

# Grade K Mathematics Item Specifications



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## Introduction

In 2014 Missouri legislators passed House Bill 1490, mandating the development of the Missouri Learning Expectations. In April of 2016, these Missouri Learning Expectations were adopted by the State Board of Education. Groups of Missouri educators from across the state collaborated to create the documents necessary to support the implementation of these expectations.

One of the documents developed is the item specification document, which includes all Missouri grade level/course expectations arranged by domains/strands. It defines what could be measured on a variety of assessments. The document serves as the foundation of the assessment development process.

Although teachers may use this document to provide clarity to the expectations, these specifications are intended for summative, benchmark, and large-scale assessment purposes.

Components of the item specifications include:

**Expectation Unwrapped** breaks down a list of clearly delineated content and skills the students are expected to know and be able to do upon mastery of the Expectation.

**Depth of Knowledge (DOK) Ceiling** indicates the highest level of cognitive complexity that would typically be assessed on a large scale assessment. The DOK ceiling is not intended to limit the complexity one might reach in classroom instruction.

**Item Format** indicates the types of items used in large scale assessment. For each expectation, the item format specifies the type best suited for that particular expectation.

**Text Types** suggests a broad list of text types for both literary and informational expectations. This list is not intended to be all inclusive: other text types may be used in the classroom setting. The expectations were written in grade level bands; for this reason, the progression of the expectations relies upon increasing levels of quantitative and qualitative text complexities.

## **Grade Kindergarten Mathematics**

**Content Limits/Assessment Boundaries** are parameters that item writers should consider when developing a large scale assessment. For example, some expectations should not be assessed on a large scale assessment but are better suited for local assessment.

**Sample stems** are examples that address the specific elements of each expectation and address varying DOK levels. The sample stems provided in this document are in no way intended to limit the depth and breadth of possible item stems. The expectation should be assessed in a variety of ways.

# Grade Kindergarten Mathematics

| Mathematics   |   | K.NS.A.1  |
|---|---|---|
| <b>NS</b>   | <b>Number Sense</b>                                 |   |
| <b>A</b>  | <b>Know the number names and the count sequence</b> |   |
| <b>1</b>  | Count to 100 by ones and tens.                      |   |
| <u><b>Expectation Unwrapped</b></u>                                       |   | <u><b>DOK Ceiling</b></u><br>2  |
| The student will verbally count to one hundred by ones, beginning at one. |   | <u><b>Item Format</b></u>   |
| The student will verbally count to one hundred by tens, beginning at ten. |   | <u><b>Sample Stems</b></u><br>Teacher asks student to count by ones beginning at one and stopping at one hundred.<br><br>Teacher asks student to count by tens beginning at ten and stopping when he/she gets to one hundred. |
| <u><b>Content Limits/Assessment Boundaries</b></u>                        |   | <u><b>Calculator Designation</b></u>  |
| Numbers including one and not greater than one hundred                    |   | <b>NO</b> – a calculator will not be available for items  |

# Grade Kindergarten Mathematics

| Mathematics  |   | K.NS.A.2  |
|--|---|---|
| <b>NS</b>  | <b>Number Sense</b>   |   |
| <b>A</b>   | <b>Know the number names and the count sequence</b>           |   |
| <b>2</b>   | Count forward beginning from a given number between 1 and 20. |   |
| <p style="text-align: center;"><u><b>Expectation Unwrapped</b></u></p> <p>The student will count forward verbally within twenty beginning from a given number (instead beginning at one).</p>  |   | <p style="text-align: center;"><u><b>DOK Ceiling</b></u><br/>2</p> <p style="text-align: center;"><u><b>Item Format</b></u></p> <p style="text-align: center;"><u><b>Sample Stems</b></u><br/>Teacher asks student to begin counting at thirteen and stop when he gets to twenty.</p> |
| <p style="text-align: center;"><u><b>Content Limits/Assessment Boundaries</b></u></p> <p>Numbers including one and not greater than one hundred<br/>Specific focus should be placed on the numbers in the range of eleven to twenty.</p> |   | <p style="text-align: center;"><u><b>Calculator Designation</b></u></p> <p><b>NO</b> – a calculator will not be available for items</p>   |

# Grade Kindergarten Mathematics

| Mathematics  |  | K.NS.A.3  |
|--|--|---|
| <b>NS</b>  | <b>Number Sense</b>                                  |   |
| <b>A</b>   | <b>Know the number names and the count sequence</b>  |   |
| <b>3</b>   | Count backward from a given number between 10 and 1. |   |
| <p style="text-align: center;"><u><b>Expectation Unwrapped</b></u></p> <p>The student will count backward from a given number between ten and one.</p> |  | <p style="text-align: center;"><u><b>DOK Ceiling</b></u><br/>2</p> <p style="text-align: center;"><u><b>Item Format</b></u></p> <p style="text-align: center;"><u><b>Sample Stems</b></u><br/>Teacher asks student to count backwards from seven and stop when she gets to one.</p> |
| <p style="text-align: center;"><u><b>Content Limits/Assessment Boundaries</b></u></p> <p>Numbers including one and not greater than ten</p>            |  | <p style="text-align: center;"><u><b>Calculator Designation</b></u></p> <p><b>NO</b> – a calculator will not be available for items</p>   |

