MASSACHUSETTS Department of Elementary and Secondary Education

A Guide to MCAS Growth for Administrators

Student Growth Percentiles (SGP)

Student Growth Percentiles (SGPs) provide a measure of how much a student learned from one year to the next compared to other students with similar previous MCAS achievement. DESE encourages district and school administrators to set aside time to explore the causes of high and low levels of growth and to use SGP along with MCAS achievement measures to help inform improvement planning.

For more guidance, see the MCAS and Accountability Interpretation and Action Guide.

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Sample Confidential Growth Reports on Edwin Analytics

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The sample growth reports in this guide include publicly available information (sample report 1) as well as sample confidential growth reports in Edwin Analytics (sample reports 2–5). The sample reports show actual student data from 2023 and include guiding questions for administrators to use as they review and interpret growth data for their school and/or district.

School and district administrators are encouraged to contact mcas@mass.gov to share how they are interpreting their students' growth and to ask any questions about SGPs.

Interpreting Growth Reports

Growth reports provide information about how much change or "growth" there has been in MCAS achievement from year to year using SGPs.

SGPs range from 1 to 99, with higher numbers representing more growth and lower numbers representing less growth. All students, no matter their achievement level (e.g., Meeting Expectations, Not Meeting Expectations), can demonstrate any of the 99 growth percentiles.

Numeric values for SGPs translate to one of five growth levels, as shown in the table below[1]:

SGP	Growth Level
1–20	Very Low
21–40	Low
41–60	Moderate
61–80	High
81–99	Very High

SGPs measure how a student scored on the MCAS tests compared to their "academic peers"—i.e., students in the same grade statewide who received similar scores on previous MCAS assessments (up to 2 years prior). Therefore, a student's SGP reflects the percent of their academic peers that scored the same as or lower than the student. For example, a student with an SGP of 58 scored the same as or higher than 58% of their academic peers. Because this is a comparison between students with similar starting scores, SGP can also be interpreted as how much the student *grew*. A student with an SGP of 58 grew as much as or more than 58% of their peers.

At the school or district level, SGP is aggregated as an average of all student SGPs.

In interpreting SGP reports, it is important to note that differences of fewer than 10 points in growth scores from one year to the next should not be considered meaningful or significant.

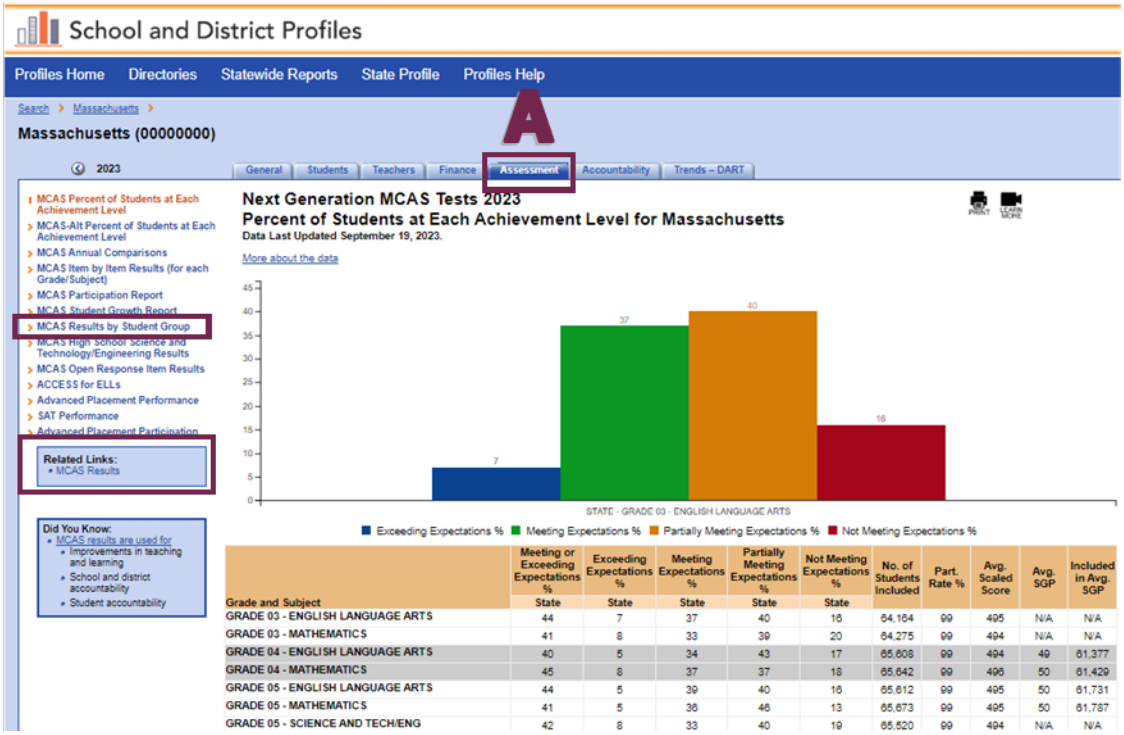
The sample reports in this document show the range of information that is provided by DESE's growth reports, each describing a different aspect of student growth. These **reports should be considered together** to get a fuller understanding of student growth in your school and/or district.

