, Arizona, and Indiana have adopted the Colorado Growth Model

The Colorado Growth Model was approved by the U.S. Department of Education for use in its growth model pilot. It uses a common measure to describe how much growth each student makes and how much growth is needed to reach state standards. In doing so, it provides a complete history of individual test scores for all students. The model depicts growth in a user-friendly and interactive display that provides clear information about student progress toward reaching state proficiency levels within a specific period of time.

The Colorado Growth Model supports a common understanding of how individual students and groups of students progress from year to year toward state performance standards based on where each student begins. The model focuses attention on measuring and maximizing student progress over time and reveals where, and among which students, the strongest growth is happening—and where it is not. It recognizes that the most effective schools are those that produce the highest sustained rates of student academic growth over time. Those schools may or may not be schools with the highest test scores every year.

The Colorado Growth Model applies the common measure of *Individual Student Growth Percentiles* to school, district and state performance in a **normative** and **criterion-referenced** manner. The growth model provides a growth percentile ranging from 1 to 99 for every student – also described as "Low," "Typical" or "High" – and provides the percentile needed for a student to reach Partially Proficient, Proficient and Advanced levels within one, two, or three years.

The model provides *Median Growth Percentiles* that are useful for benchmarking purposes and analysis of gaps in growth rates among groups of students. The overall State Median Growth Percentile for every grade is 50, so it is useful to look for differences from the 50th percentile when benchmarking the growth of the typical student.

The model also provides information on the **adequacy of growth** to reach and maintain state-defined performance levels — we refer to these as *Catch Up* and *Keep Up*. *On Track to Catch Up* identifies students scoring Unsatisfactory or Partially Proficient in the prior year who achieved enough growth to reach Proficient within three years or by 10th grade. *On Track to Keep Up* identifies students already scoring Proficient or Advanced who achieved enough growth to stay at least Proficient over three years or until 10th grade.

The Colorado Growth Model fills an important gap in the current accountability system required by NCLB. To close the achievement gaps that plague our education system, we must eliminate gaps in how children are growing academically and ensure that our neediest students grow faster — more than a year's growth in a year's time — so that they catch up. The following graphics show the percentage of students achieving enough growth to catch up or keep up in Colorado.

Growing Enough to Catch Up to Proficient

Percent Catching Up to Proficient
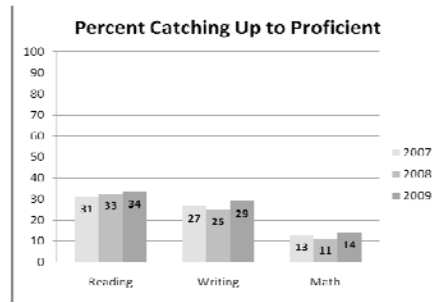
Growing Enough to Catch Up From Unsatisfactory to Proficient

Percent Unsatisfactory Students Catching Up to Proficient
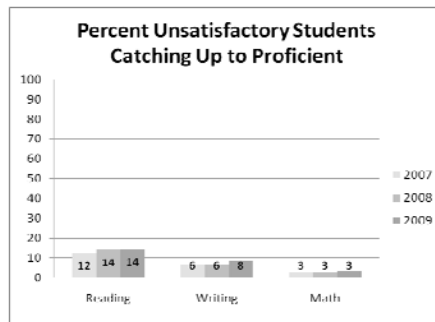
Because AYP today is focused on each school's percentage of students who score "at proficiency" each year, it creates an overly anxious short-term focus on students "on the cusp" of proficiency – the ones who should be easiest to push over the hump and therefore give schools a better rating.

Instead, we should encourage teachers to focus on maximizing every child's progress toward ambitious standards – and developing every child to his or her full potential – while encouraging schools to focus on long-term effectiveness. The federal accountability system should measure whether that is happening. As we measure the performance of schools and districts, we must provide individual student data that educators need in order to focus on improving student learning. Every educator and parent should know in plain language how much growth a child has achieved and how much growth each child needs to reach state standards.

Consistent with these design principles, the Colorado Department of Education used SchoolView to deploy a set of interactive Web-based display tools to provide Colorado Growth Model information about district, school and student performance to parents, educators and the public. (See images at end of document.) These display tools enable and promote new, well-informed conversations about learning among educators, students and parents while providing unprecedented public transparency in support of accountability, which allows us to disclose more, use fewer punitive labels, drive strong stakeholder buy-in, and foster sustained public pressure for reform.

Colorado is very interested in collaborating with other states to create a common data visualization platform to drive broad public understanding about educational effectiveness and cross-state performance benchmarking. We are pleased that Arizona and Indiana have elected to work with us on this effort. In addition, Massachusetts has adopted our growth model for its use. Several other states are expected to adopt it as well.

How can federal policy best promote improved student achievement?

Federal policy can promote dramatically improved student outcomes by ensuring a coherent accountability system focused squarely on building the performance management capacity of stakeholders. For this to happen, the federal role in local school management decisions must be redefined in a manner that recognizes and respects the essential role that states, local educational agencies, schools and individual educators must play if sustained high is to become the norm. Federal policy can either support or hinder the understanding, ownership, and effective use of performance information at the individual, local and state levels through the metrics required and rewards and sanctions established.

State education agencies (SEAs) play a critical role, and SEAs should be re-purposed to support school effectiveness. This will require federal support. SEAs must become reliable providers and brokers of high-quality support and service to schools and districts. They must focus on sustaining continuous improvement in schools and districts while also ensuring that they meet compliance obligations. To achieve this aim, SEAs will need to invest in research and development, program evaluation, and diagnostic school and district reviews focused on improvement efforts. This may require reallocation of resources. SEAs will also need to develop coherent knowledge management strategies to sustain their capacity levels.

Flexibility is also necessary. Expanding allowable uses of funds would allow SEAs to invest in capacity-building strategies to deliver ambitious, desired results. ESEA reauthorization should extend far greater leeway in the use of federal funds at the state and local levels, but only to those SEAs that adopt high-quality accountability systems based on internationally benchmarked standards for college and career readiness. Incorporating these expectations into the reauthorization of ESEA will go far in ensuring students are truly prepared for college or rewarding careers.

