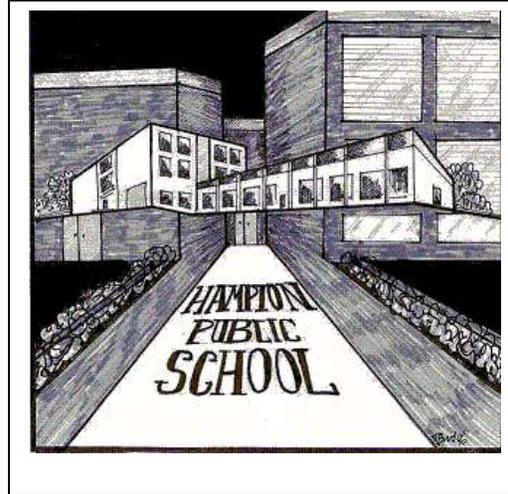


# Hampton Public School District



## Mathematics Grades K-2

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### Curriculum

**Board of Education Approval: April 16, 2013**

**(Originally Adopted: November 15, 2011)**

For adoption by all regular education programs as specified and for adoption or adaptation by all Special Education Programs in accordance with Board of Education Policy #2200.

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## HAMPTON PUBLIC SCHOOL DISTRICT

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# Hampton Public School

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## Mission

The Hampton Borough School District, committed to quality and excellence, will provide a broad-based education which is responsive to the needs of all students. Working with the community, the district shall:

- Offer a wide range of academic experiences that encourages all students to meet their potential and prepares them to meet the New Jersey Core Curriculum Standards.
- Foster a respect for self and others
- Encourage personal, social, and civic responsibility
- Develop a continuing interest in self-improvement in all areas
- Create an environment that encourages a desire for successful learning
- Generate an enthusiasm for life-long learning

## Philosophy

In our culturally diverse world the Hampton School District emphasizes the importance of a meaningful mathematics program with the goal of developing life-long skills. Our students will gain the mathematical concepts, understandings, and beliefs necessary for success in real-world applications. In order to excel in today's fast-paced, global society, students must be able to solve problems, make connections, and reason logically.

This program provides challenging experiences for intellectual exploration. Mathematics will be presented through a combination of processes including communication, decision-making, investigating, critical thinking, and an open exchange of ideas. The curriculum reflects the district's commitment to the infusion of technology as well as a manipulative approach. Pupils will be provided opportunities to develop their mathematical abilities to the fullest extent and emerge with a feeling of success.

**New Jersey State Department of Education**  
**Common Core State Standards**

**A note about Common Core State Standards for Mathematics.**

The Common Core State Standards for Mathematics were adopted in 2010. The standards referenced in this curriculum guide refer to the progress indicators in these newly adopted standards. A complete copy of the Common Core State Standards for Mathematics may be found at:

<http://www.corestandards.org/the-standards/mathematics> (by grade level)

<http://www.corestandards.org/the-standards> (in their entirety)

Mathematics: Standards for Mathematical Practice Interpreted for Kindergarten Through Second Grade

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 long standing 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).

The Standards for Mathematical Practice are:

**1. MAKE SENSE OF PROBLEMS AND PERSEVERE IN SOLVING THEM.**

As you look at or read a mathematical problem, think about what it means and what it is asking you to do. Also think about what would be a good way to start solving it. Ask yourself:

- What does the problem tell me?
  - o What information is given?
  - o What are the relationships among parts of the problem?
  - o What is the goal of solving the problem?
  - o Have I seen other problems similar to this one?
- What does the problem ask me to find out (solve)?
- How should I start solving the problem?
- Can pictures or a drawing help me to figure out how to solve the problem?
- Does how I'm answering the problem make sense with what the problem is asking?
- What are some other ways to solve the problem?
- Can I use another way to check if my answer is correct?
- Does my answer make sense?

## 2. REASON ABSTRACTLY AND QUANTITATIVELY.

Understand the relationship of numbers and number problems and represent them using pictures, drawings or symbols. Talk about the parts of number problems using pictures, drawings or symbols as well as how the pictures, drawings or symbols represent and help explain the problem. Show how using different numbers or operations in the same problem changes it.

