

U.S. History, Civics, and Science Reporting ALDs for Board Action

The Governing Board is scheduled to take action on Reporting Achievement Level Descriptions (ALDs) for U.S. History, Civics, and Science at the 2023 March quarterly Board meeting. These Reporting ALDs were developed, through a contract with Pearson, to provide information regarding what students within each NAEP achievement level (*NAEP Basic*, *NAEP Proficient*, and *NAEP Advanced*) can likely do based on real assessment data. They are intended to increase the utility of NAEP results by presenting actual skills and knowledge demonstrated by students falling within each achievement level¹. These are different from the content ALDs included in the NAEP frameworks - the content ALDs were generated prior to assessment administration and are expectations of what students within each category *should* know and be able to do. The Reporting ALDs are planned to be included with the NAEP Report Card release for U.S. History and Civics in late spring of 2023, and Science Reporting ALDs will be included with the next Science release, expected to occur in the spring of 2025.

The development of Reporting ALDs is described in the most recent Board's [Achievement Level Policy](#) and the accompanying [Achievement Levels Procedures Manual](#). The policy was updated in 2018 to address recommendations presented by the National Academies of Sciences, Engineering, and Medicine (NASEM) in their [Evaluation of the Achievement Levels for Mathematics and Reading on NAEP](#). The development of Reporting ALDs is not intended as a one-time activity; rather, the policy states that the Reporting ALDs are to be updated following the first operational administration of an assessment based on a new framework and again every three administrations or 10 years, whichever comes later. This is to ensure they remain accurate reflections of the NAEP assessments as the item pools change over time.

The methodology used was consistent with that of the NAEP Achievement Level Description Review Study for Math and Reading that was presented to the Board at the May 2022 quarterly Board meeting. The Board approved the Math and Reading Reporting ALDs at the August 2022 quarterly meeting.

In summary, U.S. history, civics, and science content experts were recruited to participate in week-long workshops to review assessment items from the most recent assessment administration for which data were available (2018 for U.S. History and Civics, 2019 for Science). They used these items to develop Reporting ALDs, and then to provide ratings on the alignment of these Reporting ALDs to the achievement level policy definitions and content ALDs in the NAEP frameworks. Additional details are presented in a report included with this attachment.

Following the workshops, the Reporting ALDs underwent the following reviews:

1. Internal review by the National Center for Education Statistics (NCES) and NAEP contractors to ensure that there were no issues from an operational perspective (e.g., item security concerns, inconsistent language with frameworks)

¹ Although we also use item maps to illustrate examples of what students can do at a given scale score or achievement level, individual items sometimes have idiosyncratic reasons why they are of a certain difficulty. Each bullet in the reporting ALDs is based on a minimum of two items and provides stronger evidence of what students can do and how that varies across achievement levels.

2. External review by two content experts per subject, who were highly familiar with NAEP frameworks. These reviews focused on bias and sensitivity concerns, consistency with NAEP frameworks, and clarity. The subject area experts were also asked to identify skills or knowledge that showed progression across achievement levels.
3. Review by Board communications staff and contractors. These reviews focused on general readability to consider aspects that may be unclear to a general audience.

The reviews were designed to improve their overall clarity and utility, and to ensure they remained true to the intent of the study's workshop participants. Specifically, the substance of the statements was not to change because the reviewers did not have access to the rigorous training and data that the workshop participants had.

Reviewers provided written feedback for Pearson content leads to consider. Next, adjudication meetings were held between the internal reviewers and Pearson content leads to discuss final modifications based on the feedback. The internal feedback included requests to adjust the level of specificity (e.g., to avoid revealing item-level information, or to add clarity to the knowledge and skills attained) and vocabulary. The feedback was relatively minor, and the groups were able to reach consensus on the revisions prior to finalization.

The Board is expected to take action on the final U.S. History, Civics, and Science Reporting ALDs on Friday, March 3. For U.S. History and Civics, this timeline is necessary in order for the reporting ALDs to be included with the spring release of these data. The ALDs are included with the report included with this attachment. A final report of the entire project is currently under development and expected to be finalized by early summer.

As a next step stemming from the ALD Review study, COSDAM members will consider the alignment judgment ratings and their implications for validity evidence supporting the NAEP achievement levels.



NAEP Achievement Level Descriptor Review Study

Executive Summary for the National Assessment Governing Board March 2023 Quarterly Meeting

March 2-3, 2023

Achievement Levels Overview and Study Purpose

The National Assessment Governing Board has a legislatively mandated responsibility to develop NAEP achievement levels. The current [Board policy for Developing Student Achievement Levels for NAEP](#) provides policy definitions of *NAEP Basic*, *NAEP Proficient*, and *NAEP Advanced* – and describes the principles for setting achievement levels. The policy definitions are general, high-level expectations of what students should know and be able to do and consistent across all NAEP assessments. Content achievement level descriptors (ALDs) are specific descriptions of what students at each level *should* know and be able to do for each individual assessment included in the frameworks (for example, see page 125 of the current [Science Framework](#)). The [Achievement Levels Procedures Manual](#) further describes details for implementing the Board policy.

The Board first established the achievement levels policy in 1990 with the expectation that, in addition to scale scores, reporting should include the percentage of test takers at each defined level and those falling below the *NAEP Basic* level. As part of the NAEP reauthorization in 1994, Congress stipulated the achievement levels be designated as trial until an evaluation determined that the achievement levels are reasonable, reliable, valid, and informative to the public. The removal of the trial status is at the discretion of the NCES Commissioner.

This study, which reviewed the ALDs for the grade 8 NAEP Science, U. S. History, and Civics, is an extension to a contract that began with the review of ALDs for NAEP Reading and Mathematics assessments at grade 4, 8, and 12. For that reason, this study was performed for grade 8 subjects for the same rationale noted below for reading and mathematics.

