
# Pace Charter School of Hamilton
# Math Grade K

## Place Value

**Content Area: Mathematics**

**Course & Grade Level: Mathematics, Kindergarten**

## Summary and Rationale

Our base ten number system relies on the idea that a symbol can be assigned a value and that its position can change that value.

## Recommended Pacing

Embedded throughout the year

## New Jersey Student Learning Standards for Mathematics

**Standard K.NBT.A Work with numbers 11-19 to gain foundations for place value.**

| Standard # | Standard |
|---|---|
| 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 equations (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. |

## New Jersey Student Learning Standards for 21st Century Life and Careers

**Career Ready Practices**

| Standard # | Standard |
|---|---|
| CRP2. | Apply appropriate academic and technical skills. |
| CRP4. | Communicate clearly and effectively and with reason. |
| CRP8. | Utilize critical thinking to make sense of problems and persevere in solving them. |
| CRP11. | Use technology to enhance productivity. |

**9.2 Career Awareness, Exploration, and Preparation**

| Standard # | Standard |
|---|---|
| 9.2.4.A.4 | Explain why knowledge and skills acquired in the elementary grades lay the foundation for future academic and career success. |

## New Jersey Student Learning Standards for Technology

| Standard # | Standard |
|---|---|
| 8.1 | All students will use digital tools to access, manage, evaluate, and synthesize information in order to solve problems individually and collaborate and to create and communicate knowledge. |

## Interdisciplinary Connections

| Standard # | Standard |
|---|---|
| W.2.8 | Recall information from experiences or gather information from provided sources to answer a question. |
| SL.K.3 | Ask and answer questions in order to seek help, get information, or clarify something that is not understood. |
| SL.K.5 | Add drawings or other visual displays to descriptions as desired to provide additional detail. |

## Instructional Focus

**Unit Enduring Understandings**

- Numerals are made of digits.
- Position of a digit within a numeral determines value.
- Patterns exist in our numerical system.
- Grouping is an efficient way to count many objects.

**Unit Essential Questions**

- How does position of a digit impact its value?
- Where are patterns found in our numerical system?

**Objectives**

**Students will know:**

- Place value vocabulary (tens, ones) (I/D)
- That numbers are counted and written in a specific order on a hundred chart (I/D)
- Patterns are represented on a hundred chart (I/D)

**Students will be able to:**

- Develop an awareness of the concept of "ones" and "tens" using manipulatives (I/D)
- Develop an understanding that numbers 11-19 are composed of one ten and a number of ones or ten ones and additional ones (I/D)
- Begin to record numbers 11-19 as drawings, equations, or with manipulatives (I/D)
- Recognize that the numbers zero through nine are repeated in the ones place in each column on a hundred chart (I/D)
- Begin to identify patterns in number sequences using manipulatives and the hundred chart (I/D)

## Resources

**Primary Text:**

enVision Math

**Instructional & Professional Resources:**

- Exemplars*, Problem Solving for the 21st Century*
- K-5 Math Teaching Resources
- *Math in Practice: Teaching Kindergarten Math* by Marcy Myers, Susan O'Connell, & John SanGiovanni

| Number Sense | |
|---|---|
| | |
| **Content Area: Mathematics** | |
| **Course & Grade Level: Mathematics, Kindergarten** | |
| **Summary and Rationale** | |
| Children use numbers to represent quantities and to solve problems. | |
| **Recommended Pacing** | |
| Embedded throughout the year | |
| **New Jersey Student Learning Standards for Mathematics** | |
| **Standard K.CC.A Know number names and the count sequence.** | |
| **Standard #** | **Standard** |
| K.CC.A.1 | Count to 100 by ones and by tens. |
| K.CC.A2 | 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). |
| **Standard K.CC.B Count to tell number of objects.** | |
| **Standard #** | **Standard** |
| K.CC.B.4 | Understand the relationship between numbers and quantities; connect counting to cardinality.<br>a. 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.<br>b. 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.<br>c. 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. |
| **Standard K.CC.C Compare numbers.** | |
| **Standard #** | **Standard** |
| 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.C.7 | Compare two numbers between 1 and 10 presented as written numerals. |
| **New Jersey Student Learning Standards for 21st Century Life and Careers** | |
| **Career Ready Practices** | |
| **Standard #** | **Standard** |
| CRP2. | Apply appropriate academic and technical skills. |
| CRP4. | Communicate clearly and effectively and with reason. |
| CRP8. | Utilize critical thinking to make sense of problems and persevere in solving them. |
| CRP11. | Use technology to enhance productivity. |

| 9.2 Career Awareness, Exploration, and Preparation | |
|---|---|
| **Standard #** | **Standard** |
| 9.2.4.A.4 | Explain why knowledge and skills acquired in the elementary grades lay the foundation for future academic and career success. |