## 3. CONSTRUCT VIABLE ARGUMENTS AND CRITIQUE THE REASONING OF OTHERS.

Use objects, drawings, diagrams or actions to construct arguments about math problems with understanding and using appropriate vocabulary to explain the reasoning process. Build a local argument, communicate it with others, justify your reasoning process and respond to the reasoning process someone else uses. Express agreement if both arguments are correct and explain why an argument is flawed if it is.

## 4. MODEL WITH MATHEMATICS.

Apply mathematical skills to everyday life, society, the workplace and other situations; identify important quantities in practical situations; write an equation to describe a situation; revise solutions; use tools such as diagrams, two-way tables, graphs, flowcharts and formulas to show relationships; analyze relationships to draw conclusions, interpret results in context and reflect on whether the results make sense.

## 5. USE APPROPRIATE TOOLS STRATEGICALLY.

Identify and make decisions regarding which tool, such as paper and pencil, models, rulers, spreadsheets, etc., to use to help solve mathematical problems as well as know when a tool is not the right one to use. Use technological and other tools to deepen understanding.

## 6. ATTEND TO PRECISION.

Communicate precisely when discussing math incorporating the following:

- Use clear definitions.
- Choose, use and explain symbols correctly, consistently and appropriately.
- Specify units of measure and labels correctly.
- Avoid careless errors.
- Follow formulas to explain thinking to others.

## 7. LOOK FOR AND MAKE USE OF STRUCTURE.

Look for and identify structure and patterns in mathematics (for example, three and seven more is the same amount as seven and three)

## 8. LOOK FOR AND EXPRESS REGULARITY IN REPEATED REASONING.

Look for repetition in calculations and numeric thinking, such as skip counting. Pay attention to the whole problem and the details and continuously evaluate the accuracy and reasonableness of both intermediate and final answers.

## CONNECTING THE STANDARDS FOR MATHEMATICAL PRACTICE TO THE STANDARDS FOR MATHEMATICS CONTENT

The Standards for Mathematical Practice describe ways in which developing student practitioners of the discipline of mathematics increasingly ought to engage with the subject matter as they grow in mathematical maturity and expertise throughout the elementary, middle and high school years. Designers of curricula, assessments and professional development should all attend to the need to connect the mathematical practices to mathematical content in mathematical instruction. The Standards for Mathematical Content are a balanced combination of procedure and understanding. Expectations that begin with the word “understand” are often especially good opportunities to connect the practices to the content. Students who lack understanding of a topic may rely on procedures too heavily. Without a flexible base from which to work, they may be less likely to consider analogous problems, represent problems coherently, justify conclusions, apply the mathematics to practical situations, use technology mindfully to work with the mathematics, explain the mathematics accurately to other students, step back for an overview or deviate from a known procedure to find a shortcut. In short, a lack of understanding effectively prevents a student from engaging the mathematical practices. In this respect those content standards, which set an expectation of understanding are potential “points of intersection” between the Standards for Mathematical Content and the Standards for Mathematical Practice. These points of intersection are intended to be weighted toward central and generative concepts in the school mathematics curriculum that most merit time, resources, innovative energies and focus necessary to qualitatively improve the curriculum, instruction, assessment, professional development and student achievement in mathematics.

The Standards for Mathematical Practice stated below are to be developed with students, used by students when teaching the mathematical content here within and integrated into each of the following units.

Common Core State Standards for Mathematical Practice

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.

