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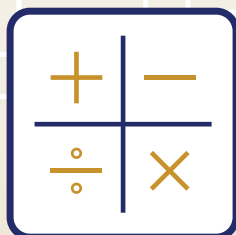
# Long-Term Trend

Assessments

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**Age 9**

**Mathematics**



**Reading**



# National Assessment of Educational Progress

## 2022 Long-Term Trend Assessments in Mathematics and Reading

### Age 9

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## Letter From Peggy G. Carr, PhD, Commissioner, NCES

As Commissioner of the National Center for Education Statistics (NCES), and on behalf of the National Assessment of Educational Progress (NAEP), I want to thank you for your participation in the NAEP 2022 assessments. The NAEP program is an essential measure of student achievement in the United States. NAEP results provide valuable information on what students in our country know and can do in various subjects.

NCES is keenly aware of the enormous challenges that our nation's schools are facing due to the COVID-19 pandemic and the flexible approaches needed to assess students during this time. Our top priority is to protect the health and safety of students and school staff. NCES continues to monitor COVID-19 developments and will work closely with our state and district partners to determine how best to assess students in schools. As the situation with COVID-19 continues, NAEP will adapt to new processes and procedures. Visit <https://nces.ed.gov/nationsreportcard/about/covid19.aspx> for more information about NAEP COVID-19 protocols and updated NAEP administration plans for 2022.

In winter 2022, a representative sample of students at age 9 will be assessed in the congressionally mandated long-term trend mathematics and reading assessments. At the end of each assessment, students will voluntarily complete brief survey questionnaires about their educational experiences and opportunities to learn both in and outside of the classroom, as well as how they have accessed learning during the COVID-19 pandemic. To learn more about NAEP survey questionnaires, see page 13 of this document or visit [https://nces.ed.gov/nationsreportcard/experience/survey\\_questionnaires.aspx](https://nces.ed.gov/nationsreportcard/experience/survey_questionnaires.aspx) and select "Long-Term Trend Student Questionnaires."

Results of the 2022 long-term trend assessments in mathematics and reading will be reported as The Nation's Report Card. Assessment results are widely discussed in the press and are used by educators, researchers, policymakers, and elected officials to make decisions about education policy and funding.

This booklet provides helpful information on the NAEP 2022 long-term trend assessments for students at age 9, details on sample questions in order to promote understanding of the assessment, and links to the 2022 long-term trend survey questionnaires. Additional information for teachers and schools can be found at <http://nces.ed.gov/nationsreportcard/educators>, including more details about the NAEP assessment and the critical role of educators in the NAEP program.

If you have any questions or comments regarding NAEP or would like to view previous report cards, please visit the NAEP website at <http://nces.ed.gov/nationsreportcard>.

Peggy G. Carr, PhD  
Commissioner  
National Center for Education Statistics  
Institute of Education Sciences

**Paperwork Reduction Act (PRA) Statement**

National Center for Education Statistics (NCES) conducts the National Assessment of Educational Progress to evaluate federally supported education programs. All of the information you provide may be used only for statistical purposes and may not be disclosed, or used, in identifiable form for any other purpose except as required by law (20 U.S.C. §9573 and 6 U.S.C. §151). By law, every NCES employee as well as every NCES agent, such as contractors and NAEP coordinators, has taken an oath and is subject to a jail term of up to 5 years, a fine of \$250,000, or both if he or she willfully discloses ANY identifiable information about you. Electronic submission of your information will be monitored for viruses, malware, and other threats by Federal employees and contractors in accordance with the Cybersecurity Enhancement Act of 2015.

NCES estimates the time required to complete this information collection to average 70 minutes, including the time to review instructions and complete and review the information collection. This voluntary information collection was reviewed and approved by OMB (Control No. 1850-0928). If you have any comments concerning the accuracy of the time estimate, suggestions for improving this collection, or any comments or concerns regarding the status of your individual submission, please write to: *National Assessment of Educational Progress (NAEP), National Center for Education Statistics (NCES), Potomac Center Plaza, 550 12th St., SW, 4th floor, Washington, DC 20202*, or send an email to: [nces.information.collections@ed.gov](mailto:nces.information.collections@ed.gov).