General background information on student growth can be found in A Practitioner's Guide to Growth Models by Drs. Castellano and Ho.

[1] This table is used by all assessment reports to distinguish levels of growth; accountability systems use a different table for growth levels.

How to Access Public Growth Reports on Student and District Profiles

Publicly available information about MCAS achievement levels is available on School and District Profiles under the Assessment Tab. Highlights are shown below.



Grade and Subject	Meeting or Exceeding Expectations %	Exceeding Expectations %	Meeting Expectations %	Partially Meeting Expectations %	Not Meeting Expectations %	No. of Students Included	Part. Rate %	Avg. Scaled Score	Avg. SGP	Included in Avg. SGP
	State	State	State	State	State					
GRADE 03 - ENGLISH LANGUAGE ARTS	44	7	37	40	16	64,164	99	495	N/A	N/A
GRADE 03 - MATHEMATICS	41	8	33	39	20	64,275	99	494	N/A	N/A
GRADE 04 - ENGLISH LANGUAGE ARTS	40	5	34	43	17	65,608	99	494	49	61,377
GRADE 04 - MATHEMATICS	45	8	37	37	18	65,642	99	496	50	61,429
GRADE 05 - ENGLISH LANGUAGE ARTS	44	5	39	40	16	65,612	99	495	50	61,731
GRADE 05 - MATHEMATICS	41	5	36	46	13	65,673	99	495	50	61,787
GRADE 05 - SCIENCE AND TECH/ENG	42	8	33	40	19	65,520	99	494	N/A	N/A

A

Percent of Students at Each Achievement Level

The Assessment page shows a table with student achievement and growth by grade and subject area. An accompanying bar chart shows the percentage of students scoring at each achievement level. In Profiles, click on the grade and subject area in the table to change what is displayed in the bar chart.

B

MCAS Results by Student Group

This page provides separate tables for each grade and subject area of MCAS achievement and growth disaggregated by student group. These tables allow users to compare subgroup performance side-by-side within particular grades and subjects.

C

MCAS Results

This page provides a district-level view of the average SGP and percentage of students at each achievement level. The drop-down menu at the top allows users to aggregate data by grade, subject, and subgroup.

Sample District Summary on School and District Profiles

To view MCAS achievement level results and SGP data for a specific school or district in School and District Profiles, go to **Directories > Public School Districts**, select a district name, and then select the **Assessment** tab. Users can also enter the name of the school or district in the search bar in the top right corner of the School and District Profiles website. Below is sample 2023 data.