In 2016, the National Academies of Sciences, Engineering, and Medicine conducted the [Evaluation of the Achievement Levels for Mathematics and Reading on NAEP](#), in response to the trial status stipulation. In it, they acknowledged the value of the NAEP achievement levels: “During their 24 years [the achievement levels] have acquired meaning for NAEP’s various audiences and stakeholders; they serve as stable benchmarks for monitoring achievement trends, and they are widely used to inform public discourse and policy decisions. Users regard them as a regular, permanent feature of the NAEP reports”. They made recommendations to enhance their utility, including:

Recommendation #1: Alignment among the frameworks, the item pools, the achievement-level descriptors, and the cut scores is fundamental to the validity of inferences about student achievement. In 2009, alignment was evaluated for all grades in reading and for grade 12 in mathematics, and changes were made to the achievement-level descriptors, as needed. Similar research is needed to evaluate alignment for the grade 4 and grade 8 mathematics assessments and to revise them as needed to ensure that they represent the knowledge and skills of students at each achievement level. Moreover, additional work to verify alignment for grade 4 reading and grade 12 mathematics is needed.

In response to the recommendations presented by the National Academies and updated guidance on achievement level setting, the Board updated its achievement level policy in November 2018 with guidance to develop new achievement level descriptions of what students *can* do based on student NAEP performance. These descriptions would be used in reporting to help increase the utility of NAEP data and are referred to as Reporting ALDs. The Board approved an [Achievement Levels](#)

[Work Plan](#) in 2020 to describe plans for addressing the recommendations in the evaluation.

In September 2020, the Board awarded a contract to Pearson to address the National Academies recommendation and updated Board policy for mathematics and reading, with an extension to address the same issues with respect to grade 8 science, U.S. history, and civics after the successful fulfillment of the initial contract in the first half of 2022.

The primary outcomes of this study were a) the development of Reporting ALDs based on assessment items and data, and b) comparison of the Reporting ALDs to the content ALDs as validity evidence. The methodology used was specified in the Achievement Levels Work Plan and was similar to what was done to evaluate reading and mathematics ALDs in 2022, which itself followed the method of the alignment and revision used for the 2009 NAEP Reading ALDs for grades 4, 8, and 12 ([Donahue, Pitoniak, & Beaulieu, 2010](#)) and the 2009 NAEP Mathematics ALDs for grade 12 ([Pitoniak, Dion, & Garber, 2010](#)). COSDAM has been overseeing this work from the onset, and a Technical Advisory Committee (TAC) with six experts in achievement levels and ALDs have participated in about 100 hours of discussions to provide technical guidance on all phases of the work.

Study Process and Outcomes

The study involved convening panels of teachers and non-teacher educators with content expertise in U.S. history, civics, or science to review items, develop summary statements to be included as Reporting ALDs (indicating what students know and can do as evidenced by correctly responding to the items), and then compare the statements to the existing content ALDs to provide alignment judgments.

A total of 13 teachers and 10 non-teacher educators (23 panelists total) participated in the operational study. The primary goal was to obtain panelists with the level of content expertise that would enable them to fully engage in the content-focused review process utilized during the meeting and to provide meaningful judgments. To achieve this goal, a multi-step recruitment process was implemented, starting with collecting nominations for qualified individuals from state and district education departments, and education organizations, then following up with nominated individuals to collect information about experience and interest. To assist with recruiting panelists that reflected an overall representation, specific effort was spent in collecting nominations for individuals with diverse characteristics and experiences and from a range of demographic locations. This proved challenging as substitute teacher shortages were common at the time the study was conducted. The resulting panels included current classroom teachers and non-classroom educators (i.e., prior classroom teachers now working in state or district setting), educators from varied demographic location and urbanicity, and educators with experience with various student populations.

Despite a targeted effort to increase the racial/ethnic and gender diversity of the panels, most participants were white females (two Black or African American panelists expected to participate were ultimately unable to). The TAC and COSDAM members discussed the implications of this on the study outcomes. Because the tasks involved reviewing assessment items and identifying the skills and knowledge required to respond to the items correctly rather than judging what students should know and be able to do, having strong content expertise was considered the most important panelist

qualification. In addition, COSDAM members requested Pearson collect information about the student populations the panelists had experience with. The data indicated educators represented a diverse set of districts with varied percentages of minorities, income levels, size, and urbanicity. Information about the final set of panelists can be found in Tables 1 through 8.

Table 1. Operational Study Panelist Current Position Distribution

Subject	Classroom Teacher	Non-Classroom Educator
Science	3	6
Civics	4	2
U.S. History	3	5

Table 2. Operational Study Panelist Gender Distribution

Subject	Female	Male	No Response
Science	7	2	0
Civics	4	1	1
U.S. History	6	2	0

Table 3. Operational Study Panelist Race and Ethnicity Distribution

Subject	Race					Ethnicity	
	Black/African American	Asian	White	Two or More Races	No Response	Hispanic/Latin/Spanish	No Response
Science	1	0	8	0	0	0	0
Civics	1	0	3	0	2	0	2
U.S. History	0	0	8	0	0	0	0

Table 4. Operational Study Panelist Geographical Region Distribution

Content Area	Northeast	Midwest	South	West
Science	2	2	1	4
Civics	2	1	2	1
U.S. History	2	3	3	0

Table 5. Operational Study Panelist Experience – District Type

Content Area	City	Suburb	Town	Rural	N/A
Science	2	2	1	2	2
Civics	2	2	0	1	1
U.S. History	2	2	3	1	0

Table 6. Operational Study Panelist Experience – District Size

Content Area	Large	Medium	Small	Distant	Remote/ Fringe	N/A
Science	3	0	2	1	1	2
Civics	4	0	0	0	1	1
U.S. History	2	1	2	2	1	0

Table 7. Operational Study Panelist Experience – Percent Minorities in District

Content Area	High (More than 60%)	Medium (30% to 59%)	Low (Less than 30%)	N/A
Science	1	4	2	2
Civics	2	2	1	1
U.S. History	0	2	6	0

Table 8. Operational Study Panelist Experience – Average Family Income in District

Content Area	Above National Average	Below National Average	N/A
Science	3	4	2
Civics	2	3	1
U.S. History	3	5	0

Workshops were held as in-person meetings in Austin, TX for five full days. First, a pilot workshop was held in September 2022 (with a separate group of panelists) to try out all procedures and identify areas needing improvement. Adjustments were made following the workshop based on this experience and recommendations from the TAC and COSDAM. Next, an operational meeting was held in December 2022. The operational meeting resulted in two sets of outcomes – draft Reporting ALDs and final alignment judgments of Reporting ALDs to the achievement level policy definitions and to the content ALDs. If Board members are interested in additional details about the study, please contact Board staff.