# Grade Kindergarten Mathematics

| Mathematics   |   | K.NS.A.4   |
|---|---|--|
| <b>NS</b><br><b>A</b><br><b>4</b>   | <b>Number Sense</b><br><b>Know the number names and the count sequence</b><br>Read and write numerals and represent a number of objects from 0 to 20. |  |
| <u><b>Expectation Unwrapped</b></u>   |   | <u><b>DOK Ceiling</b></u><br>2   |
| <p>The student can name numerals zero to twenty, when given numerals (written form) out of sequence.</p> <p>The student will write numerals zero to twenty, when verbally prompted, in and out of sequence.</p> <p>The student will identify a numeral to represent the quantity of objects in a given set.</p> <p>The student will write a numeral to represent the quantity of objects in a given set.</p>  |   | <u><b>Item Format</b></u><br>Selected Response<br>Constructed Response<br>Technology Enhanced  |
|   |   | <u><b>Sample Stems</b></u><br>When shown the numeral “5”, student says “five”.<br><br>When shown eight objects, student selects the numeral “8” to match the number of items in the set.<br><br>When shown twelve objects the student writes the numeral that represents the cardinality of the set, “12”. |
| <u><b>Content Limits/Assessment Boundaries</b></u>  |   | <u><b>Calculator Designation</b></u>   |
| <p>Numbers beginning at zero and not greater than twenty.</p> <p>The student is not expected to read number words (e.g., “four”).</p> <p>The use of “write” refers to a student forming the numerals with pencil and paper.</p> <p>Numeral refers to the written symbol used to name a number. Number is a mathematical idea concerning the amount contained in a set (cardinality).</p> <p>In the expectation above, the use of manipulatives is vital to understanding.</p> |   | <p><b>NO</b> – a calculator will not be available for items</p>  |



# Grade Kindergarten Mathematics

| Mathematics   |   | K.NS.B.5   |
|---|---|--|
| <b>NS</b>   | <b>Number Sense</b>   |  |
| <b>B</b>  | <b>Understand the relationship between numbers and quantities: connect counting to cardinality.</b>   |  |
| <b>5</b>  | Say the number names when counting objects, in the standard order, pairing each object with one and only one number name and each number name with one and only one object. |  |
| <u><b>Expectation Unwrapped</b></u>   |   | <u><b>DOK Ceiling</b></u>                                |
| The student will verbally count objects in the standard order, pairing each object with one and only one number name and each number name with one and only one object. |   | 2  |
|   |   | <u><b>Item Format</b></u>                                |
|   |   | <u><b>Sample Stems</b></u>                               |
| <u><b>Content Limits/Assessment Boundaries</b></u>  |   | <u><b>Calculator Designation</b></u>                     |
| Twenty objects<br>The objects do not need to be placed in an arranged order.<br>In the expectation above, the use of manipulatives is vital to understanding.           |   | <b>NO</b> – a calculator will not be available for items |

# Grade Kindergarten Mathematics

| Mathematics   |   | K.NS.B.6  |
|---|---|---|
| <b>NS</b><br><b>B</b><br><b>6</b>   | <b>Number Sense</b><br><b>Understand the relationship between numbers and quantities: connect counting to cardinality.</b><br>Demonstrate that the last number name said tells the number of objects counted and the number of objects is the same regardless of their arrangement or the order in which they were counted. |   |
| <u><b>Expectation Unwrapped</b></u>   |   | <u><b>DOK Ceiling</b></u><br>3  |
| <p>The student will count objects to demonstrate that the last number said when counting tells the number of objects counted.</p> <p>The student will demonstrate that, regardless of their arrangement, the last number name said tells the number of objects counted.</p> <p>The student will demonstrate that the last number name said tells the number of objects counted, regardless of the order in which they are counted.</p> <p>The student will demonstrate that rearranging a known number of objects does not affect the cardinality of the set (the set does not need to be recounted).</p> |   | <u><b>Item Format</b></u><br>Selected Response<br>Constructed Response<br>Technology Enhanced   |
|   |   | <u><b>Sample Stems</b></u><br>When the student is shown ten small cubes (or other manipulatives) lined up in a row, student counts and says, “ten”.<br><br>When the student is asked again about the same arrangement he repeats, “ten”, without recounting.<br><br>Show the student ten cubes (or other manipulative) in a scattered arrangement and ask her to count them.<br><br>Which set has four objects? |
| <u><b>Content Limits/Assessment Boundaries</b></u>  |   | <u><b>Calculator Designation</b></u>  |
| Twenty objects<br>The student response will be verbal or a written numeral.<br>In the expectation above, the use of manipulatives is vital to understanding.  |   | <b>NO</b> – a calculator will not be available for items  |