Provide Flexibility in Identifying Low-Performing Schools for Intervention

In reauthorizing ESEA, Congress should be cautious in prescribing the details of how to identify the bottom five percent of schools based on achievement and growth. Some flexibility is needed so that states can calibrate accountability systems to meet the performance improvement needs of their particular
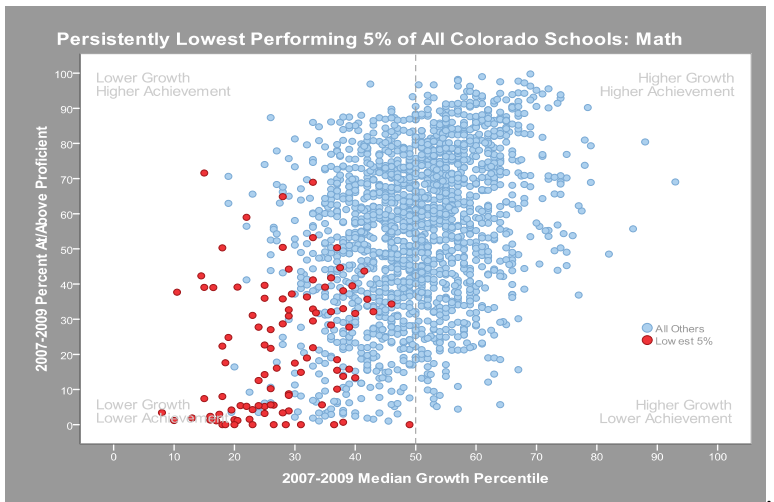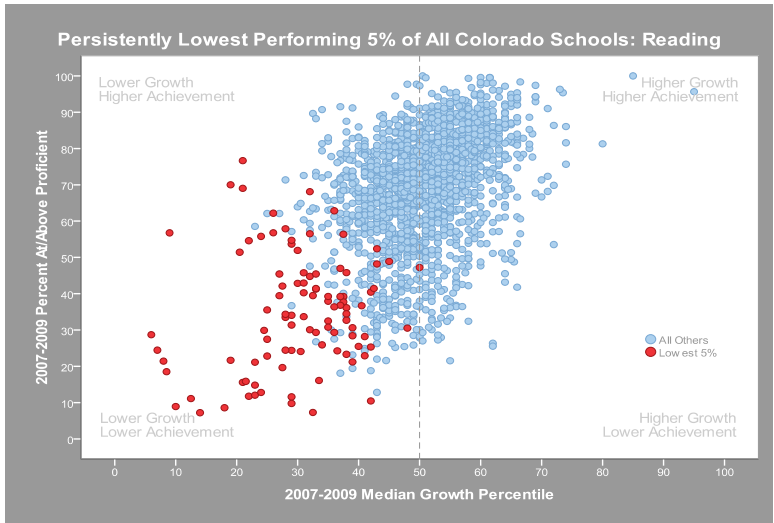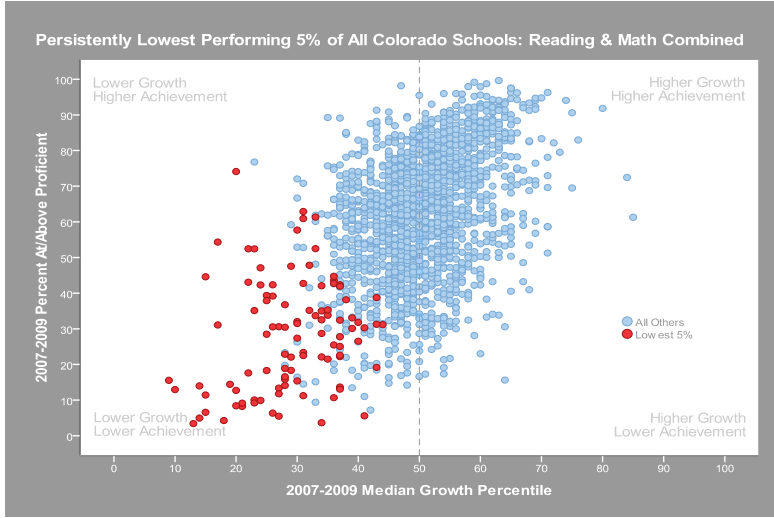
schools and districts. The essential condition is that states must have a credible approach and rationale and be publicly transparent in how they do this. For states without an approved accountability system designed to identify the bottom five percent, ESEA could contain a default approach.

For example, there are more chronically low-performing schools in Colorado than we can effectively intervene in with federal School Improvement Grant [1003(g)] resources. (See figures below.) As we prioritize schools for intervention, we would like to consider persistence and severity of need and whether the intervention fits the problem and can have a scalable impact. Also, to help ensure success, we need to engage communities to understand and support the change. Uncertainty about who is on the "federal list" vs. the "state list" has been unhelpful and has set back our efforts to take on our lowest-performing schools.

To illustrate, consider two hypothetical low-performing schools. One is a high-poverty, chronically underperforming high school with 1,000 students and the other is a high-poverty, 50-student alternative education school with 20 continuously enrolled students from one year to the next. The alternative school focuses on students who have been incarcerated or have drug treatment needs and helps transition kids back to regular high school or helps students earn GEDs. Many of these very students have experienced failure and disengagement at the comprehensive high school. Both schools are persistently low-performing, but the large high school is a few schools higher in the rankings and thus doesn't make it on the "Tier 2" list. However, its poor performance is a direct cause of the need for the alternative school, now targeted for turnaround.

Colorado would like discretion to determine which school to serve—to attack root causes rather than symptoms. The large high school is a good fit for turnaround. The alternative school is not. Forcing a leadership change at the alternative school could have a negative impact on student engagement and the school is doing about as well as other alternative schools. Without a doubt, we need to take on improvements in our alternative schools. However, state ownership and discretion are critical when we determine where to invest scarce resources in order to increase the supply of high-performing schools, to reach the largest number of students and maximize positive impact.

Conclusions on which schools constitute the bottom five percent depend on the particular analytical lens one uses to identify schools for intervention. Consider the following graphics. The first graphic shows the lowest-performing five percent of schools in Colorado based on standardized growth and achievement data (growth weighted 2:1) over a combined three-year period across reading and math. The second and third graphics show the same schools highlighted by subject area. The axes reflect combined three-year student median growth rates and percentages proficient or advanced. While the first graphic suggests a tight cluster of low-performing schools, the other graphics show the variability of performance by subject area. The point here is that there is not just one way to identify the lowest five percent. Performance profiles vary by elementary, middle and high school levels. Some schools perform better in one subject or the other. ESEA should leave room for state discretion in making these determinations.