Grade and Subject	Meeting or Exceeding Expectations %		Exceeding Expectations %		Meeting Expectations %		Partially Meeting Expectations %		Not Meeting Expectations %		No. of Students Included	Part. Rate %	Avg. Scaled Score	Avg. SGP	Included in Avg. SGP
	District	State	District	State	District	State	District	State	District	State					
GRADE 03 - ENGLISH LANGUAGE ARTS	61	44	8	7	53	37	29	40	10	16	968	100	515	N/A	N/A
GRADE 03 - MATHEMATICS	65	41	24	8	41	33	18	39	17	20	970	100	513	N/A	N/A
GRADE 04 - ENGLISH LANGUAGE ARTS	67	40	13	5	54	34	24	43	9	17	1,053	100	518	62	950
GRADE 04 - MATHEMATICS	54	45	18	8	36	37	37	37	9	18	1,044	100	510	56	936
GRADE 05 - ENGLISH LANGUAGE ARTS	74	44	28	5	46	39	22	40	4	16	950	100	534	58	852
GRADE 05 - MATHEMATICS	71	41	43	5	28	36	20	46	9	13	946	99	528	57	848
GRADE 05 - SCIENCE AND TECH/ENG	64	42	30	8	34	33	28	40	7	19	941	99	512	N/A	N/A
GRADE 06 - ENGLISH LANGUAGE ARTS	74	42	18	8	56	34	22	34	4	24	882	98	535	36	814
GRADE 06 - MATHEMATICS	57	41	21	7	36	34	27	42	16	17	883	98	504	19	812
GRADE 07 - ENGLISH LANGUAGE ARTS	71	40	12	8	59	33	23	40	6	19	864	98	524	50	770
GRADE 07 - MATHEMATICS	66	38	32	8	34	31	27	40	7	22	859	97	512	78	774
GRADE 08 - ENGLISH LANGUAGE ARTS	83	44	4	10	79	34	11	34	5	22	952	98	541	31	844
GRADE 08 - MATHEMATICS	38	38	5	7	33	30	46	42	16	20	937	97	492	42	844
GRADE 08 - SCIENCE AND TECH/ENG	38	41	4	6	34	35	56	40	6	19	924	95	493	N/A	N/A
GRADE 10 - ENGLISH LANGUAGE ARTS	86	58	48	15	38	43	10	30	5	11	756	96	545	81	478
GRADE 10 - MATHEMATICS	91	50	69	10	22	40	5	42	4	9	728	95	548	67	500
GRADE 10 - SCIENCE AND TECH/ENG	60	47	20	11	40	36	40	42	9	11	615	95	511	N/A	N/A
GRADES 03 - 08 - ENGLISH LANGUAGE ARTS	72	42	14	7	58	35	22	39	6	19	5,669	99	526	52	4,230
GRADE 03 - 08 - MATHEMATICS	58	41	24	7	35	33	29	41	12	18	5,639	99	504	54	4,214
GRADES 05 & 08 - SCIENCE AND TECH/ENG	51	41	17	7	34	34	42	40	7	19	1,865	97	498	N/A	N/A

Using a Data Review Table

The data review table below was created using the sample 2023 data displayed on the previous page. The "ME/E State Comparison" column shows the difference in percentile points between the percentage of students in the district and in the state who scored at the Meeting Expectations and Exceeding Expectations achievement levels. For example, in grade 4 grade ELA, 67% of students in the district scored at Meeting or Exceeding Expectations, compared to 40% of students in the state (67- 40 = 27). In this column, positive numbers indicate that the district had a higher percentage of students scoring at these levels than the state average; negative numbers indicate that the district had a lower percentage of students scoring at these levels than the state average.

Districts and schools can create their own data review table by using the "Avg. SGP" column from the table on the Assessment tab of the School and District Profiles website. They can determine the growth rate by matching the numeric SGP values to the growth levels shown in the table on page 2 of this guide. The example data review table below shows that the grade 6 math average SGP was 19, falling within the 1–19 range of "very low" growth.

Grade	Subject	ME/E State Comparison	Avg. SGP	District Growth Rate
4	ELA	+27	62	HIGH
4	MATH	+19	56	MODERATE
5	ELA	+30	58	MODERATE
5	MATH	+30	57	MODERATE
6	ELA	+32	36	LOW
6	MATH	+16	19	VERY LOW
7	ELA	+31	50	MODERATE
7	MATH	+28	78	HIGH
8	ELA	+39	31	LOW
8	MATH	0	42	MODERATE
10	ELA	+28	81	VERY HIGH
10	MATH	+41	67	HIGH
3–8	ELA	+30	52	MODERATE
3–8	MATH	+17	54	MODERATE

Interpreting Data Patterns

Using the data review table, users can infer that this district had strong ELA scores that were between 28 and 39 percentile points above the state percentage of students meeting or exceeding expectations in grades 5–8 and 10.

Students in 8th and 10th grade, in particular, showed high ELA mastery, with a higher proportion of students in the district meeting or exceeding expectations than students in the state—39 and 28 percentile points higher, respectively. However, looking at both achievement and growth can provide a deeper understanding of student learning in this district. Though a greater proportion of 8th grade students in this district showed grade-level content mastery, on average they

demonstrated lower rates of growth in ELA (Avg. SGP = 31). On average, 8th grade students in this district grew the same as or more than 31% of their academic peers in ELA. In contrast, this district had a greater proportion of 10th graders showing grade-level mastery in ELA and also demonstrated higher rates of growth (Avg. SGP = 81). On average, 10th grade students in this district grew the same as or more than 81% of academic peers in ELA.

Guiding Questions for School/District Leaders

1. How does my school/district compare to the state in terms of meeting or exceeding expectations?
2. What is the average growth rate for my school/district? Are there particular grades that may need more support? Are there particular grades that are averaging high rates of growth?
3. Considering these data patterns, what may be potential causes of high and low growth (e.g., curriculum, instructional practices, content scheduling)?
4. How will my school/district investigate causes of growth rates? What actions can we take to improve student learning (growth rate) or achievement (grade-level mastery)?