Reporting ALDs for Board Action

Pearson facilitators with relevant content expertise led subject-area panels through the process of reviewing assessment items to develop Reporting ALDs. The process involved first breaking into two small groups and developing statements independently, and then rejoining as a full group to produce a final set of statements. Panelist were instructed to write descriptions for all skills and knowledge supported by at least two items within an achievement level; this was to increase confidence that students performing in each level were likely to have mastered the skills and knowledge included in the Reporting ALDs.

Following the workshop, the facilitators cleaned up the statements, checking for grammar and

consistency of language across achievement levels when appropriate. The Reporting ALDs next went through an extensive review process incorporating three separate review types:

Following the workshops, the Reporting ALDs underwent the following reviews:

1. Internal review by the National Center for Education Statistics (NCES) and NAEP contractors to ensure that there were no issues from an operational perspective (e.g., item security concerns, inconsistent language with frameworks)
2. External review by two content experts per subject, who were highly familiar with NAEP frameworks. These reviews focused on bias and sensitivity concerns, consistency with NAEP frameworks, and clarity. The subject area experts were also asked to identify skills or knowledge that showed progression across achievement levels.
3. Review by Board communications staff and contractors. These reviews focused on general readability to consider aspects that may be unclear to a general audience.

The reviews were designed to improve their overall clarity and utility, and to ensure they remained true to the intent of the study's workshop participants. Specifically, the substance of the statements was not to change because the reviewers did not have access to the rigorous training and data that the workshop participants had.

Reviewers provided written feedback for Pearson content leads to consider. Next, adjudication meetings were held between the internal reviewers and Pearson content leads to discuss final modifications based on the feedback. The internal feedback included requests to adjust the level of specificity (e.g., to avoid revealing item-level information, or to add clarity to the knowledge and skills attained) and vocabulary. The feedback was relatively minor (i.e., did not change the meaning/intent of the original statement), and the groups were able to reach consensus on the revisions prior to finalization.

COSDAM and TAC members were briefed on the study findings and were offered an opportunity to provide recommendations on the presentation of the Reporting ALDs. Their recommendations included (a) presenting the subject-area domain relevant to each set of statements, and (b) include a note with the Reporting ALDs in the NAEP Report Card explaining that the achievement levels are cumulative (e.g., those at *NAEP Proficient* can likely do what is expected at *NAEP Basic* plus the additional knowledge and skills presented).

Tables 9 – 11 present the final Reporting ALDs for the Board to take action on during the March 2023 Quarterly Board Meeting for Science, Civics, and U.S. History, respectively. If the Board approves, the Civics and U.S. History Reporting ALDs will be included with the data release planned for later this spring. The Science Reporting ALDs are to be included with the release of data from the 2024 Science administration, expected for spring of 2025.

Table 9. Operational Study Panel Summary Statements—Science Grade 8

Achievement Level	Reporting ALDs
NAEP Basic	<p>Regarding the content for <i>Earth and space sciences</i>, students performing at the <i>NAEP Basic</i> achievement level can likely</p> <ul style="list-style-type: none"> • apply knowledge that sedimentary rock relates to fossil formation and how fossils are evidence of past environments • recall information about the solar system with an emphasis on the Sun and Earth • relate an aspect of the water cycle to weather formation. <p>Regarding the content for <i>life science</i>, students performing at the <i>NAEP Basic</i> achievement level can likely</p> <ul style="list-style-type: none"> • identify simple relationships between organisms within an ecosystem (mutualism, competition) • determine simple relationships within food webs • identify the effect of resource availability on a population provided a specific context • demonstrate understanding that reproduction is an essential part of population survival • recall that plants need sunlight to grow and reproduce. <p>Regarding the content for <i>physical science</i>, students performing at the <i>NAEP Basic</i> achievement level can likely</p> <ul style="list-style-type: none"> • identify that matter has unique chemical and physical properties • recognize kinetic energy and that it can be converted to a different form. <p>Regarding the <i>science practices</i>, students performing at the <i>NAEP Basic</i> achievement level can likely</p> <ul style="list-style-type: none"> • describe trends in data displayed on graphs • identify simple information from a graph or data table • summarize the interactions between components of a model • identify simple relationships in a scientific context • identify foundational science principles • describe 1-2 steps of an experimental design.
NAEP Proficient	<p>Regarding the content for <i>Earth and space sciences</i>, students performing at the <i>NAEP Proficient</i> achievement level can likely</p> <ul style="list-style-type: none"> • identify the components and causal processes of the water cycle • describe how human activity can impact the environment provided a specific context • identify the impact of ocean currents on air temperature when provided geographic locations • use knowledge of the Earth's structure including tectonic plate movement to explain physical characteristics of the Earth's surface • identify how Earth's materials are made and broken down • interpret evidence from fossils and rock layers to determine past environments • describe the relative age of rocks in a diagram

Achievement Level	Reporting ALDs
	<ul style="list-style-type: none"> • identify the effect of tilt and rotation on the impact of solar radiation on different locations on Earth • support an argument about orbital motion in the solar system from evidence provided in a specific context • recognize that weather changes when two air masses meet. <p>Regarding the content for <i>life science</i>, students performing at the <i>NAEP Proficient</i> achievement level can likely</p> <ul style="list-style-type: none"> • analyze how changes to living and non-living components of the environment impact food webs • predict the effect of changing resource availability on a population when provided a specific context • recognize the role of decomposition within a food web • identify advantages of asexual reproduction • describe the function of body systems (circulatory, respiratory, digestive) • identify the foundational process and components of photosynthesis (inputs and outputs) • recognize the relationship between structure and function in organisms • classify organisms based on their characteristics • identify adaptations that impact the survival of a species when provided a specific context. <p>Regarding the content for <i>physical science</i>, students performing at the <i>NAEP Proficient</i> achievement level can likely</p> <ul style="list-style-type: none"> • recognize and/or explain the characteristics (speed and spacing of molecules, effect of heat) of the states of matter • interpret a position vs time graph to describe the motion of an object • identify how kinetic and/or potential energy changes when an object is in motion • demonstrate a cause and effect understanding of energy transfer on an object when provided a specific context • apply knowledge of a substance's density to determine the properties of an unknown substance • identify a substance's physical and chemical properties, and those properties make the substance suitable for use in certain applications • interpret a model to identify the direction of gravity within the context of the model • apply knowledge that atoms of elements can be combined to form different substances with their own unique properties. <p>Regarding the <i>science practices</i>, students performing at the <i>NAEP Proficient</i> achievement level can likely</p> <ul style="list-style-type: none"> • set up an experiment including identifying specific variables • identify the data to collect in an experiment in order to support or test a claim • explain how to use a tool when provided a specific context • analyze figures, including graphs, to use data as evidence to support a claim • interpret maps to draw conclusions • explain how components of a model interact with one another • recognize connection between structure and function