Persistently Lowest Performing 5% of All Colorado Schools: Reading & Math Combined

Persistently Lowest Performing 5% of All Colorado Schools: Reading

Persistently Lowest Performing 5% of All Colorado Schools: Math

This is the basic view, showing all schools in the district that you have data access to. This is called a bubble chart, where schools are represented by bubbles.

If you mouse over a school name, its bubble will change color in the display to highlight it amongst the others. This list is alphabetical within district.

Percentage of students at the Proficient or Advanced levels in a school is the scale on the vertical axis. Schools with a high percentage of children at proficient or advanced appear higher in the display. Schools with lower achievement percentages appear lower in the display.

Median growth percentiles are the scale on this horizontal axis. Schools more successful at getting their students to get high growth appear further to the right. Schools further to the left are not as successful at growing their students.

Bubbles represent schools in this display. The more students a school has, the bigger its bubble.

Clicking on the School Options button allows you to customize the display of schools to show items that you are interested in exploring, and hide others. If you uncheck the Middle and High boxes, you will display only Elementary schools.

You can also choose to highlight some types of schools. When you check these boxes, schools that match this category will be displayed with a white halo around the bubbles that represent them. This does not make any schools disappear, it is merely used for highlighting some items among the others you already see.
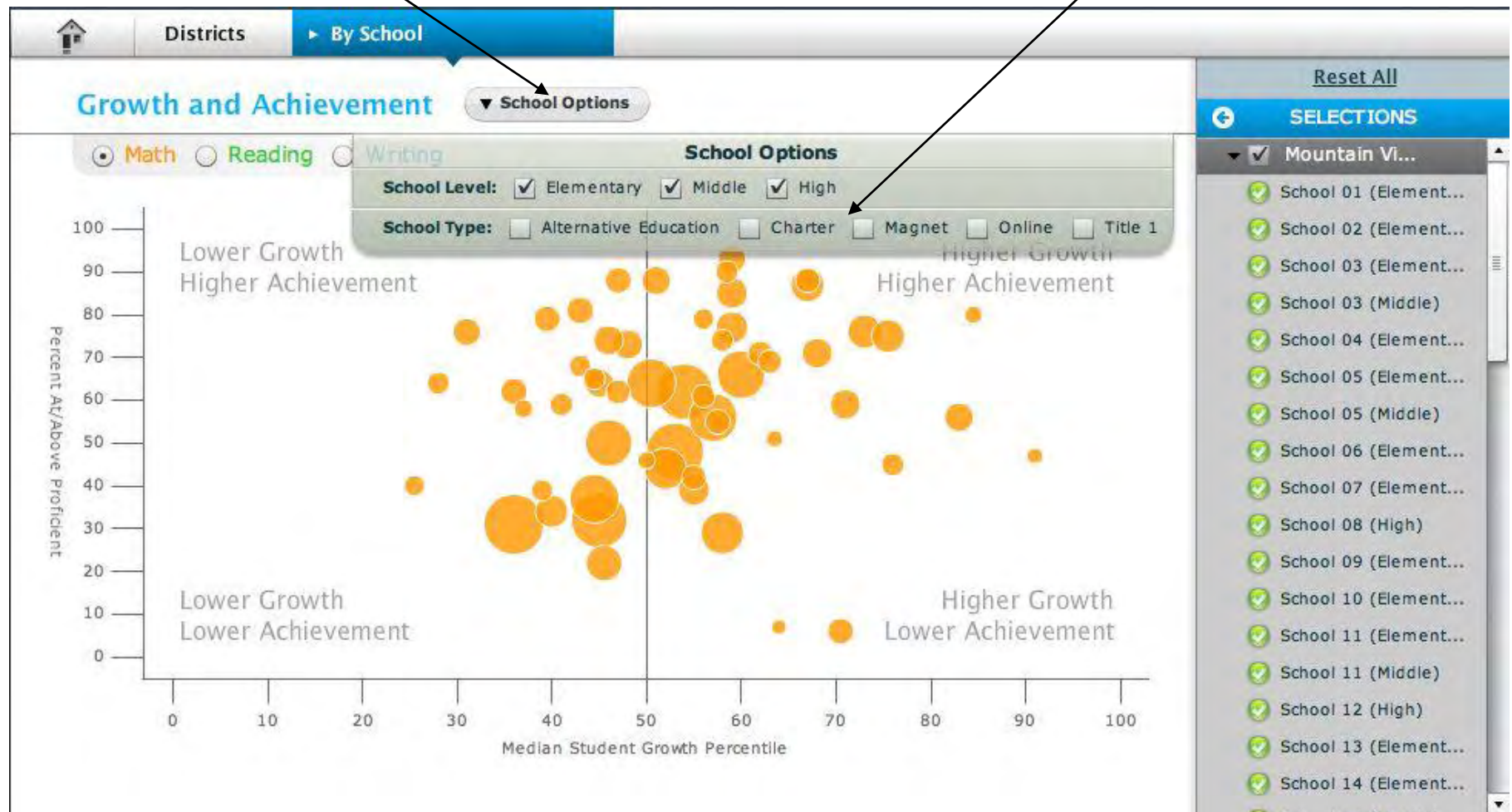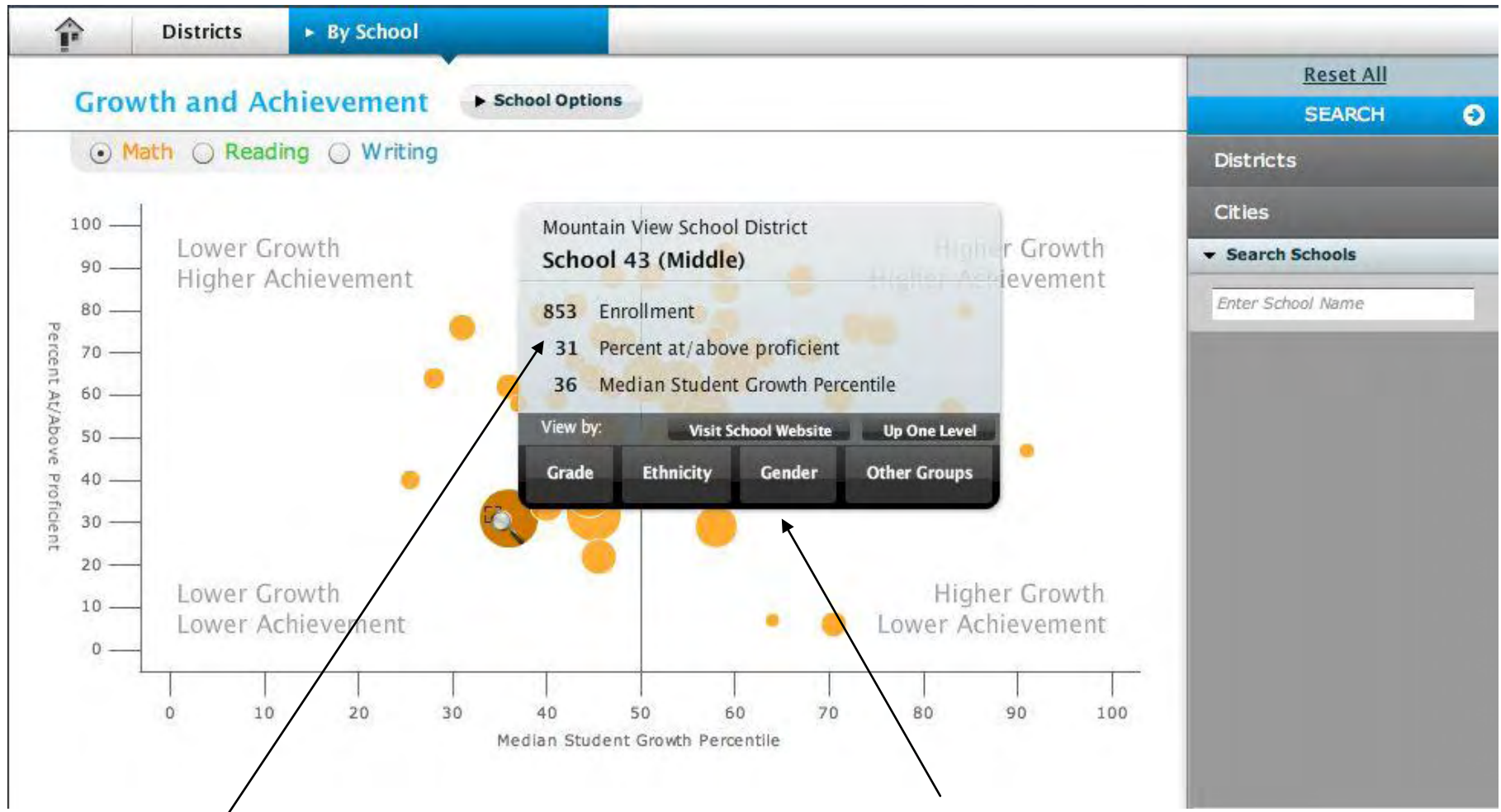
Mousing over a bubble makes a popup window for that school appear. In it you will find total school enrollment (NOT number of students who have growth percentiles); the percentage of kids at or above proficient in this subject area across all grades in the school; and the school's median growth percentile for that subject area.

