Overview of the Grade 2 Math Assessment

The Tennessee Department of Education is launching the new optional Grade 2 Assessment during the 2016–17 school year. The new assessment will be criterion referenced as opposed to norm referenced. Thus, it will only assess Tennessee State Standards, which will provide teachers, leaders, parents, and community members information on how students are performing at the end of their second grade year on Tennessee specific standards. Because it assesses the full breadth of the standards, the data will be highly beneficial in determining how students are progressing toward mastering the standards.

The math test will focus approximately 70 percent of the assessment items on major work of the grade and approximately 30 percent of the items on supporting and additional work. Student mastery of math fluency, ability to problem solve, and understanding of the grade-level standards will be assessed. Further, students will be assessed on their ability to connect standards across the grade-level domains.

Purpose and Uses of the Math Item Sampler

The Math Item Sampler contains the types of items that students will encounter on the new optional Grade 2 Math Assessment. All items in the sampler are aligned to the Tennessee State Standards for second grade math and are representative of the formats used in the assessment. While the sampler is not intended to demonstrate the length of the actual test or to serve as a practice test, the items in the sampler may be used in a variety of ways to enhance instruction and assessment in the classroom. Teachers can use the items in the sampler to help students become familiar with the types of items and response formats that are on the actual assessment. Answer keys, scoring guides, and rubrics are provided separately to facilitate the use of the items for instructional purposes. The items can stimulate ideas for classroom tasks based on the standards. They can also be used as models when teachers are constructing items for classroom assessments.

Math Item Types

This Math Item Sampler includes four types of items—fluency, multiple choice, two-point multi-part, and integrated. A brief description of each is given below:

Fluency items measure students’ ability to compute quickly and accurately. Two grade 2 standards address fluency: 2.OA.B.2 and 2.NBT.B.5.

Fluency items are presented in one of two ways:

- **Multiple Select (MS):** Students choose multiple correct responses from a list of choices. For grade 2, five answer choices are given and the number of correct responses is always stated in the item stem.

- **Fill-in-the-Blank (FIB):** Students complete one or more boxes to indicate sums and differences.

Multiple Choice (MC): Students choose one correct response from a set of four answer choices. These items are aligned to a single standard.

Two-point Multi-Part (MP): Students answer two questions based on a single prompt. These items are aligned to a single standard. Parts of two-point items may be multiple choice, fill-in-the-blank, or short response.

Integrated (INT) items are designed to measure students’ problem-solving ability when a multi-part item is aligned to multiple content standards. These items have from four to six parts. Parts of integrated items may be multiple choice, fill-in-the-blank, or short response.
Math Item Administration

All items in this Math Item Sampler are coded as Read-aloud or Not Read-aloud. (See the Scoring Information document for the read-aloud designation of each item.) Most items are coded as Read-aloud, which indicates they are to be read aloud to students. In these cases, a Test Administration Script is provided, which contains the pieces of an item that are to be read aloud and an indication for when pauses should occur (e.g., to provide time for students to look at a picture or to answer a question). All fluency items and the multiple choice items that cannot be read aloud due to the nature of the item (e.g., place value) are coded as Not Read-aloud. The table below provides additional information about the read-aloud administration.

Table 1. TCAP Grade 2 Math Read-Aloud Administration Status

<table>
<thead>
<tr>
<th>Administration</th>
<th>Description</th>
<th>Eligible Item Types</th>
</tr>
</thead>
<tbody>
<tr>
<td>Read-aloud</td>
<td>Only the text in the Test Administration Script is read aloud to students.</td>
<td>• Multiple Choice&lt;br&gt;• Two-Point Multi-part&lt;br&gt;• Integrated</td>
</tr>
<tr>
<td>Not Read-aloud</td>
<td>The item is not read aloud to students.</td>
<td>• Fluency&lt;br&gt;• Multiple Choice</td>
</tr>
</tbody>
</table>

Measurement Items

All items requiring measurement with a ruler include objects meant to be measured at the given size. Any resizing of the objects in these items will impact student responses. Therefore, all items should be printed at actual size (100% scale).

