

# Mathematics Curriculum

## Grade 3

Third grade students use a sense of number to read, write, order, and compare numbers through 9,999 and recognize numbers through 999,999; explore relationships between multiplication and division; develop strategies for remembering multiplication facts; estimate, add, and subtract three and four-digit whole numbers, one-digit decimal numbers, and complete simple multiplication problems; and find fractional parts of a group or region. They estimate and measure length, volume, capacity, and temperature; find equivalent money amounts, make change, and tell time; recognize line relationships and right angles; and identify characteristics of plane figures and solid shapes. Third graders collect, display and compare data and explore probability, number properties, factors, and multiples.

In third grade Mathematics, students learn concepts based on the following Strands:

- Number Concepts, Theory, Sense
- Operations
- Measurement
- Geometry
- Data Analysis/Statistics/Probability
- Patterns/Functions/Algebra
- Problem Solving/Application

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### MTH.G3

#### Standard 1

#### READ/WRITE SIX-DIGIT NUMERALS & IDENTIFY PLACE VALUE FOR EACH DIGIT

The student will read and write six-digit numerals and identify the place value for each digit.

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#### Benchmark 1.a

##### Read/Write Six-Digit Numerals & Identify Place Value for Each Digit

The student will read and write six-digit numerals and identify the place value for each digit.

##### Indicator 1.a.1

###### Investigate/identify place value for each digit in a six-digit numeral

Investigate and identify the place value for each digit in a six-digit numeral, using base-10 manipulatives (e.g., base 10 blocks).

##### Indicator 1.a.2

###### Read six-digit numerals orally

Read six-digit numerals orally.

##### Indicator 1.a.3

###### Write six-digit numerals that are stated verbally or written in words

Write six-digit numerals that are stated verbally or written in words.

##### Indicator 1.a.4

###### Read and write numbers through hundred thousands

Read and write numbers through hundred thousands; identify the place value of each digit. Rename numbers through 9,999 using place value.

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#### Benchmark 1.b

##### Use Ordinal Numbers to Identify Position in a Sequence

The student will use ordinal numbers to identify position in a sequence.

##### Indicator 1.b.1

## Use ordinal numbers to identify position in a sequence

The student will use ordinal numbers to identify position in a sequence.

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### MTH.G3 Standard 2

#### ROUND A WHOLE NUMBER, 9,999 OR LESS, TO NEAREST TEN/HUNDRED/THOUSAND

The student will round a whole number, 9,999 or less, to the nearest ten, hundred, and thousand.

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#### Benchmark 2.a

##### Round a Whole Number, 9,999 or Less, to Nearest Ten/Hundred/Thousand

The student will round a whole number, 9,999 or less, to the nearest ten, hundred, and thousand.

#### Indicator 2.a.1

##### Round a whole number, 9,999 or less, to nearest ten/hundred/thousand

Round a given whole number, 9,999 or less, to the nearest ten, hundred, and thousand.

#### Indicator 2.a.2

##### Solve problems, using rounding of numbers, 9,999 or less

Solve problems, using rounding of numbers, 9,999 or less, to the nearest ten, hundred, and thousand.

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### MTH.G3 Standard 3

#### COMPARE TWO WHOLE NUMBERS BETWEEN 0 AND 9,999 USING SYMBOLS & WORDS

The student will compare two whole numbers between 0 and 9,999, using symbols ( $>$ ,  $<$ , or  $=$ ) and words (*greater than*, *less than*, or *equal to*).

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#### Benchmark 3.a

##### Compare Two Whole Numbers Between 0 and 9,999 Using Symbols & Words

The student will compare two whole numbers between 0 and 9,999, using symbols ( $>$ ,  $<$ , or  $=$ ) and words (*greater than*, *less than*, or *equal to*).

#### Indicator 3.a.1

##### Describe meaning of the terms greater than, less than, and equal to

Describe the meaning of the terms *greater than*, *less than*, and *equal to*.

#### Indicator 3.a.2

##### Determine which of two whole numbers between 0 and 9,999 is greater

Determine which of two whole numbers between 0 and 9,999 is greater.

#### Indicator 3.a.3

##### Determine which of two whole numbers between 0 and 9,999 is less

Determine which of two whole numbers between 0 and 9,999 is less.

#### Indicator 3.a.4

##### Compare two whole numbers from 0 to 9,999, using the symbols $>$ , $<$ or $=$

Compare two whole numbers between 0 and 9,999, using the symbols  $>$ ,  $<$ , or  $=$ .

#### Indicator 3.a.5

##### Order and compare measurements and numbers to 9,999 using symbols

Order and compare measurements and numbers to 9,999 using the symbols  $>$ ,  $<$ , and  $=$ .



### Indicator 3.a.6

**Order and compare numbers to 999,999 using the symbols  $>$ ,  $<$ , &  $=$**

*Order and compare numbers to 999,999 using the symbols  $>$ ,  $<$ , and  $=$ .*

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## MTH.G3

### Standard 4

#### RECOGNIZE/USE INVERSE RELATIONSHIPS TO COMPLETE BASIC FACT SENTENCES

The student will recognize and use the inverse relationships between addition/subtraction and multiplication/division to complete basic fact sentences. Students will use these relationships to solve problems such as  $5 + 3 = 8$  and  $8 - 3 = \underline{\quad}$ .

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### Benchmark 4.a

#### Recognize/Use Inverse Relationships to Complete Basic Fact Sentences

The student will recognize and use the inverse relationships between addition/subtraction and multiplication/division to complete basic fact sentences. Students will use these relationships to solve problems such as  $5 + 3 = 8$  and  $8 - 3 = \underline{\quad}$ .



