**Subject**

**Elementary- Kindergarten Mathematics**

**Curriculum Guide**

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**LINDEN PUBLIC SCHOOLS**

**LINDEN, NEW JERSEY**

**Dr. Marnie Hazelton**

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**The Linden Board of Education adopted the Curriculum Guide on:**

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| **July 28, 2022** |  | **Education Report #22** |
| **Date** |  | **Agenda Item** |
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| **Rationale** | | |

**EDUCATION EQUITY:** The Linden Public School District guarantees each student equal educational opportunity regardless of age, race, color, creed, religion, gender, language, affectional or sexual orientation, ancestry, national origin, marital or economic status. For Information, contact District Educational Equity Officer Kevin Thurston at **(**908) 486-2800 x 8307**.**

**NONDISCRIMATION:** The Linden Public School District does not discriminate against handicapped persons in admission or access to or treatment or employment in its programs, activities, and vocational opportunities. For information contact District Public 504 Officer Annabell Louis at (908) 486-2800 x 8025.

**Linden Public Schools Vision**

The Linden Public School District is committed to developing respect for diversity, excellence in education, and a commitment to service, in order to promote global citizenship and ensure personal success for all students

**Linden Public Schools Mission**

The mission of the Linden Public School District is to promote distinction through the infinite resource that is Linden’s diversity, combined with our profound commitment to instructional excellence, so that each and every student achieves their maximum potential in an engaging, inspiring, and challenging learning environment.

**Math Department Vision**

To equip students with the understanding and application of mathematical skills and processes to foster a drive for advanced mathematics and higher-level thinking.

**Math Department Mission Statement**

To develop a community of learners who construct and communicate meaning from the mathematical world around them. Students will experience mathematics that encourage them to think critically, discover and apply concepts to solve problems strategically. Students will be encouraged to solve equations with accuracy, efficiency, and flexibility. Furthermore, students will have a multitude of opportunities to apply mathematical tools and practice standards to solve real-world and multi-step problems.

**Math Department Goals**

* Provide opportunities for student to develop computation skills, conceptual understanding, and problem-solving skills
* Require students to explain, justify or prove their thinking through mathematical reasoning, modeling, and speaking

Course Description

The Kindergarten mathematics program emphasizes the application of mathematics to real world situations. Numbers, skills, and mathematical concepts are not presented in isolation, but are linked to situations and contexts that are relevant to everyday lives. The curriculum also provides numerous suggestions for incorporating mathematics into daily classroom routines and other subject areas. Children are assessed in an ongoing manner inclusive of product assessment and more formal periodic assessment of concepts accomplished individually and in small-group settings. The goal is for children to leave kindergarten secure in the following areas: appropriate counting skills, comparison of numbers, basic foundation for addition and subtraction, number sense, measurement, and shapes.

Course Instructional Materials

* + - Into Math Book
    - [**hmhco.com/ed**](http://hmhco.com/ed)
    - District Rubric for Constructed Response
    - Rubric for Mathematical Problem Solving/Critical Thinking based on the Mathematical Practices
    - Into Math Games, Learning Centers, and Literature

Standards and NJDOE Mandates Guiding Instruction

* 1. New Jersey Student Learning Standards

<https://www.state.nj.us/education/cccs/>

* 1. Power Standards from NJSLS
     + K.CC.A Know number names and the count sequence.
     + K.CC.B Count to tell the number of objects.
     + K.CC.C Compare numbers.
     + K.OA.A Understand addition as putting together and adding to, and understand subtraction as taking apart and taking from.
     + K.NBT.A Work with numbers 11-19 to gain foundations for place value.

General Interdisciplinary Connections / Materials

* Language Arts: Literature relevant to the topics covered in each unit.
* Fine and Performing Arts: Utilize instructional videos relevant to the topics covered in each unit.
* Science & Technology: Scientific or Technological advances made during or relevant to the topics covered in each unit. Discover repeated patterns to make predictions and solve problems. Use evidence to support findings and solutions to problems. Use language to describe relationships and change in relationships in a rational way.

Diversity, Equity, and Inclusion

* Use students’ interests in conceptualized tasks
* Expose students to a diverse group of mathematicians
* Design assessments and assignments with a variety of response types
* Use systematic grading and participation methods
* Encourage students to embrace a growth mindset

Pacing Guide

Linden Public Schools

Into Math Pacing Guide

Kindergarten

2022-2023

Routine Building and Center Development – September 2022

**Unit 1 Count Sequence and Numbers to 5**

Module 1 – Represent Numbers to 5 with Objects - September 12th - September 20th

Module 2 – Represent Numbers to 5 with a Written Numeral - September 21st – September 30th

**Edmentum BOY Testing September 19th – September 30th**

Module 3 – Matching and Counting Numbers to 5 - October 3rd – October 13th

Module 4 – Classify, Count, and Sort Objects – October 14th – October 21st

Module 5 – Add To and Take From Within 5 – October 24th – November 15th

Module 6 – Put Together and Take Apart Within 5 – November 16th – December 6th

**Unit 2 Count Sequence and Numbers to 10**

Module 7 – Represent Numbers 6 to 10 with Objects – December 7th – December 13th

Module 8 – Represent Numbers 6 to 10 with a Written Numeral – December 14th – December 22nd

Module 9 – Use the Count Sequence to Count to 100 – January 2nd – January 13th

Module 10 – Compare Numbers to 10 – January 17th – January 27th

**Edmentum MOY Assessment January 23rd to February 3rd**

Module 11 – Add To and Take From Within 10 – January 30th – February 15th

Module 12 – Put Together and Take Apart Within 10 – February 16th – March 3rd

Module 13 – Ways to Make Numbers to 10 – March 6th – March 14th

**Unit 3 Geometry**

Module 14 – Analyze and Compare Three-Dimensional Shapes – March 15th – March 24th

Module 15 – Describe Positions of Objects – March 27th – March 31st

Module 16 – Analyze and Compare Two-Dimensional Shapes – April 3rd – April 21st

**Unit 4 Number and Operations in Base Ten**

Module 17 – Place Value Foundations: Represent Numbers to 20 – April 24th – May 2nd

Module 18 – Place Value Foundations: Represent Numbers to 20 with a Written Numeral – May 3rd – May 12th

**Unit 5 Measurement**

Module 19 – Length and Height – May 15th – May 19th

Module 20 – Weight – May 22nd – May 26th

**Edmentum EOY Assessment May 22nd to June 2nd**

Getting Ready for Grade 1 Lessons – To be determined

\***Assessment days are built into each chapter**.