# Grade Kindergarten Mathematics

| Mathematics  |  | K.NS.B.7  |
|--|--|---|
| <b>NS</b><br><b>B</b><br><b>7</b>  | <b>Number Sense</b><br><b>Understand the relationship between numbers and quantities: connect counting to cardinality.</b><br>Demonstrate that each successive number name refers to a quantity that is one larger than the previous number. |   |
| <u><b>Expectation Unwrapped</b></u>  |  | <u><b>DOK Ceiling</b></u><br>2  |
| The student will demonstrate that each number name in the count sequence refers to a quantity that is one more than the previous number.   |  | <u><b>Item Format</b></u><br>Constructed Response<br>Technology Enhanced  |
|  |  | <u><b>Sample Stems</b></u><br>Write the number that comes after six. Draw counters to represent the number.<br><br>Circle the number that is one more than nine.<br><br>Which of the following lists are in counting order?<br>4 5 6<br>8 7 9<br>7 6 5<br>2 4 6 |
|  |  | <u><b>Calculator Designation</b></u><br><b>NO</b> – a calculator will not be available for items  |
| <u><b>Content Limits/Assessment Boundaries</b></u>   |  |   |
| Quantities including one and not greater than twenty<br>There is no expectation that students will use the symbols for greater than or less than<br>Student demonstrates that a quantity is one more than the previous number. |  |   |

# Grade Kindergarten Mathematics

| Mathematics  |   | K.NS.B.8  |
|--|---|---|
| <b>NS</b>  | <b>Number Sense</b>   |   |
| <b>B</b>   | <b>Understand the relationship between numbers and quantities: connect counting to cardinality.</b> |   |
| <b>8</b>   | Recognize, without counting, the quantity of groups up to 5 objects arranged in common patterns.    |   |
| <p style="text-align: center;"><u><b>Expectation Unwrapped</b></u></p> <p>The student will, without counting (subitize), recognize and verbally name a quantity of up to five objects arranged in a common pattern.</p>  |   | <p style="text-align: center;"><u><b>DOK Ceiling</b></u><br/>1</p> <p style="text-align: center;"><u><b>Item Format</b></u></p> <p style="text-align: center;"><u><b>Sample Stems</b></u><br/>The student is asked to tell how many when shown an arrangement of objects.</p> <p style="text-align: center;">X X X X X</p> <p style="text-align: center;">Or</p> <p style="text-align: center;">X<br/>X<br/>X</p> |
| <p style="text-align: center;"><u><b>Content Limits/Assessment Boundaries</b></u></p> <p>Quantities including one and not greater than five<br/>Arrangements should focus on common subitizing orders (dice, horizontal, vertical and oblique arrangements).<br/>In the expectation above, the use of manipulatives is vital to understanding.</p> |   | <p style="text-align: center;"><u><b>Calculator Designation</b></u></p> <p><b>NO</b> – a calculator will not be available for items</p>   |

# Grade Kindergarten Mathematics

| Mathematics   |   | K.NS.B.9   |
|---|---|--|
| <b>NS</b>   | <b>Number Sense</b>   |  |
| <b>B</b>  | <b>Understand the relationship between numbers and quantities: connect counting to cardinality.</b> |  |
| <b>9</b>  | Demonstrate that a number can be used to represent “how many” are in a set.                         |  |
| <b><u>Expectation Unwrapped</u></b>   |   | <b><u>DOK Ceiling</u></b><br>2   |
| The student will demonstrate that a number can be used to represent “how many” are in a set (cardinality).  |   | <b><u>Item Format</u></b><br>Selected Response<br>Constructed Response<br>Technology Enhanced  |
| The student will, when given a number from one to twenty, count out that many objects.  |   |  |
| The student will organize objects in a manner for easier counting and recounting.   |   |  |
| <b><u>Sample Stems</u></b>  |   | When given or shown a picture of seven counters the student says, writes or matches the number in the set to “7”.<br><br>Student is asked to count out eleven objects. |
|   |   |  |
| <b><u>Content Limits/Assessment Boundaries</u></b>  |   | <b><u>Calculator Designation</u></b>   |
| Numbers and quantities including one and not greater than twenty<br>In the expectation above, the use of manipulatives is vital to understanding. |   | <b>NO</b> – a calculator will not be available for items   |

# Grade Kindergarten Mathematics

| Mathematics   |   | K.NS.C.10  |
|---|---|--|
| <b>NS<br/>C<br/>10</b>  | <p><b>Number Sense</b></p> <p><b>Compare Numbers</b></p> <p>Compare two or more sets of objects and identify which set is equal to, more than or less than the other.</p> |  |
| <p style="text-align: center;"><b><u>Expectation Unwrapped</u></b></p> <p>The student will compare two sets of objects to determine which set is more than the other.</p> <p>The student will compare two sets of objects to determine if two or more sets are equal to each other.</p> <p>The student will compare two sets of objects to determine which set has fewer (less) than the other.</p> <p>The student will compare two or more sets of objects to determine which set is equal to, more than (most), or fewer (less/least) than the other.</p> |   | <p style="text-align: center;"><b><u>DOK Ceiling</u></b></p> <p style="text-align: center;">3</p> <hr/> <p style="text-align: center;"><b><u>Item Format</u></b></p> <p>Selected Response<br/>Constructed Response<br/>Technology Enhanced</p> <hr/> <p style="text-align: center;"><b><u>Sample Stems</u></b></p> <p>When given a set of three objects a student is able to determine that a matching set with two objects is less than; a matching set with three objects is equal to; and a matching set with five objects has more than.</p> <p>Student is shown a set with seven objects and asked to build or draw a set with fewer (less than) objects.</p> |
| <p style="text-align: center;"><b><u>Content Limits/Assessment Boundaries</u></b></p> <p>Ten objects in each set<br/>Items in the different sets should be identical.<br/>“Fewer” may also be used to describe “less than” especially in the case of discrete objects.<br/>In the expectation above, the use of manipulatives is vital to understanding.</p>  |   | <p style="text-align: center;"><b><u>Calculator Designation</u></b></p> <p><b>NO</b> – a calculator will not be available for items</p>  |