This popup window is also your primary means of navigating in the interface, and especially for drilling down into the student level of data. To get to the student-level data, you have to choose Grade in this box. If you choose any of these options, the display will change. Other schools' bubbles will disappear, and bubbles representing the levels of the variable you have selected will appear. For example, choosing Gender will cause two new bubbles to appear: one for boys and one for girls, just for the school you selected.
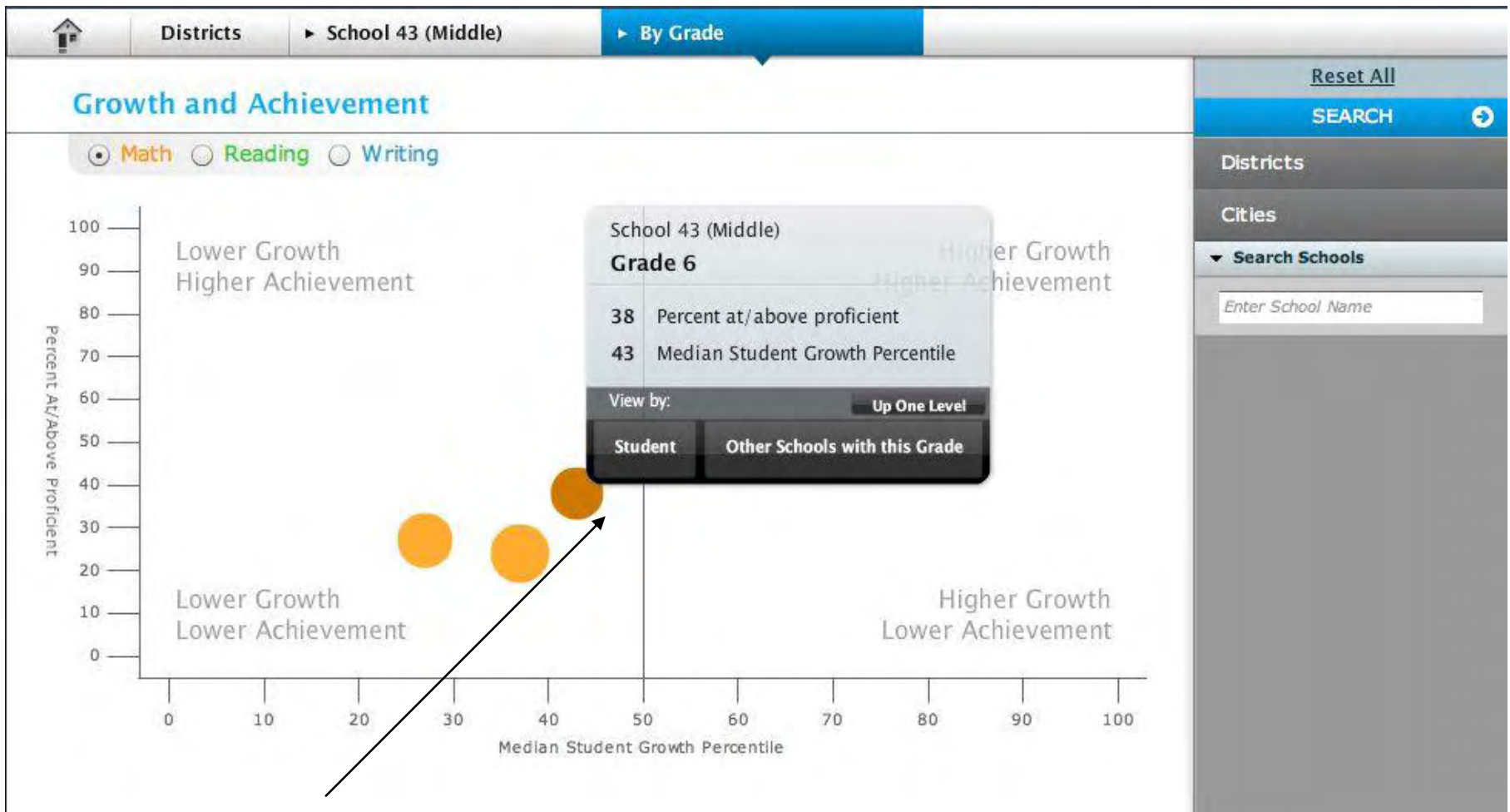
Mousing over a particular grade bubble within a school will allow you to explore individual-level data for this school. You just mouse over a grade and choose "Student." If you choose "Other Schools with this Grade" you will get the view shown on the next page instead.