## New Jersey Student Learning Standards for Technology

| Standard # | Standard |
|---|---|
| 8.1 | All students will use digital tools to access, manage, evaluate, and synthesize information in order to solve problems individually and collaborate and to create and communicate knowledge. |

## Interdisciplinary Connections

| Standard # | Standard |
|---|---|
| W.2.8 | Recall information from experiences or gather information from provided sources to answer a question. |
| SL.K.3 | Ask and answer questions in order to seek help, get information, or clarify something that is not understood. |
| SL.K.5 | Add drawings or other visual displays to descriptions as desired to provide additional detail. |

## Instructional Focus

**Unit Enduring Understandings**

- Quantities can be counted and compared using numbers, words and numerals.
- Numbers are symbols used to represent quantities.

**Unit Essential Questions**

- Why are numbers necessary?
- What is the value of a number?
- How can quantities be represented?

**Objectives**

**Students will know:**

- Numbers represent quantities (I/D/M)
- The concept of one-to-one correspondence (I/D)
- The concept of a set (I/D)
- Comparison and positional vocabulary(I/D)

**Students will be able to:**

- Identify and order numerals (0-20) (I/D/M)
- Count sets using one-to-one correspondence (0-20) (I/D)
- Count a set of objects and see sets and numerals in relationship to one another (I/D)
- Count a set of objects and answer the question, “How many would there be ifwe added one more object?” (I/D)
- Count 10 objects in a scattered arrangement (I)
- Count 20 objects in a line, rectangular arrangement and circle (I/D)
- Recognize that the number of objects is the same regardless of arrangement or order in which it is counted (I/D/M)
- Count to 100 by ones and tens (I/D/M)
- Count forward from a given number (other than 1) (I/D)
- Construct sets and match to numerals (0-20) (I/D)
- Write numbers from 0-20 (I/D)

- Compare sets and written numerals using vocabulary including: more, less, larger, smaller, fewer, equal (I/D)
- Use ordinal numbers to describe position (1st-5th) (I/D)
- Be able to recognize correct numeral formation (I/D)

## Resources

**Primary Text:**
enVision Math

**Instructional & Professional Resources:**

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- K-5 Math Teaching Resources
- *Math in Practice: Teaching Kindergarten Math* by Marcy Myers, Susan O'Connell, & John SanGiovanni

| Estimation | |
|---|---|
| | |
| **Content Area: Mathematics** | |
| **Course & Grade Level: Mathematics, Kindergarten** | |
| **Summary and Rationale** | |
| Children use estimation as a tool to approximate quantities and solutions to mathematical problems. | |
| **Recommended Pacing** | |
| Embedded throughout the year | |
| **New Jersey Student Learning Standards for Mathematics** | |
| **Standard K.CC.B Count to tell the number of objects.** | |
| **Standard #** | **Standard** |
| K.CC.B.4 | Understand the relationship between numbers and quantities; connect counting to cardinality |
| 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 tings in a scattered configuration; given a number form 1-20, count out that many objects. |
| **Standard K.CC.C Compare numbers** | |
| **Standard #** | **Standard** |
| 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. |
| **New Jersey Student Learning Standards for 21st Century Life and Careers** | |
| **Career Ready Practices** | |
| **Standard #** | **Standard** |
| CRP2. | Apply appropriate academic and technical skills. |
| CRP4. | Communicate clearly and effectively and with reason. |
| CRP8. | Utilize critical thinking to make sense of problems and persevere in solving them. |
| CRP11. | Use technology to enhance productivity. |
| **9.2 Career Awareness, Exploration, and Preparation** | |
| **Standard #** | **Standard** |
| 9.2.4.A.4 | Explain why knowledge and skills acquired in the elementary grades lay the foundation for future academic and career success. |
| **New Jersey Student Learning Standards for Technology** | |
| **Standard #** | **Standard** |
| 8.1 | All students will use digital tools to access, manage, evaluate, and synthesize information in order to solve problems individually and collaborate and to create and communicate knowledge. |
| **Interdisciplinary Connections** | |
| **Standard #** | **Standard** |
| W.2.8 | Recall information from experiences or gather information from provided sources to answer a question. |

