



MASSACHUSETTS
Department of Elementary
and Secondary Education

*Release of Spring 2024
MCAS Test Information*

from the

Grade 3 Mathematics Test

June 2024
**Massachusetts Department of
Elementary and Secondary Education**



MASSACHUSETTS
Department of Elementary
and Secondary Education

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Overview of Grade 3 Mathematics Test

The spring 2024 grade 3 Mathematics test was administered in two formats: a computer-based version and a paper-based version. Most students took the computer-based test. The paper-based test was offered as an accommodation for eligible students who were unable to use a computer. More information can be found on the MCAS Test Administration Resources page at www.doe.mass.edu/mcas/admin.html.

Most of the operational items on the grade 3 Mathematics test were the same, regardless of whether a student took the computer-based version or the paper-based version. In places where a technology-enhanced item was used on the computer-based test, an adapted version of the item was created for use on the paper test. These adapted paper items were multiple-choice, multiple-select, or short-answer items that tested the same Mathematics content and assessed the same standard as the technology-enhanced item.

The Department is not releasing items from the spring 2024 MCAS grades 3–8 tests. Released items from previous years' computer-based tests are available on the MCAS Resource Center website at mcas.pearsonsupport.com/released-items.

Test Sessions and Content Overview

The grade 3 Mathematics test was made up of two separate test sessions. Each session included selected-response, short-answer, and constructed-response questions. On the paper-based test, the selected-response questions were multiple-choice items and multiple-select items, in which students select the correct answer(s) from among several answer options.

Standards and Reporting Categories

The grade 3 Mathematics test was based on standards in the five domains for grade 3 in the *Massachusetts Curriculum Framework for Mathematics* (2017). The five domains are listed below.

- Operations and Algebraic Thinking
- Number and Operations in Base Ten
- Number and Operations—Fractions
- Measurement and Data
- Geometry

The *Massachusetts Curriculum Framework for Mathematics* is available on the Department website at www.doe.mass.edu/frameworks/current.html.

Mathematics test results are reported under five MCAS reporting categories, which are identical to the five framework domains listed above.

The tables at the conclusion of this document provide the following information about each operational item: reporting category, standard(s) covered, item type, and item description.

Reference Materials and Tools

Each student taking the grade 3 Mathematics test was provided with a ruler.

During both Mathematics test sessions, the use of authorized bilingual word-to-word dictionaries and glossaries was allowed for students who are currently or were ever reported as English learners. No calculators, other reference tools, or materials were allowed.