## SCOPE AND SEQUENCE

## KINDERGARTEN MATHEMATICS

<b>Topic: Counting and Cardinality</b>	<b>Topic: Operations and Algebraic Thinking</b>
I Number Sense <ul style="list-style-type: none"><li>a) Count by 1s from any given number</li><li>b) Skip counting</li><li>c) Identify and write numerals 1-20</li><li>d) Value of penny and dime</li><li>e) Value of paper money</li><li>f) Number patterns</li><li>g) One-to-one correspondence</li></ul> II Number Comparisons	III Numerical Operations <ul style="list-style-type: none"><li>a) Changing numbers (bigger/adding and smaller/subtracting)</li><li>b) Addition</li><li>c) Compliments of ten</li><li>d) Subtraction</li><li>e) e. Solving equations</li></ul>
<b>Topic: Number and Operations in Base Ten</b>	<b>Topic: Measurement and Data</b>
IV. Place Value <ul style="list-style-type: none"><li>a) Compose double digit numbers</li><li>b) Decompose double digit numbers</li></ul>	V. Measurement <ul style="list-style-type: none"><li>a) Length</li><li>b) Weight</li><li>c) Volume/capacity</li><li>d) Time to the hour</li><li>e) Tally marks</li><li>f) Season, month, day</li></ul> VI. Data <ul style="list-style-type: none"><li>a) Classify items by attribute</li><li>b) Compare items by attribute</li><li>c) c. Graphs to represent data</li></ul>
<b>Topic: Geometry</b>	

VII. Geometry

- a) Positional words
- b) Two and three dimensional shapes
- c) Identification
- d) Comparison
- e) Composition and decomposition
- f) Symmetry

**KINDERGARTEN MATHEMATICS****TOPIC: Number Sense****Objectives/Cluster Concepts  
Cumulative Progress Indicators  
(CPIs)****Goal 1:** The student will be able to develop a sense of what numbers are and how they work**The student will be able to:****Essential Questions  
Conceptual Understandings****Instructional Tools/Materials/Technology/ Resources/Learning  
Activities/Interdisciplinary Activities/Assessment Model**

1.1 Count by 1's from any given number to 100 (K.CC.1, K.CC.2)

**Essential Questions**

What do the names of numbers mean?

1.2 Count by 5's and 10's to 100 (K.CC.1)

Why do we count

1.3 Identify numbers 1-20 (K.CC.3, K.CC.4)

How can we accurately count and keep track of quantities up to 20 using money or other manipulatives?

1.4 Write the numerals 1-20 (K.CC.3)

Why do we need to know the value of money?

1.5 Count out a given number of objects displaying one-to-one correspondence (K.CC.4, K.CC.5)

How do patterns help us describe and understand the order of numbers

**Conceptual Understandings**

1.6 Identify a penny and its value

Numeral represent numbers and have many uses

1.7 Identify a dime and its value

Number names describe the number of objects

1.8 Identify the difference between a dollar bill and a coin

The last number counted in a sequence represents the number of objectives in a set.

1.9 Identify a 1, 5, 10, and 20 dollar bill

Forming numbers correctly is useful in representing the quantity counted

1.10 Identify number patterns using a number chart (counting by 5s/10's and identifying numbers of similarity using the ones' place (K.CC.1)

A penny has the value of 1 cent

A dime has the value of 10 cents. The value of a dime is equivalent to 10 pennies

A pattern has a predictable, repeating part,

**Note:** The assessment models provided in this document are suggestions for the teacher. If the teacher chooses to develop his/her own model, it must be of equal or better quality and at the same or higher cognitive levels

Depending upon the needs of the class, the assessment questions may be answered in the form of essays, quizzes, mobiles, PowerPoint, oral reports, booklets, or other formats of measurement used by the teacher

**Learning Activities**

Calendar Activities: Calendar, 100's chart/100 number line

As children complete calendar activities, ask them to tell you a pattern they notice about the numbers in the 100's chart.

Morning Activities: counting up while passing an item.

Center Activities

Counting games

Skill Sheets

**Assessment Models**

Rote counting: How far can you count? (Child counts as far as he/she can) \* When reassessing at various times of the year (quarterly, have students begin counting from a given number instead of beginning with the number 1

Numeral Recognition: Place numeral cards in random order. (Can you tell me the names of any of these numbers) – If the child is reluctant, try "Show me a" name of the numeral) or "What is" (Make note if

1.11 Relate a numeral to a position of order (ordinal numbers— first, second, etc.)  
K.CC.4

the core and be extended by using the repetitions of the core

working makes a difference

Numeral Writing:

1. Students write numbers in sequence (1-20)
2. Students write numeral dictated by teacher

One to One Correspondence

Put out three groups of beans: a group of 8, a group of 12, and a group of 20 (Count a group of beans for me)

a) Line b) Rectangular array or circle c) Scattered configuration

Using receptive and expressive language, students will identify the names and values of the coins: penny and dime.