When printed at actual size, the length of this line segment is 1 inch.

---

1 inch
Question 1

Elena has colored 25 pictures in a coloring book.

A. She colors 23 more pictures in the book. What is the total number of pictures Elena has colored in the book?

B. She wants to color all of the pictures in the coloring book. There are 90 pictures in the book. Write an equation to show how many more pictures Elena needs to color so that she has colored all of the pictures in the book.

Test Administration Script

SAY Elena has colored 25 pictures in a coloring book.

A. She colors 23 more pictures in the book. What is the total number of pictures Elena has colored in the book?

Give the students time to answer the question.

B. She wants to color all of the pictures in the coloring book. There are 90 pictures in the book. Write an equation to show how many more pictures Elena needs to color so that she has colored all of the pictures in the book.

Give the students time to write an equation.
Question 2

Marlon bakes 24 cookies. Ria bakes 6 more cookies than Marlon bakes.

A. Write an equation to show how to find the number of cookies Ria bakes.

B. How many cookies do Marlon and Ria bake all together?

Test Administration Script

SAY Marlon bakes 24 cookies. Ria bakes 6 more cookies than Marlon bakes.

A. Write an equation to show how to find the number of cookies Ria bakes.

Give the students time to write an equation.

B. How many cookies do Marlon and Ria bake all together?

Give the students time to answer the question.
Question 3
Subtract: $15 - 7$

Question 4
Find each sum or difference. Write the sum or difference in the box.

\[
\begin{array}{cc}
6 + 5 & 13 - 9 \\
\end{array}
\]

Question 5
Fill in each box with the number that makes the equation true.

\[
\begin{array}{c}
8 + 6 = \\
8 + 8 = \\
8 + 11 = \\
\end{array}
\]
Question 6

Which sums and differences are equal to 20? Choose the **three** correct answers.

- A $17 + 2$
- B $20 - 0$
- C $6 + 14$
- D $19 - 1$
- E $15 + 5$

Question 7

Which picture shows an even number of flowers?

- A
- B
- C
- D

Test Administration Script

**SAY** Which picture shows an even number of flowers?

*Give the students time to answer the question.*
Question 8

Some buttons are shown.

Which equation uses repeated addition to show that the number of buttons is even?

- A  $6 + 6 = 12$
- B  $5 + 4 + 3 = 12$
- C  $3 + 3 = 6$
- D  $2 + 2 + 2 = 6$

Test Administration Script

**SAY** Some buttons are shown.

*Pause while students look at the buttons.*

Which equation uses repeated addition to show that the number of buttons is even?

*Give the students time to answer the question.*
Question 9

Anthony writes this equation to show the number of turtles in a picture.

\[3 + 3 + 3 + 3 = 12\]

A. Which of these is **most likely** the picture?

B. Use repeated addition to write a **different** equation to show the number of turtles in the picture.
Test Administration Script

SAY  Anthony writes this equation to show the number of turtles in a picture.

Pause while students read the equation.

A. Which of these is most likely the picture?

Give the students time to answer the question.

B. Use repeated addition to write a different equation to show the number of turtles in the picture.

Give the students time to write an equation.

Question 10

Which sentence about a digit in the number 146 is true?

A. The 1 in 146 has a value of 1 hundred.

B. The 1 in 146 has a value of 1 ten.

C. The 6 in 146 has a value of 6 hundreds.

D. The 6 in 146 has a value of 6 tens.

Question 11

What number is the same as 6 hundreds?

A. 6

B. 60

C. 66

D. 600
Question 12

Which of these has the same number of hundreds as 952?

- 351
- 482
- 529
- 967

Question 13

Tamar starts counting at 297. Here are the numbers she counts.

297, 298, 299, ?

What is the next number Tamar counts?

- 200
- 296
- 300
- 301

Test Administration Script

SAY  Tamar starts counting at 297. Here are the numbers she counts.

Pause while students read the numbers.

What is the next number Tamar counts?

Give the students time to answer the question.
**Question 14**

Which set of numbers shows counting by fives?