# Grade Kindergarten Mathematics

| Mathematics  |  | K.NS.C.11  |
|--|--|--|
| <b>NS<br/>C<br/>11</b>   | <p><b>Number Sense</b></p> <p><b>Compare Numbers</b></p> <p>Compare two numerals, between 1 and 10, and determine which is more than or less than the other.</p> |  |
| <b><u>Expectation Unwrapped</u></b>  |  | <b><u>DOK Ceiling</u></b><br>3   |
| <p>The student will compare two or more numerals to determine which numeral is more than the other.</p> <p>The student will compare two or more numerals to determine which numeral is less than the other.</p> <p>The student will compare two or more numerals to determine which numeral is more than or less than the other.</p> |  | <b><u>Item Format</u></b><br>Selected Response<br>Constructed Response<br>Technology Enhanced  |
|  |  | <b><u>Sample Stems</u></b><br>When the student is shown two numerals, five and three, the student can determine which is less than or which is greater than. |
| <b><u>Content Limits/Assessment Boundaries</u></b>   |  | <b><u>Calculator Designation</u></b>   |
| <p>Numerals including one and not greater than ten.</p> <p>Numeral refers to the written symbol used to name a number. Number is a mathematical idea concerning the amount contained in a set.</p>   |  | <b>NO</b> – a calculator will not be available for items   |

# Grade Kindergarten Mathematics

| Mathematics   |   | K.NBT.A.1  |
|---|---|--|
| <b>NBT</b>  | <b>Number Sense and Operations in Base Ten</b>                                      |  |
| <b>A</b>  | <b>Work with numbers 11-19 to gain foundations for place value.</b>                 |  |
| <b>1</b>  | Compose and decompose numbers from 11 to 19 into sets of tens with additional ones. |  |
| <b><u>Expectation Unwrapped</u></b>   |   | <b><u>DOK Ceiling</u></b><br>3   |
| <p>The student will verbally demonstrate that numbers from eleven to nineteen are composed of one group of ten and one, two, three, four, five, six, seven, eight or nine additional ones</p> <p>The student will use objects to demonstrate the concept of unitizing numbers from eleven to nineteen by grouping ten ones as a unit, separate from the remaining ones.</p> <p>The student will compose and decompose numbers eleven to nineteen using objects.</p> <p>The student will compose and decompose numbers eleven to nineteen using drawings.</p> <p>The student will compose and decompose numbers eleven to nineteen using symbols (numerals).</p> <p>The student will understand that in the symbols that represent the numbers eleven to nineteen the first digit “1” represents one grouped set of ten items.</p> |   | <b><u>Item Format</u></b><br>Selected Response<br>Constructed Response<br>Technology Enhanced  |
|   |   | <b><u>Sample Stems</u></b><br>When shown two ten frames that represent fourteen, the student can verbalize or show that is represents one set of ten and four ones.<br><br>When given a set of linking cubes, the student can join them to show a set of ten separate from the remaining ones. |
| <b><u>Content Limits/Assessment Boundaries</u></b>  |   | <b><u>Calculator Designation</u></b>   |
| <p>Unitizing is the understanding that numbers can be arranged in groups and groups can be counted as units. The term unitize is not expected to be taught in Kindergarten.</p> <p>Fourteen is one group of ten and four ones; fourteen is one ten and four ones; fourteen is ten and four extra ones; etc. In the expectation above, the use of manipulatives is vital to understanding.</p>   |   | <b>NO</b> – a calculator will not be available for items   |



# Grade Kindergarten Mathematics

| Mathematics  |   | K.RA.A.1   |
|--|---|--|
| <b>RA<br/>A<br/>1</b>  | <b>Relationships and Algebraic Thinking</b><br><b>Understand addition as putting together or adding to, and understand subtraction as taking apart or taking from.</b><br>Represent addition and subtraction within 10. |  |
| <b><u>Expectation Unwrapped</u></b>  |   | <b><u>DOK Ceiling</u></b><br>2   |
| <p>The student will use objects to represent addition within ten.</p> <p>The student will use pictures to represent addition within ten.</p> <p>The student will use equations to represent addition within ten.</p> <p>The student will use objects to represent subtraction within ten.</p> <p>The student will use pictures to represent subtraction within ten.</p> <p>The student will use equations to represent subtraction within ten.</p> <p>The student will use a variety of strategies to represent addition and subtraction within ten.</p> |   | <b><u>Item Format</u></b><br>Selected Response<br>Constructed Response<br>Technology Enhanced  |
|  |   | <b><u>Sample Stems</u></b><br>Draw a picture that shows “4 + 2” squares. Write how many squares.<br><br>John has three cars and Jenny has two cars. <ul style="list-style-type: none"> <li>• Show me this situation with counters.</li> <li>• Draw a picture of the situation.</li> <li>• Write this situation with mathematical symbols.</li> </ul> |
| <b><u>Content Limits/Assessment Boundaries</u></b>   |   | <b><u>Calculator Designation</u></b>   |
| Sum and minuend cannot be greater than ten.<br>Strategies should vary and be responsive to the needs of the student.<br>In the expectation above, the use of manipulatives is vital to understanding.  |   | <b>NO</b> – a calculator will not be available for items   |