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## II. The NAEP Long-Term Trend Assessments

Since its inception in 1969, NAEP has served the important function of measuring our nation's educational progress by regularly administering various subject area assessments to nationally representative samples of students. The existence of the two national assessment programs—long-term trend NAEP and main NAEP—makes it possible to meet two important objectives: (1) measure student progress over time; and (2) as educational priorities change, develop new assessment instruments that reflect current educational content and assessment methodology. While the main NAEP assessments are periodically revised, the long-term trend assessments have remained substantially the same since their first administration.

Students in the long-term trend assessment are sampled by age—9, 13, and 17—throughout the school year. Age 13 students are assessed in the fall, age 9 students in the winter, and age 17 students in the spring of the academic year. Students at ages 9 and 13 took the long-term trend assessments in mathematics and reading in winter 2020 and fall 2019, respectively. The 2022 long-term trend assessment for age 9 includes mathematics and reading, and each student answers questions in only one subject. The next administration of the long-term trend assessment for age 17 is scheduled for 2025.

The long-term trend mathematics assessment measures students' knowledge of basic facts, ability to carry out numerical algorithms using paper and pencil, knowledge of basic measurement formulas as they are applied in geometric settings, and ability to apply mathematics to daily living skills (such as those related to time and money). The computational focus of the long-term trend assessment provides a unique opportunity to determine how students are performing in areas of computation and simple applications of mathematics. The long-term trend mathematics assessment is described in more detail in this booklet.

The long-term trend reading assessment measures students' reading skills and comprehension abilities, primarily with expository, narrative, and document texts. While some questions in the long-term trend assessment ask students to write their own answers, the majority of questions are in a multiple-choice format. A more detailed description of the long-term trend reading assessment is included in this booklet.

In addition to assessing students' progress in mathematics and reading, the NAEP long-term trend assessments include survey questionnaires about students' home and school experiences that relate to the appraisal of academic achievement. For example, students are asked about access to a computer at home, school attendance, and the amount of time they spend on homework. Their responses to these questions provide informative context for interpreting the assessment results. Read more about NAEP survey questionnaires and view long-term trend questionnaires from previous assessment years at [https://nces.ed.gov/nationsreportcard/experience/survey\\_questionnaires.aspx](https://nces.ed.gov/nationsreportcard/experience/survey_questionnaires.aspx).

# Long-Term Trend Mathematics

## Age 9

The long-term trend mathematics assessment covers the following content topics: numbers and numeration; measurement; shape, size, and position; probability and statistics; and variables and relationships. Each test booklet consists of three content blocks of 15 minutes each.

- *Numbers and Numeration:* These exercises deal with the ways numbers are used, processed, or written. Knowledge and understanding of numeration and number concepts are assessed for whole numbers, common fractions, and decimal fractions. Considerable emphasis is placed on operations. Number properties and order relations are also included.
- *Measurement:* These exercises cover appropriate units; equivalence relations; instrument reading; length, weight, capacity, time, temperature, perimeter, and area; and nonstandard units. A substantial number of the measurement exercises require the use and understanding of metric units.
- *Shape, Size, and Position:* These exercises measure objectives related to school geometry and concern plane shapes, congruence, properties of triangles, properties of quadrilaterals, and symmetry.
- *Probability and Statistics:* These exercises assess collecting data; organizing data with tables, charts, and graphs; interpreting and analyzing data; using basic statistics; and predicting outcomes.
- *Variables and Relationships:* These exercises deal with the recognition of facts, definitions, and symbols of algebra; the solution of equations and inequalities; the use of variables to represent problem situations and elements of a number system; and logic.