Achievement Level	Reporting ALDs
	<ul style="list-style-type: none"> • describe individual parts of a system or process.
NAEP Advanced	<p>Regarding the content for <i>Earth and space sciences</i>, students performing at the <i>NAEP Advanced</i> achievement level can likely</p> <ul style="list-style-type: none"> • use knowledge of the Earth's structure and movement of tectonic plates to explain geological phenomena • identify that convection currents in water and/or air are caused by uneven heating • use models of the Sun-Earth system to infer the effect of Earth's tilt, rotation, and differences in solar radiation • use evidence from a given specific context to support an explanation of how human activity can impact the environment • use knowledge of geologic processes to explain how materials of the Earth are made and broken down. <p>Regarding the content for <i>life science</i>, students performing at the <i>NAEP Advanced</i> achievement level can likely</p> <ul style="list-style-type: none"> • explain relationships among different trophic levels of a food web • use evidence from a specific context to support an explanation of how resource availability affects population dynamics • use the structures of organisms to identify specific adaptations of organisms and infer how these adaptations help organisms to survive • explain the function of the organs that make up the body systems • identify advantages or disadvantages of asexual reproduction • demonstrate an understanding of the interaction between organisms and environmental factors in nutrient cycling. <p>Regarding the content for <i>physical science</i>, students performing at the <i>NAEP Advanced</i> achievement level can likely</p> <ul style="list-style-type: none"> • use evidence to support a claim about the effect of temperature on pressure within a given specific context • know and describe the properties of water (including the effects of temperature and pressure) • explain how the density of a gas affects its behavior for a given specific context • describe the effect of gravitational force on objects presented in a diagram • apply knowledge of energy to identify energy transformations within a complex or unique specific context • describe the role of conservation of mass in a chemical reaction • describe the relationship between kinetic and potential energy within a system • describe the relationship between solar energy and energy production in plants • apply knowledge of the properties of matter to select the appropriate material to perform a defined function. <p>Regarding the <i>science practices</i>, students performing at the <i>NAEP Advanced</i> achievement level can likely</p> <ul style="list-style-type: none"> • interpret experimental data to draw conclusions • apply scientific knowledge to determine the appropriate tool to use in a given context • use evidence, including quantitative data from graphs, to support a scientific claim • design a controlled experiment • explain relationships between parts of a system or process.

Table 10. Operational Study Panel Summary Statements—Civics Grade 8

Achievement Level	Reporting ALDs
NAEP Basic	<p>Regarding the content for <i>civic life, politics, and government</i>, students performing at the <i>NAEP Basic</i> achievement level can likely</p> <ul style="list-style-type: none"> • describe the structure and function of government • identify the difference between civic and private life • interpret stimuli to identify governing documents and their purpose. <p>Regarding the content for <i>U.S. and world affairs</i>, students performing at the <i>NAEP Basic</i> achievement level can likely</p> <ul style="list-style-type: none"> • identify potential areas of conflict and cooperation between countries • recognize that the United States is part of an interconnected world. <p>Regarding the content for <i>the roles of U.S. citizens</i>, students performing at the <i>NAEP Basic</i> achievement level can likely</p> <ul style="list-style-type: none"> • identify restrictions to fundamental freedoms • identify ways in which citizens influence American society • describe the rights and responsibilities of U.S. citizens. <p>Regarding the content for <i>the constitution and American government</i>, students performing at the <i>NAEP Basic</i> achievement level can likely</p> <ul style="list-style-type: none"> • identify and explain the sources and purposes of tax dollars • identify the purpose of each level of government: national, state, and local • identify ways in which the media and private citizens can express opinions and play a role in the political process. <p>Regarding the content for <i>foundations of the American political system</i>, students performing at the <i>NAEP Basic</i> achievement level can likely</p> <ul style="list-style-type: none"> • identify key democratic ideals, including equality and individual rights • identify equality under law, consent of the governed, and natural rights • describe how the U.S. has not always lived up to its founding ideals and principles.
NAEP Proficient	<p>Regarding the content for <i>civic life, politics, and government</i>, students performing at the <i>NAEP Proficient</i> achievement level can likely</p> <ul style="list-style-type: none"> • describe different types of government • identify separation of powers and checks and balances • analyze and infer the meaning from a variety of different civics-related sources • analyze the responsibilities/purposes of government • recognize the need to balance rights and responsibilities of citizens.

Achievement Level	Reporting ALDs
	<p>Regarding the content for <i>U.S. and world affairs</i>, students performing at the <i>NAEP Proficient</i> achievement level can likely</p> <ul style="list-style-type: none"> • examine ways in which the United States influences other countries • evaluate global scenarios and determine the effect that these scenarios may have on the United States and its policies • identify foreign policy issues. <p>Regarding the content for <i>the roles of U.S. citizens</i>, students performing at the <i>NAEP Proficient</i> achievement level can likely</p> <ul style="list-style-type: none"> • identify the process of becoming a U.S. citizen • make inferences about media sources to gain political and civic information • explain the differences between civic rights, civic responsibilities, and the duties of citizens • describe how rights are protected and limited by the U.S. Constitution • explain how rights have evolved in the U.S. Constitution. <p>Regarding the content for <i>the constitution and American government</i>, students performing at the <i>NAEP Proficient</i> achievement level can likely</p> <ul style="list-style-type: none"> • describe the rights of citizens, including due process of law • describe how the media can play a role in elections and the democratic process • explain the purpose and functions of each level of government: national, state, and local • describe ways in which citizens influence government. <p>Regarding the content for <i>foundations of the American political system</i>, students performing at the <i>NAEP Proficient</i> achievement level can likely</p> <ul style="list-style-type: none"> • describe the purpose of the Bill of Rights and apply the Bill of Rights to real-world scenarios • explain that the United States is made up of diverse groups, whose ideas have contributed to the American political system • draw conclusions from sources to describe the foundations of American democracy • describe how U.S. constitutional democracy relies on an educated citizenry • identify reasons why the United States can be viewed as the land of opportunity.
<i>NAEP Advanced</i>	<p>Regarding the content for <i>civic life, politics, and government</i>, students performing at the <i>NAEP Advanced</i> achievement level can likely evaluate sources to draw conclusions about early American political history</p> <ul style="list-style-type: none"> • identify information from multimedia sources with differing points of view • analyze and apply the concept of federalism. <p>Regarding the content for <i>U.S. and world affairs</i>, students performing at the <i>NAEP Advanced</i> achievement level can likely</p> <ul style="list-style-type: none"> • identify the roles, purposes, and limitations of international organizations