# Grade Kindergarten Mathematics

| Mathematics   |  | K.RA.A.2   |
|---|--|--|
| <b>RA</b><br><b>A</b><br><b>2</b>   | <b>Relationships and Algebraic Thinking</b><br><b>Understand addition as putting together or adding to, and understand subtraction as taking apart or taking from.</b><br>Demonstrate fluency for addition and subtraction within 5. |  |
| <u><b>Expectation Unwrapped</b></u>   |  | <u><b>DOK Ceiling</b></u><br>3                           |
| <p>The student will use multiple representations to model real-world and mathematic problems involving addition and subtraction within five.</p> <p>The student will critique the reasoning of others, identifying errors and alternate approaches to solving problems involving addition and subtraction within five.</p> <p>The student will decontextualize and contextualize problems and solutions to explain his or her reasoning in addition and subtraction problems within five.</p> <p>The student will identify and explain patterns and the structure of the problems with specific focus on the properties of mathematics when solving problems involving addition and subtraction within five.</p> <p>The student will communicate his or her reasoning precisely to problems involving addition and subtraction within five.</p> |  | <u><b>Item Format</b></u>                                |
| <u><b>Content Limits/Assessment Boundaries</b></u>  |  | <u><b>Calculator Designation</b></u>                     |
| Sums and minuends cannot be greater than five.<br>In the expectation above, the use of manipulatives is vital to understanding.   |  | <b>NO</b> – a calculator will not be available for items |

# Grade Kindergarten Mathematics

| Mathematics  |  | K.RA.A.3   |
|--|--|--|
| <b>RA<br/>A<br/>3</b>  | <b>Relationships and Algebraic Thinking</b><br><b>Understand addition as putting together or adding to, and understand subtraction as taking apart or taking from.</b><br>Decompose numbers less than or equal to 10 in more than one way. |  |
| <u><b>Expectation Unwrapped</b></u>  |  | <u><b>DOK Ceiling</b></u><br>3   |
| <p>The student will use objects to decompose numbers within ten in more than one way.</p> <p>The student will use drawings to show the decomposition of numbers within ten in more than one way.</p> <p>The student will use equations to show the decomposition of numbers within ten in more than one way.</p> |  | <u><b>Item Format</b></u><br>Selected Response<br>Constructed Response<br>Technology Enhanced  |
|  |  | <u><b>Sample Stems</b></u><br>All together Jenny and John have seven marbles. Draw a picture and write a mathematical equation to describe at least three different combinations of marbles. |
| <u><b>Content Limits/Assessment Boundaries</b></u>   |  | <u><b>Calculator Designation</b></u>   |
| Numbers including one and not greater than ten.<br>In the expectation above, the use of manipulatives is vital to understanding.   |  | <b>NO</b> – a calculator will not be available for items   |

# Grade Kindergarten Mathematics

| Mathematics   |   | K.RA.A.4  |
|---|---|---|
| <b>RA</b><br><b>A</b><br><b>4</b>   | <b>Relationships and Algebraic Thinking</b><br><b>Understand addition as putting together or adding to, and understand subtraction as taking apart or taking from.</b><br>Make 10 for any number from 1 to 9. |   |
| <u><b>Expectation Unwrapped</b></u>   |   | <u><b>DOK Ceiling</b></u><br>3  |
| <p>The student will use models to find the unknown number that makes ten when given a number within nine.</p> <p>The student will use drawings to find the unknown number that makes ten when given a number within nine.</p> <p>The student will use equations to find the unknown number that makes ten when given a number within nine.</p> <p>The student will use various multiple strategies to find the unknown number that makes ten when given a number within nine.</p> |   | <u><b>Item Format</b></u><br>Selected Response<br>Constructed Response<br>Technology Enhanced   |
| <u><b>Content Limits/Assessment Boundaries</b></u>  |   | <u><b>Sample Stems</b></u>  |
| <p>The sum and minuend will always be equal to ten.</p> <p>In the expectation above, the use of manipulatives is vital to understanding.</p>  |   | <u><b>Calculator Designation</b></u><br><b>NO</b> – a calculator will not be available for items  |
|   |   | <u><b>Sample Stems</b></u><br>Show a student a ten frame of four.<br>How many more are needed to make ten?<br><br>Show a student five linked cubes.<br>How many more cubes are needed to make ten?<br><br>Show a student seven counters.<br>How many more are needed to make ten? |

# Grade Kindergarten Mathematics

| Mathematics   |  | K.GM.A.1  |
|---|--|---|
| <b>GM</b>   | <b>Geometry and Measurement</b>                    |   |
| <b>A</b>  | <b>Reason with shapes and their attributes.</b>    |   |
| <b>1</b>  | Describe several measurable attributes of objects. |   |
| <p style="text-align: center;"><b><u>Expectation Unwrapped</u></b></p> <p>The student will verbally describe attributes of objects.</p> <p>The student will verbally describe measurable attributes of objects.</p> |  | <p style="text-align: center;"><b><u>DOK Ceiling</u></b><br/>1</p> <p style="text-align: center;"><b><u>Item Format</u></b></p> <p style="text-align: center;"><b><u>Sample Stems</u></b><br/>           Show a student four different (colored) pencils of various lengths.           <ul style="list-style-type: none"> <li>• Which pencil is the longest?</li> <li>• Which pencil is the shortest?</li> <li>• Which pencils are the same lengths?</li> <li>• Order the pencils from shortest to longest.</li> </ul> </p> |
| <p style="text-align: center;"><b><u>Content Limits/Assessment Boundaries</u></b></p> <p>In the expectation above, the use of manipulatives is vital to understanding.</p>  |  | <p style="text-align: center;"><b><u>Calculator Designation</u></b></p> <p><b>NO</b> – a calculator will not be available for items</p>   |