How to Access Confidential Growth Reports in Edwin Analytics

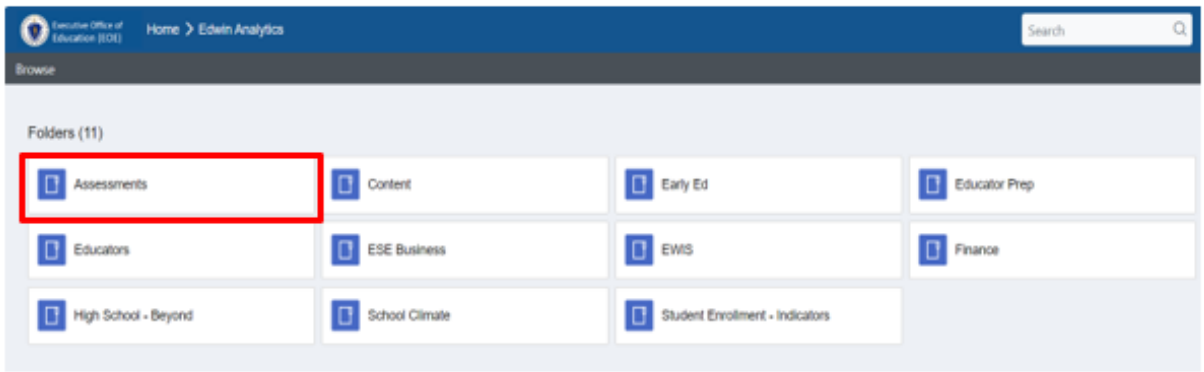
In addition to the public growth report, five confidential growth reports are available for district and school administrators in Edwin Analytics.

Questions about accessing Edwin should be directed to your district's Directory Administrator or Edwin Analytics Contact. Go to People Seach in Profiles, select one of these job functions from the **Function** menu, and click **Get Results.**

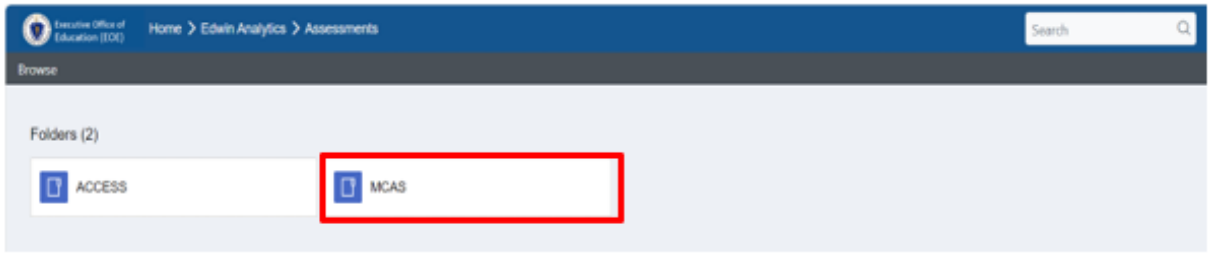
To access the reports in Edwin, click on the folders for **Assessments > MCAS > Growth Analysis**, as shown in the series of screenshots below.

1.

2.



3.



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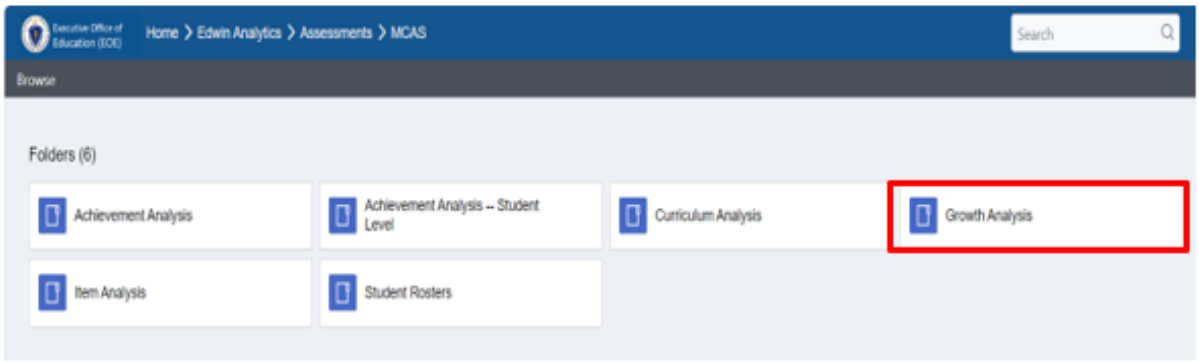