Beginning, Middle, and End-of-the-Year Assessments built into assessment calendar

Vertical Integration – Program Mapping

**Pre-Kindergarten:**

* + - Students can count in order with minimal prompting to 20.
    - Students recognize and name numbers up to 10 with minimal prompting.

**1st Grade**:

* + - Students count to ones to 120.
    - Students read and write numbers from 100 to 120.
    - Students read tally charts.

Accommodations, Modifications, and Teacher Strategies

(specific recommendations are made in each unit)

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| **Instructional Strategies**   * Teacher Presentation * Student Presentation * Class Discussion * Socratic Discussion * Reading for Meaning * Inquiry Design Model * Interactive Lecture * Interactive Notetaking * Compare and Contrast * Research Based * Problem Based * Project Based   **504 Plans**  Students can qualify for 504 plans if they have physical or mental impairments that affect or limit any of their abilities to:   * walk, breathe, eat, or sleep * communicate, see, hear, or speak * read, concentrate, think, or learn * stand, bend, lift, or work   Examples of accommodations in 504 plans include:   * preferential seating * extended time on tests and assignments * reduced homework or classwork * verbal, visual, or technology aids * modified textbooks or audio-video materials * behavior management support * adjusted class schedules or grading * verbal testing * excused lateness, absence, or missed classwork * pre-approved nurse's office visits and accompaniment to visits occupational or physical therapy | **Gifted and Talent Accommodations and Modifications**   * Allow for further independent research on topics of interest related to the unit of study * Advanced leveled readers and sources * Increase the level of complexity * Decrease scaffolding * Variety of finished products * Allow for greater independence * Learning stations, interest groups * Varied texts and supplementary materials * Use of technology * Flexibility in assignments * Varied questioning strategies * Encourage research * Strategy and flexible groups based on formative assessment or student choice * Acceleration within a unit of study * Exposure to more advanced or complex concepts, abstractions, and materials * Encourage students to move through content areas at their own pace * After mastery of a unit, provide students with more advanced learning activities, not more of the same activity * Present information using a thematic, broad-based, and integrative content, rather than just single-subject areas | **Special Education and At-Risk Accommodations and Modifications**   * Focus on concept not details * More visual prompts * Leveled readers and teacher annotated sources * Timelines and graphic organizers * Remove unnecessary material, words, etc., that can distract from the content * Use of off-grade level materials * Provide appropriate scaffolding * Limit the number of steps required for completion * Time allowed * Level of independence required * Tiered centers, assignments, lessons, or products * Provide appropriate leveled reading materials * Deliver the content in “chunks” * Varied texts and supplementary materials * Use technology, if available and appropriate * Varied homework and products * Varied questioning strategies * Provide background knowledge * Define key vocabulary, multiple-meaning words, and figurative language. * Use audio and visual supports, if available and appropriate * Provide multiple learning opportunities to reinforce key concepts and vocabulary * Meet with small groups to reteach idea/skill * Provide cross-content application of concepts * Ability to work at their own pace * Present ideas using auditory, visual, kinesthetic, & tactile means * Provide graphic organizers and/or highlighted materials * Strategy and flexible groups based on formative assessment * Differentiated checklists and rubrics, if available and appropriate | **English Language Learners Accommodations and Modifications**   * Focus on concept not details * More visual prompts * Leveled readers and teacher annotated sources * Guided notes with highlighted words and concepts * Use of Merriam-Webster’s ELL dictionary * Timelines and graphic organizers * Remove unnecessary material, words, etc., that can distract from the content * Use of off-grade level materials * Provide appropriate scaffolding * Limit the number of steps required for completion * Time allowed * Level of independence required * Tiered centers, assignments, lessons, or products * Provide appropriate leveled reading materials * Deliver the content in “chunks” * Varied texts and supplementary materials * Use technology, if available and appropriate * Varied homework and products * Varied questioning strategies * Provide background knowledge * Define key vocabulary, multiple-meaning words, and figurative language. * Use audio and visual supports, if available and appropriate * Provide multiple learning opportunities to reinforce key concepts and vocabulary * Meet with small groups to reteach idea/skill * Provide cross-content application of concepts * Ability to work at their own pace * Present ideas using auditory, visual, kinesthetic, & tactile means * Provide graphic organizers and/or highlighted materials * Strategy and flexible groups based on formative assessment * Differentiated checklists and rubrics, if available and appropriate |

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| **Unit: Counting and Cardinality** |
| **Overview:**   * Know number names and the count sequence. * Count to tell the number of objects. * Compare numbers. * Time Period: **First Trimester** Length: **12 weeks** |

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| **STAGE 1 – Desired Results** |