- A) 1, 5, 10, 16
- B) 12, 17, 22, 27
- C) 25, 26, 27, 28
- D) 30, 40, 50, 60

**Test Administration Script**

**SAY** Which set of numbers shows counting by fives?

_Give the students time to answer the question._
Question 15

This is the expanded form of a number.

\[100 + 40 + 7\]

A. Write the number in standard form.

B. Write the number in word form.

Test Administration Script

**SAY** This is the expanded form of a number.

*Pause while students read the number.*

**A. Write the number in standard form.**

*Give the students time to write the number.*

**B. Write the number in word form.**

*Give the students time to write the number.*
**Question 16**

Which number sentence is **true**?

- A 225 < 231
- B 371 < 317
- C 547 > 554
- D 754 > 829

**Question 17**

A digit is missing in this number sentence.

\[ 823 = 8 \phantom{1} 3 \]

What digit goes in the box to make the number sentence **true**?

- A 2
- B 3
- C 7
- D 8

**Test Administration Script**

**SAY** A digit is missing in this number sentence.

*Pause while students read the number sentence.*

**What digit goes in the box to make the number sentence true?**

*Give the students time to answer the question.*
Question 18

The same number is missing from these two number sentences.

\[ 214 < \underline{\hspace{1cm}} \]

\[ \underline{\hspace{1cm}} < 237 \]

Which number could be put in the boxes to make both number sentences true?

- A 229
- B 201
- C 266
- D 243

Test Administration Script

SAY The same number is missing from these two number sentences.

Pause while students read the number sentences.

Which number could be put in the boxes to make both number sentences true?

Give the students time to answer the question.
Question 19

Add: $52 + 19$


Question 20

Subtract: $70 - 15$


Question 21

Fill in each box with the number that makes the equation true.

$18 + 46 = \underline{\phantom{0}}$

$60 - 22 = \underline{\phantom{0}}$
Question 22

Which sums and differences are equal to 75? Choose the two correct answers.

A) 95 – 15
B) 80 – 5
C) 62 + 13
D) 36 + 41
E) 56 + 18

Question 23

Which equations are true? Choose the three correct answers.

A) 30 + 23 = 53
B) 27 + 23 = 60
C) 54 – 22 = 32
D) 78 – 21 = 99
E) 63 – 7 = 56

Question 24

What is 54 + 39 + 50?

A) 98
B) 113
C) 143
D) 161
Question 25

The numbers of eggs a farmer collects for four days are shown.

31 eggs
23 eggs
25 eggs
22 eggs

How many eggs does the farmer collect all together?

A 101
B 109
C 111
D 119
Test Administration Script

**SAY**  The numbers of eggs a farmer collects for four days are shown.

*Pause while students look at the eggs.*

**How many eggs does the farmer collect all together?**

*Give the students time to answer the question.*
Question 26

A store has 372 flashlights. The store sells 143 flashlights.

A. Write an equation to show how to find how many flashlights the store has left.

B. How many flashlights does the store have left?

Test Administration Script

SAY  A store has 372 flashlights. The store sells 143 flashlights.

   A. Write an equation to show how to find how many flashlights the store has left.

   Give the students time to write an equation.

   B. How many flashlights does the store have left?

   Give the students time to answer the question.
Question 27

Flynn adds 137 and 345. This is the first step in his work.

\[ 137 = 100 + 30 + 7 \]

\[ 345 = 300 + 40 + 5 \]

A. Fill in the box to complete the next step in Flynn’s work.

\[ \underline{100} + \underline{30} + 7 \\
\underline{+ 300} + \underline{40} + 5 \\
\underline{400} + \underline{+ 2} \]

B. What is 137 + 345?

Test Administration Script

**SAY** Flynn adds 137 and 345. This is the first step in his work.

*Pause while students look at the work.*

**A. Fill in the box to complete the next step in Flynn’s work.**

*Give the students time to fill in the box.*

**B. What is 137 + 345?**

*Give the students time to answer the question.*
**Question 28**

Max adds 15 and 6.