Achievement Level	Reporting ALDs
	<ul style="list-style-type: none"> • explain global issues and develop potential solutions to global problems. <p>Regarding the content for <i>the roles of U.S. citizens</i>, students performing at the <i>NAEP Advanced</i> achievement level can likely</p> <ul style="list-style-type: none"> • explain how individuals participate in and influence the democratic process • evaluate the importance of civic responsibilities in a democracy. <p>Regarding the content for <i>the constitution and American government</i>, students performing at the <i>NAEP Advanced</i> achievement level can likely</p> <ul style="list-style-type: none"> • explain the role of political parties and interest groups in the democratic process • explain how the media plays a role in elections and the democratic process • analyze the functions of the three branches of government. <p>Regarding the content for <i>foundations of the American political system</i>, students performing at the <i>NAEP Advanced</i> achievement level can likely</p> <ul style="list-style-type: none"> • describe the purpose of various founding documents, including the U.S. Constitution and The Federalist Papers • evaluate competing ideas within the U.S. political system • evaluate how the diversity of the United States has contributed to the development of the American political system • describe changes in American society and government.

Table 11. Operational Study Panel Summary Statements—U.S. History Grade 8

Achievement Level	Reporting ALDs
NAEP Basic	<p>Students performing at the <i>NAEP Basic</i> achievement level in U.S. History can likely</p> <ul style="list-style-type: none"> • Recall major historical terms and concepts • Identify the context of major historical figures, places, ideas and events • Identify simple historical concepts in primary or secondary sources • Make simple conclusions based on primary or secondary sources <p>Regarding the content for <i>change and continuity in American democracy</i>, students performing at the <i>NAEP Basic</i> achievement level can likely</p> <ul style="list-style-type: none"> • recall fundamental knowledge of the Civil War including causes, key events, and outcomes • recall fundamental knowledge about the U.S. Constitution. <p>Regarding the content for <i>gathering and interactions of peoples, cultures, and ideas</i>, students performing at the <i>NAEP Basic</i> achievement level can likely</p> <ul style="list-style-type: none"> • recall knowledge of the experience of Black or African Americans (and enslaved Africans) through Reconstruction • identify major social and cultural characteristics in various time periods. <p>Regarding the content for <i>economic and technological changes</i>, students performing at the <i>NAEP Basic</i> achievement level can likely</p> <ul style="list-style-type: none"> • demonstrate knowledge of the impact of economic policies and technological innovations • identify major technological and economic developments • identify and describe the economic motivations of European colonization. <p>Regarding the content for <i>the changing role of America in the world</i>, students performing at the <i>NAEP Basic</i> achievement level can likely</p> <ul style="list-style-type: none"> • identify the relationships between different nations and groups of people • recall fundamental knowledge about major events related to foreign policy.
NAEP Proficient	<p>Students performing at the <i>NAEP Proficient</i> achievement in U.S. History can likely</p> <ul style="list-style-type: none"> • read and interpret primary and secondary sources to make inferences and draw conclusions • recall knowledge of historical events without source material to provide context • demonstrate understanding and knowledge of change over time. <p>Regarding the content for <i>change and continuity in American democracy</i>, students performing at the <i>NAEP Proficient</i> achievement level can likely</p> <ul style="list-style-type: none"> • demonstrate understanding of the influences and content of major founding documents

Achievement Level	Reporting ALDs
	<ul style="list-style-type: none"> • identify principles in American founding documents • recall knowledge about political and social reform movements • make inferences or connections using primary sources • read and interpret maps to develop conclusions • identify inequities involving freedom and opportunity for women and Black or African Americans. <p>Regarding the content for <i>gathering and interactions of peoples, cultures, and ideas</i>, students performing at the <i>NAEP Proficient</i> achievement level can likely</p> <ul style="list-style-type: none"> • identify experiences of Black or African Americans from Reconstruction to the Great Migration • identify the nature and consequences of American Indian interactions with European explorers, colonists, and the United States government • identify the motivations and influence of abolitionism • demonstrate understanding of the perspectives or contributions of individuals and groups to the development of unique American culture • read and interpret graphs and maps to identify trends in migration to and within the United States • demonstrate understanding of the composition of the workforce and the impact of different groups in various time periods • make inferences using primary sources • use historical terms to answer a question. <p>Regarding the content for <i>economic and technological changes</i>, students performing at the <i>NAEP Proficient</i> achievement level can likely</p> <ul style="list-style-type: none"> • describe the relationship between government policies and the economy • apply historical knowledge to analyze a source • explain the effects of economic and technological change • demonstrate understanding of the economic consequences of the labor of enslaved and free Black or African Americans in the South • determine the perspective of individuals or groups regarding economic systems • determine or provide reasons for an effect of a historical event or process. <p>Regarding the content for <i>the changing role of America in the world</i>, students performing at the <i>NAEP Proficient</i> achievement level can likely</p> <ul style="list-style-type: none"> • identify U.S. foreign policy across various time periods • interpret an author's purpose or point of view in historical sources • use sources to infer the meaning or significance of historical events • understand two historical concepts and the connections between them to explain events

