Colorado Measures of Academic Success Colorado Alternate Assessment Program

Science and Social Studies



Interpretive Guide to Assessment Reports

A Guide for Parents and Educators



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General Information for Parents and Educators

Background

The Colorado-created Colorado Academic Standards (CAS) were adopted by the State in <u>science</u> and <u>social studies</u> in December of 2009. The CAS outline the concepts and skills, including 21st century skills, that students need in order to be successful in the current grade as well as to make academic progress from year to year. The ultimate goal of the CAS is for all Colorado students to graduate college and career ready. School districts were required to fully implement the CAS in the 2013–14 school year.

The Colorado Department of Education developed new assessments to evaluate student mastery of the CAS in science and social studies in partnership with Colorado educators and Pearson, Inc. These assessments were given for the first time in the spring of 2014 to students in grades 4 and 7 in social studies, and to students in grades 5 and 8 in science. The high school science and social studies assessments were given for the first time in the fall of 2014.

Two assessments address the CAS: the Colorado Measures of Academic Success (CMAS) and the Colorado Alternate (CoAlt). The majority of students participate in CMAS while a very small percentage of students, those with the most significant cognitive disabilities, participate in CoAlt.

CMAS

CMAS is Colorado's standards-based assessment designed to measure the CAS in the content areas of science and social studies. The purpose of the CMAS assessments is to indicate the degree to which students have mastered the CAS in science and social studies at the end of the tested grade level. CMAS results are intended to provide one measure of a student's academic progress relative to the CAS.

CMAS for science and social studies were Colorado's first state-wide computer-based assessments. The online assessments allow for new item types that were not possible under the prior paper-based system, such as science simulations. Online presentation also fosters increased student engagement. The assessments were designed to provide high level content area information (i.e., a science score or social studies score), as well as standard-specific scores. For example, social studies assessment reports include an overall social studies score as well as subscores in the areas of history, geography, economics, and civics. Districts and schools may use scores at this level to compare performance from year to year to monitor their programs' effectiveness.

CoAlt

CoAlt is the standards-based assessment designed specifically for students with the most significant cognitive disabilities who are unable to participate in CMAS, even with accommodations. Students must meet participation requirements to take CoAlt. CoAlt assesses the performance expectations of the CAS for students with significant cognitive disabilities as expressed in the Extended Evidence Outcomes (EEOs) of the CAS. The primary purpose of the assessment program is to determine the level at which Colorado students with significant cognitive disabilities meet the EEOs of the CAS in the content areas of science and social studies at the end of the tested grade level.

CoAlt assessments are administered in a one-on-one setting between teachers and students. Teachers use CoAlt scoring rubrics to evaluate student responses before submitting performance results.

Confidentiality and Reporting of Results

The results of individual student performance on CMAS and CoAlt are confidential and may be released only in accordance with the Family Educational Rights and Privacy Act of 1974 (20 U.S.C. Section 1232g). Aggregated student performance data representing 16 or more students is made available to the public. Aggregated reports do not contain the names of individual students or teachers.

Purpose of this Guide

This guide provides information on the reports provided for CMAS and CoAlt at the individual student, school, and district levels. Sections B and C can be shared with parents. They display and explain elements of the CMAS and CoAlt science and social studies student performance reports to assist parents in understanding their child's test results. Sections D and E display and explain elements of the CMAS and CoAlt science and social studies school and district reports.

A Parent and Educator Guide to Understanding the Colorado Measures of Academic Success (CMAS) Student Performance Report

Program Overview

CMAS is Colorado's standards-based assessment designed to measure the Colorado Academic Standards (CAS). The CAS contain the concepts and skills students need to learn in order to be successful in the current grade and to make academic progress from year to year. CMAS science assessments are given each spring to students in grades 5, 8, and once in high school, while CMAS social studies assessments are given in grades 4 and 7 (social studies assessments are administered on a sampling basis to one-third of the elementary and middle schools each year). The purpose of the CMAS is to indicate the degree to which students have mastered the CAS in the assessed content areas at the end of the tested grade level. CMAS results are intended to provide one measure of a student's academic progress relative to the CAS.

A Student Performance Report is created for each student who takes a CMAS assessment so that parents can understand their child's command over the Colorado Academic Standards in the assessed grade level and content area. This section of the guide explains the elements of the Student Performance Report.

Types of Scores on the CMAS Student Performance Report

To understand each part of the Student Performance Report, it is important to become familiar with the types of assessment scores that are included on the report. At varying levels, student performance is described by scale scores, performance levels, and percent correct. State, district, and school level information is also provided in relevant sections of the Student Performance Report to help parents understand how their child's performance compares to other students.

Scale Scores

When the points a student earns on an assessment are placed on a common scale, the student's score becomes a scale score. Scale scores adjust for slight differences in difficulty on versions of the assessment that can vary slightly from student to student within a year (referred to as forms of the assessment) or between school years (referred to as administrations). Scale scores allow for comparisons of assessment scores, within a particular grade and subject area, across administrations. As an example, a student who receives a score of 475 on one form of the 7th grade social studies assessment is expected to score a 475 on any form of the assessment. Scale scores maintain their meaning and can be compared across years. A student who scores 650 on 8th grade science in 2017 will demonstrate the same level of mastery of concepts and skills as an 8th grade science student who scores 650 in 2016. For CMAS science and social studies, scale scores cannot be used to compare student performance across grades (e.g., grade 4 to grade 7) or subject areas (e.g., science to social studies).

Scale scores for the CMAS science and social studies assessments range from 300 to 900. Scale scores are reported for the overall test, content standards and Scientific Inquiry/Nature of Science (referred to as "Reporting Categories"), and Item type.

Performance Levels

Scale scores are used to determine a student's performance level for the overall assessment. Each performance level describes a range of scores at the overall assessment level (i.e., science or social studies). The range of scores in each performance level were recommended by a group of Colorado

educators and adopted by the Colorado State Board of Education. Performance levels describe the concepts and skills that students are expected to demonstrate at each of the levels. The grade level concepts and skills related to each performance level are listed on page 4 of the Student Performance Report. The four cross-grade and content area performance levels are Exceeded Expectations, Met Expectations, Approached Expectations, and Partially Met Expectations. Performance Level Descriptors for each grade level and content area are included in Appendix A of this document.

Elementary and middle school students in the top two performance levels, Exceeded Expectations and Met Expectations, are considered on track to being college and career ready in the content area of science or social studies; high school students in the top two performance levels are considered college and career ready. The Approached Expectations or Partially Met Expectations performance levels indicate that students in these levels may need academic support to successfully engage in further studies in the content area.

Percent Correct

Percent correct refers to the number of points a student earned out of the total number of points possible within a reporting category. The percent correct indicator can only be used to compare performance of the individual student to the average district and average state performance on the specific set of items being considered. Some groups of items may be more difficult than other sets of items, so unlike the scale score, the percent correct indicator cannot be compared across groups of items or across school years. Percent correct scores are provided for Prepared Graduate Competencies (PGCs) and Grade Level Expectations (GLEs) in elementary and middle school reports. Percent correct scores are provided at the PGC level in the high school report. PGCs and GLEs are described more fully later in this guide.

Sample CMAS Student Performance Report

A sample grade 5 Student Performance Report is displayed at the end of this section on pages B-6 to B-9. Each page of the sample report is included individually. The sample report includes the same type of information that is included on all of the science and social studies reports. The information below describes each part of the report. To learn more about each part of the Student Performance Report, match the white letters in gray circles from the sample report to the information included with the corresponding letters on the following pages.

General Information (Refer to Page 1 of the Student Performance Report)

A. Identification Information

The top of the Student Performance Report lists your child's name, state assigned student identification number (SASID), birthdate, school, and district.

B. Test Date

The season and year your child took the assessment is indicated.

C. Subject Area

The subject area of your child's assessment is identified (either science or social studies).

D. Grade Level

The grade level of your child's assessment is indicated.

Overall Assessment Scores (Refer to Page 1 of the Student Performance Report)

E. Explanation of Overall Performance

A brief explanation of the overall assessment results is given to help you understand the information provided in the box below the explanation.

F. Your Child's Overall Scale Score and Performance Level

Your child's overall scale score (the number between 300 and 900), performance level

(Exceeded Expectations, Met Expectations, Approached Expectations, Partially Met Expectations), and percentile ranking are provided. The scale score and performance level included in this part of the report represent your child's overall performance on the assessment in the content area (science or social studies). The percentile ranking shows how well your child performed in comparison to other students in the state. For example, a student in the 75th percentile performed better than 75 percent of students in the state. Grade level and content area specific performance level descriptors providing the concepts and skills students are typically able to demonstrate at each level may be found on the last page of the report.

G. Graphical Representation of Overall Performance: Scale Score and Performance Level by Student, School, District, and State

Your child's scale score is indicated by a large diamond on the graph. The arrows to the left and right of the diamond indicate the range of scores your child would likely receive if the assessment was taken multiple times.

The average scale scores at the school, district, and state levels are identified to the left of the graph and are indicated by smaller diamonds on the graph. By comparing the location of the diamonds, you can see how your child performed in comparison to the average student in their school, district, or the state. If your child's score diamond is to the right of the school, district, or state average diamond, then your child performed better than that group's average. If your child's diamond is to the left of the school, district, or state diamond, then on average, that group performed better than your child.

The dotted lines on the graph show the lowest scores needed to achieve Approached Expectations, Met Expectations, and Exceeded Expectations performance levels. The scale scores representing each of those scores are indicated on the bottom of the graph.

Subscale Performance (Refer to Page 1 of the Student Performance Report)

H. Explanation of Subscale Performance

In this part of the report, your child's performance is presented by individual reporting categories. Information to help you understand the graphical representation in this section is included.

I. Reporting Category Descriptions

Reporting categories include the standards for social studies (history, geography, economics, and civics) and for science (physical science, life science, and earth systems science). Science also includes Scientific Investigation and the Nature of Science as a reporting category. Descriptions of the reporting categories from the CAS are included in this section of the report.

J. Subscale Scores

Subscale scores indicate how your child performed in each reporting category. Like the overall science and social studies scale scores, subscale scores range from 300 to 900 and can be compared across school years. Average subscale scores are also provided for your child's school and district.

K. Graphical Representation of Subscale Performance by Student, School, and District

The graphical representation of subscale performance shows how your child performed in each reporting category. Your child's performance is represented by a large diamond on the graph. The arrows around your child's diamond show the range of scores that your child would likely receive if the assessment was taken multiple times.

The graphical representation also shows how your child performed in comparison to other students in your child's school or district. Performance of students in the school and district are represented by smaller diamonds. If your child's score diamond is to the right of the school or district average diamond, then your child's scale score was higher than the school or district average scale score. If your child's diamond is to the left, then your child's scale score was lower than the school or district average.

The shaded areas of the graph represent the performance of about 70% of students in the state. If your child's score diamond is to the right of the shaded area, your child's performance is considered relatively strong in that area in comparison to other students in the state. If your child's score diamond is to the left of the shaded area, your child's performance is considered relatively weak in that area in comparison to other students in the state. These categories are based on the state performance for the current year and can change from year to year.

L. Document Process Number

The document number located in the bottom-right corner of the report is a unique number that is assigned to your child's record by the testing contractor.

Performance by Prepared Graduate Competencies (PGCs) and Grade Level Expectations (GLEs) (Refer to Page 2 of the Student Performance Report)

M. Explanation

PGCs and GLEs are important parts of the Colorado Academic Standards. PGCs represent the concepts and skills students need to master in order to be college and career ready by the time of graduation. GLEs are grade-specific expectations that indicate that students are making progress toward the PGCs. This section of the report describes performance with percent correct for PGCs and GLEs at the elementary and middle school levels and for PGCs at the high school level.

N. Graph Key

The graph key includes the explanatory text for the bars in the Percent Correct graph: student's performance, district average, and state average.

O. Standard, PGC, and GLE

Descriptions of the PGCs and GLEs that were included on the assessment are listed under each standard. **NOTE: The high school report does not include GLE-level information.**

P. Points Possible

This number shows the total points possible for each PGC and GLE on the assessment. **NOTE: Information is not reported at the GLE level on the high school report.**

Q. Graphical Representation of Percent Correct

The graph shows the percentage of items that were answered correctly out of the total number of items for each PGC and GLE. When looking at the shaded bars in the graph, you can compare your child's performance to the average district and state performance. Keep in mind that there are relatively few points associated with each PGC or GLE. A student's bar can look much longer or much shorter based on a single correct or incorrect item-response. **NOTE: Information is not reported at the GLE level on the high school report.**

On elementary and middle school reports, the graph for the PGCs is blank when a PGC has only one associated GLE.

Remember, percent correct score information cannot be compared across PGCs, GLEs, or years.

Performance by Item Type (Refer to Page 3 of the Student Performance Report)

CMAS assessments include selected-response and constructed-response items. Selected-response items require students to choose the correct answer(s) from options provided. Sometimes these are referred to as multiple choice items. In the CMAS computer-based assessments, these can also include technology-enhanced items referred to as drag-and-drop and hot spot. Constructed-response items require students to develop their own answers to questions.

R. Selected-Response Scale Score

Your child's scale score for selected-response items is shown. You can compare your child's scale score with the average scale scores for selected-response items for your child's school, district, and the state. Your child's school and district can compare next year's groups of

students to this year's students by looking at selected-response scale scores. This information can be used to support school and district program and instructional improvement decisions.

S. Constructed-Response Scale Score

Your child's scale score for constructed-response items is shown. You can compare your child's scale score with the average scale scores for constructed-response items for your child's school, district, and the state. Your child's school and district can look at next year's groups of students and compare them to this year on the constructed-response scale score. This information can be used to support school and district program and instructional improvement decisions.