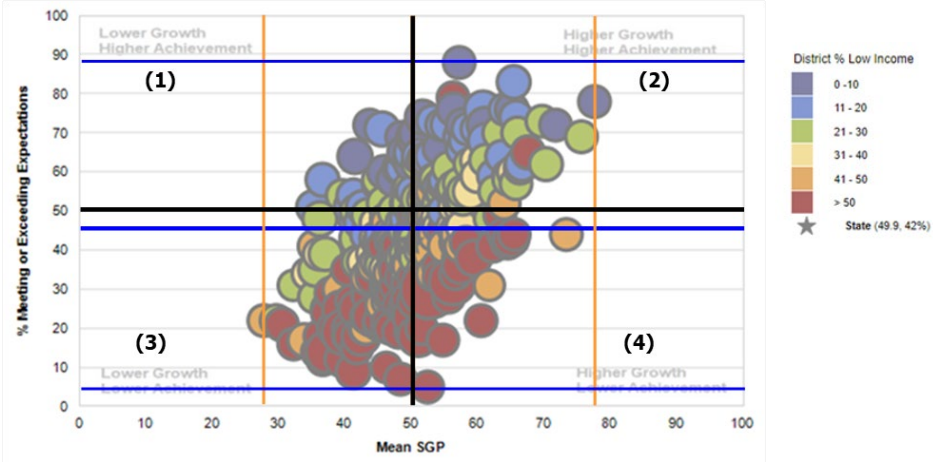
G201: MCAS Statewide Achievement and Growth by District

Report G201 shows the statewide comparison between growth and achievement by income level. Each circle is a data point that represents a single district. Districts are color-coded to indicate the percentage of students that qualify for the state low-income designation.[2] Districts can fall in one of four quadrants: (1) lower growth/higher achievement, (2) higher growth/higher achievement, (3) lower growth/lower achievement, or (4) higher growth/lower achievement. In Edwin, users can hover over a circle to view more information about a particular district.

Summarizing Data Patterns

To summarize this data, it can be helpful to estimate the range of scores for achievement and growth by drawing lines at the minimum (lowest value), mean (middle point, where there are about equal data points above and below), and maximum (highest value) for both achievement (y-axis) and student growth (x-axis).

In the sample scatter plot to the right, blue **horizontal lines** show the estimated minimum, mean, and maximum of achievement results. Orange **vertical lines** show the estimated minimum, mean, and maximum for growth. **Black lines** mark 50% Meeting or Exceeding Expectations and the mean SGP of 50.



Interpreting Data Patterns

As shown in the sample scatter plot, district average achievement has a wider range than district average growth. Most districts perform between 15% and 80% at the Meeting or Exceeding Expectations levels and have a mean SGP between 35 and 65. Most districts are in quadrants 2 (higher growth/higher achievement) and 3 (lower growth/lower achievement). Districts with lower percentages of students that meet the state low-income designation (<20% of students) are present mainly in quadrants 1 and 2, showing higher achievement but a range of growth. Districts with moderate percentages of students that meet the state low-income designation (21–40% of students), are present in all four quadrants, indicating a range of both achievement and growth. Districts with higher percentages of students that meet the state's low-income designation (41–50+%) are present mainly in

[2] "'Low Income' indicates students participating in one or more of the following state-administered programs: the Supplemental Nutrition Assistance Program (SNAP); the Transitional Assistance for Families with Dependent Children (TAFDC); the Department of Children and Families' (DCF) foster care program; expanded MassHealth (Medicaid) up to 185% of the federal poverty level; students identified by districts as homeless; and students the district confirmed had met the low-income criteria through the supplemental process and collected the required supporting documentation." School and District Profiles - Massachusetts Department of Elementary and Secondary Education

quadrants 2, 3, and 4, indicating a range of achievement and growth.

Guiding Questions for District Leaders

1. What quadrant does my district fall into, and how does that relate to comparable districts with similar student populations? [3]
2. How do these data align with my general understanding of academic achievement and learning within my district?
3. What additional information do I want to know to better understand these patterns?

[3] For help finding comparable districts, consult the DART tools.