# Grade Kindergarten Mathematics

| Mathematics   |   | K.GM.A.2   |
|---|---|--|
| <b>GM</b>   | <b>Geometry and Measurement</b>                   |  |
| <b>A</b>  | <b>Reason with shapes and their attributes.</b>   |  |
| <b>2</b>  | Compare the measurable attributes of two objects. |  |
| <p style="text-align: center;"><b><u>Expectation Unwrapped</u></b></p> <p>The student will compare the measurable attributes of two objects.</p>  |   | <p style="text-align: center;"><b><u>DOK Ceiling</u></b><br/>3</p> <p style="text-align: center;"><b><u>Item Format</u></b><br/>Selected Response<br/>Constructed Response<br/>Technology Enhanced</p> <p style="text-align: center;"><b><u>Sample Stems</u></b><br/>Find an item in the classroom that is lighter than a given object. Find an item that is heavier. Find an item that is approximately the same.<br/><br/>From a container of pencils have a student compare selected pencils by their length.</p> |
| <p style="text-align: center;"><b><u>Content Limits/Assessment Boundaries</u></b></p> <p>Two objects.<br/>In the expectation above, the use of manipulatives is vital to understanding.</p> |   | <p style="text-align: center;"><b><u>Calculator Designation</u></b><br/><b>NO</b> – a calculator will not be available for items</p>   |

# Grade Kindergarten Mathematics

| Mathematics   |   | K.GM.B.3   |
|---|---|--|
| <b>GM<br/>B<br/>3</b>   | <p><b>Geometry and Measurement</b></p> <p><b>Work with time and money.</b></p> <p>Demonstrate an understanding of concepts of time and devices that measure time.</p> |  |
| <p style="text-align: center;"><u><b>Expectation Unwrapped</b></u></p> <p>The student will verbally demonstrate an understanding of the passage of time.</p> <p>The student will identify tools that measure time (analog and digital).</p> |   | <p style="text-align: center;"><u><b>DOK Ceiling</b></u><br/>2</p> <p style="text-align: center;"><u><b>Item Format</b></u><br/>Selected Response<br/>Constructed Response<br/>Technology Enhanced</p> <p style="text-align: center;"><u><b>Sample Stems</b></u></p> |
| <p style="text-align: center;"><u><b>Content Limits/Assessment Boundaries</b></u></p> <p>The student is not expected to tell time.</p>  |   | <p style="text-align: center;"><u><b>Calculator Designation</b></u><br/><b>NO</b> – a calculator will not be available for items</p>   |

# Grade Kindergarten Mathematics

| Mathematics  |   | K.GM.B.4   |
|--|---|--|
| <b>GM</b><br><b>B</b><br><b>4</b>  | <b>Geometry and Measurement</b><br><b>Work with time and money.</b><br>Name the days of the week. |  |
| <u>Expectation Unwrapped</u>   |   | <u>DOK Ceiling</u><br>1                                  |
| The student will verbally name the days of the week by rote.<br><br>The student will verbally name the days of the week with cueing from a calendar or schedule. |   | <u>Item Format</u>                                       |
|  |   | <u>Sample Stems</u>                                      |
| <u>Content Limits/Assessment Boundaries</u>  |   | <u>Calculator Designation</u>                            |
| When cueing the days of the week should not always been selected in order.   |   | <b>NO</b> – a calculator will not be available for items |



# Grade Kindergarten Mathematics

| Mathematics  |  | K.GM.B.5   |
|--|--|--|
| <b>GM</b>  | <b>Geometry and Measurement</b>                |  |
| <b>B</b>   | <b>Work with time and money.</b>               |  |
| <b>5</b>   | Identify pennies, nickels, dimes and quarters. |  |
| <p style="text-align: center;"><u><b>Expectation Unwrapped</b></u></p> <p>The student will verbally identify (name) pennies, nickels, dimes and quarters.</p> <p>The student will identify pennies, nickels, dimes and quarters.</p> |  | <p style="text-align: center;"><u><b>DOK Ceiling</b></u><br/>1</p> <p style="text-align: center;"><u><b>Item Format</b></u></p> <p style="text-align: center;"><u><b>Sample Stems</b></u><br/>Hold up a coin and have the student call it by name.</p> <p>Put a group of coins on the table and ask a student to select a particular coin.</p> |
| <p style="text-align: center;"><u><b>Content Limits/Assessment Boundaries</b></u></p> <p>In the expectation above, the use of manipulatives is vital to understanding.</p>   |  | <p style="text-align: center;"><u><b>Calculator Designation</b></u></p> <p><b>NO</b> – a calculator will not be available for items</p>  |