### Indicator 4.a.1

#### Use inverse relationships to solve basic fact sentences

Use the inverse relationships between addition/subtraction and multiplication/division to solve related basic fact sentences. For example,  $5 + 3 = 8$  and  $8 - 3 = \underline{\quad}$ ;  $4 \times 3 = 12$  and  $12 \div 4 = \underline{\quad}$ .



### Indicator 4.a.2

#### Write three related basic fact sentences when given one basic fact

Write three related basic fact sentences when given one basic fact sentence for addition/subtraction. For example, given  $5 + 3 = 8$ , write  $\underline{\quad} + 5 = 8$ ,  $8 - \underline{\quad} = 5$ , and  $8 - 5 = \underline{\quad}$ .



### Indicator 4.a.3

#### Explain the relationship between addition and multiplication

*Demonstrate the inverse relationship between multiplication and division by using fact families; explain the relationship between addition and multiplication.*



### Indicator 4.a.4

#### Recall basic strategies for addition and subtraction facts

*Recall basic strategies for addition and subtraction facts.*

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## MTH.G3

### Standard 5

#### DIVIDE REGIONS & SETS TO REPRESENT FRACTIONS; NAME & WRITE FRACTION

The student will

- divide regions and sets to represent a fraction; and
  - name and write the fractions represented by a given model (area/region, length/measurement, and set). Fractions (including mixed numbers) will include halves, thirds, fourths, eighths, and tenths.
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### Benchmark 5.a

#### Divide Regions and Sets to Represent a Fraction

The student will divide regions and sets to represent a fraction.




### Indicator 5.a.1

#### Represent a given fraction or mixed number using a variety of methods


Represent a given fraction or mixed number, using concrete materials, pictures, and symbols for halves, thirds, fourths, eighths, and tenths. For example, write the symbol for one-fourth and

represent it with concrete materials and pictures.

 **Indicator 5.a.2**

**Recognize that a fraction represents equal parts of a whole or set**


*Recognize that a fraction represents equal parts of a whole or set; write the fraction when given the model (halves, thirds, fourths, eighths, and tenths); develop a model for a given fraction.*

 **Indicator 5.a.3**

**Investigate/model mixed numbers with concrete materials & on num. line**


*Investigate and model mixed numbers with concrete materials and on a number line.*

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 **Benchmark 5.b**

**Name and Write Fractions Represented by a Given Model**

The student will name and write the fractions represented by a given model (area/region, length/measurement, and set). Fractions (including mixed numbers) will include halves, thirds, fourths, eighths, and tenths.

 **Indicator 5.b.1**

**Name/write fractions & mixed numbers represented by drawings/manips.**

Name and write fractions and mixed numbers represented by drawings or concrete materials for halves, thirds, fourths, eighths, and tenths.

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 **MTH.G3**  
**Standard 6**


**COMPARE THE NUMERICAL VALUE OF TWO FRACTIONS**

The student will compare the numerical value of two fractions having like and unlike denominators, using concrete or pictorial models involving areas/regions, lengths/measurements, and sets.

 **Benchmark 6.a**

**Compare Numerical Value of Two Fractions Using a Variety of Methods**

The student will compare the numerical value of two fractions having like and unlike denominators, using concrete or pictorial models involving areas/regions, lengths/measurements, and sets.

 **Indicator 6.a.1**

**Compare the value of two fractions having like denominators**

Compare the values of two fractions having like denominators where the denominators are 2, 3, 4, 5, 6, 8, or 10, using concrete or pictorial models. Use the terms *greater than*, *less than*, or *equal to* or symbols  $>$ ,  $<$ , or  $=$  to compare their values.

 **Indicator 6.a.2**

**Compare the values of two unit fractions**

Compare the values of two unit fractions (a fraction in which the numerator is one), having unlike denominators, where the denominators are 2, 3, 4, 5, 6, 8, or 10, using concrete or pictorial models. Use the terms *greater than*, *less than*, or *equal to* or symbols  $>$ ,  $<$ , or  $=$  to compare their values.

 **Indicator 6.a.3**

**Compare the value of two fractions having unlike denominators**

Compare the values of two fractions having unlike denominators where the denominators are 2, 3, 4, 8, or 10, using concrete or pictorial models. Use the terms *greater than*, *less than*, or *equal to* or symbols  $>$ ,  $<$ , or  $=$  to compare their values.

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 **MTH.G3**  
**Standard 7**

## READ AND WRITE DECIMALS EXPRESSED AS TENTHS AND HUNDREDTHS

The student will read and write decimals expressed as tenths and hundredths, using concrete materials and models.

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### **Benchmark 7.a**

#### **Read and Write Decimals Expressed as Tenths and Hundredths**

The student will read and write decimals expressed as tenths and hundredths, using concrete materials and models.

#### **Indicator 7.a.1** **Investigate the ten-to-one relationship of the decimal places**

Investigate the ten-to-one relationship of the decimal places, using base-10 place-value models.

#### **Indicator 7.a.2** **Read and write decimals expressed as tenths**

Read and write decimals expressed as tenths, which are represented with base-10 blocks, grid paper, circular fraction pieces, and/or ten-frames.

#### **Indicator 7.a.3** **Read and write decimals expressed as hundredths**

Read and write decimals expressed as hundredths, which are represented with base-10 blocks and/or grid paper.

#### **Indicator 7.a.4** **Change fractions to decimals for tenths & hundredths & do the reverse**

*Change fractions to decimals for tenths and hundredths and do the reverse.*

#### **Indicator 7.a.5** **Relate "tenths as fractions" to "tenths as decimals"**

*Relate "tenths as fractions" to "tenths as decimals" (i.e.,  $1/10 = 0.1$ )*

#### **Indicator 7.a.6** **Compare and order decimals through tenths**

*Compare and order decimals through tenths.*

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### **MTH.G3** **Standard 8**

#### **SOLVE PROBLEMS INVOLVING THE SUM OR DIFFERENCE OF TWO WHOLE NUMBERS**

The student will solve problems involving the sum or difference of two whole numbers, each 9,999 or less, with or without regrouping, using various computational methods, including calculators, paper and pencil, mental computation, and estimation.