T. Graphical Representation of Selected-Response and Constructed-Response Scale Scores

A graphical representation of your child's scale score is provided. The large diamond on the graph represents your child's scale score. The arrows around your child's score diamond show the range of scores that your child would likely receive if the assessment was taken multiple times. The smaller diamonds represent the average scale scores of your child's school, district, and the state. If your child's score diamond is to the right of the school, district, or state average diamond, then your child performed better than that group's average. If your child's diamond is to the left of the school, district, or state diamond, then that group performed better than your child on average.

Performance Level Descriptions (Refer to Page 4 of the Student Performance Report)

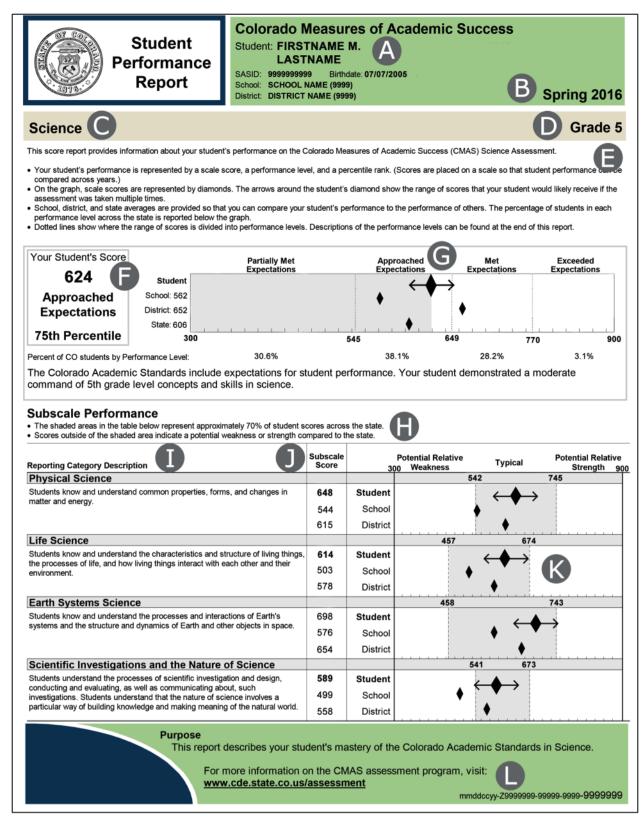
U. Performance Level Descriptions

Specific grade level and content area descriptions have been developed for each of the four CMAS performance levels:

- Exceeded Expectations
- Met Expectations
- Approached Expectations
- Partially Met Expectations

Your child's report will reflect the performance level descriptions specific to the assessed grade level and content area. These performance level descriptors describe the specific concepts and skills that students in each performance level typically demonstrate for your child's assessed grade level and content area. Performance level descriptors for each grade level and content area are included in Appendix A of this document.

Elementary and middle school students in the top two performance levels, Exceeded Expectations and Met Expectations, are considered on track to being college and career ready in the content area of science or social studies; high school students in the top two performance levels are considered ready.



• With	nance by Prepared Graduate Competencies (PGCs) and Grad in each standard, PGCs are identified. PGCs represent the concepts I to master in order to be college and career ready.	and skills	that stu	Idents	.Es)		
 The representation 	s are grade-specific expectations that indicate a student is making p figure below shows the percentage of items that your student answer esented in the grade. If there is more than one GLE for a PGC, the p ent answered correctly by PGC is also provided.	red correct	ly for ea	ach GLE	Dis	dent's per trict avera te average	ge
Standa	rd, PGC, and GLE	Points		Q Per 0% 25	rcent Correct % 50%	* 75%	4009/
Physic	al Science	Possibi	e	0% 25	70 50 70	15%	100%
PGC 1:	Apply an understanding of atomic and molecular structure to explain the properties of ma and predict outcomes of chemical and nuclear reactions	atter,					
GLE 1:	Mixtures of matter can be separated regardless of how they were created; all weight and mass of the mixture are the same as the sum of weight and mass of its parts	20	67%				
Life Sc	ience					1	
PGC 1:	Analyze how various organisms grow, develop, and differentiate during their lifetimes bas on an interplay between genetics and their environment	sed					
GLE 1:	All organisms have structures and systems with separate functions	13	68%				
PGC 2:	Analyze the relationship between structure and function in living systems at a variety of organizational levels, and recognize living systems' dependence on natural selection						
GLE 2:	Human body systems have basic structures, functions, and needs	17	66%				
Earth S	Systems Science						
PGC 1:	Describe how humans are dependent on the diversity of resources provided by Earth and Sun	t					
GLE 1:	Earth and sun provide a diversity of renewable and nonrenewable resources	10	79%				-
PGC 2:	Evaluate evidence that Earth's geosphere, atmosphere, hydrosphere, and biosphere inte as a complex system	ract 20	80%			-	-
GLE 2:	Earth's surface changes constantly through a variety of processes and forces	11	67%				
GLE 3:	Weather conditions change because of the uneven heating of Earth's surface by the Sur energy. Weather changes are measured by differences in temperature, air pressure, win and water in the atmosphere and type of precipitation		66%		_	_	
	rrect scores cannot be compared across years because individual items change from year of items and the difficulty of items may not be the same.						

			FIRSTNAME M. LASTNA
			Grad
Performa	nce by	ltem Ty	ре
CMAS assessments include selected-response and construct score for each item type in relation to school, district, and sta			Ô
Selected-Response Scale Score	599	Student	\leftrightarrow
Selected-Response Items: Items that require students to choose	520	School	♦ * ♥ *
the correct answer(s) from options provided	582	District	♦.
	613	State	•
Constructed-Response Scale Score	628	Student	
Constructed-Response Scale Scole	569	School	
Constructed-Response Items: Open-ended items that require students to develop their own answer to a guestion	605	District	÷
	000	District	▼ ▲

Science Performance Level Descriptions Students demonstrate mastery of science concepts and 21st century skills aligned to the Colorado Academic Standards at various performance levels. The performance level descriptors are organized in a manner that assumes students demonstrating higher levels of command have mastered the concepts and skills within the lower levels. For example, a student at moderate command also masters the concepts and skills of limited command. Students who Exceeded Expectations demonstrated distinguished command of the Colorado Academic Standards and can typically evaluate and provide feedback on scientific evidence and reasoning about the separation of mixtures and how separation affects the total weight/mass; develop hypotheses about why similarities and differences exist between the body systems and parts of humans, plants, and animals; evaluate scientific claims about natural resources, in terms of reasonability and validity; and assess and provide feedback, through reasoning based on evidence, on scientific explanations about weather and factors that change Earth's surface. Students who Met Expectations demonstrated strong command of the Colorado Academic Standards and can typically explain why certain procedures that are used to separate simple mixtures work and discuss any unexpected results: evaluate evidence and models of the structure and functions of human, plant, and animal organs and organ systems; investigate and generate evidence that human systems are interdependent; analyze and interpret data to explore concerns associated with natural resources; and formulate testable questions and scientific explanations around weather and factors that change Earth's surface. • Students who Approached Expectations demonstrated moderate command of the Colorado Academic Standards and can typically discuss how the mass/weight of a mixture is a sum of its parts and design a procedure to separate simple mixtures based on physical properties; create models of human, plant, and animal organ systems, and compare and contrast similarities and differences between the organisms; explore and describe the origins and usage of natural resources in Colorado; and interpret data about Earth, including weather and changes to Earth's surface. Students who Partially Met Expectations demonstrated limited command of the Colorado Academic Standards and can typically select appropriate tools and follow procedures to separate simple mixtures; identify how humans, plants, and animals address basic survival needs; identify the functions of human body systems; distinguish between renewable and nonrenewable resources; and use appropriate tools and resources to gather data regarding weather conditions and Earth processes.

For more information about the standards included in this assessment, please visit the Colorado Department of Education's website at www.cde.state.co.us/standardsandinstruction

A Parent and Educator Guide to Understanding the Colorado Alternate (CoAlt) Student Performance Report

Program Overview

CoAlt is the standards-based assessment designed specifically for students with the most significant cognitive disabilities who are unable to participate in CMAS, even with accommodations. Students must meet participation requirements to take CoAlt. CoAlt assesses the performance expectations of the Colorado Academic Standards (CAS) for students with significant cognitive disabilities as expressed in the Extended Evidence Outcomes (EEOs) of the CAS. The primary purpose of the assessment program is to determine the level at which Colorado students with significant cognitive disabilities meet the EEOs of the CAS in the content areas of science and social studies at the tested grade level. CoAlt results are intended to provide one measure of a student's academic progress relative to the EEOs of the CAS. CoAlt science assessments are given to students in grades 5, 8, and once in high school, while CoAlt social studies assessments are given in grades 4 and 7 (social studies assessments are administered on a sampling basis to one-third of the elementary and middle schools each year).

CoAlt assessments are administered in a one-on-one setting between teachers and students. Teachers use CoAlt scoring rubrics to evaluate student responses before submitting performance results.

A Student Performance Report is created for each student who takes a CoAlt assessment. This section of the guide explains the elements of the Student Performance Report.

Types of Scores on the CoAlt Student Performance Report

To understand each part of the Student Performance Report, it is important to become familiar with the types of assessment scores that are included on the report. Student performance is described by a scale score, performance level, and percent of points earned. State level information is also provided in relevant sections of the Student Performance Report to help parents understand how their child's performance compares to other students.

Scale Scores

When the points a student earns on an assessment are placed on a common scale, the student's score becomes a scale score. Scale scores adjust for slight differences in difficulty on versions of the assessment that can vary slightly from student to student within a year (referred to as forms of the assessment) or between school years (referred to as administrations). The scale score allows for a comparison of assessment scores, within a particular grade and subject area, across administrations. As an example, a student who receives a score of 125 on one form of the 8th grade science assessment is expected to score a 125 on any form of the assessment. Scale scores maintain their meaning and can be compared across years. For example, a student who scores 125 on 7th grade social studies in 2017 will demonstrate the same level of mastery of concepts and skills as a 7th grade social studies student who scores 125 in 2016. For CoAlt science and social studies, the scale scores cannot be used to compare students' performance across grades (e.g., grade 4 to grade 7) or subject areas (e.g., science to social studies).

Scale scores for the CoAlt science and social studies assessments range from 0 to 250. Scale scores are reported for the overall test.

Performance Levels

Scale scores are used to determine a student's performance level for the overall assessment. Each performance level describes a range of scores at the overall assessment level (i.e., science or social studies). The range of scores in each performance level were recommended by a group of Colorado educators and adopted by the Colorado State Board of Education. Performance levels describe the concepts and skills students are expected to demonstrate at each of the levels. The grade level concepts and skills related to each performance level are listed on page 2 of the Student Performance Report. The four cross-grade and content area performance levels are Advanced, At Target, Approaching Target, and Emerging. Performance Level Descriptors are included in Appendix B.

Students who do not respond to any items on the assessment receive an inconclusive designation.

The top two Performance Levels indicate that with the appropriate supports, the student is prepared for further study in the content area.

Percent of Points Earned

Percent of points earned refers to the number of points a student earned out of the total number of points possible within a reporting category. The percent of points earned indicator can only be used to compare performance of the individual student to the average state performance on the specific set of items being considered. Some groups of items may be more difficult than other sets of items; so unlike the scale score, the percent of points earned indicator cannot be compared across groups of items or across school years. Percent of points earned are provided at the standard level. For social studies, the standards are history, geography, economics, and civics. For science, the standards are physical science, life science, and earth systems science.

Sample CoAlt Student Performance Report

A sample grade 7 social studies Student Performance Report is displayed at the end of this section on pages C-5 to C-6. The sample report includes the same type of information that is included on all of the science and social studies reports. The information below describes each part of the report. To learn more about each part of the Student Performance Report, match the white letters in gray circles from the sample report to the information included with the corresponding letters on the following pages.

General Information (Refer to Page 1 of the Student Performance Report)

A. Identification Information

The top of the Student Performance Report lists your child's name, state assigned student identification number (SASID), birthdate, school, and district.

B. Test Date

The season and year your child took the assessment is indicated.

C. Subject Area

The subject area of your child's assessment is identified (either science or social studies).

D. Grade Level

The grade level of your child's assessment is indicated.

Overall Assessment Scores (Refer to Page 1 of the Student Performance Report)

E. Explanation of Overall Performance

A brief explanation of the overall assessment results is given to help you understand the information provided in the box below the explanation.

F. Your Child's Overall Scale Score and Performance Level Your child's overall scale score (the number between 0 and 250) and performance level (Emerging, Approaching Target, At Target, or Advanced) are provided. An inconclusive designation is given to students who did not respond to any items on the assessment. The scale score and performance level included in this part of the report represent your child's overall performance on the assessment in the content area (science or social studies). Grade level and content area-specific performance level descriptors providing the concepts and skills students are typically able to demonstrate at each level may be found on the second page of the report.

G. Graphical Representation of Overall Performance: Scale Score and Performance Level by Student and State

Your child's scale score is indicated by a large diamond on the graph. The arrows to the left and right of the diamond indicate the range of scores your child would likely receive if the assessment was taken multiple times.

The average scale score at the state level is identified to the left of the graph and is indicated by a smaller diamond on the graph. By comparing the location of the diamonds, you can see how your child performed in comparison to the average student at the state level. If your child's score diamond is to the right of the state average diamond, then your child performed better than the state average. If your child's diamond is to the left of the state diamond, then on average, the state performed better than your child.

The dotted lines on the graph show the lowest scores needed to achieve Approaching Target, At Target, and Advanced performance levels. The scale scores representing each of those scores are indicated on the bottom of the graph.

Content Standard Performance (Refer to Page 1 of the Student Performance Report)

H. Content Standard Descriptions

This section of the report provides descriptions for social studies standards (history, geography, economics, and civics) and for science standards (physical science, life science, and earth systems science).