(Students will be asked to point to the penny and point to the dime. Students will be asked to name the penny and name the dime and their values)

Using receptive and expressive language, students will identify the names and values of the bills: \$1, \$5, \$10, \$20

(Students will be asked to point to the bills \$1, \$5, \$10, \$20. Students will be asked to name the bills: \$1, \$5, \$10, \$20 and their values)

**KINDERGARTEN MATHEMATICS**

**TOPIC: Comparing Numbers**

**Objectives/Cluster Concepts  
Cumulative Progress Indicators  
(CPIs)**

**Goal 2:** The student will be able to apply their understanding of number by explaining how two numbers are different than one another

**The student will be able to:**

**Essential Questions  
Conceptual Understandings**

**Instructional Tools/Materials/Technology/ Resources/Learning  
Activities/Interdisciplinary Activities/Assessment Model**

2.1 Compare two numbers between 1-10 (K.CC.6, K.CC.7)

**Essential Questions:**

Why should we compare numbers

How are groups of objects the same or different

2.2 Compare two numbers between 0-20 (Introduce and practice) (K.CC.6)

How can we identify if one group is greater than, less than, or equal?

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Depending upon the needs of the class, the assessment questions may be answered in the form of essays, quizzes, mobiles, PowerPoint, oral reports, booklets, or other formats of measurement used by the teacher

**Conceptual Understandings**

By counting and comparing quantities, we can determine which is more, less, or equal

**Learning Activities**

Center Activities

Measuring Tasks: Balance, Scale

Skill Sheets

Number Games

**Assessment Models**

**Performance:** Given two groups of objects students will identify which group is greater than, less than or equal by using matching or counting strategies

**Written Assessment:** Students identify the following by circling:

a) Greater of two numbers

b) Less than of two numbers

**KINDERGARTEN MATHEMATICS**

**TOPIC: Numerical Operations**

**Objectives/Cluster Concepts  
Cumulative Progress Indicators  
(CPIs)**

**Goal 3:** The student will be able to make a number bigger or smaller through the use of addition or subtraction

**Essential Questions  
Conceptual Understandings**

**Instructional Tools/Materials/Technology/ Resources/Learning  
Activities/Interdisciplinary Activities/Assessment Model**

**The student will be able to:**

- 3.1 Orally add and subtract without manipulatives and or/fingers with fluency (automatic) within 5 (K.OA.5)
- 3.2 Add and subtract within 10 using manipulatives or drawing to represent the problem. (K.OA.1, K.OA.2, K.OA.3)
- 3.3 Identify the number that makes ten when added to a given number 1-9 (K.OA.4)
- 3.4 Solve addition equations with sums to 10 using objects or drawings. (K.OA.1, K.OA.3)

**Essential Questions**

- How can I make a number bigger or smaller?
- How can I make a number change?
- How do I recognize what strategy to use for a specific problem?
- Why do we need mathematical operations?
- How do I know which mathematical operation to use?
- How can knowing the addition and subtraction facts help me?

**Conceptual Understandings:**

Addition and subtraction involve combining or

**Note:** The assessment models provided in this document are suggestions for the teacher. If the teacher chooses to develop his/her own model, it must be of equal or better quality and at the same or higher cognitive levels

Depending upon the needs of the class, the assessment questions may be answered in the form of essays, quizzes, mobiles, PowerPoint, oral reports, booklets, or other formats of measurement used by the teacher

**Learning Activities**

- Calendar Activities: Calendar, 100's chart
- Center Activities
- Morning Activities: Word Problems
- Number games: Around the World, Top It, Hide and Seek with items
- Skill Sheets

3.5 Solve subtraction equations with sums to 10 using objects or drawings (K.OA.1, K.OA.3)

separating small amounts

The ability to solve problems is the heart of mathematics.