Grade 3 Mathematics
Spring 2024 Computer-Based Operational Items

| CBT Item No. | Reporting Category | Standard | Item Type* | Item Description |
|---------------------|--|-----------------|-------------------|---|
| 1 | <i>Geometry</i> | 3.G.A.2 | SR | Determine the number of pieces in the whole given the unit fraction of one part. |
| 2 | <i>Operations and Algebraic Thinking</i> | 3.OA.C.7 | SR | Choose multiplication expressions that have the same product. |
| 3 | <i>Measurement and Data</i> | 3.MD.A.2 | SA | Solve a one-step word problem with mass using addition and record your answer on a diagram of a scale using a slider. |
| 4 | <i>Operations and Algebraic Thinking</i> | 3.OA.D.9 | SR | Identify a pattern given an even or odd starting number and a rule. |
| 5 | <i>Measurement and Data</i> | 3.MD.C.5 | SR | Determine the correct statement relating square units to the area of a given figure. |
| 6 | <i>Number and Operations-Fractions</i> | 3.NF.A.3 | SR | Identify which figures have a fractional amount shaded that is equivalent to the fractional amount shaded in a given figure. |
| 7 | <i>Operations and Algebraic Thinking</i> | 3.OA.D.8 | SR | Determine the most reasonable solution to a word problem involving multiplication of two whole numbers. |
| 8 | <i>Measurement and Data</i> | 3.MD.B.3 | CR | Interpret a scaled bar graph to solve one-step problems and identify the scale used on a given picture graph showing the same data as the bar graph. |
| 9 | <i>Operations and Algebraic Thinking</i> | 3.OA.A.2 | SR | Determine which real-world situations can be represented by a given division expression. |
| 10 | <i>Measurement and Data</i> | 3.MD.A.1 | SR | Measure a time interval given a start and end time shown on two different digital clocks. |
| 11 | <i>Number and Operations-Fractions</i> | 3.NF.A.1 | SA | Write a fraction that is represented by a given fraction model. |
| 12 | <i>Number and Operations in Base Ten</i> | 3.NBT.A.3 | SA | Determine the product of a one-digit whole number and a multiple of 10 to solve a word problem. |
| 13 | <i>Number and Operations-Fractions</i> | 3.NF.A.2 | SR | Plot a point on a partitioned number line to show the location of a unit fraction. |
| 14 | <i>Number and Operations in Base Ten</i> | 3.NBT.A.1 | CR | Determine and justify which numbers from a given list round to the same 100, identify the greatest number that will also round the same way, and explain whether given numbers are correctly rounded to the nearest 10. |
| 15 | <i>Geometry</i> | 3.G.A.1 | SR | Identify which given shapes are a specific type of quadrilateral. |
| 16 | <i>Operations and Algebraic Thinking</i> | 3.OA.A.4 | SR | Determine which whole numbers can be used to make given division and multiplication equations true. |
| 17 | <i>Measurement and Data</i> | 3.MD.D.8 | SR | Determine an unknown side length of a polygon given some of the polygon's dimensions and the perimeter in a real-world context. |
| 18 | <i>Number and Operations in Base Ten</i> | 3.NBT.A.2 | SA | Solve an addition word problem by adding 2 three-digit numbers with regrouping. |
| 19 | <i>Number and Operations-Fractions</i> | 3.NF.A.2 | SR | Identify the fraction greater than one that represents the location of a given point on a number line. |
| 20 | <i>Operations and Algebraic Thinking</i> | 3.OA.B.6 | SA | Create a multiplication equation that can be used to solve a given division equation with a variable for the unknown. |
| 21 | <i>Number and Operations-Fractions</i> | 3.NF.A.1 | SR | Identify the model that correctly represents a given fraction. |
| 22 | <i>Operations and Algebraic Thinking</i> | 3.OA.B.6 | SR | Determine the equation that could be used to help find the quotient in a given division equation. |
| 23 | <i>Measurement and Data</i> | 3.MD.D.8 | SR | Given the perimeters and some of the side lengths for several polygons, determine which polygons have a missing side length that is a specific amount. |