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| **Mathematical Practices**  1. Make sense of problems and persevere in solving them.  2. Reason abstractly and quantitatively.  3. Construct viable arguments and critique the reasoning of others.  4. Model with mathematics.  5. Use appropriate tools strategically.  6. Attend to precision.  7. Look for and make use of structure.  8. Look for and express regularity in repeated reasoning  Career Ready Practices  CRP4.  Communicate clearly and effectively and with reason.  CRP6. Demonstrate creativity and innovation.  CRP8.  Utilize critical thinking to make sense of problems and persevere in solving them.   |  | | --- | | **New Jersey Learning Standards - Mathematics** | |  |  |  | | --- | | **Introduction - Kindergarten** | | |  |  | | --- | --- | | MATH.K | In Kindergarten, instructional time should focus on two critical areas: (1) representing, relating, and operating on whole numbers, initially with sets of objects; (2) describing shapes and space. More learning time in Kindergarten should be devoted to number than to other topics. | |   **Counting and Cardinality**   |  |  | | --- | --- | | K.CC.A.1 | Count to 100 by ones and by tens. | | K.CC.A.2 | Count forward beginning from a given number within the known sequence (instead of having to begin at 1). | | K.CC.A.3 | Write numbers from 0 to 20. Represent a number of objects with a written numeral 0-20 (with 0 representing a count of no objects). | | K.CC.B | Count to tell the number of objects. | | K.CC.B.4 | Understand the relationship between numbers and quantities; connect counting to cardinality. | | K.CC.B.4a | When counting objects, say the number names in the standard order, pairing each object with one and only one number name and each number name with one and only one object. | | K.CC.B.4b | Understand that the last number name said tells the number of objects counted. The number of objects is the same regardless of their arrangement or the order in which they were counted. | | K.CC.B.4c | Understand that each successive number name refers to a quantity that is one larger. | | K.CC.B.5 | Count to answer “how many?” questions about as many as 20 things arranged in a line, a rectangular array, or a circle, or as many as 10 things in a scattered configuration; given a number from 1–20, count out that many objects. | | K.CC.C | Compare numbers. | | K.CC.C.6 | Identify whether the number of objects in one group is greater than, less than, or equal to the number of objects in another group, e.g., by using matching and counting strategies. | | K.CC | Counting and Cardinality | | K.CC.C.7 | Compare two numbers between 1 and 10 presented as written numerals. | | K.CC.A | Know number names and the count sequence. |   **Cluster A: Know number names and the count sequence**  **Essential Questions…**   * Why do we need to count? * How do we count? * How can you count and write 1 and 2 with words and numbers? * How can you count and write 3 and 4 with words and numbers? * How can you count and write up to 5 with words and numbers? * How can you solve problems using the strategy *make a model*? * How can you identify and write 0 with words and numbers? * How can you count and write up to 6 with words and numbers? * How can you count and write up to 7 with words and numbers? * How can you count and write up to 8 with words and numbers? * How can you count and write up to 9 with words and numbers? * How can you count and write up to 10 with words and numbers? * How can you use a drawing to make 10 from a given number? * How can you count forward to 10 from a given number? * How can you count and write up to 20 with words and numbers? * How can you count forward to 20 from a given number?   **Enduring Understanding…**   * counting involves one-to-one correspondence * one can count by different amounts (ones, tens, etc.) * numbers have names and we can use them to count   **Students will know...**  I. Key Vocabulary/Terms: zero, one, two, three, four, five, fewer, more, six, seven, eight nine, ten, eleven, twelve, thirteen, fourteen, fifteen, sixteen, seventeen, eighteen, nineteen, twenty, and pairs  II. Key Concepts/Ideas: By the end of the year,   * how to count * how to write the numerals 0 – 9 * count a number of objects   III. Possible Misunderstandings:   * Students may confuse numbers when objects are arranged other than in a row. * Students may count the objects removed rather than the ones left. * Students may miscount objects in sets. * Students may circle every group of objects. * Students may miscount. * Students may count the dots in the ten frames incorrectly. * Students may not write the zero in the number 20. * Students may have trouble counting forward from a given number.   **Students will be able to...**   * count to 100 by ones * count to 100 by tens * count forward beginning from a given number within the known sequence   **Cluster B: Count to tell the number of objects**  **Essential Questions…**   * Why do we count? * How can you show and count 1 and 2 with objects? * How can you show and count 3 and 4 with objects? * How can you show and count up to 5 objects? * How can you use two sets of objects to show 5 in more than one way? * How do you know that the order of numbers is the same as a set of objects that is one larger? * How can you show and count 6 objects? * How can you show and count 7 objects? * How can you show and count 8 objects? * How can you show and count 9 objects? * How can you show and count 20 objects?   **Enduring Understanding…**   * There is a relationship between the numbers and quantities. * When counting, each object has one and only one number name and each number name is paired with one and only one object (one-to-one correspondence). * When counting, the last number name said tells the number of objects counted. * The number of objects is the same regardless of the order in which they were counted. * Each successive number name refers to a quantity that is one larger. * Everything can be counted. Number names tell us how many objects are in groups and allow us to count in order and compare groups of objects.   **Students will know...**  I. Key Vocabulary/Terms: number, zero, one, two…, match, larger,and count on  II. Key Concepts/Ideas: By the end of the year,   * The connection between counting and cardinality * One-to-one correspondence   III. Possible Misunderstandings:   * Students may not grasp the relationship between the number word and number of objects. * Students count in succession, but may not assign number names to objects. * Students may write numerals that do not correspond with the objects. * Students may not use the ten frame properly. * Students may miscount. * Students may not recognize that 2 filled ten frames are 20.   **Students will be able to...**   * Count objects while saying the number names in the standard order. * State the total number of objects in a group. * Count as many as 20 things arranged in a line, a rectangular array, or a circle, when asked “how many...?” * Count as many as 10 things in a scattered configuration, when asked “how many...?” * Count out the correct number of objects when given a number from 1-20.   **Cluster C: Compare Numbers**  **Essential Questions…**   * How can we compare two numbers? * How can you use matching and counting to compare sets with the same number of objects? * How can you compare sets when the number of objects in one set is greater than the number of objects in the other set? * How can you compare sets when the number of objects in one set is less than the number of objects in the other set? * How can you make a model to solve problems using a matching strategy? * How can you use a counting strategy to compare sets of objects? * How can you solve problems using the strategy *draw a picture*? * How can you solve problems using the strategy *make a model*? * How can you use counting strategies to compare sets of objects? * How can you compare two numbers between 1 and 10? * How can you solve problems using the strategy *make a model*? * How does the order of numbers help you count to 50 by ones? * How does the order of numbers help you count to 100 by ones? * How can you count to 100 by tens on a hundred chart? * How can you use sets of tens to count to 100?   **Enduring Understanding…**   * “Greater than” means the amount is more; “less than” means the amount is less. * A numeral stands for the number of concrete objects. * Sets of objects can be grouped and counted so that we can compare them in terms of greater than, less than, or equal to. Number names help us identify the amount of objects in a set or group.   **Students will know...**  I. Key Vocabulary/Terms: same number, compare, match, greater, more, less, and fewer  II. Key Concepts/Ideas: By the end of the year,   * Matching strategies to identify the number of objects in a group of up to 10 objects. * Counting strategies to identify the number of objects in a group of up to 10 objects.   III. Possible Misunderstandings:   * Students may not correctly match the objects in the two sets. * Students may choose a number that is greater rather than a number that is less. * Students may not grasp the concept of “greater than”. * Students may not accurately count pictures of objects. * Students may not know how to draw a number of objects that is greater than another number of objects. * Students may count the number of objects in a set incorrectly. * Students may have difficulty making number comparisons. * Students may not be able to identify the greater number.   **Students will be able to...**   * Identify whether the number of objects in one group is greater than, less than, or equal to the number of objects in another group. * Compare two numbers between 1 and 10 presented as written numerals. |