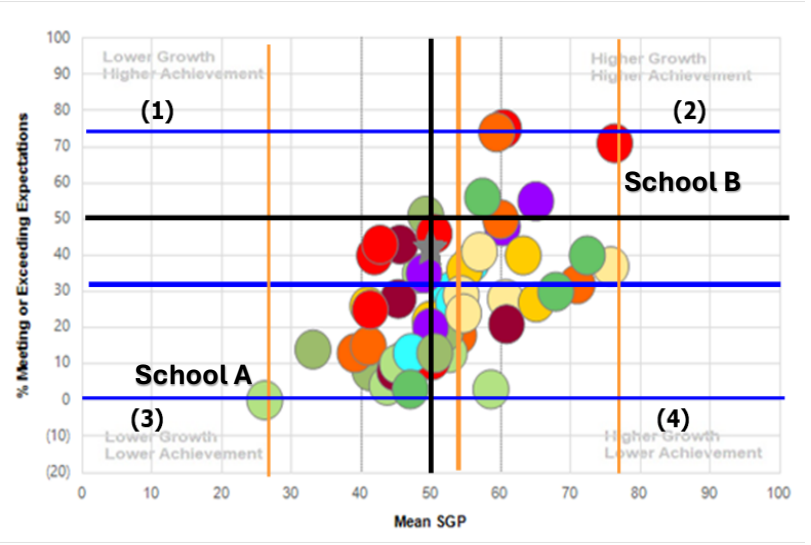
G301: MCAS District and School Achievement and Growth

Report G301 shows the districtwide comparison between growth and achievement displayed in a scatter plot and an accompanying data table. Each colored data point represents a school in the district. Schools can fall into one of four quadrants: (1) lower growth/higher achievement, (2) higher growth/higher achievement, (3) lower growth/lower achievement, or (4) higher growth/lower achievement. In Edwin, users can hover over a circle to view more information about a particular school as well as filter by student subgroups. The colors are randomly assigned to schools in this scatter plot.

Summarizing Data Patterns

To summarize this data, it can be helpful to estimate the range of scores for achievement and growth by drawing lines at the minimum, mean, and maximum for both achievement (y-axis) and student growth (x-axis).

In the sample scatter plot to the right, **blue horizontal lines** show the estimated minimum, mean, and maximum of achievement results. **Orange vertical lines** show the estimated minimum, mean, and maximum for growth. **Black lines** mark 50% Meeting or Exceeding Expectations and 50% mean SGP.



Interpreting Data Patterns

As shown in the scatter plot, the majority of schools are in quadrants 3 (lower growth/ lower achievement) and 4 (lower achievement/higher growth), indicating lower achievement overall but a range of growth. Most schools have between 0 and 55% of students meeting or exceeding expectations. Moreover, most schools average an SGP between 35 and 68, indicating mainly average growth (40–60).

There are a few outlier schools. Consider two case studies identified in the scatter plot and described below:

- **School A** has low growth (27) and achievement (0%). The mean SGP indicates that, on average, students in the school, regardless of achievement status, show as much or more growth than 27% of their academic peers.
- **School B** is showing high growth (74) and achievement (70%). The mean SGP indicates that, on average, students in the school, regardless of achievement status, show as much or more growth than 70% of their academic peers.

Guiding Questions for District Leaders

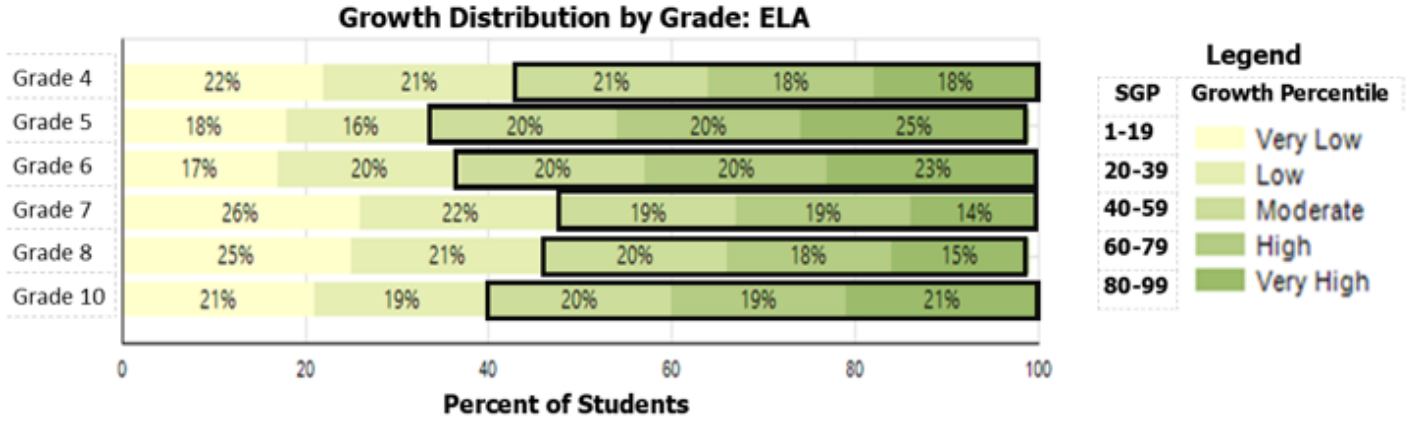
1. In what quadrant do most schools in my district fall?
2. Are there outlier schools in my district?
3. How do these data align with my general understanding of academic achievement and learning within my school/district?
4. What may be causing these data patterns?
5. What actions can my school/district take to try to improve student growth or achievement?