| CBT Item No. | Reporting Category | Standard | Item Type* | Item Description |
|---------------------|--|-----------------|-------------------|---|
| 24 | <i>Measurement and Data</i> | 3.MD.B.4 | SA | Select an appropriate ruler and measure a given figure to the nearest fourth of an inch. |
| 25 | <i>Number and Operations-Fractions</i> | 3.NF.A.2 | SR | Identify where a unit fraction is graphed on a number line that extends beyond one. |
| 26 | <i>Number and Operations in Base Ten</i> | 3.NBT.A.3 | SR | Solve word problems by multiplying one-digit whole numbers by two-digit multiples of ten. |
| 27 | <i>Number and Operations in Base Ten</i> | 3.NBT.A.2 | SR | Solve a word problem by subtracting 2 three-digit numbers. |
| 28 | <i>Operations and Algebraic Thinking</i> | 3.OA.A.1 | CR | Solve multiplication and division word problems with equations and write another word problem that can be solved with a given multiplication equation. |
| 29 | <i>Measurement and Data</i> | 3.MD.C.6 | SA | Find the area of a rectangle by counting using non-standard units. |
| 30 | <i>Geometry</i> | 3.G.A.2 | SA | Create an area model to represent a given unit fraction. |
| 31 | <i>Operations and Algebraic Thinking</i> | 3.OA.B.5 | SR | Identify expressions that have a value equivalent to a given expression using the associative property of multiplication. |
| 32 | <i>Operations and Algebraic Thinking</i> | 3.OA.D.8 | SA | Solve a two-step word problem using multiplication and subtraction. |
| 33 | <i>Number and Operations-Fractions</i> | 3.NF.A.2 | SR | Identify a fraction, with a value greater than one, that is plotted on a given number line. |
| 34 | <i>Measurement and Data</i> | 3.MD.C.7 | SR | Complete an equation that can be used when decomposing a rectilinear figure to find the total area. |
| 35 | <i>Number and Operations-Fractions</i> | 3.NF.A.3 | CR | Write a number sentence to compare fractions and critique the reasoning of others about fractional amounts of same and different size wholes in a real-world context. |
| 36 | <i>Operations and Algebraic Thinking</i> | 3.OA.A.4 | SA | Determine the whole number divisor that will make a given division equation true. |
| 37 | <i>Geometry</i> | 3.G.A.1 | SR | Identify the two right angles in a given figure. |
| 38 | <i>Operations and Algebraic Thinking</i> | 3.OA.A.3 | SR | Solve a word problem involving division of two whole numbers. |
| 39 | <i>Measurement and Data</i> | 3.MD.A.2 | SR | Interpret a metric measurement using a diagram of a scale with labeled and unlabeled increments of 10. |
| 40 | <i>Geometry</i> | 3.G.A.1 | SR | Identify the shape that has two given attributes. |

* Mathematics item types are: selected-response (SR), short-answer (SA), and constructed-response (CR).

Grade 3 Mathematics
Spring 2024 Paper-Based Operational Items

| PBT Item No. | Reporting Category | Standard | Item Type* | Item Description |
|---------------------|--|-----------------|-------------------|---|
| 1 | <i>Geometry</i> | 3.G.A.2 | SR | Determine the number of pieces in the whole given the unit fraction of one part. |
| 2 | <i>Operations and Algebraic Thinking</i> | 3.OA.C.7 | SR | Choose multiplication expressions that have the same product. |
| 3 | <i>Measurement and Data</i> | 3.MD.A.2 | SR | Solve a one-step word problem with mass using addition and identify the solution on a diagram of a scale. |
| 4 | <i>Operations and Algebraic Thinking</i> | 3.OA.D.9 | SR | Identify a pattern given an even or odd starting number and a rule. |
| 5 | <i>Measurement and Data</i> | 3.MD.C.5 | SR | Determine the correct statement relating square units to the area of a given figure. |
| 6 | <i>Number and Operations-Fractions</i> | 3.NF.A.3 | SR | Identify which figures have a fractional amount shaded that is equivalent to the fractional amount shaded in a given figure. |
| 7 | <i>Operations and Algebraic Thinking</i> | 3.OA.D.8 | SR | Determine the most reasonable solution to a word problem involving multiplication of two whole numbers. |
| 8 | <i>Measurement and Data</i> | 3.MD.B.3 | CR | Interpret a scaled bar graph to solve one-step problems and identify the scale used on a given picture graph showing the same data as the bar graph. |
| 9 | <i>Operations and Algebraic Thinking</i> | 3.OA.A.2 | SR | Determine which real-world situations can be represented by a given division expression. |
| 10 | <i>Measurement and Data</i> | 3.MD.A.1 | SR | Measure a time interval given a start and end time shown on two different digital clocks. |
| 11 | <i>Number and Operations-Fractions</i> | 3.NF.A.1 | SR | Determine the fraction that is represented by a given fraction model. |
| 12 | <i>Number and Operations in Base Ten</i> | 3.NBT.A.3 | SA | Determine the product of a one-digit whole number and a multiple of 10 to solve a word problem. |
| 13 | <i>Number and Operations-Fractions</i> | 3.NF.A.2 | SR | Identify the point on a partitioned number line that shows the location of a unit fraction. |
| 14 | <i>Number and Operations in Base Ten</i> | 3.NBT.A.1 | CR | Determine and justify which numbers from a given list round to the same 100, identify the greatest number that will also round the same way, and explain whether given numbers are correctly rounded to the nearest 10. |
| 15 | <i>Geometry</i> | 3.G.A.1 | SR | Identify which given shapes are a specific type of quadrilateral. |
| 16 | <i>Operations and Algebraic Thinking</i> | 3.OA.A.4 | SR | Identify which given division and multiplication equations are true. |
| 17 | <i>Measurement and Data</i> | 3.MD.D.8 | SR | Determine an unknown side length of a polygon given some of the polygon's dimensions and the perimeter in a real-world context. |
| 18 | <i>Number and Operations in Base Ten</i> | 3.NBT.A.2 | SA | Solve an addition word problem by adding 2 three-digit numbers with regrouping. |
| 19 | <i>Number and Operations-Fractions</i> | 3.NF.A.2 | SR | Identify the fraction greater than one that represents the location of a given point on a number line. |
| 20 | <i>Operations and Algebraic Thinking</i> | 3.OA.B.6 | SR | Identify the multiplication equations that can be used to solve a given division equation with a variable for the unknown. |
| 21 | <i>Number and Operations-Fractions</i> | 3.NF.A.1 | SR | Identify the model that correctly represents a given fraction. |
| 22 | <i>Operations and Algebraic Thinking</i> | 3.OA.B.6 | SR | Determine the equation that could be used to help find the quotient in a given division equation. |
| 23 | <i>Measurement and Data</i> | 3.MD.D.8 | SR | Given the perimeters and some of the side lengths for several polygons, determine which polygons have a missing side length that is a specific amount. |