# Grade Kindergarten Mathematics

| Mathematics  |   | K.GM.C.6  |
|--|---|---|
| <b>GM</b>  | <b>Geometry and Measurement</b>   |   |
| <b>C</b>   | <b>Analyze squares, circles, triangles, rectangles, hexagons, cubes, cones, cylinders and spheres.</b>  |   |
| <b>6</b>   | Identify shapes and describe objects in the environment using names of shapes, recognizing the name stays the same regardless of orientation or size. |   |
| <b><u>Expectation Unwrapped</u></b>  |   | <b><u>DOK Ceiling</u></b><br>2  |
| The student will identify squares, circles, triangles, rectangles and hexagons.  |   | <b><u>Item Format</u></b><br>Selected Response<br>Constructed Response<br>Technology Enhanced |
| The student will describe elements of the environment that are shaped like squares, circles, triangles, rectangles and hexagons.   |   |   |
| The student will identify cubes, cones, cylinders, and spheres in the environment.   |   |   |
| The student will describe objects in the environment using the figure names cube, cone, cylinder and sphere.   |   |   |
| The student will recognize that names of shapes and objects remain the same regardless of orientation or size.   |   |   |
| <b><u>Content Limits/Assessment Boundaries</u></b>   |   | <b><u>Calculator Designation</u></b>  |
| Two-dimensional shapes can be described as lying in a plane or “flat” and the term “solid” is appropriate for three-dimensional objects for classroom instruction.<br>Do not assess the use of two-dimensional shapes to describe environmental objects<br>The term “figure” will be used for both two- and three-dimensional. The term “shape” will be used only for two dimensional, and the term “object” will be used only for three-dimensional.<br>In the expectation above, the use of manipulatives is vital to understanding. |   | <b>NO</b> – a calculator will not be available for items                                      |

# Grade Kindergarten Mathematics

| Mathematics  |  | K.GM.C.7  |
|--|--|---|
| <b>GM</b>  | <b>Geometry and Measurement</b>  |   |
| <b>C</b>   | <b>Analyze squares, circles, triangles, rectangles, hexagons, cubes, cones, cylinders and spheres.</b> |   |
| <b>7</b>   | Describe the relative positions of objects in space.   |   |
| <p style="text-align: center;"><b><u>Expectation Unwrapped</u></b></p> <p>The student will describe the relative positions of objects as above or below.</p> <p>The student will describe the relative positions of objects as left, right or next to.</p> <p>The student will describe the relative positions of objects as in front or behind.</p> <p>The student will describe the relative positions of objects using ordinal numbers.</p>                           |  | <p style="text-align: center;"><b><u>DOK Ceiling</u></b><br/>2</p> <p style="text-align: center;"><b><u>Item Format</u></b></p> <p style="text-align: center;"><b><u>Sample Stems</u></b></p> <p>Place objects on the table so that the student may say, “The bear is next to the ball.”</p> <p>Show the student a picture of a star above a toy car. Ask the student to describe the relative positions.</p> <p>Show the student a row of objects. Ask the student which one is first and which is second.</p> |
| <p style="text-align: center;"><b><u>Content Limits/Assessment Boundaries</u></b></p> <p>Terms used will be below, above, beside, behind, in front of and next to, first, second and third. The term “figure” will be used for both two- and three-dimensional. The term “shape” will be used only for two dimensional, and the term “object” will be used only for three-dimensional. In the expectation above, the use of manipulatives is vital to understanding.</p> |  | <p style="text-align: center;"><b><u>Calculator Designation</u></b></p> <p><b>NO</b> – a calculator will not be available for items</p>   |

# Grade Kindergarten Mathematics

| Mathematics   |  | K.GM.C.8   |
|---|--|--|
| <b>GM</b>   | <b>Geometry and Measurement</b>  |  |
| <b>C</b>  | <b>Analyze squares, circles, triangles, rectangles, hexagons, cubes, cones, cylinders and spheres.</b> |  |
| <b>8</b>  | Identify and describe the attribute of shapes, and use the attributes to sort a collection of shapes.  |  |
| <b><u>Expectation Unwrapped</u></b>   |  | <b><u>DOK Ceiling</u></b><br>2   |
| The student will identify the measurable attributes of squares, circles, triangles, rectangles and hexagons.  |  | <b><u>Item Format</u></b><br>Selected Response<br>Constructed Response<br>Technology Enhanced    |
| The student will describe the measurable attributes of squares, circles, triangles, rectangles and hexagons.  |  |  |
| The student will sort a collection of two-dimensional shapes based on measurable attributes.  |  |  |
| <b><u>Content Limits/Assessment Boundaries</u></b>  |  | <b><u>Sample Stems</u></b>   |
| The term “figure” will be used for both two- and three-dimensional. The term “shape” will be used only for two dimensional, and the term “object” will be used only for three-dimensional.<br>In the expectation above, the use of manipulatives is vital to understanding. |  | <b><u>Calculator Designation</u></b><br><b>NO</b> – a calculator will not be available for items |