I can take apart and recombine numbers in a variety of ways

### **Assessment Models**

Students show a number story by using objects to represent a number story

Students draw a picture to represent number story given

Show the student an equation card and the student will represent the equation using manipulatives

The students will record a number sentence that is given then use objects/manipulatives to show the number sentence and answer

Provide the students with an "open" number sheet of 10 circles. Using two different objects or colors students will create a number sentence through recording and answer with drawing or equation (Students roll dice and color the number of circles in one color. Students then color in the remainder of the circles in another color. Students record the number sentence to match

Students complete math fact paper (adding/subtracting to five)

Student show two ways (drawing or equation to make a given number (1-10)

**KINDERGARTEN MATHEMATICS**

**TOPIC: Place Value**

**Objectives/Cluster Concepts  
Cumulative Progress Indicators  
(CPIs)**

**Goal 4:** The student will be able to break (decompose) a two digit number into its expanded form and create (compose) a two digit number from an expanded notation.

**Essential Questions  
Conceptual Understandings**

**Instructional Tools/Materials/Technology/ Resources/Learning  
Activities/Interdisciplinary Activities/Assessment Model**

**The student will be able to:**

4.1 Compose a double digit number up to 20 using tens and ones with the use of manipulatives (K.NBT.1)

**Essential Questions:**

How do numbers connect to quantity?  
How can we organize a set of objects so they are easy to count and combine?

**Note:** The assessment models provided in this document are suggestions for the teacher. If the teacher chooses to develop his/her own model, it must be of equal or better quality and at the same or higher cognitive levels

4.2 Decompose a double-digit number up to 20 into tens and ones with the use of manipulatives (K.NBT.1)

**Conceptual Understandings**

Numbers connected to quantity  
Using groups to count is more effective than counting by ones  
The place value of teen numbers is made up of one group of ten and some number of ones

Depending upon the needs of the class, the assessment questions may be answered in the form of essays, quizzes, mobiles, PowerPoint, oral reports, booklets, or other formats of measurement used by the teacher

**Learning Activities:**

Calendar Activities: Calendar, 100's Chart  
Center Activities  
Morning Activities: Word Problem  
Number Games: Zurkle  
Skill Sheets

**Assessment Models**

Compose a double-digit (less than 20) number using tens and ones (Composition: e.g., "Demonstrate 10 and 4 ones make 14")  
Decompose a double-digit (less than 20) number into tens and ones (Decomposition: e.g., " what does  $19=10+9$  mean, one group of 10 and 9 ones)

**KINDERGARTEN MATHEMATICS**

**TOPIC: Measurement**

**Objectives/Cluster Concepts  
Cumulative Progress Indicators  
(CPIs)**

**Goal 5:** The student will be able to identify various forms of measurement and utilize them to describe an object's/situation's attributes and/or condition

**Essential Questions  
Conceptual Understandings**

**Instructional Tools/Materials/Technology/ Resources/Learning  
Activities/Interdisciplinary Activities/Assessment Model**

**The student will be able to:**

- 5.1 Identify length and weight as forms of measurement and determine when to use them in measuring an object (introduce and practice) (K.MD.1)
- 5.2 Explore measuring a distance using length with non-standard and standard units (feet) (K.MD.1)
- 5.3 Identify methods of measuring volume and capacity and that there are both standard and non-standard methods of measurement-(Introduce and practice) (K.MD.1)
- 5.4 Compare two objects with the same measureable attribute in common, determining which objects has "more of/less of" the attribute (K.MD.2)
- 5.5 Describe the difference of a measurable attribute between two objects (K.MD.2)
- 5.6 Tell and write time in hours using analog and digital clocks

**Essential Questions:**

- How is measurement used in the real world?
- How can we use consistent units to measure accurately?
- What happens when something is measured with smaller units versus larger units?
- Why do we get different counts when using different units to measure an object?
- How does time influence the events in our daily lives (hours, days, months, and seasons)?