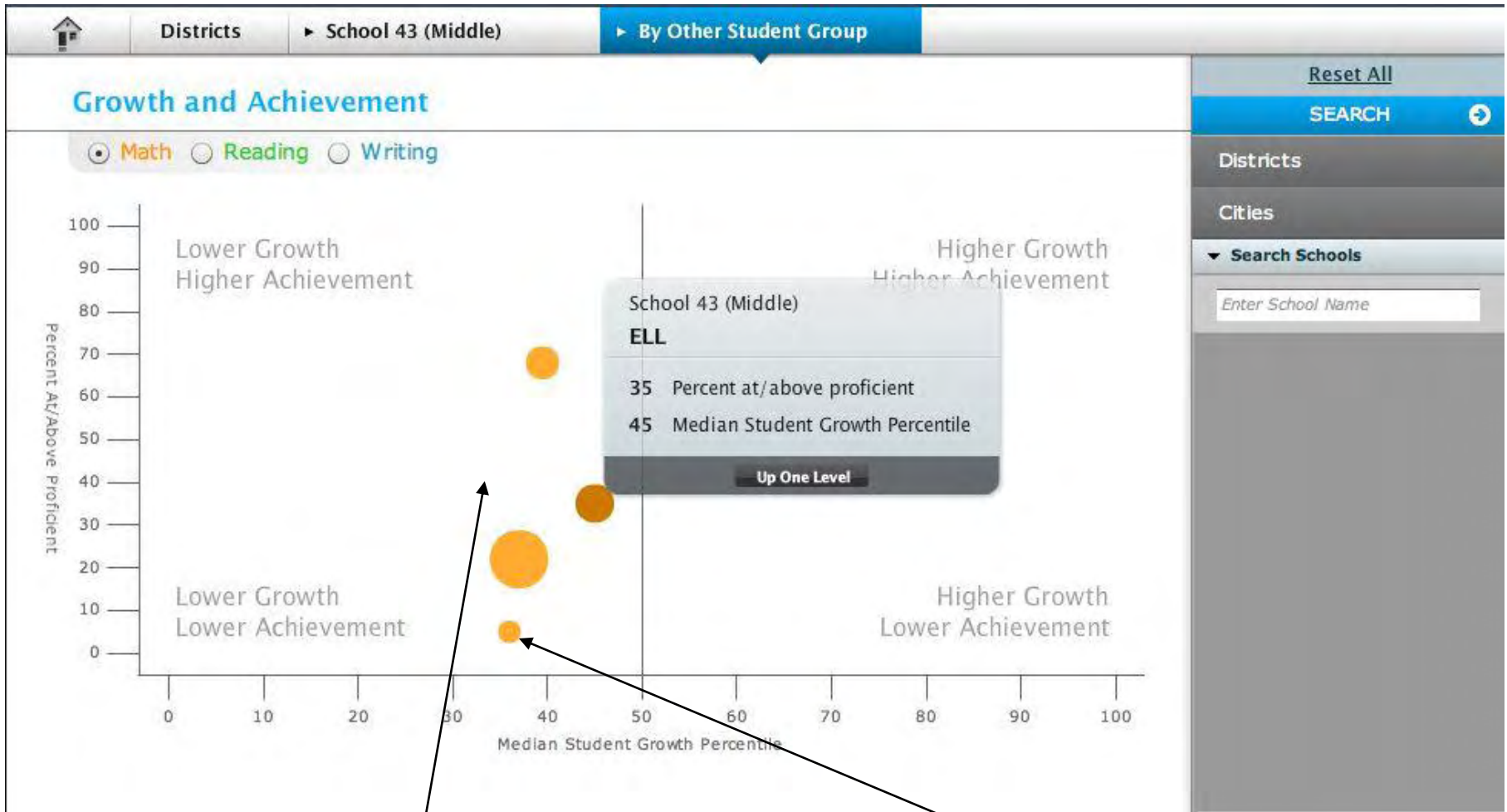This view shows all the grade 6s in the district. In other words, each bubble represents the growth and achievement for the 6th graders in all schools in the district that have this grade. This enables a viewer to see what schools in the district are doing the best and the worst with their sixth-graders, in this case.

When you are only looking at elementary, middle or high schools separately, or in this case one particular grade across the district, a colored horizontal line appears in the display. This line represents the state average achievement level for all kids in this level of school. How is this calculated? Each elementary, middle or high school has a particular percentage of its students at the Proficient of Advanced level. If you average all the percentages together from all schools in the state, you get one number: the state proficiency average. This number gives you a reference point for understanding where a school stands in relation to the state. Bubbles above the colored line are doing better than the rest of the state in their "status," or percentage of kids who are proficient or advanced.

The colored horizontal line told you the state average for the level of proficiency. This vertical line, on the other hand, tells you the state median (like an average) for growth. Bubbles that appear to the left of this line are showing lower growth; those that appear to the right of the 50th percentile line are showing higher growth. The further away from the line a bubble is, the lower or higher its growth compared to the state as a whole.