| | |
|---|---|
| SL.K.3 | Ask and answer questions in order to seek help, get information, or clarify something that is not understood. |
| SL.K.5 | Add drawings or other visual displays to descriptions as desired to provide additional detail. |

## Instructional Focus

**Unit Enduring Understandings**

- Solutions to mathematical problems and quantities can be approximated.

**Unit Essential Questions**

- What is an estimate?
- How are estimates made?

**Objectives**

**Students will know:**

- Estimating vocabulary (guess, predict, estimate, about how many, more than, less than, too high, too low, just right) (I)
- That known quantities can be used as benchmarks (I)
- Procedures for making an educated guess (I)
- Quantities increase or decrease when you join/separate sets (I/D)

**Students will be able to:**

- Use estimating vocabulary (guess, predict, estimate, about how many, more than, less than, too high, too low, just right) (I)
- Begin to use known quantities as benchmarks for estimating sets less than twenty (I)
- Develop an awareness of the concept that joining/separating produces larger/smaller sets, respectively (I/D)

## Resources

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**Instructional & Professional Resources:**

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## Operations

**Content Area: Mathematics**

**Course & Grade Level: Mathematics, Kindergarten**

## Summary and Rationale

Numbers can be used to represent quantities and to solve problems. Real world problems can be solved using multiple strategies and operations.

## Recommended Pacing

Embedded throughout the year

## New Jersey Student Learning Standards for Mathematics

**Standard K.OA.A Understand addition as putting together and adding to, and understand subtraction as taking apart and taking from.**

| Standard # | Standard |
|---|---|
| K.OA.A.1 | Represent addition and subtraction up to 10 with objects, fingers, mental images, drawings, sound, acting out situations, verbal explanations, expressions, or equations. |
| K.OA.A.2 | Solve addition and subtraction word problems, and add and subtract within 10 e.g., by using objects or drawings to represent the problem. |
| K.OA.A.3 | Decompose numbers less than or equal to 10 into pairs in more than one way, e.g., by using objects or drawings, and record each decomposition by a drawing or equation (e.g., 5 = 2 + 3 and 5 = 4 + 1). |
| 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.5 | Demonstrate fluency for addition and subtraction within 5. |

## New Jersey Student Learning Standards for 21st Century Life and Careers

**Career Ready Practices**

| Standard # | Standard |
|---|---|
| CRP2. | Apply appropriate academic and technical skills. |
| CRP4. | Communicate clearly and effectively and with reason. |
| CRP8. | Utilize critical thinking to make sense of problems and persevere in solving them. |
| CRP11. | Use technology to enhance productivity. |

**9.2 Career Awareness, Exploration, and Preparation**

| Standard # | Standard |
|---|---|
| 9.2.4.A.4 | Explain why knowledge and skills acquired in the elementary grades lay the foundation for future academic and career success. |

## New Jersey Student Learning Standards for Technology

| Standard # | Standard |
|---|---|
| 8.1 | All students will use digital tools to access, manage, evaluate, and synthesize information in order to solve problems individually and collaborate and to create and communicate knowledge. |

## Interdisciplinary Connections

| Standard # | Standard |
|---|---|
| W.2.8 | Recall information from experiences or gather information from provided sources to answer a question. |
| SL.K.3 | Ask and answer questions in order to seek help, get information, or clarify something that is not understood. |
| SL.K.5 | Add drawings or other visual displays to descriptions as desired to provide additional detail. |

## Instructional Focus

**Unit Enduring Understandings**

- Mathematical problems can be solved in more than one way.
- Quantities can be taken apart and put together.

**Unit Essential Questions**

- How can a mathematical problem be solved?
- How can quantities be taken apart and put together?