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### **Benchmark 8.a**

#### **Solve Problems Involving the Sum or Difference of Two Whole Numbers**

The student will solve problems involving the sum or difference of two whole numbers, each 9,999 or less, with or without regrouping, using various computational methods, including calculators, paper and pencil, mental computation, and estimation.

#### **Indicator 8.a.1** **Determine whether to add or subtract in problem situations**

Determine whether to add or subtract in problem situations.

#### **Indicator 8.a.2** **Determine whether estimate is appropriate solution for add/sub problem**

Determine whether an estimate is an appropriate solution for addition and subtraction problems.

**Indicator 8.a.3****Add or subtract two whole numbers, each 9,999 or less**

Add or subtract two whole numbers, each 9,999 or less.

**Indicator 8.a.4****Estimate and find the sum of two whole numbers**

Estimate and find the sum of two whole numbers, each 9,999 or less, with or without regrouping, using calculators, paper and pencil, or mental computation.

**Indicator 8.a.5****Estimate and find the difference of two whole numbers**

Estimate and find the difference of two whole numbers, each 9,999 or less, with or without regrouping, using calculators, paper and pencil, or mental computation.

**Indicator 8.a.6****Solve problems involving the sum or difference of two whole numbers**

Solve problems involving the sum or difference of two whole numbers, each 9,999 or less, with or without regrouping.

**Indicator 8.a.7****Explore estimation strategies**

*Explore estimation strategies (rounding, compatible numbers, and using a referent).*

**Indicator 8.a.8****Estimate and add three-digit numbers to solve problems**

*Estimate and add three-digit numbers to solve problems, with and without regrouping, including money amounts; extend the process to four-digit numbers. Check addition by using subtraction.*

**Indicator 8.a.9****Estimate and add three or more addends**

*Estimate and add three or more addends (one and two-digit numbers).*

**Indicator 8.a.10****Estimate and subtract three-digit numbers to solve problems**

*Estimate and subtract three-digit numbers to solve problems, with and without regrouping, including subtracting money amounts and subtracting across zeroes; extend the process to include four-digit numbers. Check subtraction by using addition.*

**MTH.G3****Standard 9****RECALL THE MULTIPLICATION AND DIVISION FACTS THROUGH THE NINES TABLE**

**The student will recall the multiplication and division facts through the nines table.**

**Benchmark 9.a****Recall the Multiplication and Division Facts Through the Nines Table**

The student will recall the multiplication and division facts through the nines table.

**Indicator 9.a.1****Recall/state the multiplication & division facts through nines table**

Recall and state the multiplication and division facts through the nines table.

**Indicator 9.a.2****Recall/write the multiplication & division facts through nines table**

Recall and write the multiplication and division facts through the nines table.



### Indicator 9.a.3

#### Develop & use strategies to learn multiplication facts through nines

*Develop and use the strategies to learn the multiplication facts through the nines (multiples/skip counting, properties of 0 and 1 as factors, square numbers, doubles, one more set, twice as much as a known fact, patterns, multiples of ten, etc.)*



### Indicator 9.a.4

#### Mentally compute multiplication facts through the nines

*Mentally compute the multiplication facts through the nines; identify related division facts.*



## MTH.G3

### Standard 10

#### REPRESENT MULTIPLICATION & DIVISION & SOLVE MULTIPLICATION PROBLEMS

The student will represent multiplication and division, using area and set models, and create and solve problems that involve multiplication of two whole numbers, one factor 99 or less and the second factor 5 or less.



### Benchmark 10.a

#### Represent Multiplication & Division & Solve Multiplication Problems

The student will represent multiplication and division, using area and set models, and create and solve problems that involve multiplication of two whole numbers, one factor 99 or less and the second factor 5 or less.



### Indicator 10.a.1

#### Model multiplication, using area and set models

*Model multiplication, using area and set models.*



### Indicator 10.a.2

#### Model division, using area and set models

*Model division, using area and set models.*



### Indicator 10.a.3

#### Solve multiplication problems using standard multiplication algorithm

*Solve multiplication problems, using the standard multiplication algorithm, where one factor is 99 or less and the second factor is 5 or less.*



### Indicator 10.a.4

#### Create and solve word problems involving multiplication

*Create and solve word problems involving multiplication where one factor is 99 or less and the second factor is 5 or less.*



### Indicator 10.a.5

#### Develop concept of equal groups and use arrays to represent the groups

*Develop concept of equal groups and use arrays to represent those groups. State the symbolic multiplication fact for an array. Organize the multiplication facts on a chart recognizing the square numbers and using the commutative property of multiplication.*



### Indicator 10.a.6

#### Estimate and multiply one-digit numbers by two-digit numbers

*Estimate and multiply one-digit numbers by two-digit numbers.*



### Indicator 10.a.7

#### Multiply one-digit numbers by three-digit numbers

*Multiply one-digit numbers by three-digit numbers.*



### Indicator 10.a.8

#### Model division situations with and without remainders

Model division situations with and without remainders.



#### Indicator 10.a.9

##### Illustrate the concept of division in a problem-solving

Illustrate the concept of division in a problem-solving setting by identifying number of equal groups or how many are in each group; record the related division statement using  $\div$ , and  $\overline{) \quad}$ .



#### Indicator 10.a.10

##### Estimate and divide a one- or two-digit number by a one-digit number

Estimate and divide a one- or two-digit number (with or without a remainder) by a one-digit number using the multiplication facts.



## MTH.G3

### Standard 11

#### ADD & SUBTRACT WITH PROPER FRACTIONS HAVING LIKE DENOMINATORS

The student will add and subtract with proper fractions having like denominators of 10 or less, using concrete materials and pictorial models representing areas/regions, lengths/measurements, and sets.