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| **Unit: Operation and Algebraic Thinking** |
| **Overview:**   * Understand addition as putting together and adding to, and understand subtraction as taking apart and taking from.   Time Period: **Second Trimester** Length: **12 weeks** |

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| **STAGE 1 – Desired Results** |

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| **Mathematical Practices**  1. Make sense of problems and persevere in solving them.  2. Reason abstractly and quantitatively.  3. Construct viable arguments and critique the reasoning of others.  4. Model with mathematics.  5. Use appropriate tools strategically.  6. Attend to precision.  7. Look for and make use of structure.  8. Look for and express regularity in repeated reasoning  Career Ready Practices  CRP4.  Communicate clearly and effectively and with reason.  CRP6. Demonstrate creativity and innovation.  CRP8.  Utilize critical thinking to make sense of problems and persevere in solving them.       |  | | --- | | **New Jersey Learning Standards - Mathematics** | |  |  |  | | --- | | **Introduction - Kindergarten** | | MATH.K In Kindergarten, instructional time should focus on two critical areas: (1)  representing, relating, and operating on whole numbers, initially with  sets of objects; (2) describing shapes and space. More learning time in  Kindergarten should be devoted to number than to other topics. | |  |   **Operation and Algebraic Thinking**   |  |  | | --- | --- | | K.OA.A.4 | For any number from 1 to 9, find the number that makes 10 when added to the given number, e.g., by using objects or drawings, and record the answer with a drawing or equation. | | K.OA.A | Understand addition as putting together and adding to, and understand subtraction as taking apart and taking from. | | K.OA.A.5 | Demonstrate fluency for addition and subtraction within 5. |   **Cluster A: Understand putting together and adding to/ taking apart and taking from.**  **Essential Questions…**   * What is a number? * When and why do we use numbers? * How can specific numbers be composed and decomposed? * How can I use objects to add? * How can I use objects to subtract? * How can you show addition as adding to? * How can you show addition as putting together? * How can you solve problems using the strategy *act it out*? * How can you use objects and drawings to solve addition word problems? * How can you use a drawing to find the number that makes a ten from a given number? * How can you solve addition word problems and complete the addition sentence? * How can you model and write addition sentences for number pairs for sums to 5? * How can you model and write addition sentences for number pairs for each sum of 6 and 7? * How can you model and write addition sentences for number pairs for sums of 8? * How can you model and write addition sentences for number pairs for sums of 9? * How can you model and write addition sentences for number pairs for sums of 10? * How can you show subtraction as taking from? * How can you show subtraction as taking apart? * How can you solve problems using the strategy *act it out*? * How can you use objects and drawings to solve subtraction word problems? * How can you solve subtraction word problems and complete the equation? * How can you solve word problems using addition and subtraction?   **Enduring Understanding…**   * Children will understand what a number is * Children will understand that numbers can be composed and decomposed into other numbers * Children will develop fluency in mathematics skills * Children will identify and extend a pattern * Addition and subtraction involve combining or separating amounts * Numbers can be taken apart and recombined in a variety of ways to find sums and differences * The place value of teen numbers is made up of one group of ten and ones   **Students will know...**  I. Key Vocabulary/Terms: join, putting together, add, adding to, plus,subtract, minus,taking apart, taking from, less than, more than, total, is equal to,and count on  II. Key Concepts/Ideas: By the end of the year,   * What a number line is and how it works * Numbers can be composed and decomposed * Sorting can be based on various attributes * Parts can go together to make a whole   III. Possible Misunderstandings:   * Students may put the sum in the place of the missing addend. * Students may not understand that different number pairs can be used for the same sum. * Students may use numbers that do not add to 10 in an addition sentence. * Students may not yet understand the difference between the *plus* symbol and the *minus* symbol. * Students may add instead of subtract in a subtraction sentence. * Students may not know how to find the number being taken from the set and the difference. * Students may start with the wrong numbers when writing a subtraction sentence.   **Students will be able to...**   * Decompose numbers to 10 * Use a number line to identify number sequence * Use mental visualization as a tool * Join two groups of objects to make a number * Make a new group * Separate a part of a group from a larger group * Use symbols (-) and (=) * Demonstrate multiple ways to take numbers from 10 |