**Objectives**

**Students will know:**

- The meaning of addition and subtraction (I/D)
- The *total* is the combination of the parts (I/D)
- That quantities can be joined or taken apart (I/D)
- That quantities can be represented in a variety of ways with objects or numerals (I/D)

**Students will be able to:**

- Develop an awareness of the meaning of addition and subtraction using manipulatives (I/D)
- Find different combinations for a given number using manipulatives or drawings (I/D)
- Combine and remove objects from sets and describe the results (I/D)
- Use drawings or manipulatives to solve simple addition and subtraction word problems (I/D)
- Begin to understand and use ten frames to represent number combinations of 10 (I/D)
- Begin to recognize that number combinations may be expressed in written equations (I/D)
- Begin to develop fluency with addition and subtraction within 10 (I/D)
- Find the missing addend when given the rest of the equation up to a sum of 10,using part-part whole thinking (I/D)
- Begin to develop mental math strategies for solving addition and subtraction within 10 (I/D)

## Resources

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## Algebra

**Content Area: Mathematics**

**Course & Grade Level: Mathematics, Kindergarten**

## Summary and Rationale

Algebra is a system used to communicate efficiently about patterns, rules, and relationships.

## Recommended Pacing

Embedded throughout the year

## New Jersey Student Learning Standards for Mathematics

**Standard K.MD.B Classify objects and count the number of objects in a category.**

| Standard # | Standard |
|---|---|
| K.MD.B.3 | Classify objects into given categories; count the numbers of objects in each category and sort the categories by count. |
| K.MD.A.1 | Describe and compare measurable attributes of objects, such as length or weight. Describe several measurable attributes of a single object. |

## New Jersey Student Learning Standards for 21st Century Life and Careers

**Career Ready Practices**

| Standard # | Standard |
|---|---|
| CRP2. | Apply appropriate academic and technical skills. |
| CRP4. | Communicate clearly and effectively and with reason. |
| CRP8. | Utilize critical thinking to make sense of problems and persevere in solving them. |
| CRP11. | Use technology to enhance productivity. |

**9.2 Career Awareness, Exploration, and Preparation**

| Standard # | Standard |
|---|---|
| 9.2.4.A.4 | Explain why knowledge and skills acquired in the elementary grades lay the foundation for future academic and career success. |

## New Jersey Student Learning Standards for Technology

| Standard # | Standard |
|---|---|
| 8.1 | All students will use digital tools to access, manage, evaluate, and synthesize information in order to solve problems individually and collaborate and to create and communicate knowledge. |

## Interdisciplinary Connections

| Standard # | Standard |
|---|---|
| W.2.8 | Recall information from experiences or gather information from provided sources to answer a question. |
| SL.K.3 | Ask and answer questions in order to seek help, get information, or clarify something that is not understood. |
| SL.K.5 | Add drawings or other visual displays to descriptions as desired to provide additional detail. |

## Instructional Focus

**Unit Enduring Understandings**

- Patterns can be found in the world around us.

- Patterns show order in the world.
- The same pattern can be expressed using a variety of contexts and elements.
- Rules can describe relationships.
- Change occurs over time.

**Unit Essential Questions**

- What is a pattern?
- Where are patterns found?
- What kinds of patterns can you create?
- How can rules describe the relationship between objects or numbers?
- How do things change over time?
- How do we use symbols to represent mathematical ideas?

**Objectives**

**Students will know:**

- That repeating patterns occur in a variety of contexts (numbers, pictorial, objects, rhythm, movement) (I/D)
- Patterns can repeat (I/D)
- Patterns can be labeled (label simple patterns with two elements) (I)
- The core of a repeating pattern is the shortest string of elements that repeats (I)
- Rules can describe the relationship between objects or numbers (I)
- Change occurs in nature over time (I/D)

**Students will be able to:**

- Discriminate between patterns and random arrangements or designs (I/D)
- Identify, describe, copy, and extend patterns (I/D)
- Label simple patterns with two elements using letters (I)
- Create different patterns using objects (I/D)
- Name a rule to describe a relationship between objects or numbers (I)
- Observe and discuss changes in nature over time (ice melting, plants growing) (I/D)