A. Fill in the box to show a step Max could use.

\[ 15 + 6 = 15 + \square + 1 \]

B. What is \( 15 + 6 \)?

Test Administration Script

**SAY** Max adds 15 and 6.

A. Fill in the box to show a step Max could use.

*Give the students time to fill in the box.*

B. What is \( 15 + 6 \)?

*Give the students time to answer the question.*
Question 29

Paul counts 48 tickets. Sonya counts 20 fewer tickets than Paul.

A. Which of these tells a way to find how many tickets Sonya counts?

- Add 2 tens to 48.
- Subtract 2 tens from 48.
- Add 2 ones to 48.
- Subtract 2 ones from 48.

B. How many tickets does Sonya count?

Test Administration Script

SAY Paul counts 48 tickets. Sonya counts 20 fewer tickets than Paul.

A. Which of these tells a way to find how many tickets Sonya counts?

Answer A: Add 2 tens to 48.
Answer B: Subtract 2 tens from 48.
Answer C: Add 2 ones to 48.
Answer D: Subtract 2 ones from 48.

Give the students time to answer the question.

B. How many tickets does Sonya count?

Give the students time to answer the question.
Question 30

Which tool is **best** for finding the length of a kitchen?

- [ ] ruler
- [ ] measuring tape
- [ ] scale
- [ ] measuring spoon

**Test Administration Script**

SAY Which tool is **best** for finding the length of a kitchen?

Answer A: ruler
Answer B: measuring tape
Answer C: scale
Answer D: measuring spoon

*Give the students time to answer the question.*
Question 31

Use the centimeter (cm) side of your ruler to measure the length of this light bulb.

What is the length of the light bulb, to the nearest centimeter?

- A 5
- B 6
- C 7
- D 8

Test Administration Script

SAY Use the centimeter side of your ruler to measure the length of this light bulb.

Pause while students measure the light bulb.

What is the length of the light bulb, to the nearest centimeter?

Give the students time to answer the question.
Question 32

The length of the same desk is measured two times.

- First measurement: 36 inches
- Second measurement: 3 feet

In each box, circle the word that makes the sentence true.

A. It takes [fewer or more] inches than feet to measure the length of the desk.

B. An inch is [shorter or longer] than a foot.

Test Administration Script

SAY The length of the same desk is measured two times.

- First measurement: 36 inches
- Second measurement: 3 feet

In each box, circle the word that makes the sentence true.

A. It takes [fewer or more] inches than feet to measure the length of the desk.

   Give the students time to answer the question.

B. An inch is [shorter or longer] than a foot.

   Give the students time to answer the question.
Question 33

Which of these is about 6 inches in length?

- a bed
- a bicycle
- a house key
- a toothbrush

Test Administration Script

SAY  Which of these is about 6 inches in length?

Answer A: a bed
Answer B: a bicycle
Answer C: a house key
Answer D: a toothbrush

Give the students time to answer the question.
Question 34

Use the centimeter (cm) side of your ruler to measure to the nearest centimeter. Measure the length of the toy engine and the length of the toy boxcar.

How many centimeters longer is the toy engine than the toy boxcar?

- 3
- 4
- 7
- 11

Test Administration Script

SAY  Use the centimeter side of your ruler to measure to the nearest centimeter. Measure the length of the toy engine and the length of the toy boxcar.

Pause while students measure the length of each figure.

How many centimeters longer is the toy engine than the toy boxcar?

Give the students time to answer the question.
Question 35

Hank is building a fence that will be 85 yards long. This picture shows the number of yards of fence he has already built.

How many more yards of fence does Hank need to build?

A  34
B  36
C  44
D  46

Test Administration Script

SAY  Hank is building a fence that will be 85 yards long. This picture shows the number of yards of fence he has already built.

Pause while students look at the fence.

How many more yards of fence does Hank need to build?

Give the students time to answer the question.
Question 36

Jerome measures three pieces of string. These are the lengths.

- 17 centimeters
- 19 centimeters
- 11 centimeters

Which equation can be used to find the total length, in centimeters, of the three pieces of string?