G302: MCAS District and School Growth Distribution

Report G302 is unique in that it allows users to further investigate differences in growth across the district using a stacked bar graph and an accompanying table. The stacked bar graph allows users to see the proportion of students at each level of growth (very low to very high). Users can compare by school, race, gender, grade, and by other demographic subgroups. A table (not shown here) provides additional data about the percent of students meeting or exceeding expectations and the mean SGP of each student group. Sample data are shown in the graph below.

Summarizing Data Patterns

To better understand where in your district more students are experiencing various levels of growth, it can be helpful to focus on the percentage of students making moderate to very high growth (SGP 40–99). Using this example, proportions are summarized in the table below by simply adding percentiles in each grade from the graph. Other performance metrics (mean SGP, % meeting or exceeding expectations) shown in the table are taken directly from the G302 report.



Data Usage Note

SGP always compares the performance of individual students to their academic peers from previous MCAS administrations. In this example, the mean SGP *averages* the SGPs of all district students within a particular grade. Depending on the which filters a user applies to the data, the average SGP may include all students in a school or all students of a particular reporting category (e.g., students with disabilities).

Interpreting Data Patterns

In this example, all grades have a mean SGP between 45 and 54, indicating moderate growth across the district. However, only about 20% of students fall in this growth range (40–59 SGP), as shown in the stacked bar graph on the previous page. As summarized in the data review table, 52–65% of students at each grade are making moderate to very high growth (40–99 SGP).

In grades 7 and 8, a lower percentage of students are making at least moderate growth compared to students in grades 4, 5, 6, and 10. In this example, in grade 7, 52% of students scored at least the same as or better than 40% of their academic peers from previous MCAS administrations (earning SGPs between 40 and 99).

More students in grade 5 showed moderate to high growth rates than any other grade. In grade 5, 65% of students scored the same as or better than at least 40% of their academic peers. Moreover, as shown in the stacked bar graph, 25% of grade 5 students scored the same as or better than at least 80% of their academic peers (very high growth).

Data Review Table

	% Moderate to Very High Growth	Avg. SGP	% Meeting or Exceeding Expectations
Grade 4	57	48	26
Grade 5	65	54	32
Grade 6	63	53	30
Grade 7	52	45	26
Grade 8	53	46	30
Grade 10	60	50	47

Grade 8 has the same level of achievement as grade 6 in terms of the percentage of students meeting or exceeding expectations (shown in the last column in the table above). However, grade 6 has a higher proportion of students making moderate to very high growth (63%) than grade 8 does, indicating that, on average, more grade 6 students than grade 8 students (53%) grew at a moderate to high rate.

Guiding Questions for District Leaders

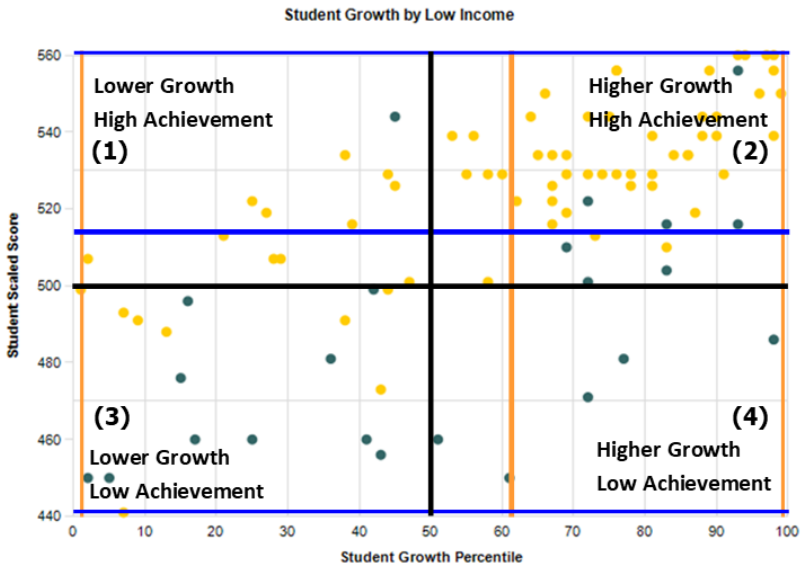
1. How do these results compare to results from the past few years? Are these grade-specific patterns consistent across years?
2. How do these data align with initiatives, curriculum cycles, and instructional support in my district?
3. What challenges do educators face in supporting students so they can master grade-level material? Are any of these challenges grade-specific?
4. What are potential areas for intervention and support to help more of our students reach a growth level that is on par with their academic peers?