## Resources

**Primary Text:**

enVision Math

**Instructional & Professional Resources:**

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| Geometry: Geometric Shapes | |
|---|---|
| | |
| **Content Area: Mathematics** | |
| **Course & Grade Level: Mathematics, Kindergarten** | |
| **Summary and Rationale** | |
| Children interpret the physical world with geometric ideas- shape, orientation, and spatial relations. | |
| **Recommended Pacing** | |
| Embedded throughout the year | |
| **New Jersey Student Learning Standards for Mathematics** | |
| **Standard K.G.A Identify and describe shapes (squares, circles, triangles, rectangles, hexagons, cubes, cones, cylinders, and spheres.)** | |
| **Standard #** | **Standard** |
| 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.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"). |
| **Standard K.G .B Analyze, compare, create, and compose shapes.** | |
| **Standard #** | **Standard** |
| 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.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. |
| **New Jersey Student Learning Standards for 21st Century Life and Careers** | |
| **Career Ready Practices** | |
| **Standard #** | **Standard** |
| CRP2. | Apply appropriate academic and technical skills. |
| CRP4. | Communicate clearly and effectively and with reason. |
| CRP8. | Utilize critical thinking to make sense of problems and persevere in solving them. |
| CRP11. | Use technology to enhance productivity. |
| **9.2 Career Awareness, Exploration, and Preparation** | |
| **Standard #** | **Standard** |
| 9.2.4.A.4 | Explain why knowledge and skills acquired in the elementary grades lay the foundation for future academic and career success. |
| **New Jersey Student Learning Standards for Technology** | |
| **Standard #** | **Standard** |

| | |
|---|---|
| 8.1 | All students will use digital tools to access, manage, evaluate, and synthesize information in order to solve problems individually and collaborate and to create and communicate knowledge. |

## Interdisciplinary Connections

| Standard # | Standard |
|---|---|
| W.2.8 | Recall information from experiences or gather information from provided sources to answer a question. |
| SL.K.3 | Ask and answer questions in order to seek help, get information, or clarify something that is not understood. |
| SL.K.5 | Add drawings or other visual displays to descriptions as desired to provide additional detail. |

## Instructional Focus

**Unit Enduring Understandings**

- Shapes can be found in the world around us.
- Shapes can be described by their characteristics.
- Objects can be sorted by similarities.

**Unit Essential Questions**

- Where are shapes found in the world?
- How can shapes be described?
- In what ways can objects be sorted?

**Objectives**

**Students will know:**

- Characteristics of two dimensional shapes (I/D)
- Characteristics of three dimensional shapes (I/D)
- The difference between two and three dimensional shapes (I/D)

**Students will be able to:**

- Sort, identify, compare, and describe two dimensional shapes (circle, triangle, square, rectangle, hexagon) by their characteristics, such as sides and corners (D/M)
- Sort and identify the following shapes: trapezoid and rhombus (Attribute block sets often include a "regular" rhombus, which is blue, and a "skinny" rhombus which is beige.) (I/D)
- Sort, describe, and compare three dimensional shapes (sphere, cube, cone, cylinder, pyramid) by their characteristics or by comparing to real life objects (I)
- Sort, classify and describe objects by shape and size (I/D)
- Combine shapes to form new shapes (I)
- Create shapes using a variety of materials (I/D)
- Identify two and three dimensional shapes in the real world (I)
- Identify shapes (circle, triangle, square, and rectangle) in typical and atypical orientations, varying sizes, and side lengths (I/D)

## Resources

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**Instructional & Professional Resources:**

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## Geometry – Spatial Relationships

**Content Area: Mathematics**

**Course & Grade Level: Mathematics, Kindergarten**

## Summary and Rationale

Children interpret the physical world with geometric ideas- shape, orientation, and spatial relations.

## Recommended Pacing

Embedded throughout the year

## New Jersey Student Learning Standards for Mathematics

**Standard K.G.B Analyze, compare, create and compose shapes.**

| Standard # | Standard |
|---|---|
| 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 and other attributes. |
| K.G.B.5 | Model shapes in the world by building shapes from components and drawing shapes. |
| K.G.B.6 | Compose simple shapes to form larger shapes. |

## New Jersey Student Learning Standards for 21st Century Life and Careers

**Career Ready Practices**

| Standard # | Standard |
|---|---|
| CRP2. | Apply appropriate academic and technical skills. |
| CRP4. | Communicate clearly and effectively and with reason. |
| CRP8. | Utilize critical thinking to make sense of problems and persevere in solving them. |
| CRP11. | Use technology to enhance productivity. |