A) $17 + 19 = \underline{\phantom{10}}$

B) $36 + 30 = \underline{\phantom{10}}$

C) $11 + 17 + 36 = \underline{\phantom{10}}$

D) $19 + 11 + 17 = \underline{\phantom{10}}$

Test Administration Script

SAY Jerome measures three pieces of string. These are the lengths.

- 17 centimeters
- 19 centimeters
- 11 centimeters

Which equation can be used to find the total length, in centimeters, of the three pieces of string?

Give the students time to answer the question.
A wooden board is 96 inches long.

A. Points A, B, C, and D are on this number line. Circle the point that shows the length, in inches, of the board.

Jenny cuts these two lengths of wood from the board.

B. Draw a point on this number line to show the total length, in inches, of the wood that Jenny cuts from the board.

Test Administration Script

SAY A wooden board is 96 inches long.

A. Points A, B, C, and D are on this number line. Circle the point that shows the length, in inches, of the board.

Give the students time to circle a point.

Jenny cuts these two lengths of wood from the board.

Pause while students look at the lengths of wood.

B. Draw a point on this number line to show the total length, in inches, of the wood that Jenny cuts from the board.

Give the students time to draw a point.
Question 38

This clock shows the time a play starts.

Which clock also shows the time the play starts?

A) 3:30

B) 3:35

C) 6:15

D) 6:30

Item continues on the next page
Test Administration Script

**SAY** This clock shows the time a play starts.

*Pause while students read the clock.*

**Which clock also shows the time the play starts?**

*Give the students time to answer the question.*
Question 39

Look at this clock.

What time does the clock show?

- A  1:10
- B  1:55
- C  11:05
- D  11:10

Test Administration Script

SAY  Look at this clock.

Pause while students read the clock.

What time does the clock show?

Give the students time to answer the question.
Question 40

A book costs $14. Which of these is enough money to pay for the book?

- one $10 bill, one $1 bill
- two $5 bills, three $1 bills
- three $5 bills
- four $1 bills

Test Administration Script

SAY A book costs $14. Which of these is enough money to pay for the book?

Answer A: one $10 bill, one $1 bill
Answer B: two $5 bills, three $1 bills
Answer C: three $5 bills
Answer D: four $1 bills

Give the students time to answer the question.
Question 41

Omar has 4 dimes. Which coins have the same value as Omar’s dimes?

- A 2 nickels
- B 6 nickels
- C 20 pennies
- D 40 pennies

Test Administration Script

SAY Omar has 4 dimes. Which coins have the same value as Omar’s dimes?

Answer A: 2 nickels
Answer B: 6 nickels
Answer C: 20 pennies
Answer D: 40 pennies

Give the students time to answer the question.
Question 42

Use the centimeter (cm) side of your ruler to measure to the nearest centimeter. Measure the height of each model tree.
A. Which tally chart shows the heights of the trees?

<table>
<thead>
<tr>
<th>Height (centimeters)</th>
<th>4</th>
<th>5</th>
<th>6</th>
<th>7</th>
<th>8</th>
</tr>
</thead>
<tbody>
<tr>
<td>Number of Trees</td>
<td>/</td>
<td>//</td>
<td>/</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Tree Heights

<table>
<thead>
<tr>
<th>Height (centimeters)</th>
<th>4</th>
<th>5</th>
<th>6</th>
<th>7</th>
<th>8</th>
</tr>
</thead>
<tbody>
<tr>
<td>Number of Trees</td>
<td>/</td>
<td>//</td>
<td>/</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Tree Heights

<table>
<thead>
<tr>
<th>Height (centimeters)</th>
<th>4</th>
<th>5</th>
<th>6</th>
<th>7</th>
<th>8</th>
</tr>
</thead>
<tbody>
<tr>
<td>Number of Trees</td>
<td>/</td>
<td>/</td>
<td>//</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Tree Heights

<table>
<thead>
<tr>
<th>Height (centimeters)</th>
<th>4</th>
<th>5</th>
<th>6</th>
<th>7</th>
<th>8</th>
</tr>
</thead>
<tbody>
<tr>
<td>Number of Trees</td>
<td>/</td>
<td>//</td>
<td>/</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

*Item continues on the next page*
B. This line plot shows the heights of other model trees. Finish the line plot so it also shows the heights of the trees you measured.