#### Benchmark 11.a

##### Add & Subtract with Proper Fractions Having Like Denominators = 10

The student will add and subtract with proper fractions having like denominators of 10 or less, using concrete materials and pictorial models representing areas/regions, lengths/measurements, and sets.



#### Indicator 11.a.1

##### Demonstrate fractional parts of a whole using a variety of methods

Demonstrate a fractional part (halves, thirds, fourths, eighths, and tenths) of a whole, using  
-region/area models (e.g., pie pieces, pattern blocks, geoboards, drawings);  
-set models (e.g., chips, counters, cubes, drawings); and  
-measurement models (e.g., nonstandard units such as cuisenaire rods, connecting cubes and drawings).



#### Indicator 11.a.2

##### Name/write fractions & mixed numbers represented by drawings/manips.

Name and write fractions and mixed numbers represented by drawings or concrete materials for halves, thirds, fourths, eighths, and tenths.



#### Indicator 11.a.3

##### Represent a given fraction or mixed number using a variety of methods

Represent a given fraction or mixed number, using concrete materials, pictures, and symbols, for halves, thirds, fourths, eighths, and tenths. For example, write the symbol for one-fourth and represent it with concrete materials and/or pictures.



#### Indicator 11.a.4

##### Add and subtract with proper fractions having denominators =10

Add and subtract with proper fractions having denominators of 10 or less, using concrete materials and pictorial models representing area/regions (circles, squares, and rectangles), length measurements (fraction bars and strips), and sets (counters).



#### Indicator 11.a.5

##### Estimate, add, and subtract fractions with like denominators


Estimate, add, and subtract fractions with like denominators (halves, thirds, fourths, fifths, sixths, eighths, or tenths) using concrete materials and pictorial models.




#### Indicator 11.a.6

##### Estimate, add, and subtract mixed numbers with like denominators

Estimate, add, and subtract mixed numbers with like denominators.


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-  **Benchmark 11.b**  
**Find Fractional Parts of a Group of Up to 30 Objects**  
*Find fractional parts of a group of up to 30 objects.*


-  **Indicator 11.b.1**  
**Find fractional parts of a group of up to 30 objects**  
*Find fractional parts of a group of up to 30 objects.*
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 **MTH.G3**  
**Standard 12**  
**ADD AND SUBTRACT DECIMALS EXPRESSED AS TENTHS**


The student will add and subtract with decimals expressed as tenths, using concrete materials, pictorial representations, and paper and pencil.

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-  **Benchmark 12.a**  
**Add and Subtract Decimals Expressed as Tenths**  
The student will add and subtract with decimals expressed as tenths, using concrete materials, pictorial representations, and paper and pencil.

-  **Indicator 12.a.1**  
**Add and subtract decimals expressed as tenths using concrete materials**  
Add and subtract with decimals expressed as tenths, using concrete materials (e.g., grid paper, base-10 materials, and circular regions divided into tenths).


-  **Indicator 12.a.2**  
**Add and subtract decimals expressed as tenths using paper and pencil**  
Add and subtract with decimal numbers expressed as tenths, using paper and pencil.


-  **Indicator 12.a.3**  
**Estimate, add, and subtract decimals to tenths**  
*Estimate, add, and subtract decimals to tenths using concrete materials and paper/pencil.*
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 **MTH.G3**  
**Standard 13**  
**COUNT MONEY, COMPARE VALUES, AND MAKE CHANGE**

The student will determine by counting the value of a collection of bills and coins whose total value is \$5.00 or less, compare the value of the coins or bills, and make change.

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-  **Benchmark 13.a**  
**Count Money, Compare Values, and Make Change**  
The student will determine by counting the value of a collection of bills and coins whose total value is \$5.00 or less, compare the value of the coins or bills, and make change.

-  **Indicator 13.a.1**  
**Count the value of collections of coins and bills up to \$5.00**  
Count the value of collections of coins and bills up to \$5.00.

-  **Indicator 13.a.2**  
**Compare the values of two sets of coins or bills, up to \$5.00**  
Compare the values of two sets of coins or bills, up to \$5.00, using the terms *greater than*, *less*

than, and equal to.



#### **Indicator 13.a.3**

##### **Make change from \$5.00 or less**

Make change from \$5.00 or less.



#### **Indicator 13.a.4**

##### **Count/read/write/compare & find equivalent amounts of money to \$10.00**

Count, read, write, compare and find equivalent amounts of money to \$10.00. Make change for amounts to \$5.00.



### **MTH.G3**

#### **Standard 14**

#### **ESTIMATE/USE MEASURING DEVICES W/ METRIC & CUSTOMARY UNITS**

The student will estimate and then use actual measuring devices with metric and U.S. Customary units to measure

- a) length – inches, feet, yards, centimeters, and meters;
- b) liquid volume – cups, pints, quarts, gallons, and liters; and
- c) weight/mass – ounces, pounds, grams, and kilograms.



#### **Benchmark 14.a**

##### **Estimate and Then Use Actual Measuring Devices to Measure Length**

The student will estimate and then use actual measuring devices with metric and U.S. Customary units to measure length – inches, feet, yards, centimeters, and meters.



#### **Indicator 14.a.1**

##### **Identify/use units of length: centimeters/meters/inches/feet/yards**

Identify and use the following units of length: centimeters, meters, inches, feet, and yards.



#### **Indicator 14.a.2**

##### **Estimate & measure lengths to nearest centimeter/meter/inch/foot/yard**

Estimate and then measure lengths of objects to the nearest centimeter and meter and the nearest inch, foot, and yard.