**9.2 Career Awareness, Exploration, and Preparation**

| Standard # | Standard |
|---|---|
| 9.2.4.A.4 | Explain why knowledge and skills acquired in the elementary grades lay the foundation for future academic and career success. |

## New Jersey Student Learning Standards for Technology

| Standard # | Standard |
|---|---|
| 8.1 | All students will use digital tools to access, manage, evaluate, and synthesize information in order to solve problems individually and collaborate and to create and communicate knowledge. |

## Interdisciplinary Connections

| Standard # | Standard |
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## Instructional Focus

**Unit Enduring Understandings**

- The position of an object can be described.

**Unit Essential Questions**

- How can we describe the position of an object?

**Objectives**

**Students will know:**

- Position vocabulary (I/D)
- The concept of symmetry (I)

**Students will be able to:**

- Describe position using vocabulary including: over, under, above, below, next to, front, back, behind, beside, left, right, top, bottom, side, forward, backward (I/D)
- Follow oral directions to get from one place to another using position vocabulary and landmarks (I/D)
- Identify objects that are symmetrical (I)
- Use one shape repeatedly to cover a larger area or shape (I)

## Resources

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## Data Analysis - Graphing

**Content Area: Mathematics**

**Course & Grade Level: Mathematics, Kindergarten**

## Summary and Rationale

There are efficient mathematical ways to collect, organize, record, display, and communicate data. This helps us analyze, draw conclusions, and make predictions about real world events.

## Recommended Pacing

Embedded throughout the year

## New Jersey Student Learning Standards for Mathematics

**Standard K.MD.B Classify objects and count the number of objects in each category.**

| Standard # | Standard |
|---|---|
| K.MD.B.3 | Classify objects into given categories; count the numbers of objects in each category and sort the categories by count. |

## New Jersey Student Learning Standards for 21st Century Life and Careers

**Career Ready Practices**

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| SL.K.5 | Add drawings or other visual displays to descriptions as desired to provide additional detail. |

## Instructional Focus

**Unit Enduring Understandings**

- Data can be collected and displayed in an organized and concise way.
- Some questions can generate data which can be organized and displayed.

**Unit Essential Questions**

- How can information be gathered, organized and displayed to communicate information?
- What kinds of questions generate data?

**Objectives**

**Students will know:**

- That different kinds of charts and graphs (tallies, bar graphs, pictographs) can be used to organize and represent collected data (I/D)
- The meaning of comparative vocabulary (I/D)

**Students will be able to:**

- Ask and answer simple questions to generate data (I/D)
- Build a graph from data using manipulatives or a template (I/D)
- Read data from a simple chart or graph (I/D)
- Use vocabulary including: more, less, same, most, and least to compare data within a simple graph and between two simple graphs (I/D)

## Resources

**Primary Text:**

enVision Math

**Instructional & Professional Resources:**

- Exemplars*, Problem Solving for the 21st Century*
- K-5 Math Teaching Resources
- *Math in Practice: Teaching Kindergarten Math* by Marcy Myers, Susan O'Connell, & John SanGiovanni

## Measurement – Weight and Linear Measurement

**Content Area: Mathematics**

**Course & Grade Level: Mathematics, Kindergarten**

## Summary and Rationale

There are some attributes of objects that are measurable and can be quantified using nonstandard and standard units.

## Recommended Pacing

Embedded throughout the year

## New Jersey Student Learning Standards for Mathematics

**Standard K.MD.A Describe and compare measurable attributes.**

| Standard # | Standard |
|---|---|
| K.MD.A.1 | Describe measurable attributes of objects, such as length or weight. Describe several measurable attributes of a single object. |
| K.MD.A.2 | Directly compare two objects with a measurable attribute in common, to see which objects has "more of"/"less of" the attribute, and describe the difference. |

## New Jersey Student Learning Standards for 21st Century Life and Careers

**Career Ready Practices**

| Standard # | Standard |
|---|---|
| CRP2. | Apply appropriate academic and technical skills. |
| CRP4. | Communicate clearly and effectively and with reason. |
| CRP8. | Utilize critical thinking to make sense of problems and persevere in solving them. |
| CRP11. | Use technology to enhance productivity. |