Achievement Level	Reporting ALDs
	<ul style="list-style-type: none"> demonstrate understanding of the interaction between peoples and nations.
<i>NAEP Advanced</i>	<p>Students performing at the <i>NAEP Advanced</i> achievement level in U.S. History can likely</p> <ul style="list-style-type: none"> demonstrate understanding of historical events and concepts through writing analyze primary and secondary sources to contextualize and explain historical ideas and events. <p>Regarding the content for <i>change and continuity in American democracy</i>, students performing at the <i>NAEP Advanced</i> achievement level can likely</p> <ul style="list-style-type: none"> analyze and interpret primary and secondary sources to explain in writing their impact or effect in specific time periods explain motivations for westward migration and expansion by white and Black or African American settlers understand the causes and effects of federal government policies and actions regarding slavery recall detailed information about historical people or events without the assistance of a source make complex or detailed connections between concepts related to rights of individuals and groups. <p>Regarding the content for <i>gathering and interactions of peoples, cultures, and ideas</i>, students performing at the <i>NAEP Advanced</i> achievement level can likely</p> <ul style="list-style-type: none"> place events within historical time periods analyze primary and secondary sources to determine purpose, supply evidence, reach conclusions, or draw inferences make comparisons between different roles and lifestyles within and across different historical time periods in American history (colonial, Reconstruction, modern day) provide multiple points of evidence for a historical claim demonstrate historical knowledge through written expression. <p>Regarding the content for <i>economic and technological changes</i>, students performing at the <i>NAEP Advanced</i> achievement level can likely</p> <ul style="list-style-type: none"> demonstrate understanding of how changes in technology impacted economic growth use multiple pieces of evidence from historical sources to arrive at a conclusion use maps, charts, and graphs to analyze historical trends demonstrate understanding of the significance of major economic developments provide an explanation or justification for a historical claim. <p>Regarding the content for <i>the changing role of America in the world</i>, students performing at the <i>NAEP Advanced</i> achievement level can likely</p> <ul style="list-style-type: none"> explain in writing the impact of government policies on different groups or nations make inferences or contextualize ideas from a source or time period

Achievement Level	Reporting ALDs
	<ul style="list-style-type: none">• describe the intended purpose or impact of foreign policy.

Alignment Judgment Results

The second objective of the study was to judge the alignment of the Reporting ALDs, developed based on assessment data, to the NAEP policy definitions of the achievement levels and to the content ALDs presented in the NAEP framework.

Achievement on all NAEP assessments is reported using the following achievement levels, in accordance with the Board policy on Developing Student Achievement Levels for NAEP, which are defined using the following policy definitions:

NAEP Basic—This level denotes partial mastery of prerequisite knowledge and skills that are fundamental for performance at the NAEP Proficient level.

NAEP Proficient—This level represents solid academic performance for each NAEP assessment. Students reaching this level have demonstrated competency over challenging subject matter, including subject-matter knowledge, application of such knowledge to real-world situations, and analytical skills appropriate to the subject matter.

NAEP Advanced—This level signifies superior performance beyond NAEP Proficient.

Tables 12 through 14 present the content ALDs from the NAEP framework documents that were compared against the Reporting ALDs for making alignment judgments. The purpose of these alignment judgments (between the Reporting ALDs and achievement level policy definitions, and between the Reporting ALDs and content ALDs) was to provide validity evidence supporting the NAEP achievement levels.

Table 12. NAEP Science Achievement Levels Included in the Current NAEP Science Framework—Grade 8

<p><i>NAEP Basic</i></p>	<p>Students performing at the <i>NAEP Basic</i> level should be able to state or recognize correct science principles. They should be able to explain and predict observations of natural phenomena at multiple scales, from microscopic to global. They should be able to describe properties and common physical and chemical changes in materials; describe changes in potential and kinetic energy of moving objects; describe levels of organization of living systems—cells, multicellular organisms, and ecosystems; identify related organisms based on hereditary traits; describe a model of the solar system; and describe the processes of the water cycle. They should be able to design observational and experimental investigations employing appropriate tools for measuring variables. They should be able to propose and critique the scientific validity of alternative individual and local community responses to design problems.</p> <p><i>Science Practices:</i> Students performing at the <i>NAEP Basic</i> level should be able to state or recognize correct science principles; explain and predict observations of natural phenomena at multiple scales, from microscopic to global, using evidence to support their explanations and predictions; design investigations employing appropriate tools for measuring variables; and propose and critique the scientific validity of alternative individual and local community responses to design problems.</p> <p><i>In the physical sciences,</i> students at the <i>NAEP Basic</i> level should be able to recognize a class of chemical compounds by its properties; design an investigation to show changes in properties of reactants and products in a chemical process such as burning or rusting; describe the changes in kinetic and potential energy of an object such as a swinging pendulum; describe and compare the motions of two objects moving at different speeds from a table of their position and time data; describe the direction of all forces acting on an object; and suggest an example of a system in which forces are acting on an object but the motion of the object does not change.</p> <p><i>In the life sciences,</i> students at the <i>NAEP Basic</i> level should be able to identify levels of organization within cells, multicellular organisms, and ecosystems; describe how changes in an environment relate to an organism’s survival; describe types of interdependence in ecosystems; identify related organisms based on hereditary traits; discuss the needs of animals and plants to support growth and metabolism; and analyze and display data showing simple patterns in population growth.</p> <p><i>In the Earth and space sciences,</i> students at the <i>NAEP Basic</i> level should be able to describe a Sun-centered model of the solar system that illustrates how gravity keeps the objects in regular motion; describe how fossils and rock formations can be used as evidence to infer events in Earth’s history; relate major geologic events, such as earthquakes, volcanoes, and mountain building to the movement of lithospheric plates; use weather data to identify major weather events; and describe the processes of the water cycle including changes in the physical state of water.</p>
<p><i>NAEP Proficient</i></p>	<p>Students performing at the <i>NAEP Proficient</i> level should be able to demonstrate relationships among</p>