#### **Indicator 14.a.3**

##### **Measure and compare lengths to the nearest half-inch and centimeter**

Measure and compare (using  $>$  or  $<$ ) lengths to the nearest half-inch and centimeter. Select appropriate unit of measure. Know that 12 inches = 1 foot, 3 feet = 1 yard, 36 inches = 1 yard, and 100 centimeters = 1 meter.



#### **Indicator 14.a.4**

##### **Estimate, measure, and compare lengths to the nearest quarter inch**

Estimate, measure, and compare lengths to the nearest quarter inch.



#### **Indicator 14.a.5**

##### **Find perimeter and area in problem-solving settings**

Find perimeter and area in problem-solving settings.



#### **Benchmark 14.b**

##### **Estimate & Then Use Actual Measuring Devices to Measure Liquid Volume**

The student will estimate and then use actual measuring devices with metric and U.S. Customary units to measure liquid volume – cups, pints, quarts, gallons, and liters.



#### **Indicator 14.b.1**

##### **Identify/use units of liq. volume: cups/pints/quarts/gallons/liters**

Identify and use the following units of liquid volume: cups, pints, quarts, gallons, and liters.



**Indicator 14.b.2**

**Estimate/measure liquid volume to nearest cup/pint/quart/gallon/liter**

Estimate and then measure liquid volume to the nearest cup, pint, quart, gallon, and liter.



**Indicator 14.b.3**

**Measure capacity in standard and nonstandard units**

*Measure capacity in nonstandard units; estimate and measure capacity in cups, pints, quarts, gallons, and liters. Select appropriate unit of measure. Know that 2 cups = 1 pint, 2 pints = 1 quart, 4 quarts = 1 gallon.*



**Indicator 14.b.4**

**Estimate and measure capacity in milliliters**

*Estimate and measure capacity in milliliters. Know that 1000 milliliters = 1 liter.*



**Indicator 14.b.5**

**Estimate/find volume of rectangular solids using concrete materials**

*Estimate and find the volume of rectangular solids using concrete materials.*



**Indicator 14.b.6**

**Develop strategies for estimating large quantities of objects**

*Develop strategies for estimating large quantities of objects.*



**Benchmark 14.c**

**Estimate and Then Use Actual Measuring Devices to Measure Weight/Mass**

The student will estimate and then use actual measuring devices with metric and U.S. Customary units to measure weight/mass – ounces, pounds, grams, and kilograms.



**Indicator 14.c.1**

**Identify/use units of weight/mass: ounces/pounds/grams/kilograms**

Identify and use the following units of weight/mass: ounces, pounds, grams, and kilograms.



**Indicator 14.c.2**

**Estimate & measure weight/mass to nearest ounce/pound/gram/kilogram**

Estimate and then measure the weight/mass of objects to the nearest ounce and pound and the nearest gram and kilogram.



**Indicator 14.c.3**

**Use a balance to measure weight in ounces/pounds/grams/kilograms**

*Use a balance to measure weight in ounces, pounds, grams, and kilograms. Select appropriate unit of measure. Know that 16 ounces = 1 pound and 1000 grams = 1 kilogram.*



**MTH.G3**

**Standard 15**

**TELL TIME USING ANALOG AND DIGITAL CLOCKS**

The student will tell time to the nearest five-minute interval and to the nearest minute, using analog and digital clocks.



**Benchmark 15.a**

**Tell Time to the Nearest Five-Minute Interval & to Nearest Minute**

The student will tell time to the nearest five-minute interval and to the nearest minute, using analog and digital clocks.

**Indicator 15.a.1**



### **Tell time to the hour/half-hour/quarter-hour/5 min. interval/minute**

Tell time to the hour, half-hour, quarter-hour, nearest five-minute interval, and nearest minute, using analog and digital clocks.



#### **Indicator 15.a.2**

#### **Match the times shown on analog and digital clocks to written times**

Match the times shown on analog and digital clocks to written times.



#### **Indicator 15.a.3**

#### **Subtract or count on in minutes to determine time intervals**

*Subtract or count on in minutes to determine time intervals within an hour.*

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## **MTH.G3**

### **Standard 16**

#### **IDENTIFY EQUIVALENT PERIODS OF TIME**

The student will identify equivalent periods of time, including relationships among days, months, and years, as well as minutes and hours.

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#### **Benchmark 16.a**

#### **Identify Equivalent Relationships Among Days/Months/Years & Min/Hours**

The student will identify equivalent periods of time, including relationships among days, months, and years, as well as minutes and hours.



#### **Indicator 16.a.1**

#### **Identify equivalent relationships observed in a calendar**

Identify equivalent relationships observed in a calendar, including the number of days in a given month, the number of days in a week, the number of days in a year, and the number of months in a year.



#### **Indicator 16.a.2**

#### **Identify number of minutes in an hour and number of hours in a day**

Identify the number of minutes in an hour and the number of hours in a day.

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## **MTH.G3**

### **Standard 17**

#### **READ TEMPERATURE TO NEAREST DEGREE FROM CELSIUS/FAHRENHEIT THERMOMETER**

The student will read temperature to the nearest degree from a Celsius thermometer and a Fahrenheit thermometer. Real thermometers and physical models of thermometers will be used.

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#### **Benchmark 17.a**

#### **Read Temperature to Nearest Degree from Celsius/Fahrenheit Thermometer**

The student will read temperature to the nearest degree from a Celsius thermometer and a Fahrenheit thermometer. Real thermometers and physical models of thermometers will be used.



#### **Indicator 17.a.1**

#### **Read temperature to nearest degree from real thermometer/phys. model**

Read temperature to the nearest degree from real Celsius and Fahrenheit thermometers and from physical models (including pictorial representations) of such thermometers.

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## **MTH.G3**

### **Standard 18**

#### **ANALYZE TWO- & THREE-DIMENSIONAL GEOMETRIC FIGURES/IDENTIFY PROPERTIES**


The student will analyze two-dimensional (plane) and three-dimensional (solid) geometric figures (circle, square, rectangle, triangle, cube, rectangular solid [prism], square pyramid, sphere, cone, and cylinder) and identify relevant properties, including the number of corners, square corners, edges, and the number and shape of faces, using concrete models.