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| **Unit: Geometry** |
| **Overview:**  • Identify and describe shapes. • Analyze, compare, create, and compose shapes.  Time Period: **Third Trimester** Length: **5 weeks** |

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| **STAGE 1 – Desired Results** |

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| **Mathematical Practices**  1. Make sense of problems and persevere in solving them.  2. Reason abstractly and quantitatively.  3. Construct viable arguments and critique the reasoning of others.  4. Model with mathematics.  5. Use appropriate tools strategically.  6. Attend to precision.  7. Look for and make use of structure.  8. Look for and express regularity in repeated reasoning  Career Ready Practices  CRP4.  Communicate clearly and effectively and with reason.  CRP6. Demonstrate creativity and innovation.  CRP8.  Utilize critical thinking to make sense of problems and persevere in solving them.       |  | | --- | | **New Jersey Learning Standards - Mathematics** | | MATH.K.2 Students describe their physical world using geometric ideas (e.g., shape,  orientation, spatial relations) and vocabulary. They identify, name, and  describe basic two-dimensional shapes, such as squares, triangles, circles,  rectangles, and hexagons, presented in a variety of ways (e.g., with  different sizes and orientations), as well as three-dimensional shapes  such as cubes, cones, cylinders, and spheres. They use basic shapes  and spatial reasoning to model objects in their environment and to  construct more complex shapes. | |  |  |  | | --- | | **Introduction - Kindergarten** | |  | |  |   **Geometry**   |  |  | | --- | --- | | K.G | Geometry | | K.G.A | Identify and describe shapes (squares, circles, triangles, rectangles, hexagons, cubes, cones, cylinders, and spheres). | | K.G.A.1 | Describe objects in the environment using names of shapes, and describe the relative positions of these objects using terms such as above, below, beside, in front of, behind, and next to. | | K.G.B.4 | Analyze and compare two- and three-dimensional shapes, in different sizes and orientations, using informal language to describe their similarities, differences, parts (e.g., number of sides and vertices/“corners”) and other attributes (e.g., having sides of equal length). | | K.G.A.2 | Correctly name shapes regardless of their orientations or overall size. | | K.G.A.3 | Identify shapes as two-dimensional (lying in a plane, “flat”) or three-dimensional (“solid”). | | K.G.B | Analyze, compare, create, and compose shapes. | | K.G.B.5 | Model shapes in the world by building shapes from components (e.g., sticks and clay balls) and drawing shapes. | | K.G.B.6 | Compose simple shapes to form larger shapes. |   **Cluster A: Identify and describe shapes**  **Essential Questions…**   * What is a shape? * What are different ways to sort objects? * What are the different shapes in our world? * What is a pattern? * How can you identify and name circles? * How can you identify and name squares? * How can you identify and name triangles? * How can you identify and name rectangles? * How can you identify and name hexagons? * How can you identify, name, and describe spheres? * How can you identify, name, and describe cubes? * How can you identify, name, and describe cylinders? * How can you identify, name, and describe cones? * How can you solve problems using the strategy *use logical reasoning*? * How can you use the terms *above* and *below* to describe shapes in the environment? * How can you use the terms *besides* and *next to* to describe shapes in the environment? * How can you use the terms *in front of* and *behind* to describe shapes in the environment?   **Enduring Understanding…**   * Children will understand that objects can be sorted * All objects have a shape with a specific name. * Children will identify some shapes   **Students will know...**  I. Key Vocabulary/Terms: circle, two-dimensional shapes, corners, sides, square, vertex, vertices, triangle, rectangle, sides of equal length, sphere, three-dimensional shapes, curved surface, cube, cylinder, cone, flat, solid, above, below, beside, next to, in front of, behind, and hexagon  II. Key Concepts/Ideas: By the end of the year,   * Sorting can be based on various attributes * Using positional terms, students will be able to identify two and three-dimensional geometric shapes and their location. * Each shape has its own attributes   III. Possible Misunderstandings:   * Students may have difficulty identifying circles. * Students may have difficulty distinguishing squares from other rectangles. * Students may have difficulty identifying triangles. * Students may not recognize squares as rectangles. * Students may not be able to keep track of the number of sides as they count. * Students may confuse circles and spheres. * Students may miscount the number of flat surfaces that a cube has. * Students may not be able to describe a cylinder. * Students may not be able to describe a cone. * Students may confuse flat shapes with solid shapes. * Students may incorrectly identify an object as being above or below. * Students may confuse *in front of* and *behind*.   **Students will be able to...**   * Identify some shapes * Sort objects   **Cluster B: Analyze, compare, create, and compose shapes**  **Essential Questions…**   * What is a shape? * How are shapes the same and different? * What are different ways to sort objects? * How can you describe circles? * How can you describe squares? * How can you describe triangles? * How can you describe rectangles? * How can you describe hexagons? * How can you use the words *alike* and *different* to compare two-dimensional shapes? * How can you solve problems using the strategy *draw a picture*? * How can you show which shapes stack, roll, or slide? * How can you model shapes in the real world?   **Enduring Understanding…**   * Children will understand that objects can be sorted * Objects can be similar to others in one way and different in other ways * Children will identify some shapes   **Students will know...**  I. Key Vocabulary/Terms: curve, sides of equal length, corners, sides, square, vertex, vertices, triangle, rectangle, flat surface, curved surface, roll, stack, and slide  II. Key Concepts/Ideas: By the end of the year,   * Sorting can be based on various attributes * Parts can go together to make a whole * Identify three-dimensional shapes * Each shape has its own attributes   III. Possible Misunderstandings:   * Students may not recognize everyday objects that are shaped like circles. * Students may not be able to identify the vertices. * Students may not be able to tell the difference between sides and vertices. * Students may have difficulty deciding what shapes are *alike*. * Students may not understand how to use smaller shapes to make a bigger shape. * Students may have difficulty identifying that a cylinder can stack. * Students may not identify two-dimensional shapes as flat shapes.   **Students will be able to...**   * Use mental visualization as a tool * Identify some shapes * Sort objects * Respond to and use positional words  |  | | --- | | **Unit: Number and Operations in Base Ten** | | **Overview:**  • Work with numbers 11–19 to gain foundations for place value.  Time Period: **Third Trimester** Length: **3 weeks** |  |  | | --- | | **STAGE 1 – Desired Results** |  |  |  |  |  |  |  |  |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | | **Mathematical Practices**  1. Make sense of problems and persevere in solving them.  2. Reason abstractly and quantitatively.  3. Construct viable arguments and critique the reasoning of others.  4. Model with mathematics.  5. Use appropriate tools strategically.  6. Attend to precision.  7. Look for and make use of structure.  8. Look for and express regularity in repeated reasoning  Career Ready Practices  CRP4.  Communicate clearly and effectively and with reason.  CRP6. Demonstrate creativity and innovation.  CRP8.  Utilize critical thinking to make sense of problems and persevere in solving them.       |  | | --- | | **New Jersey Learning Standards - Mathematics** | |  |  |  | | --- | | **Introduction - Kindergarten** | | |  |  | | --- | --- | | MATH.K.1 | Students use numbers, including written numerals, to represent quantities and to solve quantitative problems, such as counting objects in a set; counting out a given number of objects; comparing sets or numerals; and modeling simple joining and separating situations with sets of objects, or eventually with equations such as 5 + 2 = 7 and 7 – 2 = 5. (Kindergarten students should see addition and subtraction equations, and student writing of equations in kindergarten is encouraged, but it is not required.) Students choose, combine, and apply effective strategies for answering quantitative questions, including quickly recognizing the cardinalities of small sets of objects, counting and producing sets of given sizes, counting the number of objects in combined sets, or counting the number of objects that remain in a set after some are taken away. | |   **Number and Operations in Base Ten**   |  |  | | --- | --- | | K.NBT | Number and Operations in Base Ten | | K.NBT.A | Work with numbers 11–19 to gain foundations for place value. | | K.NBT.A.1 | Compose and decompose numbers from 11 to 19 into ten ones and some further ones, e.g., by using objects or drawings, and record each composition or decomposition by a drawing or equation (e.g., 18 = 10 + 8); understand that these numbers are composed of ten ones and one, two, three, four, five, six, seven, eight, or nine ones. |   **Cluster A: Work with numbers 11 -19 to gain foundations for place value**  **Essential Questions…**   * How can we represent sets of 10? * What does the place of an individual numeral in a 2 or 3 place number represent? * How can specific numbers be composed and decomposed? * Why do we break numbers apart into tens and ones? * How can you use objects to show 15 as ten ones and some more ones and show 15 as a number? * How can you use objects to show 11 and 12 as ten ones and some more ones? * How can you count and write 11 and 12 with words and numbers? * How can you use objects to show 13 and 14 as ten ones and some more ones? * How can you count and write 13 and 14 with words and numbers? * How can you use objects to show 15 as ten ones and some more ones and show 15 as a number? * How can you use objects to show 16 and 17 as ten ones and some more ones? * How can you count and write 16 and 17 with words and numbers? * How can you use objects to show 18 and 19 as ten ones and some more ones? * How can you count and write 18 and 19 with words and numbers?   **Enduring Understanding…**   * Children will understand place value * Children will understand that numbers can be composed and decomposed into other numbers * Children will develop fluency in mathematics skills * You can break numbers apart by groups of tens and ones to help us understand larger numbers. * Knowing the value of numbers in each place will help us add and subtract.   **Students will know...**  I. Key Vocabulary/Terms: eleven, twelve,…, join, putting together, add, and total  II. Key Concepts/Ideas: By the end of the year,   * The placement of a digit in a 2 or 3- digit numeral indicates its value * Numbers can be composed and decomposed * Number can be represented in various ways   III. Possible Misunderstandings:   * Students may draw more than one counter in a space in the ten frame. * Students may not recognize a set of ten. * Students may not recognize a two-digit number as a whole, but refer to both digits. * Students may miscount. * Students may write the total as one of the addends. * Students may reverse the order of the digits.   **Students will be able to...**   * Compose and decompose numbers from 11 to 19. * Use objects or drawings to represent the composition of numbers. * Recognize a group or picture of 10 objects as a group (unit) of 10. | |