	<p>closely related science principles. They should be able to identify evidence of chemical changes; explain and predict motions of objects using position-time graphs; explain metabolism, growth, and reproduction in cells, organisms, and ecosystems; use observations of the Sun, Earth, and Moon to explain visible motions in the sky; and predict surface and groundwater movements in different regions of the world. They should be able to explain and predict observations of phenomena at multiple scales, from microscopic to macroscopic and local to global, and to suggest examples of observations that illustrate a science principle. They should be able to use evidence from investigations in arguments that accept, revise, or reject scientific models. They should be able to use scientific criteria to propose and critique alternative individual and local community responses to design problems.</p> <p><i>Science Practices:</i> Students performing at the <i>NAEP Proficient</i> level should be able to demonstrate relationships among closely related science principles; explain and predict observations of phenomena at multiple scales, from microscopic to macroscopic and local to global, and to suggest examples of observations that illustrate a science principle; design investigations requiring control of variables to test a simple model, employing appropriate sampling techniques and data quality review processes, and use the evidence to communicate an argument that accepts, revises, or rejects the model; and propose and critique solutions and predict the scientific validity of alternative individual and local community responses to design problems.</p> <p><i>In the physical sciences,</i> students at the <i>NAEP Proficient</i> level should be able to demonstrate the relationship between the properties of chemical elements and their position on the periodic table; use empirical evidence to demonstrate that a chemical change has occurred; demonstrate the relationship of the motion of an object that experiences multiple forces with the representation of the motion on a position-time graph; predict the position of a moving object based on the position-time data presented in a table; and suggest examples of systems in which potential energy is converted into other forms of energy.</p> <p><i>In the life sciences,</i> students at the <i>NAEP Proficient</i> level should be able to explain metabolism, growth, and reproduction at multiple levels of living systems: cells, multicellular organisms, and ecosystems; predict the effects of heredity and environment on an organism’s characteristics and survival; use sampling strategies to estimate population sizes in ecosystems; and suggest examples of sustainable systems for multiple organisms.</p> <p><i>In the Earth and space sciences,</i> students at the <i>NAEP Proficient</i> level should be able to explain how gravity accounts for the visible patterns of motion of the Earth, Sun, and Moon; explain how fossils and rock formations are used for relative dating; use models of Earth’s interior to explain lithospheric plate movement; explain the formation of Earth materials using the properties of rocks and soils; identify recurring patterns of weather phenomena; and predict surface and groundwater movement in different regions of the world.</p>
<i>NAEP Advanced</i>	<p>Students performing at the <i>NAEP Advanced</i> level should be able to develop alternative representations of science principles and explanations of observations. They should be able to use information from the periodic table to compare families of elements; explain changes of state in terms of energy flow; trace</p>

matter and energy through living systems at multiple scales; predict changes in populations through natural selection and reproduction; use lithospheric plate movement to explain geological phenomena; and identify relationships among regional weather and atmospheric and ocean circulation patterns. They should be able to design and critique investigations involving sampling processes, data quality review processes, and control of variables. They should be able to propose and critique alternative solutions that reflect science-based trade-offs for addressing local and regional problems.

Science Practices: Students performing at the *NAEP Advanced* level should be able to demonstrate relationships among different representations of science principles. They should be able to explain and predict observations of phenomena at multiple scales, from microscopic to macroscopic and local to global, and develop alternative explanations of observations, using evidence to support their thinking. They should be able to design control of variable investigations employing appropriate sampling techniques and data quality review processes that strengthen the evidence used to argue for one alternate model over another. They should be able to propose and critique alternative solutions that reflect science-based trade-offs for addressing local and regional problems.

In the physical sciences, students at the *NAEP Advanced* level should be able to interpret diagrams, graphs, and data to demonstrate the relationship between the particulate nature of matter and state changes (for instance, melting and freezing); demonstrate relationships between position on the periodic table and the characteristics of families of the chemical elements; explain changes of state in terms of energy flow in and out of a system; identify possible scientific trade-offs in making decisions on the design of an electrical energy power plant; suggest examples of systems in which objects are undergoing transitional, vibrational, and rotational motion; and suggest examples of systems in which forces are acting both through contact and at a distance. In the life sciences, students at the *NAEP Advanced* level should be able to explain movement and transformations of matter and energy in living systems at cellular, organismal, and ecosystem levels; predict changes in populations through natural selection and reproduction; and describe an ecosystem's populations and propose an analysis for changes based on energy flow through the system.

In the Earth and space sciences, students at the *NAEP Advanced* level should be able to explain the seasons, Moon phases, and lunar and solar eclipses; illustrate how fossils and rock formations can provide evidence of changes in environmental conditions over time; use lithospheric plate movement to explain geological phenomena; identify relationships among regional weather and atmospheric and ocean circulation patterns; and use the water cycle to propose and critique ways for obtaining drinkable water.

Table 13. NAEP Civics Achievement Levels Included in the current NAEP Civics Framework—Grade 8

<p><i>NAEP Basic</i> (243)</p>	<p><i>Eighth-grade students performing at the Basic level should have some understanding of competing ideas about purposes of government, and they should be able to describe advantages of limited government. They should be able to define government, constitution, the rule of law, and politics. They should be able to identify the fundamental principles of American democracy and the documents from which they originate, and they should understand the importance of a shared commitment to the core values of American democracy. They should recognize the components of the political process and understand personal, political, and economic rights and responsibilities. They should be able to describe the purposes of some international organizations.</i></p> <p>Eighth-grade students performing at the Basic level should have some understanding of competing ideas about purposes of government, and they should be able to describe advantages of limited government. They should be able to define what is meant by government, constitution, the rule of law, and politics. These students should be able to identify fundamental principles and values of American democracy, such as federalism, the separation of powers, checks and balances, government by the consent of the governed, and individual rights. They should understand that the Declaration of Independence and the U.S. Constitution, including the Bill of Rights and other amendments, are sources of these ideas. These students should be able to explain why it is important that citizens share the values and principles expressed in the nation’s core documents, and they should understand functions of elections, political parties, and interest groups in a democratic society. They should know that American citizenship is attained by birth or through naturalization. They should be able to identify personal, political, and economic rights of Americans and should understand the responsibilities that these rights imply. Finally, these students should be able to describe purposes of international organizations to which the United States belongs.</p>
<p><i>NAEP Proficient</i> (281)</p>	<p><i>Eighth-grade students performing at the Proficient level should understand and be able to explain purposes that government should serve. These students should have a good understanding of differences between government and civil society and of the importance of the rule of law. They should recognize discrepancies between American ideals and reality and be able to describe continuing efforts to address them. They should understand the separation and sharing of powers among branches of government and between federal and state governments, and they should be able to explain how citizens influence government. They should be able to describe events within the United States and other countries that have international consequences.</i></p> <p>Eighth-grade students performing at the Proficient level should have a good understanding of purposes that government should serve, and they should be able to explain why government should serve those purposes. These students should understand differences between government and civil society, and they should be able to explain the importance of the rule of law. They should be able to point out ways in which ideals expressed in the nation’s core documents differ from reality and identify ways in which these differences continue to be addressed. They should be able to explain how and why legislative, executive, and judicial powers are separate,</p>