**Conceptual Understandings**

- Measurement can be described using words and numbers
- Measuring identifies how long things are, how much they weigh and how much they hold
- Temperature tells whether something is hot or cold
- A clock is a tool that measures time.
- A calendar is a tool that shows days and months of the year
- Events occur in sequence

**Note:** The assessment models provided in this document are suggestions for the teacher. If the teacher chooses to develop his/her own model, it must be of equal or better quality and at the same or higher cognitive levels

Depending upon the needs of the class, the assessment questions may be answered in the form of essays, quizzes, mobiles, PowerPoint, oral reports, booklets, or other formats of measurement used by the teacher

**Learning Activities**

- Calendar Activities: Calendar, 100's Chart
- Center Activities: Rice/Sand Table
- Morning Activities: Word Problems (Comparing two objects)
- Measurement games: Attribute Hunt, I-Spy, How big is a foot
- Skill Sheets

**Assessment Models**

- Students will compare/measure specific items (pre-determined) using non-standard units such as paper clips and Unifix Cubes
- Students will compare/measure specific items (pre-determined) using the standard unit of feet
- Students will directly compare two objects (pre-determined) with a measurable attribute in common (length, width, weight, and capacity).
- Using the classroom clock, students will identify and name time to the hour

(introduce and practice)  
(1.MD.3)

Given three story pictures, students will arrange them in the correct sequence from beginning to last

- 5.7 Understand the concept of time, related to morning, noon, afternoon, and night. (K.MD.1)
- 5.8 Decide the order in which a sequence of events occurs
- 5.9 Explore an objects' weight by using heavier and lighter. (K.MD.1, K.MD.2)
- 5.10 Identify and correspond the term pounds with an object's weight (K.MD.1)
- 5.11 Name the days of the week, months of the year and season (there are 7 days in a week; there are 12 months in a year; there are four seasons in a year (K.MD.1)
- 5.12 Name the current month and day (K.MD.1)
- 5.13 Identify yesterday, today, and tomorrow (K.MD.1)

<b>KINDERGARTEN MATHEMATICS</b> <b>Objectives/Cluster Concepts</b> <b>Cumulative Progress Indicators</b> <b>(CPIs)</b> <b>The student will be able to:</b>	<b>TOPIC: Data</b> <b>Goal 6:</b> The student will be able to construct, read, and interpret information on a graph <b>Essential Questions</b> <b>Conceptual Understandings</b>	<b>Instructional Tools/Materials/Technology/ Resources/Learning</b> <b>Activities/Interdisciplinary Activities/Assessment Model</b>
6.1 Sort items according to attributes (K.MD.3) 6.2 Count objects within their classification (K.MD.3) 6.3 Understand, read, and interpret information on a bar graph and picture graph (introduce and practice) (K.MD.2) 6.4 Construct a graph to represent a data set (K.MD.2, K.MD.3) 6.5 Explore the use of tally marks (introduce and practice) (K.MD.3)	<p style="text-align: center;"><b>Essential Questions:</b></p> Which attributes should we consider in classifying objects? What are the many different stories that data can tell us? How do data and graphs help us understand information? Does data always lead to the truth? How can we organize and provide understanding of the data? <p style="text-align: center;"><b>Conceptual Understandings</b></p> Information can be sorted, organized, described to answer questions Information can be represented and presented in different ways A graph is a way to show information in an organized pictorial way The data in a graph can be used to answer questions	<p><b>Note:</b> The assessment models provided in this document are suggestions for the teacher. If the teacher chooses to develop his/her own model, it must be of equal or better quality and at the same or higher cognitive levels</p> Depending upon the needs of the class, the assessment questions may be answered in the form of essays, quizzes, mobiles, PowerPoint, oral reports, booklets, or other formats of measurement used by the teacher <p style="text-align: center;"><b>Learning Activities</b></p> Calendar activities: Weather Center Activities: Sorting, Classifying, Graphing Morning Activities/Daily Routine: Attendance, Lunch Count, Question of the Day, Clean-up Data Analysis games: Sorting, Classifying, Graphing Skill Sheets

**KINDERGARTEN MATHEMATICS****TOPIC: Geometry****Objectives/Cluster Concepts  
Cumulative Progress Indicators  
(CPIs)****Goal 7:** The student will be able to analyze, describe, create, and compose shapes**The student will be able to:****Essential Questions  
Conceptual Understandings****Instructional Tools/Materials/Technology/ Resources/Learning  
Activities/Interdisciplinary Activities/Assessment Model**