For students at age 9, the percentage of test questions from each content topic is distributed as follows:

**Percentages of Items by Content Area—Age 9**

Content Area	Age 9
Numbers and numeration	53%
Measurement	16%
Shape, size, and position	8%
Probability and statistics	12%
Variables and relationships	10%

NOTE: Detail may not sum to totals because of rounding.

Within the content topics, the following process domains are included: mathematical knowledge, mathematical skill, mathematical understanding, and mathematical application and problem solving.

- *Mathematical Knowledge:* Mathematical knowledge refers to the recall and recognition of mathematical ideas expressed in words, symbols, or figures. Mathematical knowledge relies, for the most part, on memory processes. It does not ordinarily require more complex mental processes. Exercises that assess mathematical knowledge require that a student recall or recognize one or more items of information. An example of an exercise involving recall would be one that provides the name of a particular polygon and asks for the number of sides in that polygon.
- *Mathematical Skill:* Mathematical skill refers to the routine manipulation of mathematical ideas and relies on algorithmic processes that are standard procedures leading to answers. Exercises that assess mathematical skill require the performance of specified tasks, such as making measurements, multiplying two fractions, performing mental computations, graphing a linear equation, or reading a table.
- *Mathematical Understanding:* Exercises that assess mathematical understanding require that a student provide an illustration for one or more items of knowledge or the transformation of knowledge. They do not require the application of that knowledge to the solution of a problem.
- *Mathematical Application and Problem Solving:* Mathematical application and problem solving refer to the use of mathematical knowledge, skill, and understanding in solving both routine and nonroutine problems. Exercises that assess mathematical application and problem solving require a sequence of processes that relate to the formulation, solution, and interpretation of problems. The processes may include recalling and recording knowledge, selecting and carrying out algorithms, making and testing conjectures, and evaluating arguments and results. Exercises assessing mathematical application may vary from routine textbook problems to exercises dealing with mathematical arguments.

# Long-Term Trend Reading

## Age 9

The long-term trend reading assessment contains a range of reading materials. The selections include brief stories, poems, and passages from textbooks and other age-appropriate reading materials. Passages in this assessment include expository, narrative, and document text types. Students' comprehension of these materials is assessed with both multiple-choice questions and constructed-response questions in which students are asked to provide a written response. Each test booklet consists of three content blocks of 15 minutes each.

Expository passages administered at age 9 range from around 50–300 words. Students read a passage, then answer multiple-choice or constructed-response questions about the passage. The percentage of questions in the assessment allocated to expository reading for students at age 9 is 68 percent.

Narrative passages administered at age 9 range from around 50–500 words. Narrative passages include both prose and poetry. Students read a passage, then answer multiple-choice or constructed-response questions about the passage. The percentage of questions in the assessment allocated to narrative reading for students at age 9 is 19 percent.

The document reading selections in the assessment consist of materials that represent real-life activities, such as a train schedule, a magazine subscription card, or a sale coupon. The percentage of questions in the assessment allocated to document reading for students at age 9 is 13 percent.

### Percentages of Items by Text Type—Age 9

Text Type	Age 9
Expository	68%
Narrative	19%
Document and other	13%



# Long-Term Trend Assessments

## Student Booklet Directions

Your booklet has 4 sections. In each of sections 1, 2, and 3, you will have 15 minutes to answer questions about <a reading passage> OR <mathematics>. Section 4 asks questions about you and your classes. There are many different booklets in this assessment, each containing different questions, and most of the students in the room with you have a booklet that is different from yours. Do not worry if the person sitting next to you is working on a page that doesn't look like the one you are working on. You will be told when to begin each section. Stop when you see this sign.



You should think carefully about your answers and answer every question. Use all the time available to complete each section. If you skip a question, go back and try to answer it before time is called.

Some of the questions ask you to choose the best answer and fill in the oval in your booklet. Example 1 shows a question like this. Read the question and fill in the oval beside the choice that you think is correct.

### Example 1

How many minutes are there in an hour?