# Grade Kindergarten Mathematics

| Mathematics   |  | K.GM.C.9   |
|---|--|--|
| <b>GM</b>   | <b>Geometry and Measurement</b>  |  |
| <b>C</b>  | <b>Analyze squares, circles, triangles, rectangles, hexagons, cubes, cones, cylinders and spheres.</b> |  |
| <b>9</b>  | Draw or model simple two-dimensional shapes.   |  |
| <p style="text-align: center;"><b><u>Expectation Unwrapped</u></b></p> <p>The student will draw two-dimensional shapes.</p> <p>The student will model two-dimensional shapes.</p>   |  | <p style="text-align: center;"><b><u>DOK Ceiling</u></b><br/>3</p> <p style="text-align: center;"><b><u>Item Format</u></b><br/>Selected Response<br/>Constructed Response<br/>Technology Enhanced</p> <p style="text-align: center;"><b><u>Sample Stems</u></b><br/>The students draws (sketches) a rectangle from a verbal prompt.</p> <p>The student cuts out various triangles from blank paper.</p> |
| <p style="text-align: center;"><b><u>Content Limits/Assessment Boundaries</u></b></p> <p>The term “figure” will be used for both two- and three-dimensional. The term “shape” will be used only for two dimensional, and the term “object” will be used only for three-dimensional.<br/>Limited to squares, circles, triangles, rectangles and hexagons<br/>In the expectation above, the use of manipulatives is vital to understanding.</p> |  | <p style="text-align: center;"><b><u>Calculator Designation</u></b></p> <p><b>NO</b> – a calculator will not be available for items</p>  |

# Grade Kindergarten Mathematics

| Mathematics  |  | K.GM.C.10  |
|--|--|--|
| <b>GM</b>  | <b>Geometry and Measurement</b>  |  |
| <b>C</b>   | <b>Analyze squares, circles, triangles, rectangles, hexagons, cubes, cones, cylinders and spheres.</b> |  |
| <b>10</b>  | Compose simple shapes to form larger shapes using manipulatives.                                       |  |
| <p style="text-align: center;"><b><u>Expectation Unwrapped</u></b></p> <p>The student will draw or model the composition of two-dimensional shapes.</p> <p>The student will use two-dimensional shapes to form composite two-dimensional shapes.</p>   |  | <p style="text-align: center;"><b><u>DOK Ceiling</u></b><br/>3</p> <p style="text-align: center;"><b><u>Item Format</u></b><br/>Selected Response<br/>Constructed Response<br/>Technology Enhanced</p> <p style="text-align: center;"><b><u>Sample Stems</u></b><br/>The student uses pattern blocks to make new figures.<br/><br/>The student uses modeling clay to create designs from rectangles and triangles.</p> |
| <p style="text-align: center;"><b><u>Content Limits/Assessment Boundaries</u></b></p> <p>The rhombus may be composed or used to compose larger shapes; however, the identification of this shape is not inclusive of this expectation.<br/>A diamond is not considered a shape.<br/>Two-dimensional shapes (triangles, squares, circles, rhombus, rectangles and hexagons)<br/>In the expectation above, the use of manipulatives is vital to understanding.</p> |  | <p style="text-align: center;"><b><u>Calculator Designation</u></b></p> <p><b>NO</b> – a calculator will not be available for items</p>  |

# Grade Kindergarten Mathematics

| Mathematics  |   | K.DS.A.1  |
|--|---|---|
| <b>DS<br/>A<br/>1</b>  | <p><b>Data and Statistics</b></p> <p><b>Classify objects and count the number of objects in each category.</b></p> <p>Classify objects into given categories; count the number of objects in each category.</p> |   |
| <b><u>Expectation Unwrapped</u></b>  |   | <b><u>DOK Ceiling</u></b><br>3  |
| <p>The student will sort objects into given categories and verbally justify the classification.</p> <p>The student will sort objects into student generated categories and verbally justify the classification.</p> <p>The student will count the number of objects in each given category.</p> <p>The student will count the number of objects in a student generated category.</p> |   | <b><u>Item Format</u></b><br>Selected Response<br>Constructed Response<br>Technology Enhanced |
| <b><u>Content Limits/Assessment Boundaries</u></b>   |   | <b><u>Calculator Designation</u></b>  |
| <p>Categories will be limited to two or three with the total count of objects less or equal to ten<br/>In the expectation above, the use of manipulatives is vital to understanding.</p>   |   | <b>NO</b> – a calculator will not be available for items                                      |

# Grade Kindergarten Mathematics

| Mathematics   |   | K.DS.A.2   |
|---|---|--|
| <b>DS</b>   | <b>Data and Statistics</b>  |  |
| <b>A</b>  | <b>Classify objects and count the number of objects in each category.</b> |  |
| <b>2</b>  | Compare category counts using appropriate language.                       |  |
| <b><u>Expectation Unwrapped</u></b>   |   | <b><u>DOK Ceiling</u></b>  |
| The student will compare the quantity of objects in multiple categories.  |   | 3  |
| The student will compare category counts based on a graphical representation.   |   | <b><u>Item Format</u></b>  |
|   |   | Selected Response<br>Constructed Response<br>Technology Enhanced |
|   |   | <b><u>Sample Stems</u></b>                                       |
|   |   |  |
| <b><u>Content Limits/Assessment Boundaries</u></b>  |   | <b><u>Calculator Designation</u></b>                             |
| Categories will be limited to two or three with the total count of objects less or equal to ten<br>Items may be presented as manipulatives (object graphs) or graphical representations (pictographs – discrete pictures).<br>In the expectation above, the use of manipulatives is vital to understanding. |   | <b>NO</b> – a calculator will not be available for items         |