**9.2 Career Awareness, Exploration, and Preparation**

| Standard # | Standard |
|---|---|
| 9.2.4.A.4 | Explain why knowledge and skills acquired in the elementary grades lay the foundation for future academic and career success. |

## New Jersey Student Learning Standards for Technology

| Standard # | Standard |
|---|---|
| 8.1 | All students will use digital tools to access, manage, evaluate, and synthesize information in order to solve problems individually and collaborate and to create and communicate knowledge. |

## Interdisciplinary Connections

| Standard # | Standard |
|---|---|
| W.2.8 | Recall information from experiences or gather information from provided sources to answer a question. |
| SL.K.3 | Ask and answer questions in order to seek help, get information, or clarify something that is not understood. |
| SL.K.5 | Add drawings or other visual displays to descriptions as desired to provide additional detail. |

## Instructional Focus

**Unit Enduring Understandings**

- Objects around us can be measured, described and compared.

**Unit Essential Questions**

- How can objects be measured?
- Why are objects measured?
- How do we use numbers to describe and compare length, height and weight of objects in the real world?

**Objectives**

**Students will know:**

- The meaning of measurement vocabulary including: heavier than, lighter than, longer than, taller than, shorter than, smaller than, more than, less than, same (I)
- Procedures for measuring accurately with nonstandard units (I)

**Students will be able to:**

- Use measurement vocabulary including: heavier than, lighter than, longer than, taller than, shorter than, smaller than, more than, less than, same (I)
- Measure and compare length, height and weight of objects using non-standard units (I)

## Resources

**Primary Text:**

enVision Math

**Instructional & Professional Resources:**

- Exemplars*, Problem Solving for the 21st Century*
- K-5 Math Teaching Resources
- *Math in Practice: Teaching Kindergarten Math* by Marcy Myers, Susan O'Connell, & John SanGiovanni

## Measurement - Time

**Content Area: Mathematics**

**Course & Grade Level: Mathematics, Kindergarten**

## Summary and Rationale

The passage of time can be measured and recorded.

## Recommended Pacing

Embedded throughout the year

## New Jersey Student Learning Standards for Mathematics

**Standard K.MD.A Describe and compare measurable attributes.**

| Standard # | Standard |
|---|---|
| K.MD.A.1 | Describe and compare measurable attributes of objects, such as length or weight. Describe several measurable attributes of a single object. |

## New Jersey Student Learning Standards for 21st Century Life and Careers

**Career Ready Practices**

| Standard # | Standard |
|---|---|
| CRP2. | Apply appropriate academic and technical skills. |
| CRP4. | Communicate clearly and effectively and with reason. |
| CRP8. | Utilize critical thinking to make sense of problems and persevere in solving them. |
| CRP11. | Use technology to enhance productivity. |

**9.2 Career Awareness, Exploration, and Preparation**

| Standard # | Standard |
|---|---|
| 9.2.4.A.4 | Explain why knowledge and skills acquired in the elementary grades lay the foundation for future academic and career success. |

## New Jersey Student Learning Standards for Technology

| Standard # | Standard |
|---|---|
| 8.1 | All students will use digital tools to access, manage, evaluate, and synthesize information in order to solve problems individually and collaborate and to create and communicate knowledge. |

## Interdisciplinary Connections

| Standard # | Standard |
|---|---|
| W.2.8 | Recall information from experiences or gather information from provided sources to answer a question. |
| SL.K.3 | Ask and answer questions in order to seek help, get information, or clarify something that is not understood. |
| SL.K.5 | Add drawings or other visual displays to descriptions as desired to provide additional detail. |
| RI.K.1 | With prompting and support, ask and answer questions about key details in a text. |

## Instructional Focus

**Unit Enduring Understandings**

- Calendars and clocks are important and useful in our daily lives.
- Calendars and clocks are tools used to document the passage of time.

**Unit Essential Questions**

- Why are calendars important in our daily lives?
- What do we learn from the calendar?
- Why are clocks important in our daily lives?