- 7.1 Use positional words to describe where objects are located in the environment (K.G.1)
- 7.2 Identify and name shapes in the environment regardless of their orientation or overall size (K.G.2)
- 7.3 Explore shapes in the environment, identifying them as two-dimensional or three-dimensional. (K.G.3)
- 7.4 Describe similarities and differences of two-dimensional or three-dimensional shapes. (K.G.4)
- 7.5 Create models of shapes in the world by constructing shapes from various components/tools. (K.G.5)
- 7.6 Construct various shapes using manipulatives (use simple shapes to form larger shapes) (K.G.6)
- 7.7 Identify if an object is symmetrical (introduce and practice) (K.G.1, K.G.2, 4.G.3)

**Essential Questions:**

- Why might seeing/visualizing objects in their simple form help us to understand them?
- Why is it helpful to use simple shapes to describe an object?
- How can we observe, describe, and compare shapes?
- How can knowing relative positions help us know where things are?

**Conceptual Understandings**

- Shapes are everywhere in our environment
- Complex objects are made up of many simple shapes
- Objects, like us, have positions in our environment

**Note:** The assessment models provided in this document are suggestions for the teacher. If the teacher chooses to develop his/her own model, it must be of equal or better quality and at the same or higher cognitive levels

Depending upon the needs of the class, the assessment questions may be answered in the form of essays, quizzes, mobiles, PowerPoint, oral reports, booklets, or other formats of measurement used by the teacher

**Learning Activities**

- Students will identify relative positions of an “object” using such terms as: above, below, beside, in front of, behind, and next to, by placing the object as directed --Calendar Activities: Interactive bulletin board, following directions
- Center Activities: Sorting, matching, pattern blocks
- Geometry games
- Skill sheets

**Assessment Models**

- Show students a collection of pattern blocks and attribute blocks. Ask children to remove the shapes you name from the tray
- Students complete a naming and sorting activity of flat and solid shapes
- Students choose two shapes and describe the similarities and differences between them using attributes (e.g. number of sides/vertices or having sides of equal length.
- Students identify 2D and 3D shapes by locating them in the classroom, form a magazine, or draw them to show different shapes in our environment (squares, circles, triangles, rectangle, hexagons, cubes, cones, cylinders, and spheres).
- Students will identify relative positions of an “object” using such terms as: above, below, beside, in front of, behind, and next to by placing the

object as directed. (Quarterly assessment-can use and interactive bulletin board.)

Topic: Counting and Cardinality	Topic: Operations and Algebraic Thinking
<p>I. Number Sense</p> <ul style="list-style-type: none"><li>a) Count by 1s up to 120 from any given number</li><li>b) Skip counting</li><li>c) Identify and write numerals up to 120</li><li>d) d. Represent a set of objects numerically</li></ul>	<p>II. Word Problems</p> <ul style="list-style-type: none"><li>a) Involving numbers to 20</li><li>b) Involving addition and subtraction</li></ul> <p>III. Properties of Operations</p> <ul style="list-style-type: none"><li>a) Fact families</li><li>b) Commutative property</li><li>c) Associative property</li></ul> <p>IV. Addition and Subtraction</p> <ul style="list-style-type: none"><li>a) Counting on or back</li><li>b) b. Use of manipulatives</li></ul>
Topic: Number and Operations in Base Ten	Topic: Measurement and Data
<p>V. Money</p> <ul style="list-style-type: none"><li>a) Value of coins</li><li>b) Value of bills</li><li>c) c. Value of homogeneous and heterogeneous sets of coins</li><li>d) d. Connection to place value</li></ul> <p>VI. Place Value</p> <ul style="list-style-type: none"><li>a) Tens and Ones</li><li>b) Comparing numbers<ul style="list-style-type: none"><li>a. Greater than, less than, equal to</li></ul></li><li>c) Addition of one and two-digit numbers</li><li>d) d. Subtraction of multiples of ten</li></ul>	<p>VII. Measurement</p> <ul style="list-style-type: none"><li>a) Length<ul style="list-style-type: none"><li>a. Order by length</li><li>b. Compare lengths</li></ul></li><li>b) Standard and non-standard units</li><li>c) Time to hour and half-hour</li><li>d) Month, day, date</li></ul> <p>VIII. Data</p> <ul style="list-style-type: none"><li>a) Create graphs</li><li>b) Interpret graphs</li><li>c) c. Probability</li></ul>
Topic: Geometry	
<p>IX. Geometry</p> <ul style="list-style-type: none"><li>a) Two-dimensional shapes</li><li>b) Three-dimensional shapes</li><li>c) Create composite shapes</li><li>d) Symmetry</li><li>e) e. Fractions (with circles and rectangles)</li><li>f) Halves</li><li>g) Fourths</li></ul>	