G601: MCAS Student Growth Scatter Plot

Like the G201 district report (p. 8), G601 provides a visual relation between SGP and achievement. However, G601 focuses on the relationship between achievement and SGP among *individual students*. Each data point in G601 represents an individual student. In Edwin, users can select specific schools and grades, as well as a focal student group for comparison. For example, in the scatter plot below, income designation is color-coded. Green dots represent students that meet the criterion for low-income designation. Gold dots represent students that do not meet the criterion for low-income designation.[4] Other student groups include EL status, disability status, race/ethnicity, gender, and needs designation. This report is most useful when viewed in Edwin, because hovering over a data point will display the student's name.

Summarizing Data Patterns

To summarize the data, it can be helpful to estimate the range of scores for achievement and growth. In the scatter plot to the right, **blue horizontal lines** show the estimated minimum, mean, and maximum of achievement results. **Orange vertical lines** show the estimated minimum, mean, and maximum for growth. **Black lines** mark 500—the Meeting Expectations cut—and the mean SGP of 50, representing moderate growth.



Interpreting Data Patterns

In this example, most students in the district are in quadrant 2 (higher growth/higher achievement). In fact, all students that performed at the top end of the achievement scale (scaled score > 550) also showed the same or greater growth than at least 75% of academic peers (high growth).

Guiding Questions for District Leaders

1. How do these data align with my general understanding of academic achievement and learning within my district?
2. What additional information do I want to know to better understand these patterns?

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[4] "'Low Income' indicates students participating in one or more of the following state-administered programs: the Supplemental Nutrition Assistance Program (SNAP); the Transitional Assistance for Families with Dependent Children (TAFDC); the Department of Children and Families' (DCF) foster care program; expanded MassHealth (Medicaid) up to 185% of the federal poverty level; students identified by districts as homeless; and students the district confirmed had met the low-income criteria through the supplemental process and collected the required supporting documentation." School and District Profiles - Massachusetts Department of Elementary and Secondary Education

G602: MCAS Student Growth Roster

The student growth roster report displays historical data for student achievement and growth side by side. The report displays MCAS performance and growth data for three years for all students in the same grade within each school or district.

The following student roster report depicts sample grade 6 data.

SASID	Last, First, MI	ELA 2021	ELA 2022	ELA 2023	2023 ELA SGP	Math 2021	Math 2022	Math 2023	2023 Math SGP
1234567890	Adams, John	509	495	530	97	499	520	505	20
1234567891	Barzola, Kimberly	520	502	495	24	485	489	492	76
1234567892	Chokalingam, Vera, M	476	481	487	40	487	487	481	62
1234567893	Du Bois, William, E	505	509	523	71	492	492	492	71

Interpreting Data Patterns

In the example above, Vera's ELA scores have increased from year to year. She scored at the 40th percentile compared to her academic peers with similar MCAS score histories, showing moderate growth (SGP = 40). Although her math scores dropped from 2022 to 2023, she showed high growth (SGP = 62), scoring the same as or better than 62% of her academic peers in math in 2023.

William's scores in ELA have been improving, and his scores in math have remained flat. However, in both ELA and math, William showed high growth (SGP = 71) in 2023 compared to his academic peers with similar MCAS score histories. William grew as much as or more than 71% of his academic peers in math and ELA in 2023.

Guiding Questions for District Leaders

Reviewing and understanding trends in individual student data can be helpful to educators, educational specialists, and administrators in curriculum, multilingual learner and special education departments. DESE encourages administrators to share these reports with educators. Below are some guiding questions to use when reviewing the G602 report.

1. What are general trends over time for this student? Have they maintained similar levels of achievement or growth, or is there variation from year to year? What are any potential causes of this data pattern (e.g., child's personal life, particular difficulty with or mastery of certain concepts, attendance, access to academic support)?
2. How does the student's MCAS history align with what you know about the student and their performance in classroom assessments?
3. Using this information with other relevant data (e.g., MCAS item analysis, formative assessment data, any relevant diagnoses), what is an achievable goal for this student? What support plan or extension activities might be appropriate for the student?