	<p>shared, and limited in the American constitutional government, and they should understand how and why powers are divided and shared between the national and state governments. They should be able to discuss ways that citizens can use the political process to influence government. These students 53 should be able to provide simple interpretations of nontext-based information such as maps, charts, tables, graphs, and cartoons. Finally, these students should be able to describe events in the United States that have influenced other nations, as well as events in other nations that have affected American policy.</p>
<p><i>NAEP Advanced</i> (323)</p>	<p><i>Eighth-grade students performing at the Advanced level should have a developed understanding of how civil society helps to maintain limited government and why the rule of law is important. These students should have a clear understanding of issues in which democratic values are in conflict and of past efforts to address the discrepancies between American ideals and reality. They should understand how citizens can monitor and influence government and how responsible citizens support democracy. They should recognize the impact of American democracy on other countries, as well as other countries' impact on American politics and society.</i></p> <p>Eighth-grade students performing at the Advanced level should have a developed understanding of why civil society plays a key role in maintaining a limited government and the importance of the rule of law in civil society and government. These students should be able to take positions on issues in which fundamental values are in conflict (liberty and equality, individual rights and the common good, and majority rule and minority rights, for example) and they should be able to defend their positions. They should be able to evaluate results of past efforts to address discrepancies between American ideals and national reality and to explain how citizens can monitor and influence local, state, and national government. These students should understand how laws can achieve purposes of American constitutional government, such as promoting the common good and protecting rights of individuals. They should understand how civic dispositions such as civility, tolerance, and respect for law promote the healthy functioning of American constitutional democracy. Finally, these students should understand the impact of American democracy on other countries, 54 as well as the impact of other countries on American politics and society.</p>

Table 14. NAEP U.S. History Achievement Levels Included in the Current NAEP U.S. History Framework—Grade 8

<p><i>NAEP Basic</i> (265)</p>	<p>Eighth-grade students performing at the Basic level should be able to identify and place in context a range of historical people, places, events, ideas, and documents. They should be able to distinguish between primary and secondary sources. They should have a beginning understanding of the diversity of the American people and the ways in which people from a wide variety of national and cultural heritages have become part of a single nation. Eighth-grade students at the Basic level should also have a beginning understanding of the fundamental political ideas and institutions of American life and their historical origins. They should be able to explain the significance of some major historical events.</p>
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<p><i>NAEP Proficient (302)</i></p>	<p>Eighth-grade students performing at the Proficient level should be able to explain the significance of people, places, events, ideas, and documents, and to recognize the connection between people and events within historical contexts. They should understand and be able to explain the opportunities, perspectives, and challenges associated with a diverse cultural population. They should incorporate geographic, technological, and other considerations in their understanding of events and should have knowledge of significant political ideas and institutions. They should be able to communicate ideas about historical themes while citing evidence from primary and secondary sources to support their conclusions.</p>
<p><i>NAEP Advanced (346)</i></p>	<p>Eighth-grade students performing at the Advanced level should recognize significant themes and movements in history and begin to understand particular events in light of these themes and movements. They should have an awareness of continuity and change over time and be able to draw relevant analogies between past events and present-day situations. They should be able to frame questions about historical topics and use multiple sources to develop historical generalizations and interpretations. They should be able to explain the importance of historical themes, including some awareness of their political, social, and economic dimensions.</p>

Table 15 presents the panelists’ alignment judgment agreement, or the percentage of panelists that provided each alignment judgment between the Reporting ALDs and the achievement level policy definitions. The majority of panelists for all content areas and achievement levels judged the alignment as moderate or strong. Only one science panelist judged the alignment as weak for *NAEP Proficient* and minimal for *NAEP Advanced*.

Table 15. Final Alignment Judgment Rating between Reporting ALDs and Policy Definitions

Content Area	Achievement Level	ALD Alignment Judgment			
		Strong	Moderate	Weak	Minimal
Science	<i>NAEP Advanced</i>	44%	44%	0%	11%
	<i>NAEP Proficient</i>	44%	44%	11%	0%
	<i>NAEP Basic</i>	44%	55%	0%	0%
Civics	<i>NAEP Advanced</i>	67%	33%	0%	0%
	<i>NAEP Proficient</i>	100%	0%	0%	0%
	<i>NAEP Basic</i>	83%	17%	0%	0%
U.S. History	<i>NAEP Advanced</i>	50%	50%	0%	0%
	<i>NAEP Proficient</i>	37%	63%	0%	0%
	<i>NAEP Basic</i>	63%	37%	0%	0%

Table 16 presents the panelists’ alignment judgment agreement, or the percentage of panelists that provided each alignment judgment between the Reporting ALDs and the content ALDs. As shown, all panelists felt the alignment for Civics and U.S. History was moderate or strong. Most ratings for Science were also moderate or strong, though one-third (representing three panelists) felt the alignment for *NAEP Basic* was weak, and one panelist rated the alignment of *NAEP Advanced* and *NAEP Proficient* as weak.

Table 16. Final Alignment Judgment Rating between Reporting ALDs and Content ALDs

Content Area	Achievement Level	ALD Alignment Judgment			
		Strong	Moderate	Weak	Minimal
Science	<i>NAEP Advanced</i>	44%	44%	11%	0%
	<i>NAEP Proficient</i>	11%	77%	11%	0%
	<i>NAEP Basic</i>	33%	33%	33%	0%
Civics	<i>NAEP Advanced</i>	50%	50%	0%	0%
	<i>NAEP Proficient</i>	83%	17%	0%	0%
	<i>NAEP Basic</i>	17%	83%	0%	0%
U.S. History	<i>NAEP Advanced</i>	0%	100%	0%	0%
	<i>NAEP Proficient</i>	37%	63%	0%	0%
	<i>NAEP Basic</i>	25%	75%	0%	0%

Next Steps

The full Board will participate in a discussion of the reporting ALDs at the March 2023 Board meeting where the Reporting ALDs can be approved for use in reporting NAEP results.

In the longer-term, COSDAM will consider the implications of the alignment judgment results for validity evidence in context of other work. COSDAM members agreed the results of the alignment judgments are independent to the decision to adopt Reporting ALDs; the reporting ALDs are based on real assessment data, and thus accurate depictions of what students within an achievement level have demonstrated they know and can do.