Growth and Achievement

◉ Math ◯ Reading ◯ Writing

Lower Growth
Higher Achievement

Higher Growth
Higher Achievement

School 43 (Middle)

ELL

35 Percent at/above proficient

45 Median Student Growth Percentile

Up One Level

Lower Growth
Lower Achievement

Higher Growth
Lower Achievement

Percent At/Above Proficient

Median Student Growth Percentile

Reset All

SEARCH ⊙

Districts

Cities

▾ **Search Schools**

Enter School Name

To get to this view, we moused over a school bubble and chose Other Groups. We see bubbles representing ELLs, students on IEPs, Gifted/Talented, and Free/Reduced Meal Plan students. Comparison groups are not available in this version of the Colorado Growth Model, so you cannot compare your ELL students to your non-ELL students in a simple way.

The horizontal and vertical axes are still the same, so your interpretations of the bubble locations are the same as before, telling you both about achievement level and growth. You can mouse over these bubbles, but you cannot break them down further. To go back to the whole school bubble, choose Up One Level in the popup.

Small bubbles in the data plots might represent a group that has very few members, so be careful not to over-interpret them.

This is the first student-level view. Bubbles do not represent groups of students here- they represent individual children. You can see this by mousing over a bubble - the name of the student will appear. You can keep track of what school and grade you're looking by looking at the information in the popup window for a student, or by looking at the crumbtrail. In this case we're looking at all the 8th grade students in School 43.

	Districts	▶ School 43 (Middle)	▶ Grade 8	▶ All Students

Growth and Achievement ▶ Student Options

○ Math ○ Reading ⊙ Writing

Scale Score

Advanced

Proficient

Unsatisfactory

Student Growth Percentile

Reset All

SEARCH

Districts

Cities

▼ Search Schools

Enter School Name
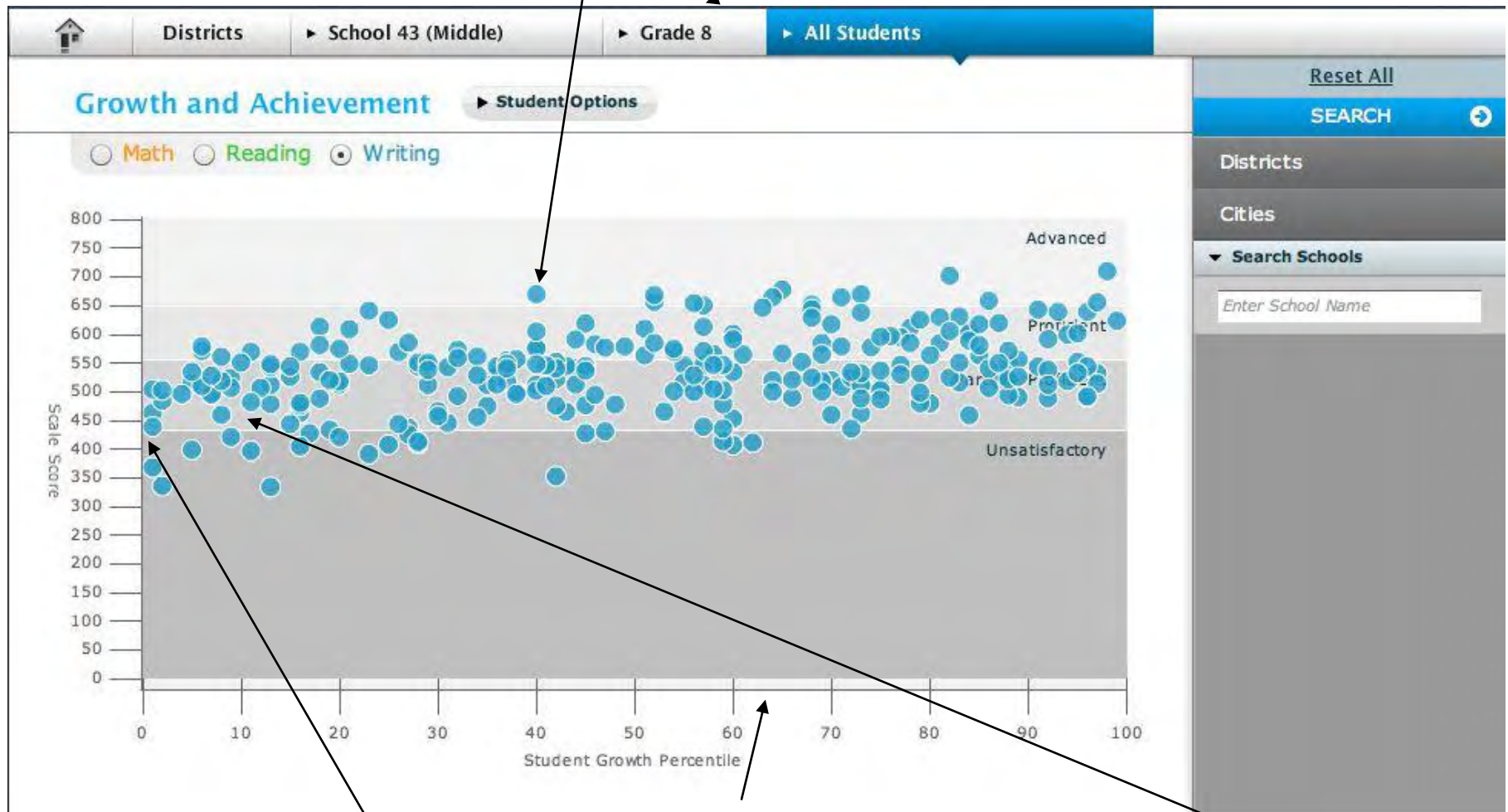
This vertical axis has changed. These numbers are actual scores obtained on this CSAP writing assessment. You can see where the cut scores for the different achievement levels are for 8th grade students in writing by following the thin white lines marking the divisions between the shaded regions all the way to the left. The student with the highest scores are on the top part of this data plot, going all the way across from left to right.

The horizontal axis has changed a little bit in this student-level view; we are still looking at student growth percentiles, but these are individual growth percentiles, not medians for groups of students. The scale is still the same (1-99) and it still has the same meaning (further to the right is higher growth).

If you only are interested in knowing which students have lower growth, you'd focus on the bubbles on the left-hand side of this data plot.

We are looking at all 8th grade students in School 43 right now. If you are looking for a particular student, use the alphabetical list that drops down when you choose the All Students button here. This is much faster than mousing over bubbles to search for someone without knowing where they are. The display will then change to show only that student's data.