- Ⓐ 12
- Ⓑ 24
- Ⓒ 30
- Ⓓ 60

You should have filled in the oval for "60" because there are 60 minutes in an hour.

Other questions will ask you to write your answer on the blank line provided in your booklet. Now read Example 2 and write your answer on the blank line below.

### Example 2

Add 32 and 14.

Answer \_\_\_\_\_

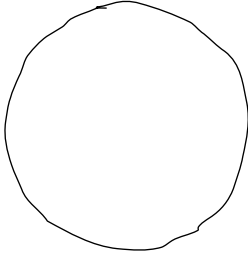
You should answer this question by writing 46 on the answer line provided.

GO ON TO THE NEXT PAGE 

**Example 3**

For some of the questions you may need to write or draw the answer. You can see how this is done in the example below.

Draw a circle in the space below.

A rectangular box containing the instruction "Draw a circle in the space below." and a hand-drawn circle. The circle is roughly circular but has some irregular, slightly jagged edges, suggesting it was drawn by hand.

**Example 4**

Some questions ask you to write a longer response. Each of these questions has special directions. Your answer should be written or printed on the blank lines following the question. Use as much of the space in your booklet as you need.


**REMEMBER:**

Read each question CAREFULLY.

Fill in only ONE OVAL for each question or write your answer in the space provided.

If you change your answer, ERASE your first answer COMPLETELY.

CHECK OVER your work if you finish a section early.

Do not go past the  sign at the end of each section until you are told to do so.



## Sample Questions

### Mathematics

The NAEP long-term trend mathematics assessment was last administered to students at age 9 in winter 2020. Although questions from the 2020 assessment were not released to the public, sample questions from the 2004 and 2008 assessments are available in the NAEP Questions Tool at <https://nces.ed.gov/nationsreportcard/nqt>.

Each sample question contains the following:

- a brief description of the item;
- the format type (multiple choice or constructed response);
- the content topic (numbers and numeration; measurement; shape, size, and position; data probability and statistics; or variables and relationships); and
- percentage of students who answered a multiple-choice question correctly or who received full credit for their answer to a constructed-response question.

Learn more about the NAEP long-term trend assessments at <https://nces.ed.gov/nationsreportcard/ltr>.

## Sample Questions

### Reading

The NAEP long-term trend reading assessment was last administered to students at age 9 in winter 2020. Although questions from the 2020 assessment were not released to the public, sample questions from the 2004 and 2008 assessments are available in the NAEP Questions Tool at <https://nces.ed.gov/nationsreportcard/nqt>.

Each sample question contains the following:

- a brief description of the item;
- the format type (multiple choice or constructed response);
- the text type (expository, narrative, or document); and
- percentage of students who answered a multiple-choice question correctly or who received full credit for their answer to a constructed-response question.

Learn more about the NAEP long-term trend assessments at <https://nces.ed.gov/nationsreportcard/ltr>.

### III. NAEP Survey Questionnaires

Each year, students, teachers, and school administrators who participate in the NAEP assessments voluntarily complete survey questionnaires. Student survey questionnaires collect valuable information about students' educational experiences, opportunities to learn both in and outside of the classroom, and other factors related to student learning.

In 2022, students who take the NAEP long-term trend assessments in mathematics and reading will be asked to complete survey questionnaires, which are located at the end of each NAEP assessment. While they are encouraged to answer as many questions as they feel comfortable with, students can skip any part of the questionnaire by leaving a response blank. Although teachers and school administrators do not usually participate in survey questionnaires for the long-term trend assessments, there will be a questionnaire for principals in 2022 that will be delivered in an online format. A paper-and-pencil version of the questionnaire is also available upon request.

The data collected from the survey questionnaires can help educators, policymakers, and researchers to better understand the context in which students learn and, in turn, can help improve education in our nation's classrooms.