I. Points Earned

Points earned indicates how many points your child earned for each content standard.

J. Points Possible

Points possible indicates the total number of points possible for each content standard.

K. Graphical Representation of Content Standard Performance by Student and State The graphical representation of content standard performance shows how your child performed in each standard. Your child's performance is represented by a bar graph. The average percent of points earned for each content standard at the state level is identified by a second bar graph. The bar graphs show the student's percent of points earned as compared to the state average percent of points earned. If your child's bar ends to the right of the state average bar, then your child's percent of points earned was higher than the state average. If your child's bar ends to the left of the state average bar, then your child's percent of points earned was lower than the state average.

L. Graph Key

The graph key indicates the student's percent of points earned and the state average percent of points earned.

M. Document Process Number

The document number found in the bottom-right corner of the report is a unique number, per administration, that is assigned to your child's record by the testing contractor.

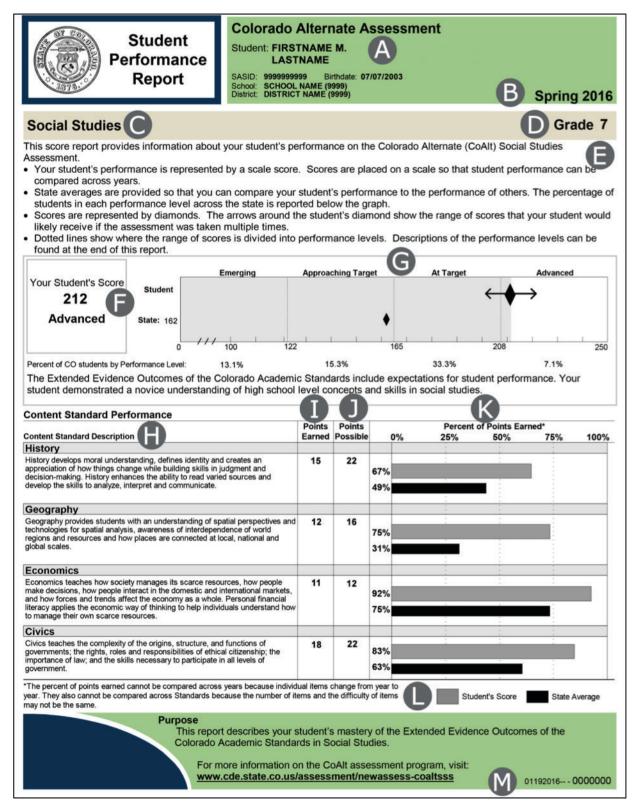
Performance Level Descriptions (Refer to Page 2 of the Student Performance Report)

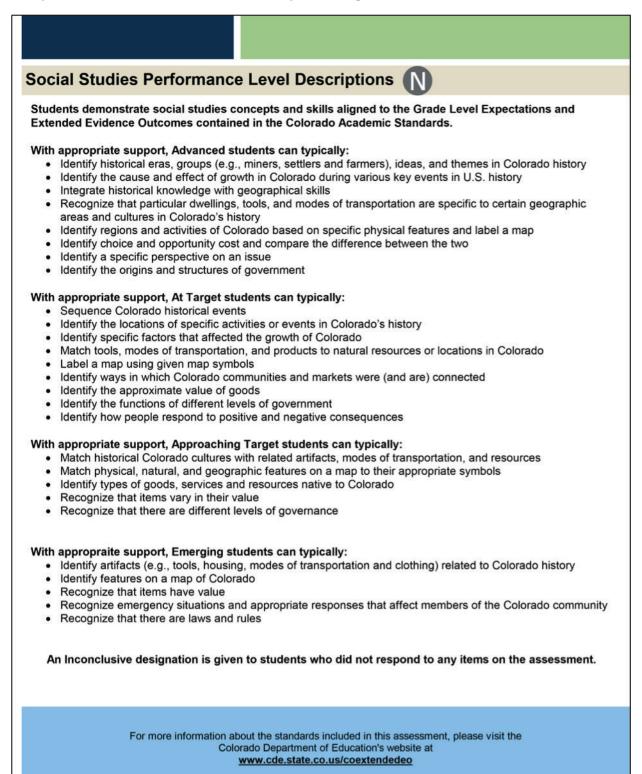
N. Performance Level Descriptions

Specific grade level and content area descriptions are available for each of the four CoAlt performance levels:

- Advanced
- At Target
- Approaching Target
- Emerging

Your child's report will reflect the performance level descriptions specific to the assessed grade level and content area. These performance level descriptions discuss the specific concepts and skills that students in each performance level typically demonstrate in the assessed grade level and content area. Performance level descriptions for each grade level and content area are located in Appendix B.





An Educator Guide to Understanding the Colorado Measures of Academic Success School and District Reports

Program Overview

CMAS is Colorado's standards-based assessment designed to measure the Colorado Academic Standards (CAS). The CAS contain the concepts and skills students need to learn in order to be successful in the current grade and to make academic progress from year to year. CMAS science assessments are given to students in grades 5, 8, and once in high school, while CMAS social studies assessments are given in grades 4 and 7 (social studies assessments are administered on a sampling basis to one-third of the elementary and middle schools each year).

The science and social studies CMAS assessments were Colorado's first state-wide computer-based assessments. The online assessments allow for new item types that were not possible under the prior paper-based system such as science simulations. Online assessments also foster increased student engagement. The assessments were designed to provide high level content area information (i.e., a science score or social studies score) as well as standard-specific scores (i.e., scores for history, geography, civics, and economics).

Purpose and Use of CMAS Results

- Report on the status and progress of student achievement
- Make judgments about student learning relative to standards
- Gauge school, district, and state year-to-year progress
- Improvement planning (e.g., prioritize professional learning and resource decisions, consider program alignment with academic standards, reflect on effectiveness of school initiatives)

Standardized assessments are a valuable tool for evaluating programs. However, any assessment can provide only one part of the picture. CMAS science and social studies assessment results are not able to identify, let alone measure, every factor that contributes to the success or failure of a program. Assessment results can be most helpful if considered as one component of an evaluation system.

CMAS School and District Reports

In addition to individual Student Performance Reports, schools and districts receive Performance Level Summaries, Content Standards Rosters, Item Analysis Summaries, and District School Rosters (districtlevel only). These reports summarize how students in the school or district performed and are described later in this section.

Note that the sample reports included in this guide are for illustration purposes only. They are provided to show the basic layout of the reports and the information they provide.

Types of Scores on the CMAS School and District Reports

To understand each part of the CMAS school and district reports, it is important to become familiar with the types of assessment scores that are included on the report. At varying levels, student performance is described by scale scores, performance levels, and percent correct. State, district, and school level information is provided in relevant sections of the reports so that performance at these levels can be compared.

Scale Scores

When the points a student earns on a test are placed on a common scale, the student's score becomes a scale score. Scale scores adjust for slight differences in difficulty on versions of the assessment that can vary slightly from student to student within a year (referred to as forms of the assessment) or between school years (referred to as administrations). The scale score allows for a comparison of assessment scores, within a particular grade and subject area, across administrations. As an example, a student who receives a score of 475 on one form of the 7th grade social studies assessment is expected to score a 475 on any form of the assessment. Scale scores maintain their meaning and can be compared across years. A student who scores 650 on 8th grade science in 2017 will demonstrate the same level of mastery of concepts and skills as an 8th grade science student who scores 650 in 2016. For CMAS science and social studies, the scale scores cannot be used to compare students' performance across grades (e.g., grade 4 to grade 7) or subject areas (e.g., science to social studies).

Scale scores for the CMAS science and social studies assessments range from 300 to 900. Scale Scores are reported for the overall assessment, content standards and Scientific Inquiry/Nature of Science (referred to as "Reporting Categories"), and item type.

Performance Levels

Scale scores are used to determine a student's performance level for the overall assessment. Each performance level describes a range of scores at the overall assessment level (i.e., science or social studies). The range of scores in each performance level were recommended by a group of Colorado educators and adopted by the Colorado State Board of Education. The performance levels describe the concepts and skills students are expected to demonstrate at each of the levels. The grade level concepts and skills related to each performance level are listed on page 4 of the Student Performance Report. The four cross grade and content area performance levels are Exceeded Expectations, Met Expectations, Approached Expectations, and Partially Met Expectations. Performance Level Descriptors for each grade level and content area are included in Appendix A.

Elementary and middle school students in the top two performance levels, Exceeded Expectations and Met Expectations, are considered on track to being college and career ready in the content area of science or social studies; high school students in the top two performance levels are considered ready. Students performing in the Approached Expectations and Partially Met Expectations performance levels may need academic support to successfully engage in further studies in the content area.

Percent Correct

Percent correct refers to the number of points a student earned out of the total number of points possible within a reporting category. The percent correct indicator can only be used to compare performance of the individual student to the average district and average state performance on the specific set of items being considered. Some groups of items may be more difficult than other sets of items, so unlike the scale score, the percent correct indicator cannot be compared across groups of items or across school years. Percent correct scores are provided for Prepared Graduate Competencies (PGCs) and Grade Level Expectations (GLEs) on elementary and middle school reports; percent correct scores are provided at the PGC level on the high school report.

Percent correct information can be useful in helping schools identify areas in which further diagnosis is warranted. As with all assessments given at a single point in time, the data generated from this snapshot should be used in conjunction with other evaluations of performance to provide an in-depth portrait of student achievement. Once an area of possible weakness has been identified, supplementary data should be gathered to further define which instructional intervention would be most effective.

Percent correct will also be used on the Item Analysis Summary reports. For these reports, the percent of students getting an item correct by school, district, and state will be provided. In this case, the percent correct will be an indicator of how difficult students at the district and school levels found specific items.

Appropriate Score Comparisons and Uses

The types of comparisons that can be made differ by the scores being compared. Some scores (e.g., performance levels and scale scores) allow for cross year comparisons, while some (e.g., percent correct) do not. In addition, the reliability of the comparisons or conclusions made vary depending on the size of the group (e.g., number of points contributing to a particular score or the number of students included in a comparison group). In general, the larger the group, the more reliable the comparison or conclusions made will be. The smaller the group, the less reliable the comparison or conclusions made will be. High stakes decisions should not be based on scores of small groups of students or on scores with a low number of points contributing to them. The following table provides some of the comparisons that can and cannot be made by particular types of scores.

	Compare an individual student's performance to a target group's performance (e.g. student to school, district, or state) within the same year	Compare a group's performance to another group's performance (e.g. one school to another school, a district to the state, students of one race/ethnicity group to students in another race/ethnicity group) within the same year	Compare an individual student's performance to a target group's performance (e.g. school, district, or state) across years	Compare a group's performance to the same group's performance across years	Compare to other scores of the same type in a different subject or grade
Performance Levels	YES	YES	YES	YES	NO (These are content and grade specific.)
Scale Scores	YES	YES YES		YES	NO (These are content and grade specific.)
Percent Correct	YES	YES	NO (These are specific to the year of the assessment.)	NO (These are specific to the year of the assessment.)	NO (These are specific to the PGC/GLE.)
Relative Strengths and Weaknesses (Subscale Reporting Categories)*	YES	YES	NO (These are specific to the year of the assessment.)	NO (These are specific to the year of the assessment.)	NO (These are specific to the Reporting Category.)

Score Comparisons

* Potential relative strengths or weaknesses provide information about a student's performance in the reporting category compared to all students in the state. The potential relative strengths and weaknesses are based on the state average performance. They are not based on the standards and should not be interpreted in the same way as the overall performance levels.

Some assessment scores can be used to compare the performance of different demographic or program groups. All CMAS scores for science (grades 5, 8, and once in high school) and social studies (grades 4 and 7) can be analyzed within the same grade and subject area for any single administration to determine which demographic or program group had the highest average scale score, the lowest percentage achieving Exceeded Expectations, the highest percentage achieving Approached Expectations, etc.

Other scores can be used to help evaluate the academic performance of demographic or program groups. For example, aggregations of reporting-category data can help districts and schools identify areas of potential academic weakness for a group of students. This same methodology can be applied to an entire school or district.

In addition, all assessment scores can be compared to district and statewide performance within the same subject area for any administration.

CMAS Performance Level Summary Report

The Performance Summary Report is available for each grade assessed at each school or district. It contains aggregated performance level information across the school, district, and state. It also contains disaggregated performance level data by student demographic and program categories and subgroups for either the school or the district. Page 1 of a sample report is included on page D-6.

General Information

A. Identification Information

The report identifies the names and codes of the school and district.

B. Test Date

The administration season and year is indicated.

C. Subject Area

The subject area of the report is identified (either science or social studies).

D. Grade Level

The grade level of the assessment is indicated.

Performance Level Distribution Data

E. Demographic and Program Categories and Subgroups

Demographic and program categories with subgroups are listed on the left side of the table. Results for students for whom no demographic or program information was coded are included in the "not indicated" subgroups.

F. Number of Valid Scores

The number of valid scores does not include students with no score.

G. Average Scale Score

The average scale score is displayed for state, district, school, and each demographic or program subgroup. The average does not include students with no scores.

H. Performance Level Results

The number and percentage of students who achieved Partially Met Expectations, Approached Expectations, Met Expectations, and Exceeded Expectations, as well as aggregated Met and Exceeded, are displayed for each demographic or program subgroup.

I. No Scores Reported

This is the number of students registered to take the CMAS who did not receive scores. They are not included in the denominator for the Performance Level percentages.

J. Process number

The process number found in the bottom-right corner of the report is a unique number, per administration, that is assigned to the report by the testing contractor.