**Tree Heights**

```
X
X X X
```

4 5 6 7 8
Height (centimeters)

Test Administration Script

**SAY** Use the centimeter side of your ruler to measure to the nearest centimeter. Measure the height of each model tree.

*Pause while students measure the figures.*

**A. Which tally chart shows the heights of the trees?**

*Give the students time to answer the question.*

**B. This line plot shows the heights of other model trees. Finish the line plot so it also shows the heights of the trees you measured.**

*Give the students time to finish the line plot.*
Question 43

Each card in this set has a letter on it.

N  N  N  N  E  E  E  S
W  W  W  W  W  W  W  W

Which bar graph shows the number of cards of each letter in the set?

Item continues on the next page
Test Administration Script

SAY Each card in this set has a letter on it.

Pause while students look at the cards.

Which bar graph shows the number of cards of each letter in the set?

Give the students time to answer the question.
Question 44

This picture graph shows the numbers of pencils sold for three weeks at a school store.

<table>
<thead>
<tr>
<th>Week</th>
<th>Number of Pencils</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td><img src="image" alt="Pencils" /></td>
</tr>
<tr>
<td>2</td>
<td><img src="image" alt="Pencils" /></td>
</tr>
<tr>
<td>3</td>
<td><img src="image" alt="Pencils" /></td>
</tr>
</tbody>
</table>

**Key**

\[=5 \text{ pencils}\]

How many pencils were sold all together?

A 11  
B 15  
C 55  
D 58

**Test Administration Script**

SAY This picture graph shows the numbers of pencils sold for three weeks at a school store.

*Pause while students read the picture graph.*

**How many pencils were sold all together?**

*Give the students time to answer the question.*
Question 45

Which shape has only 3 angles?

A

B

C

D

Test Administration Script

SAY Which shape has only 3 angles?

Give the students time to answer the question.
Question 46

What shape has only 4 sides?

- triangle
- hexagon
- pentagon
- quadrilateral

Test Administration Script

SAY What shape has only 4 sides?

Answer A: triangle
Answer B: hexagon
Answer C: pentagon
Answer D: quadrilateral

Give the students time to answer the question.
Question 47

Squares of the same size are drawn on this rectangle.

How many squares are there?

A  12  
B  15  
C  18  
D  20  

Test Administration Script

SAY  Squares of the same size are drawn on this rectangle.

Pause while students look at the figure.

How many squares are there?

Give the students time to answer the question.
Question 48

Which circle shows two halves?

A  

B  

C  

D  

Test Administration Script

SAY Which circle shows two halves?

Give the students time to answer the question.
Question 49

Which rectangle shows four fourths?

Test Administration Script

SAY Which rectangle shows four fourths?

Give the students time to answer the question.
Question 50

Kari has some shapes. The numbers of shapes she has are shown in this bar graph.

A. What is the total number of shapes Kari has?

B. How many more 5-sided shapes does Kari have than 3-sided shapes?
C. How many quadrilaterals does Kari have?

D. What is the name of the shape Kari has with the **greatest** number of angles?

Kari’s teacher gives her 2 triangles and 3 hexagons.

E. How many shapes does Kari have **now**?

F. How many sides does one of the hexagons have?

*Item continues on the next page*
Test Administration Script

SAY  Kari has some shapes. The numbers of shapes she has are shown in this bar graph.

Pause while students read the bar graph.

A. What is the total number of shapes Kari has?

Give the students time to answer the question.

B. How many more 5-sided shapes does Kari have than 3-sided shapes?

Give the students time to answer the question.

C. How many quadrilaterals does Kari have?

Give the students time to answer the question.

D. What is the name of the shape Kari has with the greatest number of angles?

Give the students time to answer the question.

Kari’s teacher gives her 2 triangles and 3 hexagons.

E. How many shapes does Kari have now?

Give the students time to answer the question.

F. How many sides does one of the hexagons have?

Give the students time to answer the question.