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| **Unit: Measurement and Data** |
| **Overview:**  • Describe and compare measurable attributes. • Classify objects and count the number of objects in categories.  Time Period: **Third Trimester** Length: **4 weeks** |

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| **STAGE 1 – Desired Results** |

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| **Mathematical Practices**  1. Make sense of problems and persevere in solving them.  2. Reason abstractly and quantitatively.  3. Construct viable arguments and critique the reasoning of others.  4. Model with mathematics.  5. Use appropriate tools strategically.  6. Attend to precision.  7. Look for and make use of structure.  8. Look for and express regularity in repeated reasoning  Career Ready Practices  CRP4.  Communicate clearly and effectively and with reason.  CRP6. Demonstrate creativity and innovation.  CRP8.  Utilize critical thinking to make sense of problems and persevere in solving them.       |  | | --- | | **New Jersey Learning Standards - Mathematics** |  |  | | --- | | **Introduction - Kindergarten** | | MATH.K In Kindergarten, instructional time should focus on two critical areas: (1)  representing, relating, and operating on whole numbers, initially with  sets of objects; (2) describing shapes and space. More learning time in  Kindergarten should be devoted to number than to other topics.   |  |  | | --- | --- | | MATH.K.1 | Students use numbers, including written numerals, to represent quantities and to solve quantitative problems, such as counting objects in a set; counting out a given number of objects; comparing sets or numerals; and modeling simple joining and separating situations with sets of objects, or eventually with equations such as 5 + 2 = 7 and 7 – 2 = 5. (Kindergarten students should see addition and subtraction equations, and student writing of equations in kindergarten is encouraged, but it is not required.) Students choose, combine, and apply effective strategies for answering quantitative questions, including quickly recognizing the cardinalities of small sets of objects, counting and producing sets of given sizes, counting the number of objects in combined sets, or counting the number of objects that remain in a set after some are taken away. | | |  |   **Measurement and Data**   |  |  | | --- | --- | | K.MD.A.2 | Directly compare two objects with a measurable attribute in common, to see which object has “more of”/“less of” the attribute, and describe the difference. | | K.MD.B | Classify objects and count the number of objects in each category. | | K.MD.B.3 | Classify objects into given categories; count the numbers of objects in each category and sort the categories by count. |   **Cluster A: Describe and compare measurable attributes**  **Essential Questions…**   * What is a number? * When and why do we use numbers? * What is a pattern? * How can you compare the lengths of two objects? * How can you compare the heights of two objects? * How can you solve problems using the strategy *draw a picture*? * How do we tell which object is longer? * How can you compare the weights of two objects? * How do we tell which object is heavier? * How can you describe several measureable attributes of a single object?   **Enduring Understanding…**   * Measurement can be described using words and numbers * By measuring, you can identify the height, length, or weight of an object   **Students will know...**  I. Key Vocabulary/Terms: longer, same length, shorter, same height, taller, heavier, lighter, and same weight  II. Key Concepts/Ideas: By the end of the year,   * Sorting can be based on various attributes * Understand how to compare two objects   III. Possible Misunderstandings:   * Students may not understand the term *longer.* * Students may confuse the terms *longer than* and *taller than.* * Students may not align their objects on the line. * Students may confuse the terms *heavier* and *lighter.* * Students may confuse length and height.   **Students will be able to...**   * Directly compare the length of two objects * Directly compare the height of two objects * Directly compare the weight of two objects * Describe several measurable attributes of a single object   **Cluster B: Classify objects and count the number of objects in each category**  **Essential Questions…**   * What are different ways to sort objects? * How can you classify and count objects by color, shape, size? * How can you classify and count objects by shape? * How can you classify and count objects by size? * How can you make a graph to count objects that have been classified into categories? * How can you read a graph to count objects that have been classified into categories?   **Enduring Understanding…**   * Understand that objects can be sorted. * You can describe and sort all objects by their attributes.   **Students will know...**  I. Key Vocabulary/Terms: category, classify, color, shape, big, size, small, and graph  II. Key Concepts/Ideas: By the end of the year,   * Sorting can be based on various attributes * Each shape has its own attributes   III. Possible Misunderstandings:   * Students may not sort and classify shapes by color. * Students may not sort and classify by shape. * Students may not identify the different sizes. * Students may not identify which category has more objects.   **Students will be able to...**   * Sort objects * Classify and count objects by color, shape, and size |

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| **STAGE 2 – Evidence of Learning** |

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| **Formative Activities, Tasks, or Projects:**   * Oral or written responses to the essential questions. * Materials produced as a result of class discussion or activities. * Using discipline vocabulary in appropriate context. * Quiz or test on information relevant to the unit. * 3-Minute Pause * Observation * Choral Response * Debriefing * Exit Card / Ticket * Hand signals * Inside-Outside Circle Discussion (Fishbowl) * Misconception Check * Questions and Answers * Quiz * Self-Assessment * Student Conference * Think-Pair-Share * Web or Concept Map   **Summative Activities, Tasks, or Projects:**   * Module Tests * Edmentum Beginning of the Year * Edmentum Middle of the Year Assessment * Edmentum End of the Year Assessment * District Mandated Tasks   **Authentic Assessment Suggestions**   * Performance Tasks * District Mandated Tasks |

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| **STAGE 3 – Learning Plan** |