Districts | ► School 43 (Middle) | ► Grade 8 | ► All Students

All Students
Acevedo, Evan
Aguilar, Andres
Ajayi, Alexandra
Aldrich, Brennah

Reset All

SEARCH

Districts

Cities

▼ Search Schools

Enter School Name

Growth and Achievement   ► Student Options

○ Math ○ Reading ● Writing

Proficient

Unsatisfactory

Scale Score

Student Growth Percentile
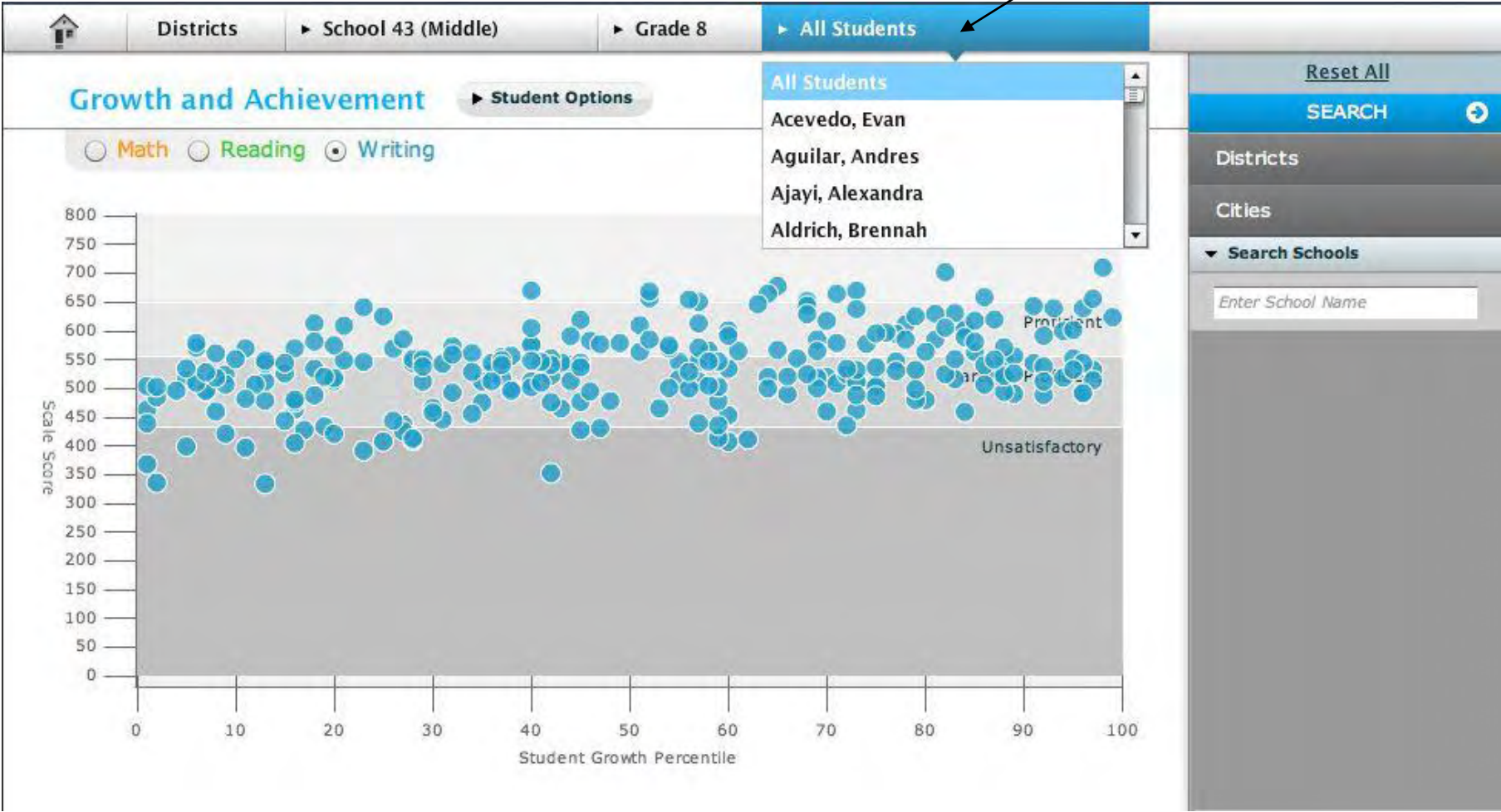
This is the deepest view available in the Colorado Growth Model. Bubbles represent test scores from a particular year (**not** children, groups of children, or schools as before). This view is the student's CSAP score history. You can see how a child scored in past years, as well as in the most recent year. You can also easily see what achievement level a child's score placed him or her into. This student is in the Advanced level.

You can see the CSAP score history for other students from the same grade and school by browsing through the alphabetical list here. The application remembers that you want to look at CSAP Writing data.

|	Districts	▸ School 43 (Middle)	▸ Grade 8	▸ Filter, Jacqueline		

Growth and Achievement

Jacqueline Filter

○ Math ○ Reading ⊙ Writing ☐ Growth Levels

View Student Report PDF

Reset All

SEARCH

Districts

Cities

▾ Search Schools

Enter School Name

Advanced

This vertical axis is still based on CSAP scores.

Proficient

Partially Proficient

Unsatisfactory

Grade 3	Grade 4	Grade 5	Grade 6	Grade 7	Grade 8	Grade 9	Grade 10
2003	2004	2005	2006	2007	2008	2009	2010