Sample CMAS Performance Level Summary Report

Average Scale Score 601 555 558 567 550 555 613 653 604 567 0 567	Partial Expect # 25,987 328 156 75 81 133 0 0 0 0 1 19		Perf Approx Expect # 23,242 170 85 45 40 71 1 1 2 3	orman	Me Expecta # 7,788 26 14 7 7 7 9 0 0 0	t	Excee Expecta # 2,706 1 1 1 0 1 0 0 0		Met and E # 10,494 27 15 8 7 10 0 0	xceeded % 17.6% 5.1% 5.9% 6.3% 5.5% 4.7% 0.0%	No Scores Reported # 4,605 2 2 1 1 1 1 2 0 0	Students # 64,328 527 258 129 129 129 216 1
Scale Score 601 555 558 558 550 550 555 613 653 604 567 0	Expect # 25,987 328 156 75 81 133 0 0 0 0 1 1 19	ations % 43.5% 62.5% 60.9% 58.6% 63.3% 62.1% 0.0% 0.0% 20.0% 20.0%	Approx Expect # 23,242 170 85 40 71 71 1 2 3	ached ations % 38.9% 32.4% 33.2% 35.2% 31.3% 33.2% 100.0% 100.0%	Me Expecta # 7,788 26 14 7 7 7 9 0 0 0	t ations % 13.0% 5.0% 5.5% 5.5% 5.5% 4.2% 0.0%	Expecta # 2,706 1 1 1 0 1 0 1 0	tions % 4.5% 0.2% 0.4% 0.8% 0.0%	# 10,494 27 15 8 7 7 10 0	% 17.6% 5.1% 5.9% 6.3% 5.5% 4.7% 0.0%	Scores Reported # 4,605 2 2 2 2 1 1 1 1 2 0	Number o Students # 64,328 527 258 129 129 129 216 1
Scale Score 601 555 558 558 550 550 555 613 653 604 567 0	Expect # 25,987 328 156 75 81 133 0 0 0 0 1 1 19	ations % 43.5% 62.5% 60.9% 58.6% 63.3% 62.1% 0.0% 0.0% 20.0% 20.0%	Expect # 23,242 170 85 40 71 71 1 2 3	ations % 38.9% 32.4% 33.2% 35.2% 33.2% 00.0%	Expecta # 7,788 26 14 7 7 7 9 0 0 0	ations % 13.0% 5.0% 5.5% 5.5% 5.5% 4.2% 0.0%	Expecta # 2,706 1 1 1 0 1 0 1 0	tions % 4.5% 0.2% 0.4% 0.8% 0.0%	# 10,494 27 15 8 7 7 10 0	% 17.6% 5.1% 5.9% 6.3% 5.5% 4.7% 0.0%	Reported # 4,605 2 2 2 1 1 1 1 1 2 0	Students # 64,328 527 258 129 129 129 216 1
601 555 558 567 555 613 653 604 567 0	25,987 328 156 75 81 133 0 0 0 1 19	43.5% 62.5% 60.9% 58.6% 63.3% 62.1% 0.0% 0.0% 20.0%	23,242 170 85 45 40 71 1 2 3	38.9% 32.4% 33.2% 35.2% 31.3% 33.2% 100.0% 100.0%	7,788 26 14 7 7 7 9 0 0	13.0% 5.0% 5.5% 5.5% 4.2% 0.0%	2,706 1 1 0 1 1 0	4.5% 0.2% 0.4% 0.8% 0.0% 0.5% 0.0%	10,494 27 15 8 7 10 0	17.6% 5.1% 5.9% 6.3% 5.5% 4.7% 0.0%	4,605 2 2 1 1 2 2 0	64,328 527 258 129 129 216 1
555 558 550 550 555 613 653 604 567 0	328 156 75 81 133 0 0 0 1 1 9	62.5% 60.9% 58.6% 63.3% 62.1% 0.0% 0.0% 20.0%	170 85 45 40 71 1 2 3	32.4% 33.2% 35.2% 31.3% 33.2% 100.0% 100.0%	26 14 7 7 9 0 0	5.0% 5.5% 5.5% 5.5% 4.2% 0.0%	1 1 0 1 0	0.2% 0.4% 0.8% 0.0% 0.5% 0.0%	27 15 8 7 10 0	5.1% 5.9% 6.3% 5.5% 4.7% 0.0%	2 2 1 1 2 2 0	527 258 129 129 216 1
558 567 550 555 613 653 604 567 0	156 75 81 133 0 0 1 1 19	60.9% 58.6% 63.3% 62.1% 0.0% 0.0% 20.0%	85 45 40 71 1 2 3	33.2% 35.2% 31.3% 33.2% 100.0% 100.0%	14 7 7 9 0 0	5.5% 5.5% 4.2% 0.0%	1 1 0 1 0	0.4% 0.8% 0.0% 0.5% 0.0%	15 8 7 10 0	5.9% 6.3% 5.5% 4.7% 0.0%	2 1 1 2 0	258 129 129 216 1
567 550 555 613 653 604 567 0	75 81 133 0 0 1 1 19	58.6% 63.3% 62.1% 0.0% 0.0% 20.0%	45 40 71 1 2 3	35.2% 31.3% 33.2% 100.0% 100.0%	7 7 9 0	5.5% 5.5% 4.2% 0.0%	1 0 1 0	0.8% 0.0% 0.5% 0.0%	8 7 10 0	6.3% 5.5% 4.7% 0.0%	1 1 2 0	129 129 216 1
550 555 613 653 604 567 0	81 133 0 0 1 19	63.3% 62.1% 0.0% 0.0% 20.0%	40 71 1 2 3	31.3% 33.2% 100.0% 100.0%	7 9 0 0	5.5% 4.2% 0.0%	0	0.0%	7 10 0	5.5% 4.7% 0.0%	1	129 216 1
550 555 613 653 604 567 0	81 133 0 0 1 19	63.3% 62.1% 0.0% 0.0% 20.0%	40 71 1 2 3	31.3% 33.2% 100.0% 100.0%	7 9 0 0	5.5% 4.2% 0.0%	0	0.0%	7 10 0	5.5% 4.7% 0.0%	1	129 216 1
555 613 653 604 567 0	133 0 0 1 19	62.1% 0.0% 0.0% 20.0%	71 1 2 3	33.2% 100.0% 100.0%	9 0 0	4.2% 0.0%	1	0.5% 0.0%	10	4.7% 0.0%	2	216
613 653 604 567 0	0 0 1 19	0.0% 0.0% 20.0%	1 2 3	100.0% 100.0%	0	0.0%	0	0.0%	0	0.0%	0	1
613 653 604 567 0	0 0 1 19	0.0% 0.0% 20.0%	1 2 3	100.0% 100.0%	0	0.0%	0	0.0%	0	0.0%	0	1
653 604 567 0	0 1 19	0.0% 20.0%	2	100.0%	0					0227.7.5	0.75.0	
604 567 0	1 19	20.0%	3			0.0%	0	0.0%				
567 0	19	-				00.00/			0		1.000	2
0	18-12-0	00 0%			1	20.0%	0	0.0%	1	20.0%	0	5
1	0	120000	6	20.7%	4	13.8%	0	0.0%	4	13.8%	0	29
	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0
529	0	0.0%	0	40.0%	0	0.0%	0	0.0%	0	0.0%	0	0
0		0.0%	0	0.0%	0	0.0%	0	0.0%	U	0.0%	0	0
563	53	55.8%	32	33.7%	9	9.5%	1	1.1%	10	10.5%	1	96
555	103	64.4%	52	32.5%	5	3.1%	0	0.0%	5	3.1%	1	161
000		01.170		50.0010	5	0.170	2	0.070	0	0.170		
563	53	55.8%	32	33.7%	9	9.5%	1	1.1%	10	10.5%	1	96
449	14	100.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	14
541	78	75.7%	25	24.3%	0	0.0%	0	0.0%	0	0.0%	1	104
530	92	78.6%	25	21.4%	0	0.0%	0	0.0%	0	0.0%	1	118
622	11	25.6%	27	62.8%	5	11.6%	0	0.0%	5	11.6%	0	43
0	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0
650	0	0.0%	1	100.0%	0	0.0%	0	0.0%	0	0.0%	0	1
582	64	46.0%	60	43.2%	14	10.1%	1	0.7%	15	10.8%	1	140
0	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0
		1.1.4						1 - 4				
1 9		1				1.1			-	100		
	541 530 622 0 650 582 0	449 14 541 78 530 92 622 11 0 0 650 0 582 64 0 0	449 14 100.0% 541 78 75.7% 530 92 78.6% 622 11 25.6% 0 0 0.0% 650 0 0.0% 582 64 46.0% 0 0 0.0%	449 14 100.0% 0 541 78 75.7% 25 530 92 78.6% 25 622 11 25.6% 27 0 0 0.0% 0 650 0 0.0% 1 582 64 46.0% 60 0 0 0.0% 1	449 14 100.0% 0 0.0% 541 78 75.7% 25 24.3% 530 92 78.6% 25 21.4% 622 11 25.6% 27 62.8% 0 0 0.0% 0 0.0% 650 0 0.0% 1 100.0% 582 64 46.0% 60 43.2% 0 0 0.0% 0.0% 0.0%	449 14 100.0% 0 0.0% 0 541 78 75.7% 25 24.3% 0 530 92 78.6% 25 21.4% 0 622 11 25.6% 27 62.8% 5 0 0 0.0% 0 0.0% 0 650 0 0.0% 1 100.0% 0 582 64 46.0% 60 43.2% 14 0 0 0.0% 0 0.0% 0 m within your school/district must be in accordance with state and feedback state and feedback state and feedback	449 14 100.0% 0 0.0% 0 0.0% 541 78 75.7% 25 24.3% 0 0.0% 530 92 78.6% 25 21.4% 0 0.0% 622 11 25.6% 27 62.8% 5 11.6% 0 0 0.0% 0 0.0% 0 0.0% 650 0 0.0% 1 100.0% 0 0.0% 582 64 46.0% 60 43.2% 14 10.1% 0 0 0.0% 0 0.0% 0 0.0% r r r r r r r	449 14 100.0% 0 0.0% 0 0.0% 0 541 78 75.7% 25 24.3% 0 0.0% 0 530 92 78.6% 25 21.4% 0 0.0% 0 622 11 25.6% 27 62.8% 5 11.6% 0 0 0 0.0% 0 0.0% 0 0.0% 0 650 0 0.0% 1 100.0% 0 0.0% 0 582 64 46.0% 60 43.2% 14 10.1% 1 0 0 0.0% 0 0.0% 0 0.0% 0	449 14 100.0% 0 0.0% 0 0.0% 0 0.0% 541 78 75.7% 25 24.3% 0 0.0% 0 0.0% 530 92 78.6% 25 21.4% 0 0.0% 0 0.0% 622 11 25.6% 27 62.8% 5 11.6% 0 0.0% 0 0 0.0% 0 0.0% 0 0.0% 0 0.0% 650 0 0.0% 1 100.0% 0 0.0% 0 0.0% 582 64 46.0% 60 43.2% 14 10.1% 1 0.7% 0 0 0.0% 0 0.0% 0 0.0% 0 0.0%	449 14 100.0% 0 0.0%	449 14 100.0% 0 0.0%	449 14 100.0% 0 0.0% 0 0.0% 0 0.0% 0 0.0% 0 0.0% 0 0.0% 0 0.0% 0 0.0% 0 0.0% 0 0.0% 0 0.0% 0 0.0% 0 0.0% 1 530 92 78.6% 25 21.4% 0 0.0% 0 0.0% 1 1 622 11 25.6% 27 62.8% 5 11.6% 0 0.0% 0 0 0 0 0.0% 0

CMAS Content Standards Roster

The Content Standards roster is available for each grade assessed at each school. It lists every student for whom a test book or online record was submitted. This report provides the overall performance level, reporting category, and PGC/GLE data for each student. It also provides the same information aggregated at the state, district, and school levels. A sample report is included on pages D-9 to D-10. **NOTE: The District School Roster provides this information for each school within a district.**

General Information (Refer to Page 1 of the Content Standards Roster)

A. Identification Information

The report identifies the school and district name and code.

B. Test Date

The administration season and year is indicated.

C. Subject Area

The subject area of the report is identified (either science or social studies).

D. Grade Level

The grade level of the assessment is indicated.

The general information is repeated on page 2 of the report.

Performance Level and Content Standards Information (Refer to Page 1 of the Content Standards Roster)

E. Key

The key indicates the ranges of scale scores for each performance level for the overall test. It also explains the symbols used to identify the performance indicators for content standard performance (potential relative strength, typical, or potential relative weakness).

F. Student Information

Students are identified by last name, first name, and middle initial. Expelled students are not included on the school level roster.

G. Content Standards Performance School Summary

The percentage and number of students in a school who show potential relative strength (filled circle), typical performance (half-filled circle), and potential relative weakness (empty circle) for the reporting categories are provided for each standard. At the state level, the distribution is approximately 15%/70%/15%.

H. State, District, and School Average

For comparison purposes, the average overall scale score and content standard (reporting category) scale score are shown for the state, district, and school.

I. Overall Performance Level

The overall performance level is indicated for each student on the roster.

J. Overall Scale Score

The overall scale score is indicated for each student on the roster.

K. SEM Range

The standard error of measurement (SEM) is related to the reliability of the assessment. It can vary across the range of scale scores, especially at the very high and low ends where there typically are fewer items measuring that level of achievement. The SEM represents the range of overall scores the student would be likely to earn if the assessment was taken again.

L. Results for Each Content Standard (Reporting Category): Scale Score and Performance Indicator

For each content standard (reporting category), the student's scale score (SS) and performance

indicator (PI) of potential relative strength, typical performance, or potential relative weakness is shown.

M. Process number

The process number found in the bottom-right corner of the report is a unique number, per administration, that is assigned to the report by the testing contractor.