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| **Instructional Map**  **Step 1: What is it we want and expect students to learn?**   * Read domain overview, learning goal, and essential questions to gain an initial understanding of the domain. * Analyze cluster of standards, vertical progression, test item specifications to determine full intent of standards (DOK) and student outcomes. * Determine measurable objectives using unpacked standards. Review the assessments for determining acceptable evidence.   **Step 2: How will they learn it?**   * Select problem-based learning/formative assessment tasks. * Develop learning experiences utilizing the textbook and selected tasks along with higher order questions stems.   **Step 3: How will we know when they have learned it?**   * Analyze students’ work reflecting on teacher practice and provide student feedback. * Provide additional assessments as necessary and collaboratively analyze the results.   **Step 4: How will we respond if they don’t learn it? How will we respond to those who already know it?**   * Using data analysis, develop small groups for remediation and enrichment.   Reassess student performance and provide opportunities for application.  **Unit Specific Accommodations and Modifications**  Gifted and Talent Accommodations and Modifications:   * Increase the level of complexity * Decrease scaffolding * Variety of finished products * Allow for greater independence * Learning stations, interest groups * Flexibility in assignments * Strategy and flexible groups based on formative assessment or student choice * Acceleration within a unit of study * Exposure to more advanced or complex concepts, abstractions, and materials * After mastery of a unit, provide students with more advanced learning activities, not more of the same activity   English Language Learners, Special Education, and At-Risk Accommodations and Modifications:  ELL Students:   * Remove unnecessary materials, words, etc., that can distract from the content * Provide appropriate scaffolding * Limit the number of steps required for completion * Tiered centers, assignments, lessons, or products * Deliver the content in “chunks” * Use technology, if available and appropriate * Differentiate homework and products * Define key vocabulary, multiple-meaning words, and figurative language * Use audio and visual supports, if available and appropriate * Meet with small groups to reteach idea/skill * Allow students to work at their own pace * Presenting ideas through auditory, visual, kinesthetic, & tactile means * Role play * Strategy and flexible groups based on formative assessment   Special Education Students:   * Remove unnecessary material, words, etc., that can distract from the content * Provide appropriate scaffolding * Tiered centers, assignments, lessons, or products * Deliver the content in “chunks” * Use technology, if available and appropriate * Varied questioning strategies * Provide background knowledge * Use audio and visual supports, if available and appropriate * Provide multiple learning opportunities to reinforce key concepts and vocabulary * Meet with small groups to reteach idea/skill * Present ideas using auditory, visual, kinesthetic, & tactile means * Strategy and flexible groups based on formative assessment * Differentiated checklists and rubrics, if available and appropriate   Differentiation Strategies for At Risk Students:   * Remove unnecessary materials, words, etc., that can distract from the content * Provide appropriate scaffolding * Limit the number of steps required for completion * Gradually increase the level of independence required * Tiered centers, assignments, lessons, or products * Deliver the content in “chunks” * Use technology, if available and appropriate * Varied questioning strategies * Provide background knowledge * Use audio and visual supports, if available and appropriate * Provide multiple learning opportunities to reinforce key concepts and vocabulary * Meet with small groups to reteach idea/skill * Presenting ideas through auditory, visual, kinesthetic, & tactile means * Strategy and flexible groups based on formative assessment   **504 Plans**  Students can qualify for 504 plans if they have physical or mental impairments that affect or limit any of their abilities to:   * communicate, see, hear, or speak * read, concentrate, think, or learn * stand, bend, lift, or work   Examples of accommodations in 504 plans include:   * preferential seating * extended time on tests and assignments * verbal, visual, or technology aids * modified textbooks or audio-video materials * behavior management support * verbal testing * excused lateness, absence, or missed classwork * pre-approved nurse's office visits and accompaniment to visits   **Differentiation**   |  |  |  |  | | --- | --- | --- | --- | | **High-Achieving Students** | **On Grade Level Students** | **Struggling Students** | **Special Needs/ELL** | | * Into Math Challenge * Game and Activity Cards * Small Group Mini Lesson: Ready For More * Unit Project Cards * STEM Task * Centers | * Into Math Reteach * Game and Activity Cards * Small Group Mini Lesson: On Track * Unit Project Cards * STEM Task * Centers | * Into Math Reteach * Game and Activity Cards * Small Group Mini Lesson: Almost There * Unit Project Cards * Interactive Tiers * STEM Task * Centers | * Into Math Reteach * Game and Activity Cards * Small Group Mini Lesson * Unit Project Cards * Tier 3 Intensive Intervention * Multilingual Glossary * STEM Task * Centers |  |  |  | | --- | --- | | Instructional Best Practices | | | **Required Best Practices**   * Use of Mathematical Vocabulary * Lesson Closure * Effective Questioning Techniques * Math Centers * Concrete-Pictorial- Abstract | **Suggested Best Practices**   * Peer Collaboration * Use of manipulatives * Think Aloud * Gallery Walks * Tools of the Mind Games |   **Unit Specific Interdisciplinary Connections / Materials**  With interdisciplinary instruction, the subject areas are woven together and explored through an overarching theme or concept. We use math to help us solve everyday problems in the kitchen, in the garden, and for many of us at our jobs.    Brain research has shown that information in our brains is organized in schematic structures. These structures are made up of interconnected bits of information and serve as a framework for the knowledge we acquire. When a learner’s knowledge is connected, it is much more likely that they will apply the prior knowledge to a wide variety of new situations. They will acquire new information in a way that is more accessible and will be better able to relate it to previously acquired knowledge.    Students learn about patterns in math, science, social studies, and even literature. Because of this, they are much more likely to “see” these patterns when they encounter new situations. Since patterns are not only studied in math they are able to make the connection and gain the understanding that patterns can be found in many areas of their lives. Interdisciplinary instruction allows students to understand the interconnectedness of the disciplines and makes learning more meaningful and relevant as fascinating connections are made across the subject areas.    **Science:**  **Patterns**  Patterns in the natural world can be observed, used to describe phenomena, and used as evidence. (K-ESS2-1)    **Social Studies:**  6.1.2.CivicsPD.1: Engage in discussions effectively by asking questions, considering facts, listening to the ideas of others, and sharing opinions.  6.1.2.CivicsPR.3: Analyze classroom rules and routines and describe how they are designed to  benefit the common good.  6.1.2.CivicsPR.4: Explain why teachers, local community leaders, and other adults have a responsibility to make rules that are fair, consistent, and respectful of individual rights.  **Language Arts:**  RL.K.1. With prompting and support, ask and answer questions about key details in a text (e.g., who, what, where, when, why, how).  SL.K.5. Add drawings or other visual displays to descriptions as desired to provide additional detail. |

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| **Additional Materials** |

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| Digital Resources   * Use the following resources on HMH Ed: Tier 1,2,3 Intervention, Response to Intervention, Vocabulary Games for each Chapter, iTools, Interactive Reteach, Interactive Challenge, Interactive Lessons, Interactive Module Practice * Prodigy, Edmentum, and Online Games   <https://achievethecore.org/>  <https://resources.newmeridiancorp.org/math-test-design/>  <https://www.state.nj.us/education/cccs/2016/math/>  <https://achievethecore.org/content/upload/Add%20Subtract%20Situation%20Types.pdf>  (Common Addition and Subtraction Situations)  <https://achievethecore.org/content/upload/Mult%20Div%20Situation%20Types.pdf>  (Common Multiplication and Division Situations)  [https://illuminations.nctm.org](https://illuminations.nctm.org/)  <https://www.state.nj.us/education/modelcurriculum/>  <http://archive.dimacs.rutgers.edu/nj_math_coalition/framework.html>  <https://parcc-assessment.org/released-items/>  <https://linden.instructure.com/courses/3955> | Printed Resources  Into Math Student Book  Practice and Homework Journal  Tools for Thoughtful Assessment  Math Tools |