| PBT Item No. | Reporting Category | Standard | Item Type* | Item Description |
|---------------------|--|-----------------|-------------------|---|
| 24 | <i>Measurement and Data</i> | 3.MD.B.4 | SR | Measure a given figure to the nearest fourth of an inch using a ruler. |
| 25 | <i>Number and Operations-Fractions</i> | 3.NF.A.2 | SR | Identify where a unit fraction is graphed on a number line that extends beyond one. |
| 26 | <i>Number and Operations in Base Ten</i> | 3.NBT.A.3 | SR | Solve word problems by multiplying one-digit whole numbers by two-digit multiples of ten. |
| 27 | <i>Number and Operations in Base Ten</i> | 3.NBT.A.2 | SR | Solve a word problem by subtracting 2 three-digit numbers. |
| 28 | <i>Operations and Algebraic Thinking</i> | 3.OA.A.1 | CR | Solve multiplication and division word problems with equations and write another word problem that can be solved with a given multiplication equation. |
| 29 | <i>Measurement and Data</i> | 3.MD.C.6 | SA | Find the area of a rectangle by counting using non-standard units. |
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| 34 | <i>Measurement and Data</i> | 3.MD.C.7 | SR | Determine the equation that can be used when decomposing a rectilinear figure to find the total area. |
| 35 | <i>Number and Operations-Fractions</i> | 3.NF.A.3 | CR | Write a number sentence to compare fractions and critique the reasoning of others about fractional amounts of same and different size wholes in a real-world context. |
| 36 | <i>Operations and Algebraic Thinking</i> | 3.OA.A.4 | SA | Determine the whole number divisor that will make a given division equation true. |
| 37 | <i>Geometry</i> | 3.G.A.1 | SR | Identify the two right angles in a given figure. |
| 38 | <i>Operations and Algebraic Thinking</i> | 3.OA.A.3 | SR | Solve a word problem involving division of two whole numbers. |
| 39 | <i>Measurement and Data</i> | 3.MD.A.2 | SR | Interpret a metric measurement using a diagram of a scale with labeled and unlabeled increments of 10. |
| 40 | <i>Geometry</i> | 3.G.A.1 | SR | Identify the shape that has two given attributes. |

* Mathematics item types are: selected-response (SR), short-answer (SA), and constructed-response (CR).