Prepared Graduate Competencies (PGCs) and Grade Level Expectations (GLEs) Performance (Refer to Page 2 of the Content Standards Roster)

N. Student Information

Students are identified by last name, first name, and middle initial.

O. State, District, and School Average

For comparison purposes, the average percentage correct is shown for the PGCs at the state, district, and school levels. If there are two or more GLEs under a PGC in an elementary or middle school report, percent correct is shown for these as well.

P. Prepared Graduate Competencies and Grade Level Expectations

PGCs and GLEs are important parts of the Colorado Academic Standards. PGCs represent the concepts and skills students need to master in order to be college and career ready by the time of graduation. The GLEs are grade-specific expectations that indicate that students are making progress toward the PGCs.

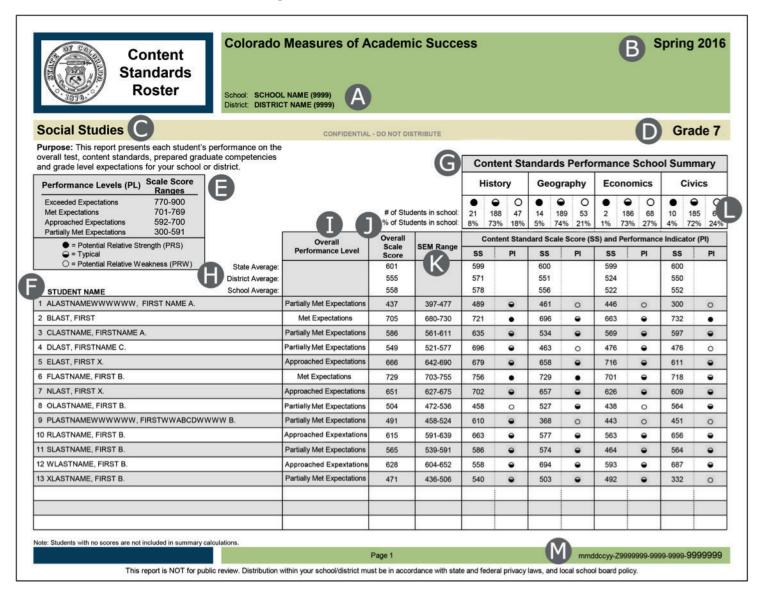
Q. Points Possible

The number of points possible for each PGC and GLE is identified.

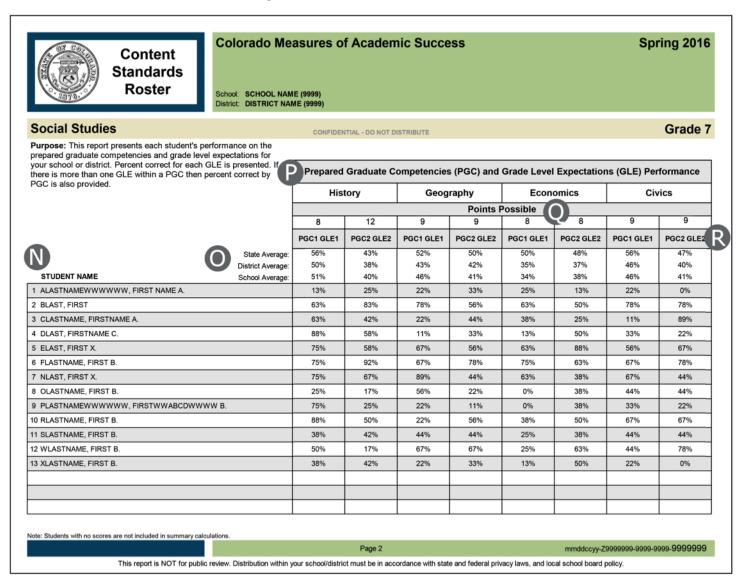
R. Performance for Prepared Graduate Competencies and Grade Level Expectations

This section of the report describes performance with percent correct for PGCs and GLEs. The percentage correct for each GLE is presented. If there is more than one GLE within a PGC on elementary and middle school reports, then the percentage correct by PGC is also provided. The PGCs and GLEs are listed in the same order using the same number references as they appear on the second page of the student performance report. The order and text for each PGC and GLE is included in Appendix C. **NOTE: Information not provided at the GLE level on the high school report.**

Sample CMAS Content Standards Roster – Page 1



Sample CMAS Content Standards Roster – Page 2



CMAS Item Analysis Report

A CMAS Item Analysis Report is available at the district and school levels for each assessed grade level and content area. The report includes item level score information at the school, district, and state levels. The back of the report includes item map information.

Information included on the Item Analysis Report can be used to identify patterns of items where a school is performing better or worse than the district or state or where a district is performing better or worse than the state. For example, within a particular GLE, a school within a district may be outperforming the district and the state while the school may be performing worse than the district and the state in another GLE. In combination with other evidence and data, schools and districts can use the information in the CMAS Item Analysis Report to identify patterns across standards and GLEs that may be indicative of potential areas of strength or weakness. A sample Item Analysis Report is included on pages D-13 to D-14.

General Information (Refer to Page 1 of the Item Analysis Report)

A. Identification Information

The report identifies the school and district name and code.

B. Test Date

The administration season and year is indicated.

C. Subject Area

The subject area of the report is identified (either science or social studies).

D. Grade Level

The grade level of the assessment is indicated.

The general information is repeated on page 2 of the report.

Item Analysis Information (Refer to Page 1 of the Item Analysis Report)

E. Number of students with valid scores

The number of students with valid scores is indicated.

F. Graph Key

The graph key includes explanatory text for the symbols and lines in the bars in the graph: State, District, and School.

G. Percent of Average Points Earned

The percent of average points earned is included to the left of the graphical representation of state, district, and school performance by item. Items that were more difficult for students across the state have a lower percent of average points earned. For 1-point selected response items, the percent of students who correctly responded is recorded. For 2- and 3-point constructed response items, the average points earned is divided by 2 or 3, respectively, in creating the percentage.

H. Numbered Items

Items are identified by numbers in blue text at the bottom of the graph and are ordered from most difficult to least difficult, such that the easiest item is labeled as 48.

- I. Standard and Grade Level Expectation (GLE)/Prepared Graduate Competency (PGC) On elementary and middle school item analysis reports, the corresponding standard and GLE are listed below each item. On the high school item analysis report, the corresponding standard and PGC are listed below each item.
- J. Graphical Representation of State, District, and School Level Performance by Item The graphical representation shows how the state, district, and school performed on each

operational item. The state is represented as a red line with triangles, the district is represented as a blue line with squares, and the school is represented by a green line with circles.

K. Document Process Number

The document number located in the bottom-right corner of the report is a unique number, per administration, that is assigned by the testing contractor.

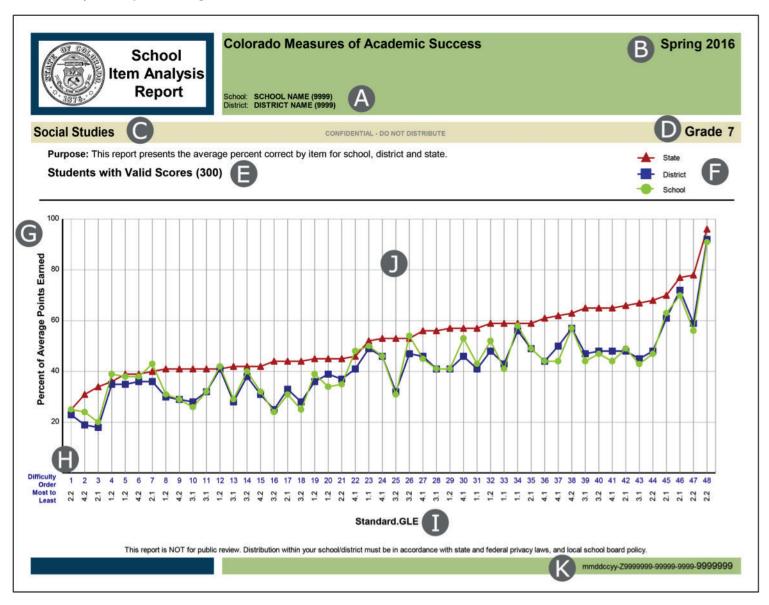
Item Map Information (Refer to Page 2 of the Item Analysis Report)

L. Item Map Information

Page 2 of the Item Analysis Report includes information for all of the operational items that were included on the assessment. Items are ordered from most to least difficult. For each item, the following information is included:

- Difficulty Order from Most to Least (matches page 1)
- Standard and GLE Numbers (for grades 4, 5, 7, and 8 only high school has Standard and PGC Number)
- Location on the test (section number and item number)
- Standard by Name
- PGC
- GLE (elementary and middle school only)
- Item Type (Selected Response (SR); 2-point Constructed Response (CR-2); 3-point Constructed Response (CR-3)

Sample Item Analysis Report – Page 1



Sample Item Analysis Report – Page 2

	ltem Ana Repo Deta	ort	This report s	Acasures of Acas shows the operational items t ed by difficulty.		1 0				
CONFIDENTIAL - DO NOT DISTRIBUTE										
Difficulty Order Most to Least	Standard.GLE	Section-Item Number	Standard	Prepared Graduate Competencies (PGCs)	Grade Level Expectations (GLEs)	Item Type Selected Response (SR) Constructed Response (CI				
1	2.2	3-13	Geography	PGC2	GLE2	CR-3				
2	4.2	2-4	Civics	PGC1	GLE2	SR				
3	2.1	2-22	Geography	PGC1	GLE1	SR				
4	1.2	3-12	History	PGC2	GLE2	CR-3				
5	1.2	1-10	History	PGC2	GLE2	SR				
6	4.2	3-8	Civics	PGC1 PGC1	GLE2	CR-3 CR-3				
8	2.1	1-13	Geography History	PGC1 PGC2	GLE1 GLE2	CR-3 SR				
9	4.2	1-11	Civics	PGC2 PGC1	GLE2 GLE2	SR				
10	4.2	2-18	Economics	PGC1	GLE2 GLE1	CR-3				
11	3.1	3-11	Economics	PGC1	GLE1	SR				
12	1.2	3-14	History	PGC1	GLE2	CR-3				
13	3.1	1.5	Economics	PGC2	GLE1	SR				
14	3.2	1-8	Economics	PGC2	GLE2	CR-3				
15	4.2	2-17	Civics	PGC1	GLE2	SR				
16	3.2	1-4	Economics	PGC2	GLE2	SR				
17	2.1	1-17	Geography	PGC1	GLE1	SR				
18	3.2	2-16	Economics	PGC2	GLE2	SR				
19	1.2	1-21	History	PGC2	GLE2	SR				
20	1.2	3-16	History	PGC2	GLE2	SR				
21	2.2	3-17	Geography	PGC2	GLE2	CR-3				
22	4.1	3-20	Civics	PGC2	GLE1	SR				
23	1.1	1-12	History	PGC1	GLE1	CR-3				
24	4.1	1-18	Civics	PGC2	GLE1	CR-3				
25	3.2	1-19	Economics	PGC2	GLE2	SR				
26	3.2	2-21	Economics	PGC2	GLE2	SR				
27	4.1	3-19	Civics	PGC2	GLE1	SR				
28	3.1	3-21	Economics	PGC1	GLE1	SR				
29 30	1.2	2-20	History	PGC2	GLE2	SR				
30	4.1	3-5	Civics	PGC2 PGC1	GLE1 GLE1	SR				
31	1.1	3-6	History	PGC1 PGC2	GLE1 GLE2	SR				
33	1.2	1-0	History	PGC2 PGC1	GLE2 GLE1	SR				
34	1.1	2-7	History	PGC1	GLE1	CR-3				
35	2.1	3-10	Geography	PGC1	GLE1	SR				
36	4.1	3-18	Civics	PGC1	GLE1	SR				
37	4.1	3-15	Civics	PGC2	GLE1	SR				
38	4.2	1-14	Civics	PGC1	GLE2	CR-3				
39	3.1	1-7	Economics	PGC1	GLE1	SR				
40	3.2	1-20	Economics	PGC2	GLE2	SR				
41	4.1	2-5	Civics	PGC2	GLE1	SR				
42	2.1	1-16	Geography	PGC1	GLE1	SR				
43	3.1	2-19	Economics	PGC1	GLE1	SR				
44	2.2	1-15	Geography	PGC2	GLE2	SR				
45	2.1	3-9	Geography	PGC1	GLE1	SR				
46	2.1	3-4	Geography	PGC1	GLE1	SR				
47	2.2	3-7	Geography	PGC2 PGC2	GLE2 GLE2	SR SR				
48	2.2		Geography							

An Educator Guide to Understanding the Colorado Alternate (CoAlt) Science and Social Studies School and District Reports

Program Overview

CoAlt is the standards-based assessment designed specifically for students with the most significant cognitive disabilities who are unable to participate in CMAS, even with accommodations. Students must meet participation requirements to take CoAlt. CoAlt assesses the performance expectations of the Colorado Academic Standards (CAS) for students with the most significant cognitive disabilities as expressed in the Extended Evidence Outcomes (EEOs) of the CAS. The primary purpose of the assessment program is to determine the level at which Colorado students with significant cognitive disabilities meet the EEOs of the CAS in the content areas of science and social studies at the tested grade level. CoAlt results are intended to provide one measure of a student's academic progress relative to the CAS. CoAlt science assessments are given to students in grades 5, 8, and once in high school while CoAlt social studies assessments are given in grades 4 and 7 (social studies assessments are administered on a sampling basis to one-third of the elementary and middle schools each year).

CoAlt assessments are administered in a one-on-one setting between teachers and students. Teachers use CoAlt scoring rubrics to evaluate student responses before submitting performance results.