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 **Benchmark 18.a**


**Analyze Two- & Three-Dimensional Geometric Figures/Identify Properties**

The student will analyze two-dimensional (plane) and three-dimensional (solid) geometric figures (circle, square, rectangle, triangle, cube, rectangular solid [prism], square pyramid, sphere, cone, and cylinder) and identify relevant properties, including the number of corners, square corners, edges, and the number and shape of faces, using concrete models.

 **Indicator 18.a.1**


**Identify by name models/pictures of plane and solid geometric figures**

Identify by name, models and pictures of plane geometric figures (circle, square, rectangle, and triangle) and solid geometric figures (cube, rectangular solid, square pyramid, sphere, cone, and cylinder).

 **Indicator 18.a.2**


**Identify plane geometric figures by counting sides/corners/sq. corners**

Identify plane geometric figures by counting the number of sides, corners, and square corners.

 **Indicator 18.a.3**


**Identify geometric solids**

Identify geometric solids by counting the number of corners, square corners, and edges, and by the shapes of the faces.

 **Indicator 18.a.4**


**Classify, compare, and contrast plane and solid geometric figures**

Classify, compare, and contrast plane and solid geometric figures (e.g., circle/sphere, square/cube, triangle/pyramid, and rectangle/rectangular solid), using corners, square corners, faces, and edges.

 **Indicator 18.a.5**


**Identify a figure as open/closed, polygon/nonpolygon**

Identify a figure as open or closed; identify plane figures as polygons or nonpolygons; identify circles, triangles, rectangles, squares and other polygons.

 **Indicator 18.a.6**

**Investigate and classify quadrilaterals**


Investigate and classify quadrilaterals; explain the classification criteria.

 **Indicator 18.a.7**

**Recognize/sort/compare solid shapes and explore properties**


Recognize, sort, and compare solid shapes and explore number and shape of faces, edges, and vertices (corners) of cubes, rectangular prisms, square pyramids, spheres, cones, and cylinders.

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 **Benchmark 18.b**

**Investigate the Use of a Grid and Ordered Pairs to Locate Points**

Investigate the use of a grid (axis from 0-5) and ordered pairs to locate points.

 **Indicator 18.b.1**

**Investigate the use of a grid and ordered pairs to locate points**

Investigate the use of a grid (axis from 0-5) and ordered pairs to locate points.



## MTH.G3

### Standard 19

#### IDENTIFY AND DRAW REPRESENTATIONS OF LINE SEGMENTS AND ANGLES

The student will identify and draw representations of line segments and angles, using a ruler or straightedge.



#### Benchmark 19.a

##### Identify and Draw Representations of Line Segments and Angles

The student will identify and draw representations of line segments and angles, using a ruler or straightedge.



##### Indicator 19.a.1

###### Identify and locate examples of a point, line segment, and angle

Identify and locate examples of a point, line segment, and angle.



##### Indicator 19.a.2

###### Draw line segments and angles, using a ruler or straight edge

Draw line segments and angles, using a ruler or straightedge.



##### Indicator 19.a.3

###### Identify & draw representations of points/lines/ line segments/angles

*Identify and draw representations of points, lines, line segments, angles, horizontal lines, and vertical lines using the appropriate tools; recognize right angles.*



##### Indicator 19.a.4

###### Recognize and describe obtuse and acute angles in relation to 90°

Recognize and describe angles greater than 90 degrees as obtuse angles and angles less than 90 degrees as acute angles.



## MTH.G3

### Standard 20

#### IDENTIFY & DESCRIBE CONGRUENT & SYMMETRICAL, TWO-DIMENSIONAL FIGURES

The student, given appropriate drawings or models, will identify and describe congruent and symmetrical, two-dimensional (plane) figures, using tracing procedures.



#### Benchmark 20.a

##### Identify & Describe Congruent & Symmetrical, Two-Dimensional Figures

The student, given appropriate drawings or models, will identify and describe congruent and symmetrical, two-dimensional (plane) figures, using tracing procedures.



##### Indicator 20.a.1

###### Locate examples of congruent figures and verify their congruency

Locate examples of congruent figures and verify their congruency by laying one on top of the other.



##### Indicator 20.a.2

###### Determine if given figures are congruent, using tracing procedures

Determine if given figures are congruent, using tracing procedures.



##### Indicator 20.a.3

###### Locate examples of symmetrical figures and verify their symmetry


Locate examples of symmetrical figures, and verify their symmetry by using tracing procedures.





##### Indicator 20.a.4

### **Determine if given figures have a line or lines of symmetry**

Determine if given figures have a line or lines of symmetry (vertical, horizontal, diagonal), using tracing procedures.

 **Indicator 20.a.5**  
**Identify and describe lines of symmetry**  
*Identify and describe lines of symmetry.*

 **Indicator 20.a.6**  
**Explore and identify congruent figures by manipulating shapes**  
*Explore and identify congruent figures by manipulating shapes.*

 **Indicator 20.a.7**  
**Investigate moving figures using slides and/or flips**  
*Investigate moving figures using slides and/or flips.*

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## **MTH.G3** **Standard 21**

### **COLLECT/ORGANIZE DATA & CONSTRUCT LINE PLOT/PICTOGRAPH/BAR GRAPH**


The student, given grid paper, will


- a) collect and organize data on a given topic of his/her choice, using observations, measurements, surveys, or experiments; and
- b) construct a line plot, a picture graph, or a bar graph to represent the results. Each graph will include an appropriate title and key.


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#### **Benchmark 21.a** **Collect and Organize Data Using a Variety of Methods**

The student, given grid paper, will collect and organize data on a given topic of his/her choice, using observations, measurements, surveys, or experiments.