**Objectives**

**Students will know:**

- Time vocabulary (I/D)
- That clocks and calendars are tools used to measure time (I/D)

**Students will be able to:**

- Use vocabulary such as: the days of the week, the months of the year, morning, afternoon, night, yesterday, today, tomorrow, o'clock, minute, hour, a.m., p.m., more time, less time, first, last, beginning, middle, end (I/D)

## Resources

**Primary Text:**

enVision Math

**Instructional & Professional Resources:**

- Exemplars*, Problem Solving for the 21st Century*
- K-5 Math Teaching Resources
- *Math in Practice: Teaching Kindergarten Math* by Marcy Myers, Susan O'Connell, & John SanGiovanni

## Standards for Mathematical Practice

**Content Area: Mathematics**

**Course & Grade Level: Mathematics, Grade K**

## Summary and Rationale

The Standards for Mathematical Practice describe varieties of expertise that mathematics educators at all levels should seek to develop in their students. These practices rest on important "processes and proficiencies" with longstanding importance in mathematics education. The first of these are the NCTM process standards of problem solving, reasoning and proof, communication, representation, and connections. The second are the strands of mathematical proficiency specified in the National Research Council's report *Adding It Up*: adaptive reasoning, strategic competence, conceptual understanding (comprehension of mathematical concepts, operations and relations), procedural fluency (skill in carrying out procedures flexibly, accurately, efficiently and appropriately), and productive disposition (habitual inclination to see mathematics as sensible, useful, and worthwhile, coupled with a belief in diligence and one's own efficacy).

## Recommended Pacing

Embedded throughout the year

## New Jersey Student Learning Standards for Mathematics

**Standards for Mathematical Practice**

| Standard # | Standard |
|---|---|
| MP1 | Make sense of problems and persevere in solving them. |
| MP2 | Reason abstractly and quantitatively. |
| MP3 | Construct viable arguments and critique the reasoning of others. |
| MP4 | Model with mathematics. |
| MP5 | Use appropriate tools strategically. |
| MP6 | Attend to precision. |
| MP7 | Look for and make use of structure. |
| MP8 | Look for and express regularity in repeated reasoning. |

## New Jersey Student Learning Standards for 21st Century Life and Careers

**Career Ready Practices**

| Standard # | Standard |
|---|---|
| CRP2. | Apply appropriate academic and technical skills. |
| 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. |
| CRP11. | Use technology to enhance productivity. |

**9.2 Career Awareness, Exploration, and Preparation**

| Standard # | Standard |
|---|---|
| 9.2.4.A.4 | Explain why knowledge and skills acquired in the elementary grades lay the foundation for future academic and career success. |

## New Jersey Student Learning Standards for Technology

| Standard # | Standard |
|---|---|
| 8.1 | All students will use digital tools to access, manage, evaluate, and synthesize information in order to solve problems individually and collaborate and to create and communicate knowledge. |

## Interdisciplinary Connections

| Standard # | Standard |
|---|---|
| W.2.8 | Recall information from experiences or gather information from provided sources to answer a question. |
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| SL.K.5 | Add drawings or other visual displays to descriptions as desired to provide additional detail. |

## Instructional Focus

**Unit Enduring Understandings**

- Mathematicians problem solve by collaborating, analyzing, communicating and critiquing arguments, model, think strategically, and persevering when faced with a challenge.

**Unit Essential Questions**

- What are the essential practices and processes through which mathematicians learn to create and communicate knowledge?

**Objectives**

**Students will be able to:**

- Explain the meaning of problems, looking for multiple entry points to solve problems and use different methods to check their solutions.
- Make sense of quantities and their relationships in problem solving situations.
- Construct arguments using concrete referents such as objects, drawings, diagrams, and actions.
- Apply the mathematics they know to solve problems arising in everyday life, society, and the workplace.
- Consider the available tools when solving a mathematical problem.
    - Identify relevant external mathematical resources, such as digital content located on a website, and use them to pose or solve problems.
    - Use technological tools to explore and deepen their understanding of concepts.
- Communicate precisely to each other including the use of units of measure, and express numerical answers with a degree of precision appropriate for the context.
- Look closely to discern a pattern or structure.
- Notice if calculations are repeated, and look both for general methods and for more efficient methods of solving problems.

## Resources

**Primary Text:**

enVision Math

**Instructional & Professional Resources:**

- Exemplars*, Problem Solving for the 21st Century*
- K-5 Math Teaching Resources
- *Math in Practice: Teaching Kindergarten Math* by Marcy Myers, Susan O'Connell, & John SanGiovanni