This section of the guide explains the elements of the CoAlt school and district reports.

Purpose and Use of CoAlt Results

- Report on the status and progress of student achievement
- Make judgments about student learning relative to standards
- Gauge school, district, and state year-to-year progress
- Improvement planning (e.g., prioritize professional learning and resource decisions, consider program alignment to academic standards, reflect on effectiveness of school initiatives)

Standardized assessments are a valuable tool for evaluating programs. However, any assessment can provide only one part of the picture. CoAlt science and social studies assessment results are not able to identify, let alone measure, every factor that contributes to the success or failure of a program. Assessment results can be most helpful if considered as one component of an evaluation system.

CoAlt School and District Reports

In addition to individual Student Performance Reports, districts receive Performance Level Summaries and District School Rosters and schools and districts receive Content Standards Rosters. These reports summarize how students in the school or district performed and are described later in this section.

Note that the sample reports included in this guide are for illustration only. They are provided to show the basic layout of the reports and the information they include.

Types of Scores on the CoAlt School and District Reports

To understand each part of the Student Performance Report, it is important to become familiar with the types of assessment scores that are included on the report. Student performance is described by a scale score, performance level, and percent of points earned.

Scale Scores

When the points a student earns on a test are placed on a common scale, the student's score becomes a scale score. Scale scores adjust for slight differences in difficulty on versions of the assessment that can vary slightly from student to student within a year (referred to as forms of the assessment) or between school years (referred to as administrations). The scale score allows for a comparison of assessment scores, within a particular grade and subject area, across administrations. As an example, a student who receives a score of 125 on one form of the 8th grade science assessment is expected to score a 125 on any form of the assessment. Scale scores maintain their meaning and can be compared across years. A student who scores 125 on 7th grade social studies in 2017 will demonstrate the same level of mastery of concepts and skills as a 7th grade social studies student who scores 125 in 2016. For CoAlt science and social studies, scale scores cannot be used to compare student performance across grades (e.g., grade 4 to grade 7) or subject areas (e.g., science to social studies).

Scale scores for the CoAlt science and social studies assessments range from 0 to 250. Scale scores are reported for the overall test.

Performance Levels

Scale scores are used to determine a student's performance level for the overall assessment. Each performance level describes a range of scores at the overall assessment level (i.e., science or social studies). The range of scores in each performance level were recommended by a group of Colorado educators and adopted by the Colorado State Board of Education. Performance levels describe the concepts and skills students are expected to demonstrate at each of the levels. The grade level concepts and skills related to each performance level are listed on page 2 of the Student Performance Report. The four cross-grade and content area performance levels are Advanced, At Target, Approaching Target, and Emerging. Performance Level Descriptions are included in Appendix B of this document.

Students who do not respond to any items on the assessment receive an inconclusive designation.

The top two performance levels indicate that with the appropriate supports, the student is prepared for further study in the content area.

Percent of Points Earned

Percent of points earned refers to the number of points a student earned out of the total number of points possible within a reporting category. The percent correct indicator can only be used to compare performance of the individual student to the average state performance on the specific set of items being considered. Some groups of items may be more difficult than other sets of items; so unlike the scale score, the percent of points earned indicator cannot be compared across groups of items or across school years. Percent of points earned are provided at the standard level. For social studies, the standards are history, geography, economics, and civics. For science, the standards are physical science, life science, and earth systems science.

Appropriate Score Comparisons and Uses

The types of comparisons that can be made differ by the scores being compared. Some scores (e.g., performance levels and scale scores) allow for cross year comparisons, some (e.g., percent of points earned) do not. In addition, the reliability of the comparisons or conclusions made vary depending on the size of the group (e.g., number of points contributing to a particular score or the number of students included in a comparison group). In general, the larger the group, the more reliable the comparison or conclusions made will be. The smaller the group, the less reliable the comparison or conclusions made will be. High stakes decisions should not be based on scores of small groups of students or on scores with a low number of points contributing to them. The below table provides some of the comparisons that can and cannot be made by particular types of scores.

~	~	•	
Score	Com	pariso	ons

	Compare an individual student's performance to a target group's performance (e.g. student to state) within the same year	Compare a group's performance to another group's performance (e.g. one district to another district, a district to the state, students of one race/ethnicity group to students in another race/ethnicity group) within the same year	Compare an individual student's performance to a target group's performance (e.g. state) across years	Compare a group's performance to the same group's performance across years	Compare to other scores of the same type in a different subject or grade
Performance Levels	YES	YES	YES	YES	NO (These are content and grade specific.)
Scale Scores	YES	YES	YES	YES	NO (These are content and grade specific.)
Percent of points earned	YES	YES	NO (These are specific to the year of the assessment.)	NO (These are specific to the year of the assessment.)	NO (These are specific to the standards.)

Some assessment scores can be used to compare the performance of different demographic or program groups. All CoAlt scores in science (grades 5, 8, and once in high school) and in social studies (grades 4 and 7) can be analyzed within the same grade and subject area for any single administration to determine which demographic or program group had the highest average scale score, the lowest percentage achieving Advanced, the highest percentage achieving At Target, etc.

Other scores can be used to help evaluate the academic performance of demographic or program groups. For example, aggregations of reporting-category data can help districts and schools identify areas of potential academic weakness for a group of students. This same methodology can be applied to an entire school or district.

In addition, all assessment scores can be compared to district and statewide performance within the same subject area for any administration.

CoAlt Performance Level Summary Report

The Performance Level Summary Report is available for each grade assessed in a district. It contains aggregated performance level information across the district and state. It also contains disaggregated performance level data by student demographic and program categories and subgroups for the district. A sample Performance Level Summary Report is included on page E-5.

General Information

A. Identification Information

The report identifies the district name and code.

B. Test Date

The administration season and year are indicated.

C. Subject Area

The subject area of the report is identified (either science or social studies).

D. Grade Level

The grade level of the assessment is indicated.

Performance Level Distribution Data

E. Demographic and Program Categories and Subgroups

Demographic and program categories with subgroups are listed on the left side of the table. Results for students for whom no demographic or program information was coded are included in the "not indicated" subgroups.

F. Number of Valid Scores

The number of valid scores does not include students with no score.

G. Average Scale Score

The average scale score is displayed for state and district and for each demographic or program subgroup. The average does not include students with no scores.

H. Performance Level Results

The number and percentage of students who achieved Emerging, Approaching Target, At Target, and Advanced, as well as aggregated At Target and Advanced, are displayed for each demographic or program subgroup.

I. No Scores Reported

The number of students registered to take the CoAlt who did not receive scores or meet the Inconclusive criterion is included.

J. Process number

The process number found in the bottom-right corner of the report is a unique number, per administration, that is assigned to the report by the testing contractor.

Sample CoAlt Performance Level Summary Report

School Performance Level Summary	District: DISTRICT NAME (9999)								B	Spring 2016				
Social Studies C	B	G	CONFID	ENTIAL - DO		RIBUTE	Ð					-	DG	rade 7
Purpose: This report describes group achievement in terms of performance levels.	Number	Average	Performance Levels									No	Total	
	of Valid	Scale	Emer	aina	Approa	ching	At Ta	rget	Advan	ced	At Ta and Adv		Scores Reported	Number of Students
	Scores	Score	#	%	#	yet %		%	#	%		%	#	
State	59,723	601	25,987	43.5%	23,242	38.9%	7,788	13.0%	2,706	4.5%	10,494	17.6%	4,605	64,328
District	525	555	328	62.5%	170	32.4%	26	5.0%	1	0.2%	27	5.1%	2	527
												1		
Gender 🖪									1					
Female	128	567	75	58.6%	45	35.2%	7	5.5%	1	0.8%	8	6.3%	1	129
Male	128	550	81	63.3%	40	31.3%	7	5.5%	0	0.0%	7	5.5%	1	129
Ethnicity/Race														
Hispanic or Latino	214	555	133	62.1%	71	33.2%	9	4.2%	1	0.5%	10	4.7%	2	216
American Indian or Alaska Native	1	613	0	0.0%	1	100.0%	0	0.0%	0	0.0%	0	0.0%	0	1
Asian	2	653	0	0.0%	2	100.0%	0	0.0%	0	0.0%	0	0.0%	0	2
Black or African-American	5	604	1	20.0%	3	60.0%	1	20.0%	0	0.0%	1	20.0%	0	5
White	29	567	19	65.5%	6	20.7%	4	13.8%	0	0.0%	4	13.8%	0	29
Native Hawaiian or Other Pacific Islander	0	0	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0
Two or more races	5	529	3	60.0%	2	40.0%	0	0.0%	0	0.0%	0	0.0%	0	5
Not Indicated	0	0	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0
Economic Disadvantage														
Free/Reduces Lunch Eligible	95	563	53	55.8%	32	33.7%	9	9.5%	1	1.1%	10	10.5%	1	96
Not Eligible for Free/Reduced Lunch	160	555	103	64.4%	52	32.5%	5	3.1%	0	0.0%	5	3.1%	1	161
Language Proficiency	1											10.00		
Not English Proficient (NEP)	95	563	53	55.8%	32	33.7%	9	9.5%	1	1.1%	10	10.5%	1	96
Limited English Proficient (LEP)	14	449	14	100.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	14
NEP and LEP	103	541	78	75.7%	25	24.3%	0	0.0%	0	0.0%	0	0.0%	1	104
Not NEP and LEP	117	530	92	78.6%	25	21.4%	0	0.0%	0	0.0%	0	0.0%	1	118
Fluent English Proficient	43	622	11	25.6%	27	62.8%	5	0.0%	0	0.0%	5	11.6%	0	43
Primary Home Language other than English Former English Language Learner	1	650	0	0.0%	1	100.0%	0	0.0%	0	0.0%	0	0.0%	0	1
Not in ELL Program	139	582	64	46.0%	60	43.2%	14	10.1%	1	0.0%	15	10.8%	1	140
Not in ELL Program	0	0	0	40.0%	00	43.2%	0	0.0%	0	0.0%	0	0.0%	0	0
Hot managed			0	0.070		0.010	5	0.070		0.070	0	0.070		
This report is NOT for public	review Distribution	within your	school/dist	rict must b	e in accord	lance with s	tate and fe	deral priva	cy laws an	d local so	hool hoard	nolicy		

CoAlt Content Standards Roster

The Content Standards Roster is available for each grade assessed at each school. It lists every student for whom an online record was submitted. This report provides the overall and standards-level data for each student. At the district level, this information is provided for each school within a district in the District School Roster. A sample Content Standards Roster is included on page E-7.

General Information (Refer to Page 1 of the Content Standards Roster)

A. Identification Information

The report identifies the school and district name and code.

B. Test Date

The administration season and year are indicated.

C. Subject Area

The subject area of the report is identified (either science or social studies).

D. Grade Level

The grade level of the assessment is indicated.

Performance Level and Content Standards Information (Refer to Page 1 of the Content Standards Roster)

E. Key

The key indicates the ranges of scale scores for each performance level for the overall test.

F. Student Information

Students are identified by last name, first name, and middle initial. Expelled students are not included on the school level roster.

- **G. Overall Performance Level** The overall performance level is indicated for each student on the roster.
- H. State, District, and School Average Scale Score

The average scale score is shown for the state, district, and school. Below, the scale score for each student is shown. Students with an Inconclusive designation do not have a scale score.

I. Points Possible

The number of points possible for each content standard is shown.

J. Percentage of Points Earned

This section of the report describes performance with percent of points earned by content standard. The average percentage of points earned for the state, district, and school are shown. Below, the percent points earned for each student is shown. These fields are blank for students with an Inconclusive designation.

K. Process number

The process number found in the bottom-right corner of the report is a unique number, per administration, that is assigned to the report by the testing contract.

Sample CoAlt Content Standards Roster

Star Re	ontent ndards oster	School: SCHOOL NAME (9999)	ssessme	ent		B Spring 20		
cience C		CONFIDE	NTIAL - DO NOT	DISTRIBUTE		D Grade		
		rmance on the overall test and co	ntent	Cor	tent Standards Perf	ormance		
andards for your school o	rdistrict			Physical Science	Life Science	Earth Systems Science		
1207 D. 20 D.	Scale Score		1		Points Possible			
Performance Level	Ranges			28	30	50		
Advanced	190 - 250		Overall Scale Score		Percent of Points Ea	arned		
At Target Approaching Target	164 - 189 128 - 163	State Average		80%	85%	83%		
Emerging	1 - 127	District Average	and and and	69%	78%	77%		
		School Average		79%	80%	82%		
STUDENT NAME		G Overall Performance Level			*			
ALASTNAME, FIRSTNAME	A.	At Target	175	67%	100%	97%		
BLAST, FIRST		Advanced	200	93%	97%	100%		
BBLAST, FIRST		Emerging	127	75%	47%	64%		
BDLAST, FIRST CLASTNAME, FIRST E.		Approaching Targe	t 129 165	79% 82%	63%	56% 92%		
GENSTRAME, FINSTE.		At Target	105	0278	93%	5270		
		· · · · · · · · · · · · · · · · · · ·				a constant and a second second		
			100 m			· · · · · · · · · · · · · · · · · · ·		
te: Students with no scores are no	ot included in summary calculati	ions.	Page 1		Mmmdda	cyy-Z9999999-99999-9999- 9999 -99999		

Section F

Appendices

Appendix A

CMAS Performance Level Descriptors

Colorado Measures of Academic Success Grade 4 Social Studies Performance Level Descriptors (PLDs)

Students demonstrate mastery of social studies concepts and 21st century skills aligned to the Colorado Academic Standards at various performance levels. The performance level descriptors are organized in a manner that assumes students demonstrating higher levels of command have mastered the concepts and skills within the lower levels. For example, a student at moderate command also masters the concepts and skills of limited command.