 **Indicator 21.a.1**  
**Formulate questions to investigate**  
*Formulate questions to investigate.*

 **Indicator 21.a.2**  
**Design data investigations to answer formulated questions**  
*Design data investigations to answer formulated questions, limiting the number of categories for data collection to four.*

 **Indicator 21.a.3**  
**Collect data using surveys/polls/questionnaires/experiment/observation**  
*Collect data, using surveys, polls, questionnaires, scientific experiments, and observations.*

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#### **Benchmark 21.b** **Construct Line Plot/Picture Graph/Bar Graph to Represent Results**

The student, given grid paper, will construct a line plot, a picture graph, or a bar graph to represent the results. Each graph will include an appropriate title and key.

 **Indicator 21.b.1**  
**Organize data and construct a bar graph**  
*Organize data and construct a bar graph on grid paper representing 16 or fewer data points for no more than four categories.*



### Indicator 21.b.2

#### Label bar graph with a title, description of each axis, and a key

Label bar graphs with a title, a description of each axis, and a key where appropriate. Limit increments on the numerical axis to whole numbers representing multiples of 1, 2, 5, or 10.



### Indicator 21.b.3

#### Collect and organize data from a variety of sources & explain findings

*Collect and organize data from a variety of sources, including content from other disciplines; represent data with tally marks and on charts/tables, pictographs, line plots, and bar graphs. Each graph will include an appropriate title and key. Explain findings.*



## MTH.G3

### Standard 22

#### READ/INTERPRET/ANALYZE DATA REPRESENTED IN A VARIETY OF GRAPHS

The student will read and interpret data represented in line plots, bar graphs, and picture graphs and write a sentence analyzing the data.



### Benchmark 22.a

#### Read/Interpret/Analyze Data Represented in a Variety of Graphs

The student will read and interpret data represented in line plots, bar graphs, and picture graphs and write a sentence analyzing the data.



### Indicator 22.a.1

#### Read the information presented on a simple bar or picture graph

Read the information presented on a simple bar or picture graph (e.g., the title, the categories, the description of the two axes, the key).



### Indicator 22.a.2

#### Read information presented in line plots

Read information presented in line plots.



### Indicator 22.a.3

#### Analyze and interpret information from simple picture and bar graphs

Analyze and interpret information from simple picture and bar graphs, with data points limited to 16 and categories to 4, by writing at least one statement.



### Indicator 22.a.4

#### Analyze and interpret information from line plots

Analyze and interpret information from line plots, with data points limited to 16, by writing at least one statement.



### Indicator 22.a.5

#### Describe the categories of data and the data as a whole

Describe the categories of data and the data as a whole (e.g., data were collected on four types of eggs – scrambled, fried, hard boiled, and egg salad – eaten by students).



### Indicator 22.a.6

#### Identify parts of the data that have special characteristics

Identify parts of the data that have special characteristics, including categories with the greatest, the least, or the same (e.g., most students prefer scrambled eggs).



### Indicator 22.a.7

#### Select correct interpretation of graph from a set of interpretations

Select a correct interpretation of a graph from a set of interpretations of the graph, where one is correct and the remaining three are incorrect. For example, a bar graph containing data on four types of eggs – scrambled, fried, hard boiled, and egg salad – eaten by students shows that more students prefer scrambled eggs. A correct answer response, if given, would be that more students prefer scrambled eggs than any other type of eggs.



### Indicator 22.a.8

#### Interpret pictographs, charts/tables, line plots and bar graphs

*Interpret pictographs, charts/tables, line plots and bar graphs. Write a sentence analyzing the data.*

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## MTH.G3

### Standard 23

#### INVESTIGATE AND DESCRIBE CONCEPT OF PROBABILITY AS CHANCE

The student will investigate and describe the concept of probability as chance and list possible results of a given situation.

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### Benchmark 23.a

#### Investigate/Describe Probability as Chance & List Possible Results

The student will investigate and describe the concept of probability as chance and list possible results of a given situation.



### Indicator 23.a.1

#### Define probability as the chance that an event will happen

*Define probability as the chance that an event will happen.*



### Indicator 23.a.2

#### List all possible outcomes for a given situation

*List all possible outcomes for a given situation (e.g., heads and tails are the two possible outcomes of flipping a coin).*



### Indicator 23.a.3

#### Identify the possible outcomes for a common event

*Identify the possible outcomes for a common event, using terms such as *impossible*, *unlikely*, *equally likely*, *likely*, and *certain*.*



### Indicator 23.a.4

#### Determine if an event is equally likely

*Determine if an event is equally likely (50% chance of occurring) or not equally likely to occur; make predictions based on results of simple experiments about the outcome of an event; organize in charts.*



### Indicator 23.a.5

#### Record probability of an outcome as a ratio

*Record probability of an outcome as a ratio.*

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## MTH.G3

### Standard 24

#### RECOGNIZE, DESCRIBE, AND EXTEND A VARIETY OF PATTERNS

The student will recognize and describe a variety of patterns formed using concrete objects, numbers, tables, and pictures, and extend the pattern, using the same or different forms (concrete objects, numbers, tables, and pictures).

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### Benchmark 24.a

#### Recognize, Describe, and Extend a Variety of Patterns

The student will recognize and describe a variety of patterns formed using concrete objects, numbers, tables, and pictures, and extend the pattern, using the same or different forms (concrete objects, numbers, tables, and pictures).



### Indicator 24.a.1

### **Recognize repeating and growing numeric and geometric patterns**

Recognize repeating and growing numeric and geometric patterns (e.g., skip counting, addition tables, and multiplication tables).

#### **Indicator 24.a.2**

##### **Describe repeating and growing numeric and geometric patterns**

Describe repeating and growing numeric and geometric patterns formed using concrete objects, numbers, tables, and/or pictures, using the same or different forms.