**To view the NAEP 2022 long-term trend assessment survey questionnaire for students at age 9, visit [https://nces.ed.gov/nationsreportcard/experience/survey\\_questionnaires.aspx](https://nces.ed.gov/nationsreportcard/experience/survey_questionnaires.aspx) and select "Long-Term Trend Student Questionnaires." You'll also find long-term trend survey questionnaires from previous assessment years, FAQs, and general information about NAEP survey questionnaires.**

Parents can view and download the *NAEP Survey Questionnaires: Facts for Parents* PDF at [https://nces.ed.gov/nationsreportcard/subject/parents/pdf/naep\\_sq\\_parent\\_fact\\_sheet\\_2018.pdf](https://nces.ed.gov/nationsreportcard/subject/parents/pdf/naep_sq_parent_fact_sheet_2018.pdf).

## IV. NAEP Questions Tool

### Introduction

After every assessment cycle, the National Center for Education Statistics (NCES) releases dozens of assessment questions to the public. Teachers, researchers, and the public can access these released questions using the NAEP Questions Tool (NQT). The NQT allows users to search for questions by subject, grade, difficulty, and other characteristics. You can also view scoring guides, keys, national performance data, demographic group data, and student responses (for constructed-response questions only). The tool also allows users to create customized reports and to print selected questions and all associated information.

### How do I access the NAEP Questions Tool?

The NQT is available at <https://nces.ed.gov/nationsreportcard/nqt>.

### What can I do with the NAEP Questions Tool?

The NQT provides easy-to-follow instructions so teachers, parents, and students can

- sort and select NAEP questions;
- “test yourself” on any NAEP subject with a customizable assessment function;
- create online, self-scoring assessments that students can log in to take anytime; and
- compare results to how students performed across the nation.

If you need help navigating the NQT, there is a Help button on every page.

### Where can I find more information about the subjects NAEP assesses?

The NAEP website contains a wealth of information about the subjects NAEP assesses and can be accessed at <https://nces.ed.gov/nationsreportcard>.

### How can I get additional help?

For more help with features on the NAEP website, select “Help” on the upper-right toolbar.

For additional assistance, write to us via the Contact NAEP page at <https://nces.ed.gov/nationsreportcard/contactus.aspx>.

## V. About NAEP

**OVERVIEW.** NAEP is the largest nationally representative and continuing assessment of what our nation's students know and can do in various academic subjects. NAEP is administered by the National Center for Education Statistics (NCES), located within the U.S. Department of Education's Institute of Education Sciences. For more information about the NAEP program, visit the NAEP website at <https://nces.ed.gov/nationsreportcard>.

**PARTICIPATION.** States and districts that receive Title I funds are required to participate in NAEP reading and mathematics assessments at grades 4 and 8 every other year. Student participation is always voluntary. Your school's NAEP coordinator can provide you with more information. Contact your school for details.

**CONTENT.** The National Assessment Governing Board, an independent body of educators, community leaders, and assessment experts, sets policy for NAEP and oversees the creation of the NAEP frameworks, which describe the specific knowledge and skills that should be assessed. For additional information on framework development, visit the Governing Board's website at <https://www.nagb.gov/naep-frameworks/frameworks-overview.html>.

**SAMPLE QUESTIONS.** For each assessment, some of the test questions, along with performance data, are made available to the public to provide concrete samples of NAEP content and results. For every assessment, NAEP provides sample questions booklets for participating schools as well as information about the assessment design and questions. Released questions and student performance data may be viewed and downloaded from the NCES website at <https://nces.ed.gov/nationsreportcard/nqt>.

**SECURE QUESTIONS.** On written request, parents and educators may review NAEP questions and instruments still in use. These arrangements must be made in advance, and persons reviewing the assessment may not remove the booklets from the viewing room, copy them, or take notes. Contact your school's NAEP coordinator for more information.

**PUBLICATIONS.** NAEP reports and brochures can be searched and downloaded from the NAEP website at <https://nces.ed.gov/nationsreportcard>.

**FOR FURTHER INFORMATION.** For prompt field staff support on these or other matters, call the NAEP help desk at 800-283-6237.

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