Students who Exceeded Expectations demonstrated distinguished command of the Colorado Academic Standards and can typically

- analyze primary source documents and connect the various eras and events in Colorado history to events in U.S. and World History;
- use geographic tools to investigate and analyze settlement patterns, how people adapt to and modify the physical environment, and how places in Colorado have changed over time;
- analyze opportunity costs and ways to reduce financial risk to make financial decisions; and
- analyze multiple perspectives on an issue and provide solutions.

Student who Met Expectations demonstrated strong command of the Colorado Academic Standards and can typically

- explain cause-and-effect relationships present in Colorado history using historical tools such as organizing and sequencing events and reading primary sources;
- create and investigate questions about Colorado in relation to other places and examine the connections between the physical environment and human activities such as migration;
- explain how the natural, human, and capital resources of Colorado have influenced the types of goods and services provided;
- analyze opportunity costs and risks to make financial decisions;
- compare arguments for both sides of a public policy debate; and
- explain the origins, structure, and functions of the Colorado government and its relationship with local and federal governments.

Student who Approached Expectations demonstrated moderate command of the Colorado Academic Standards and can typically

- describe how the people and cultures who have lived in Colorado have interacted with each other and have affected the development of Colorado;
- describe how Colorado's political structure developed, including the Colorado Constitution and the relationship between state and national government;
- compare the physical geography of Colorado with that of neighboring states and describe how places in Colorado are connected by technology and the movement of goods and services;
- identify and define types of economic incentives, choices, opportunity costs, and risks that individuals face;
- connect goods and services produced throughout Colorado's history to economic incentives; and
- provide examples of civic and political issues faced by the state.

- recognize that major political and cultural groups have affected the development of Colorado;
- use maps, grids, and other geographic tools to answer questions about Colorado;
- describe various technological developments, including those that affect Colorado industries;
- identify goods and services produced in Colorado; and
- identify the structure and functions of the Colorado government and the services it provides.

Colorado Measures of Academic Success Grade 7 Social Studies Performance Level Descriptors (PLDs)

Students demonstrate mastery of social studies concepts and 21st century skills aligned to the Colorado Academic Standards at various performance levels. The performance level descriptors are organized in a manner that assumes students demonstrating higher levels of command have mastered the concepts and skills within the lower levels. For example, a student at moderate command also masters the concepts and skills of limited command.

Students who Exceeded Expectations demonstrated distinguished command of the Colorado Academic Standards and can typically

- analyze historical sources while formulating historical questions and defending a thesis;
- use geographic tools to investigate and analyze data to make inferences and predictions regarding regional issues and perspectives in the Eastern Hemisphere;
- demonstrate how supply and demand influence changes in equilibrium price and quantity;
- evaluate how various governments interact and investigate examples of global collaboration; and
- apply various definitions of good government to evaluate the actions of different governments.

Students who Met Expectations demonstrated strong command of the Colorado Academic Standards and can typically

- explain the historical time periods, individuals, groups, ideas, perspectives, themes, and how people are interconnected within regions of the Eastern Hemisphere;
- summarize the development of early civilizations, including Greece, Rome, China, Africa, and the medieval world;
- describe how the physical environment influences economy, culture, and trade patterns;
- explain how resources, production, choices, supply, demand, price, profit, and taxes are related;
- analyze how national and international government policies influence the global community; and
- compare the rights, roles, and responsibilities of citizens in various governments.

Students who Approached Expectations demonstrated moderate command of the Colorado Academic Standards and can typically

- describe the contributions of various peoples and cultures in the Eastern Hemisphere;
- compare different physical systems and cultural patterns to describe how different regions and places are interconnected;
- examine multiple points of view and issues in various regions in the Eastern Hemisphere;
- recognize how supply and demand influence price, profit, and production in a market economy;
- compare how taxes affect individual income and spending;
- compare different forms of government in the world and their sources of authority; and
- explain the rights and roles of citizens in various governments.

- recognize the contributions of various peoples and cultures to the Eastern Hemisphere;
- use geographic tools to answer questions and identify patterns in the Eastern Hemisphere;
- identify factors that cause changes in supply, demand, and price;
- define resources and identify trade patterns based on the distribution of resources; and
- list the responsibilities and roles of citizens in various governments.

Colorado Measures of Academic Success Grade 5 Science Performance Level Descriptors (PLDs)

Students demonstrate mastery of science concepts and 21st century skills aligned to the Colorado Academic Standards at various performance levels. The performance level descriptors are organized in a manner that assumes students demonstrating higher levels of command have mastered the concepts and skills within the lower levels. For example, a student at moderate command also masters the concepts and skills of limited command.

Students who Exceeded Expectations demonstrated distinguished command of the Colorado Academic Standards and can typically

- evaluate and provide feedback on scientific evidence and reasoning about the separation of mixtures and how separation affects the total weight/mass;
- develop hypotheses about why similarities and differences exist between the body systems and parts of humans, plants, and animals;
- evaluate scientific claims about natural resources, in terms of reasonability and validity; and
- assess and provide feedback, through reasoning based on evidence, on scientific explanations about weather and factors that change Earth's surface.

Students who Met Expectations demonstrated strong command of the Colorado Academic Standards and can typically

- explain why certain procedures that are used to separate simple mixtures work and discuss any unexpected results;
- evaluate evidence and models of the structure and functions of human, plant, and animal organs and organ systems;
- investigate and generate evidence that human systems are interdependent;
- analyze and interpret data to explore concerns associated with natural resources; and
- formulate testable questions and scientific explanations around weather and factors that change Earth's surface.

Students who Approached Expectations demonstrated moderate command of the Colorado Academic Standards and can typically

- discuss how the mass/weight of a mixture is a sum of its parts and design a procedure to separate simple mixtures based on physical properties;
- create models of human, plant, and animal organ systems, and compare and contrast similarities and differences between the organisms;
- explore and describe the origins and usage of natural resources in Colorado; and
- interpret data about Earth, including weather and changes to Earth's surface.

- select appropriate tools and follow procedures to separate simple mixtures;
- identify how humans, plants, and animals address basic survival needs;
- identify the functions of human body systems;
- distinguish between renewable and nonrenewable resources; and
- use appropriate tools and resources to gather data regarding weather conditions and Earth processes.

Colorado Measures of Academic Success Grade 8 Science Performance Level Descriptors (PLDs)

Students demonstrate mastery of science concepts and 21st century skills aligned to the Colorado Academic Standards at various performance levels. The performance level descriptors are organized in a manner that assumes students demonstrating higher levels of command have mastered the concepts and skills within the lower levels. For example, a student at moderate command also masters the concepts and skills of limited command.

Students who Exceeded Expectations demonstrated distinguished command of the Colorado Academic Standards and can typically

- design an investigation to predict the movement of an object by examining the forces applied to it;
- use models to predict amounts of energy transferred;
- analyze data and models to support claims about genetic reproduction and traits of individuals;
- use observations and models to develop and communicate a weather prediction; and
- evaluate scientific theories and investigations that explain how the solar system was formed.

Students who Met Expectations demonstrated strong command of the Colorado Academic Standards and can typically

- use mathematical expressions and appropriate information from sources to describe the movement of an object;
- analyze different forms of energy and energy transfer using tools;
- construct an experiment to show mass is conserved;
- investigate the characteristics and behaviors of waves using models, technology, and basic rules of waves;
- analyze human impact on local ecosystems;
- use mathematics to predict the physical traits and genetic makeup of offspring; and
- relate tides, eclipses, lunar phases, and seasons to the motion and positions of the Sun, Earth, and the Moon, using the basic rules of the solar system.

Students who Approached Expectations demonstrated moderate command of the Colorado Academic Standards and can typically

- analyze speed and acceleration of moving objects;
- describe different forms of energy and energy transfer;
- use a variety of sources, including popular media and peer-generated explanations, to investigate and describe an environmental issue;
- analyze data and historical research for various weather conditions and compare to historical data for that date and location; and
- investigate and ask testable questions about Earth's different climates using various techniques.

- distinguish between physical and chemical changes;
- recognize the relationship between pitch and frequency in sound;
- identify human activities that alter the ecosystem;
- recognize that genetic information is passed from one generation to the next;
- compare basic and severe weather conditions and develop an action plan for safety; and
- use tools and simulations to explore the solar system.

Colorado Measures of Academic Success High School Science Performance Level Descriptors (PLDs)

Students demonstrate mastery of science concepts and 21st century skills aligned to the Colorado Academic Standards at various performance levels. The performance level descriptors are organized in a manner that assumes students demonstrating higher levels of command have mastered the concepts and skills within the lower levels. For example, a student at moderate command also masters the concepts and skills of limited command.

Students who Exceeded Expectations demonstrated distinguished command of the Colorado Academic Standards and can typically

- justify and predict the effects of force and mass on an object's motion, discuss conflicting results, and identify force pairs in interacting objects;
- using historical models, justify an evidence-based explanation for the current model of the atom and predict the amount of product formed in a nuclear or chemical reaction;
- justify an evidence-based explanation that demonstrates how ecosystems follow the laws of conservation of matter and energy;
- use evidence to develop a logical argument explaining how specialized tissues are formed, cloning occurs, and how environmental toxins cause genetic mutations;
- explain how genetic changes over time are the result of interactions within populations, heritability, genetic variation, and differential survival and reproduction;
- use data to analyze how forces and energies beyond Earth's have influenced the history of the universe and provide feedback on the validity of alternative explanations;
- analyze evidence to answer questions regarding changes to Earth, including those that result in shifts in climate and natural hazards; and
- predict impacts of resource exploration, development, and consumption and design a plan to reduce resource use.

Students who Met Expectations demonstrated strong command of the Colorado Academic Standards and can typically

- explain how force and mass affect the acceleration of an object;
- identify reactants, predict products, and balance equations in chemical and nuclear reactions;
- analyze evidence to describe energy transformations and conservation;
- evaluate scenarios regarding human population growth and sustainability;
- differentiate between conditions for optimal enzyme and photosynthetic activity;
- model and describe how homeostasis is maintained in cells, organs, and organisms;
- analyze how organisms use passive and active transport;
- explain the processes of DNA replication, transcription, translation, and gene regulation;
- model relationships among organisms demonstrating common ancestry;
- infer the history of the universe, solar system, and Earth using evidence from past events;
- explain the historical development of the theory of plate tectonics; and
- use data to evaluate impacts of resource exploration, development, and consumption, and draw conclusions about sustainable use.

Students who Approached Expectations demonstrated moderate command of the Colorado Academic Standards and can typically

- use evidence to demonstrate how mass and distance affect the force of gravity between objects;
- develop models of atoms, molecules, elements, compounds, pure substances, and mixtures and identify the types of bonds that occur in molecules and compounds;
- use data to measure and compare energy transformations and efficiency;
- model how carbon, nitrogen, phosphorus, and water cycle in an ecosystem;
- recognize the importance of keystone and non-native species in an ecosystem;
- identify the relationship between photosynthesis, cellular respiration, and energy;
- differentiate between and give examples of passive and active transport;

- explain the relationship between genes and proteins and provide examples of how mutations can affect organisms;
- describe how changes in genetic traits lead to population adaptations;
- explain how external forces and energies influence Earth;
- recognize the interactions within Earth's geosphere, atmosphere, hydrosphere, and biosphere, including those that
 result in shifts in climate and natural hazards; and
- compare and contrast the costs and benefits of using resources provided by Earth and the Sun.

- use Newton's laws to describe the relationship among forces, masses, and the motion of objects;
- identify the properties of matter and understand that mass and energy are conserved;
- investigate energy transformations and the conservation of energy;
- describe how energy flows through trophic levels;
- identify primary and secondary succession in an ecosystem;
- identify biomolecules, their building blocks, and their functions;
- interpret data to identify transport mechanisms;
- recognize that DNA controls traits;
- identify how genetic traits can be passed down through generations;
- use media and technology to investigate the universe, solar system, and Earth;
- use data to describe the theory of plate tectonics; and
- identify how factors interact to determine climate.

Appendix B

Appendix B

CoAlt Performance Level Descriptors

Colorado Alternate Grade 4 Social Studies Performance Level Descriptors (PLDs)

Students demonstrate social studies concepts and skills aligned to the Grade Level Expectations and Extended Evidence Outcomes contained in the Colorado Academic Standards.

With appropriate support, Advanced students can typically:

- Identify historical eras, groups (e.g., miners, settlers and farmers), ideas, and themes in Colorado history
- Identify the cause and effect of growth in Colorado during various key events in U.S. history
- Integrate historical knowledge with geographical skills
- Recognize that particular dwellings, tools, and modes of transportation are specific to certain geographic areas and cultures in Colorado's history
- Identify regions and activities of Colorado based on specific physical features and label a map
- Identify choice and opportunity cost and compare the difference between the two
- Identify a specific perspective on an issue
- Identify the origins and structures of government

With appropriate support, At Target students can typically:

- Sequence Colorado historical events
- Identify the locations of specific activities or events in Colorado's history
- Identify specific factors that affected the growth of Colorado
- Match tools, modes of transportation, and products to natural resources or locations in Colorado
- Label a map using given map symbols
- Identify ways in which Colorado communities and markets were (and are) connected
- Identify the approximate value of goods
- Identify the functions of different levels of government
- Identify how people respond to positive and negative consequences

With appropriate support, Approaching Target students can typically:

- Match historical Colorado cultures with related artifacts, modes of transportation, and resources
- Match physical, natural, and geographic features on a map to their appropriate symbols
- Identify types of goods, services and resources native to Colorado
- Recognize that items vary in their value
- Recognize that there are different levels of governance

With appropriate support, Emerging students can typically:

- Identify artifacts (e.g., tools, housing, modes of transportation, and clothing) related to Colorado history
- Identify features on a map of Colorado
- Recognize that items have value
- Recognize emergency situations and appropriate responses that affect members of the Colorado community
- Recognize that there are laws and rules

Colorado Alternate Grade 7 Social Studies Performance Level Descriptors (PLDs)

Students demonstrate social studies concepts and skills aligned to the Grade Level Expectations and Extended Evidence Outcomes contained in the Colorado Academic Standards.