2003	2004	2005	2006	2007	2008	2009	2010

The shaded regions change level every year, because the score a student needs to be placed into a particular achievement level (such as Advanced) goes up every year. For example, a sixth-grader who gets a 601 on the Writing assessment is considered Advanced, but this same score in seventh grade is not high enough to get him/her into the Advanced level anymore, as shown by the level dotted line. The values on the vertical axis are the same every year, but the achievement level cut scores change, becoming higher for every higher grade.
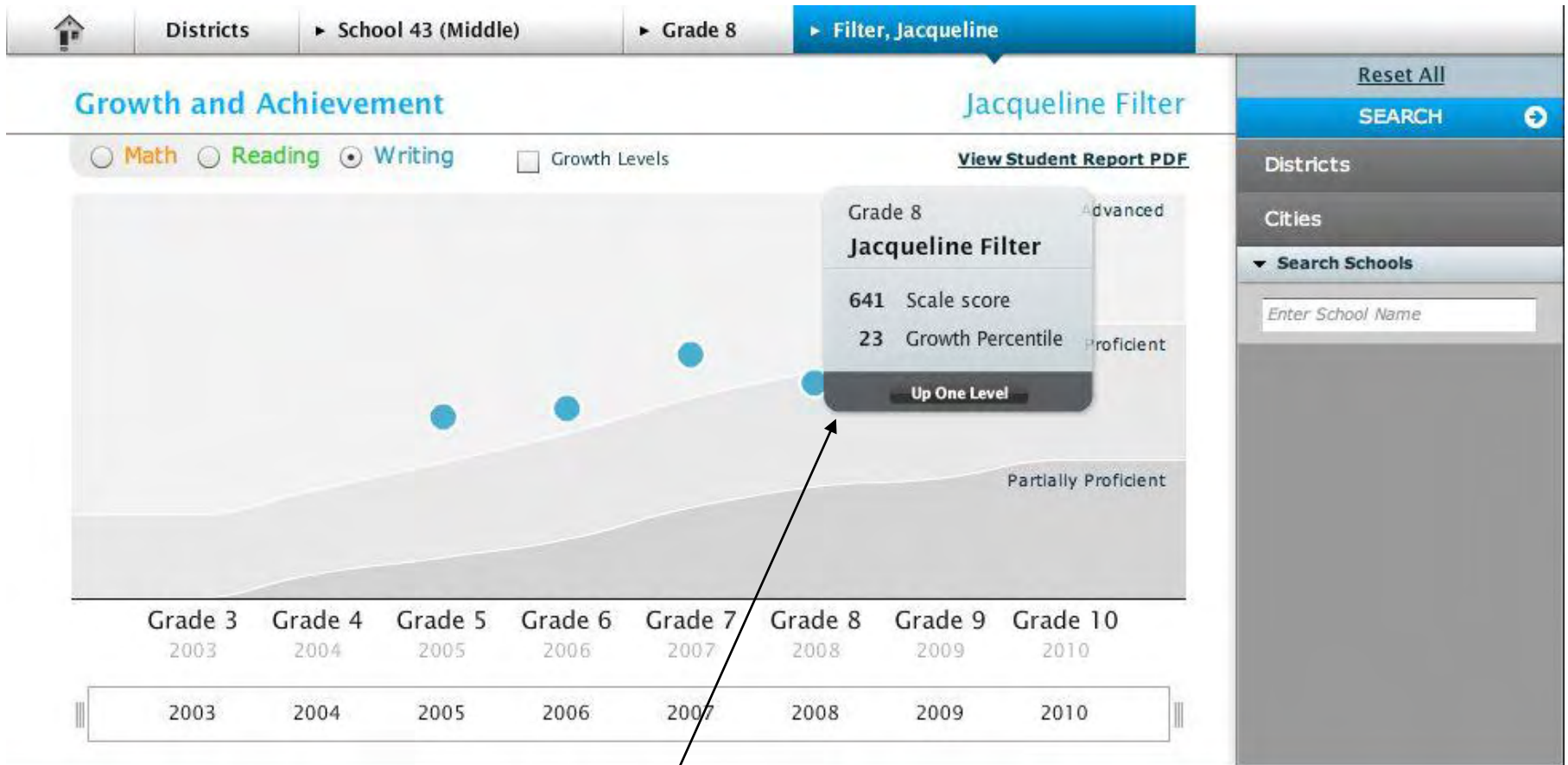
So where is the growth information for this student? Remember, a student growth percentile is a measure of how much growth a student made from one test to the next. **Mouse over any bubble** that has at least one other bubble to its left, and a popup window will display the Growth Percentile reflecting the amount of growth from the previous bubble to the one you're on. In this case, we are mousing over the student's grade 8 bubble. The popup window reveals the test score for that year and content area (Writing grade 8 in this case), and a student growth percentile of 23, representing her growth, or academic progress, from grade 7 to 8. 23 is not a very high amount of growth, and it looks like that low amount of academic progress caused this student to move down from Advanced to Proficient in Writing in just one year.

You could also mouse over this student's grade 7 or grade 6 bubbles for those years' growth percentiles. Mousing over her grade 5 bubble would produce a popup window with her CSAP Writing score from that year, but no growth percentile, because 2005 was apparently the first year that she took the CSAP Writing assessment in Colorado. Growth scores can only be calculated when a student has two test scores in the same subject area, in consecutive years, and in a normal grade progression.

You can click on this link to connect to CDE's servers and download an individual student growth and achievement report for this student. This is a two-page pdf that appears in a separate browser window on your computer. It has growth and score levels for this student for all CSAP content areas, and is made to be printed and used by students, parents, and teachers.

🏠	Districts	▶ School 43 (Middle)	▶ Grade 8	▶ Figueroa, Manuel

Growth and Achievement

Manuel Figueroa

○ Math ○ Reading ⊙ Writing   ☑ Growth Levels

View Student Report PDF

Advanced

Click on the checkbox next to Growth Levels to turn on this feature.

Proficient

Partially Proficient

Unsatisfactory

Grade 3	Grade 4	Grade 5	Grade 6	Grade 7	Grade 8	Grade 9	Grade 10
2003	2004	2005	2006	2007	2008	2009	2010

| 2003 | 2004 | 2005 | 2006 | 2007 | 2008 | 2009 | 2010 |

Reset All

SEARCH ➔

Districts

Cities

▼ **Search Schools**

Enter School Name

These "growth fans" tell us where different levels of growth for this student would have put this person into different achievement levels in past years. Green represents various levels of high growth, from 66-99th percentile growth. Typical growth is in the range from 36-65, and low growth is 1-35. In this example, Manuel's 7th grade score put him just barely into the Proficient achievement level. As you can see, if he only achieves typical levels of growth in the following year, that would land him back down in the Partially Proficient category (based on where growth in the yellow portion of the fan would put his test score in the following year). Manuel needed to achieve pretty high growth to stay above the borderline between Partially Proficient and Proficient, because that borderline area is covered by the green portion of the growth fan. As you can see from his 8th grade test score bubble, he unfortunately dropped down a level: His 8th grade bubble is down in the Partially Proficient category. It looks like he only got 40th or so percentile growth, and that dropped him down to a lower achievement level. Typical growth was not enough for him to remain Proficient.