#### **Indicator 24.a.3**

##### **Extend repeating and growing numeric and geometric patterns**

Extend repeating and growing numeric and geometric patterns formed using concrete objects, numbers, tables, and/or pictures, using the same or different forms.

#### **Indicator 24.a.4**

##### **Recognize, describe, predict, extend, and create patterns**

*Recognize, describe, predict, extend, and create patterns of objects, pictures, charts of numbers, and simple number patterns.*



## **MTH.G3**

### **Standard 25**

#### **INVESTIGATE & CREATE PATTERNS/UNDERSTAND EQUALITY**

##### **The student will**

- a) investigate and create patterns involving numbers, operations (addition and multiplication), and relations that model the identity and commutative properties for addition and multiplication; and**
- b) demonstrate an understanding of equality by recognizing that the equal sign (=) links equivalent quantities such as  $4 \cdot 3 = 2 \cdot 6$ .**

#### **Benchmark 25.a**

##### **Investigate/Create Patterns With Numbers/Operations/Relations**

The student will investigate and create patterns involving numbers, operations (addition and multiplication), and relations that model the identity and commutative properties for addition and multiplication.

#### **Indicator 25.a.1**

##### **Investigate and create patterns involving numbers**

The student will investigate and create patterns involving numbers.

#### **Indicator 25.a.2**

##### **Investigate and create patterns involving operations**

The student will investigate and create patterns involving operations (addition and multiplication).

#### **Indicator 25.a.3**

##### **Investigate and create patterns involving relations**

The student will investigate and create patterns involving relations that model the identity and commutative properties for addition and multiplication.

#### **Indicator 25.a.4**

##### **Multiply by multiples of ten using patterns**


*Multiply by multiples of ten using patterns.*

#### **Indicator 25.a.5**

##### **Find the function rule that completes a chart of factors or products**

*Find the function rule (pattern) that completes a chart of factors or products.*

#### **Indicator 25.a.6**

 **Recognize, explain, and use the properties of addition**

Recognize, explain, and use the properties of addition including associative, commutative, and zero.

 **Indicator 25.a.7****Recognize, explain, and use the properties of multiplication**

Recognize, explain, and use the properties of multiplication including commutative, zero, and one.

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 **Benchmark 25.b****Demonstrate an Understanding of Equality**

The student will demonstrate an understanding of equality by recognizing that the equal sign (=) links equivalent quantities such as  $4 \cdot 3 = 2 \cdot 6$ .

 **Indicator 25.b.1****Recognize that the equals sign relates equivalent quantities**

Recognize that the equals sign relates equivalent quantities.

 **Indicator 25.b.2****Write number sentences to represent equivalent math relationships**

Write number sentences to represent equivalent mathematical relationships. (e.g.,  $4 \cdot 3 = 2 \cdot 6$ ).

 **Indicator 25.b.3****Identify number sentences that show appropriate use of the equal sign**

Identify number sentences that show appropriate use of the equal sign.

 **Indicator 25.b.4****Find missing addends & factors in equivalent math relationships**

Write number sentences to represent equivalent mathematical relationships, by finding missing addends and factors. Demonstrate an understanding of equality by recognizing that the equal (=) sign links equivalent quantities such as  $4 \cdot 3 = 2 \cdot 6$ .

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 **MTH.G3****Standard 26****USE PROBLEM SOLVING APPROACHES TO UNDERSTAND CONCEPTS AND SKILLS**

*Students will use problem solving approaches to understand concepts and skills. They will pose problems; solve routine, nonroutine, and multistep problems; verify, interpret, and generalize solutions; and focus on the process that leads to reasonable solutions. Through a variety of problem-solving experiences, students will acquire confidence in using mathematics meaningfully.*

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 **Benchmark 26.a****Use Problem Solving Approaches to Understand Concepts and Skills**

*Students will use problem solving approaches to understand concepts and skills. They will pose problems; solve routine, nonroutine, and multistep problems; verify, interpret, and generalize solutions; and focus on the process that leads to reasonable solutions. Through a variety of problem-solving experiences, students will acquire confidence in using mathematics meaningfully.*

 **Indicator 26.a.1****Identify and/or pose problems from everyday life and math situations**

Identify and/or pose problems from everyday life and mathematical situations including problems to fit a given equation.

 **Indicator 26.a.2****Solve problems using a logical procedure (a plan)**

*Solve problems using a logical procedure (plan).*



**Indicator 26.a.3**

**Identify extra and insufficient information needed to solve a problem**

*Identify information that is available but not needed. Identify additional information needed to solve a problem.*



**Indicator 26.a.4**

**Solve problems using appropriate materials & tools**

*Solve problems using appropriate materials and tools (e.g., grid paper, collectibles, measurement tools, manipulatives, calculators).*



**Indicator 26.a.5**

**Develop and apply operations and strategies to solve problems**

*Develop and apply operations and strategies (e.g., act it out, build a model, draw a picture or diagram, guess and check, make a chart or a table, make a list, make a graph, use a pattern, work backward) to solve a wide variety of routine and nonroutine problems.*



**Indicator 26.a.6**

**Find alternative ways to solve a problem**

*Find alternative ways to solve a problem.*



**Indicator 26.a.7**

**Work collaboratively with peers; entertain others' point of view**

*Solve problems by working collaboratively with peers; entertain others' points of view.*



**Indicator 26.a.8**

**Recognize similarities and differences among solution paths**

*Recognize similarities and differences among solution paths.*



**Indicator 26.a.9**

**Share and explain thinking during and after solving a problem**

*Share and explain (verbalize/record/demonstrate) thinking during and after solving a problem.*



**Indicator 26.a.10**

**Recognize when a solution does or does not make sense; explain why**

*Recognize when a solution does or does not make sense. Explain why.*