With appropriate support, Advanced students can typically:

- Determine appropriate questions to ask in order to learn about specific historical events
- Compare information from multiple sources related to a significant historical event
- Identify the best source of information regarding a historical event and use a historical event to match a source with a
 particular perspective
- Match natural resources with ancient communities and their dwellings
- Use a map to determine where to go for a specific purpose and to determine the direction in which to travel from one point to another
- Estimate the total purchase price of an item with sales tax included
- Recognize how supply and demand can affect price
- Recognize rights and responsibilities of citizens

With appropriate support, At Target students can typically:

- Match artifacts with their ancient culture or location within the Eastern Hemisphere
- Select the appropriate source of information to answer questions surrounding historical events
- Recognize that sources have different purposes
- Use map symbols and directionality words to locate places on a map
- Recognize that communities were built near natural resources
- Identify the environmental resources that influenced settlement in the Eastern Hemisphere
- Recognize that the total purchase price of an item will increase because of sales tax
- Identify community needs or services that are paid for by taxes
- Differentiate between laws and rules
- Identify the positive and negative consequences of obeying laws and rules

With appropriate support, Approaching Target students can typically:

- Recognize significant artifacts related to ancient civilizations of the Eastern Hemisphere
- Select the appropriate source of information to answer social studies questions
- Identify the appropriate questions to ask in order to learn more about an event or era
- Use symbols to identify a location on a map
- Identify reasons goods and services might go on sale
- Identify ways in which countries and nations resolve differences
- Recognize local laws, state laws, and federal laws and identify examples of following these laws/rules

With appropriate support, Emerging students can typically:

- Recognize artifacts
- Identify part(s) of a map (e.g., title, key, compass rose, scale)
- Recognize there are different types of informational resources
- Recognize that areas have different natural resources
- Recognize that many items have a sales tax
- Recognize that all countries have laws

Colorado Alternate Grade 5 Science Performance Level Descriptors (PLDs)

Students demonstrate science concepts and skills aligned to the Grade Level Expectations and Extended Evidence Outcomes contained in the Colorado Academic Standards.

With appropriate support, Advanced students can typically:

- Demonstrate that the weight of a mixture is the same before and after separation
- Distinguish between healthy choices and unhealthy choices for the human body
- Compare and contrast characteristics between groups of plants and groups of animals
- Sort animals by observable characteristics
- Identify ways to conserve resources
- Identify landforms that are created by Earth's forces
- Identify forms of precipitation by physical characteristics

With appropriate support, At Target students can typically:

- Determine the weight of an individual component of a mixture after separation
- Identify the function of the internal organs of the human body
- Recognize a relationship between healthy choices and a healthy body
- Understand how plants and animals get the food they need to survive
- Compare the physical characteristics of plants to plants and animals to animals
- Distinguish between renewable and nonrenewable resources
- Identify forces that create common landforms
- Use weather condition symbols to recognize different types of weather based on observable characteristics

With appropriate support, Approaching Target students can typically:

- Identify physical properties of matter
- Select appropriate tools to separate simple mixtures based on physical properties
- Separate simple mixtures based on physical properties
- Identify the functions of the sensory organs, stomach, lungs, and heart
- List ways to maintain a healthy body
- List observable characteristics of animals
- Match animals to animals and plants to plants based on similar physical characteristics
- List basic survival needs for plants and animals
- List Earth's resources
- Identify a source of energy as renewable or nonrenewable
- Label basic landforms of Earth
- Compare forms of precipitation

With appropriate support, Emerging students can typically:

- Recognize physical properties of matter
- Identify observable parts of the human body
- Recognize basic survival needs for plants and animals
- Identify basic Earth resources
- Recognize basic landforms of Earth
- Identify common forms of precipitation (e.g., rain and snow)
- Recognize sources of daily/weekly weather information

Colorado Alternate Grade 8 Science Performance Level Descriptors (PLDs)

Students demonstrate science concepts and skills aligned to the Grade Level Expectations and Extended Evidence Outcomes contained in the Colorado Academic Standards.

With appropriate support, Advanced students can typically:

- Match an object to itself before and after a physical or chemical change
- Compare and contrast different water or sound waves using wave characteristics
- Determine if different materials can absorb, reflect, or refract light
- Predict the effect of a human activity on a local ecosystem
- Identify why the appearances of the Sun and the moon change in the sky, including phases of the moon and eclipses

With appropriate support, At Target students can typically:

- Determine an object's directionality and compare the speeds of moving objects
- Determine sources for light and heat
- Determine if an object has undergone a physical or chemical change
- Identify sources of waves
- Identify human activities that have an effect on local ecosystems
- Identify traits that are passed down from parent to child
- Compare safe and unsafe practices during severe weather conditions
- Use models and simulations to explore the motions of Earth, the moon, and the Sun

With appropriate support, Approaching Target students can typically:

- Recognize that the speed and direction of a force can change moving objects
- Compare different forms of energy
- Label chemical and physical changes
- Label different types of waves
- Recognize the effect of human activity on the local ecosystem
- Identify similarities and differences in parents and children
- Identify severe weather conditions and follow a simple action plan for severe weather
- Recognize facts and fiction in regards to space exploration

With appropriate support, Emerging students can typically:

- Identify objects changing speed while moving
- Recognize that heat, light, and electricity are forms of energy
- Identify different types of waves
- Recognize stages of human aging
- Recognize different weather conditions
- Identify different climates
- Identify scientific tools related to weather and space exploration
- Acknowledge that celestial objects have patterns of movement

Colorado Alternate High School Science Performance Level Descriptors (PLDs)

Students demonstrate science concepts and skills aligned to the Grade Level Expectations and Extended Evidence Outcomes contained in the Colorado Academic Standards.

With appropriate support, Advanced students can typically:

- Predict the direction or relative speed of an object as a result of an unbalanced force
- Group items based on physical properties
- Identify products in a chemical reaction
- Determine types of energy associated with common objects
- Compare characteristics of different types of animals
- Recognize how cells group together and how body systems work together
- Recognize how organism populations have adapted to change
- Identify the factors that affect climate

With appropriate support, At Target students can typically:

- Compare objects and the forces required to move them
- Identify item characteristics as physical or chemical
- Compare elements and compounds
- Identify the chemical reaction in an object that causes an observable change
- Identify an element present in a compound
- Distinguish between different types of energy transformations
- Compare positive and negative effects of human activities on ecosystems
- Compare healthy and unhealthy lifestyle choices
- Distinguish between inherited traits and learned behaviors
- Recognize how the earth has changed over time

With appropriate support, Approaching Target students can typically:

- Identify the fastest object in a group
- Use ratios to determine a type of physical change in a mixture
- Identify chemical reactions in household items and common organisms
- Identify sources of energy
- Identify similarities and differences in parents and children
- List basic needs for space travel
- Identify severe weather conditions and follow a simple action plan for severe weather

With appropriate support, Emerging students can typically:

- Understand that force is required to move
- Identify the result of a chemical reaction
- Identify parts of plant and animal cells
- Recognize how ecosystems are affected by human activities
- Identify different climates
- Match scientific tools to their use in weather and space exploration

Appendix C

Prepared Graduate Competency and Grade Level Expectation Ordering

	Prepared Graduate Competency and Grade Level Expectation Ordering CMAS Social Studies Grade 4
1	History
PGC 1	Develop an understanding of how people view, construct, and interpret history
GLE 1	Organize and sequence events to understand the concepts of chronology and cause and effect in the history of Colorado
PGC 2	Analyze key historical periods and patterns of change over time within and across nations and cultures
GLE 2	The historical eras, individuals, groups, ideas and themes in Colorado history and their relationships to key events in the United States
2	Geography
PGC1	Develop spatial understanding, perspectives, and personal connections to the world
GLE 1	Use several types of geographic tools to answer questions about the geography of Colorado
PGC 2	Examine places and regions and the connections among them
GLE 2	Connections within and across human and physical systems are developed
3	Economics (PFL)
PGC 1	Understand the allocation of scarce resources in societies through analysis of individual choice, market interaction, and public policy
GLE 1	People respond to positive and negative incentives
PGC 2	Acquire the knowledge and economic reasoning skills to make sound financial decisions (PFL)
GLE 2	The relationship between choice and opportunity cost (PFL)
4	Civics
PGC 1	Analyze and practice rights, roles, and responsibilities of citizens
GLE 1	Analyze and debate multiple perspectives on an issue
PGC 2	Analyze the origins, structure, and functions of governments and their impacts on societies and citizens
GLE 2	The origins, structure, and functions of the Colorado government

	Prepared Graduate Competency and Grade Level Expectation Ordering CMAS Social Studies Grade 7
1	History
PGC 1	Develop an understanding of how people view, construct, and interpret history
GLE 1	Seek and evaluate multiple historical sources with different points of view to investigate a historical question and to formulate and defend a thesis with evidence
PGC 2	Analyze key historical periods and patterns of change over time within and across nations and cultures
GLE 2	The historical eras, individuals, groups, ideas and themes within regions of the Eastern Hemisphere and their relationships with one another
2	Geography
PGC1	Develop spatial understanding, perspectives, and personal connections to the world
GLE 1	Use geographic tools to gather data and make geographic inferences and predictions
PGC 2	Examine places and regions and connections among them
GLE 2	Regions have different issues and perspectives
3	Economics (PFL)
PGC 1	Understand the allocation of scarce resources in societies through analysis of individual choice, market interaction, and public policy
GLE 1	Supply and demand influence price and profit in a market economy
PGC 2	Acquire the knowledge and economic reasoning skills to make sound financial decisions (PFL)
GLE 2	The distribution of resources influences economic production and individual choices (PFL)
4	Civics
PGC 1	Analyze and practice rights, roles, and responsibilities of citizens
GLE 1	Compare how various nations define the rights, responsibilities, and roles of citizens
PGC 2	Analyze the origins, structure, and functions of governments and their impacts on society and citizens

	Prepared Graduate Competency and Grade Level Expectation Ordering CMAS Science Grade 5
1	Physical Science
PGC 1	Apply an understanding of atomic and molecular structure to explain the properties of matter, and predict outcomes of chemical and nuclear reactions
GLE 1	Mixtures of matter can be separated regardless of how they were created; all weight and mass of the mixture are the same as the sum of weight and mass of its parts
2	Life Science
PGC1	Analyze how various organisms grow, develop and differentiate during their lifetimes based on an interplay between genetics and their environment
GLE 1	All organisms have structures and systems with separate functions
PGC 2	Analyze how the relationship between structure and function in living systems at a variety of organizational levels, and recognize living systems' dependence on natural selection
GLE 2	Human body systems have basic structures, functions, and needs
3	Earth Systems Science
PGC 1	Describe how humans are dependent on the diversity of resources provided by Earth and Sun
GLE 1	Earth and sun provide a diversity of renewable and nonrenewable resources
PGC 2	Evaluate evidence that Earth's geosphere, atmosphere, hydrosphere, biosphere interact as a complex system
GLE 2	Earth's surface changes constantly through a variety of processes and forces
GLE 3	Weather conditions change because of the uneven heating of Earth's surface by the Sun's energy. Weather changes are measured by differences in temperature, air pressure, wind, and water in the atmosphere and type of precipitation

	Prepared Graduate Competency and Grade Level Expectation Ordering CMAS Science Grade 8					
1	Physical Science					
PGC 1	Observe, explain, and predict natural phenomena governed by Newton's laws of motion, acknowledging the limitations of their application to very small or very fast objects					
GLE 1	Identify and calculate the direction and magnitude of forces that act on an object, and explain the results in the object's change of motion					
PGC 2	Apply an understanding that energy exists in various forms, and its transformation and conservation occur in processes that are predictable and measurable					
GLE 2	There are different forms of energy, and those forms of energy can be changed from one form to another— but total energy is conserved					
GLE 4	Recognize that waves such as electromagnetic, sound, seismic, and water have common characteristics and unique properties					
PGC 3	Apply an understanding of atomic and molecular structure to explain the properties of matter, and predict outcomes of chemical and nuclear reactions					
GLE 3	Distinguish between physical and chemical changes, noting that mass is conserved during any change					
2	Life Science					
PGC1	Explain and illustrate with examples how living systems interact with the biotic and abiotic environment					
GLE 1	Human activities can deliberately or inadvertently alter ecosystems and their resiliency					
PGC 2	Analyze how various organisms grow, develop, and differentiate during their lifetimes based on an interplay between genetics and their environment					
GLE 2	Organisms reproduce and transmit genetic information (genes) to offspring, which influences individuals' traits in the next generation					
3	Earth Systems Science					
PGC 1	Evaluate evidence that Earth's geosphere, atmosphere, hydrosphere, and biosphere interact as a complex system					
GLE 1	Weather is a result of complex interactions of Earth's atmosphere, land and water, that are driven by energy from the sun, and can be predicted and described through complex models					
GLE 2	Earth has a variety of climates defined by average temperature, precipitation, humidity, air pressure, and wind that have changed over time in a particular location					
PGC 2	Describe and interpret how Earth's geologic history and place in space are relevant to our understanding of the processes that have shaped our planet					
GLE 3	The solar system is comprised of various objects that orbit the Sun and are classified based on their characteristics					
GLE 4	The relative positions and motions of Earth, Moon, and Sun can be used to explain observable effects such as seasons, eclipses, and Moon phases					