**GRADE 1 MATHEMATICS**

**Objectives/Cluster Concepts  
Cumulative Progress Indicators  
(CPIs)**

**The student will be able to:**

- 1.1 Count to 120 starting at any number less than 120 (1.NBT.1)
- 1.2 Count to 120 by 5's and 10's (1.NBT.1)
- 1.3 Count by 2's to a given number (1.NBT.1)
- 1.4 Read and write numerals up to 120 (1.NBT.1)
- 1.5 Represent a number of objects up to 120 with a written numeral

**TOPIC: Extending the Counting Sequence**

**Goal 1** The student will be able to develop a sense of what numbers are and how they work

**Essential Questions  
Conceptual Understandings**

**Essential Questions**

- How can we understand and represent numbers up to 120?
- What is the most efficient way to count a group of objects?

**Conceptual Understandings:**

- Numbers in a sequence are related.
- Written numbers represent a group of objects
- You can use various counting strategies to count objects

**Instructional Tools/Materials/Technology/ Resources/Learning  
Activities/Interdisciplinary Activities/Assessment Model**

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**Assessment Models**

- Count to 120 starting at any number less than 120
- Count to 120 using 5's and 10's
- Count tally marks up to 50 by 5's and represent the amount with a written numeral
- Count by 2's to a given number
- Read and write numerals up to 120
- Represent a number of objects up to 120 with a written numeral

**Grade 1 MATHEMATICS**

**TOPIC: Numerical Operations (Word Problems Involving Addition and Subtraction)**

**Objectives/Cluster Concepts  
Cumulative Progress Indicators  
(CPIs)**

**Goal 2:** The student will be able to solve word problems involving situations of adding to, taking from, putting together, taking apart, and comparing with unknowns in all positions.

**The student will be able to:**

**Essential Questions  
Conceptual Understandings**

**Instructional Tools/Materials/Technology/ Resources/Learning  
Activities/Interdisciplinary Activities/Assessment Model**

- 2.1 Use addition and subtraction within 20 to solve word problems (1.OA.1)
- 2.2 Solve word problems that call for addition of three whole numbers whose sum is less than or equal to 20 (1.OA.2)

**Essential Questions:**

How do we solve addition and subtraction problems?  
How do we decide what operation to use when solving word problems

**Conceptual Understandings**

In addition we combine quantities to find the sum; in subtraction we take away quantities to find the difference  
The use of pictures, numbers, words, and mathematical symbols helps to model and communicate thinking

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**Assessment Models**

Use objects or create a drawing and equation to solve given word problems  
Use objects or create a drawing and addition equation to solve word problems adding 3 numbers whose sum is less than or equal to 20

**Grade 1 MATHEMATICS**

**TOPIC: Properties of Operations**

**Objectives/Cluster Concepts  
Cumulative Progress Indicators  
(CPIs)**

**Goal 3:** The student will be able to make a number bigger or smaller through the use of addition or subtraction

**Essential Questions  
Conceptual Understandings**

**Instructional Tools/Materials/Technology/ Resources/Learning  
Activities/Interdisciplinary Activities/Assessment Model**

**The student will be able to:**

- 3.1 Write a related fact family given three numerals (1.OA.3)
- 3.2 Identify related addition facts, such as turn-around facts ( $2+3=5$  and  $3+2=5$ ) (1.OA.3)
- 3.3 Regroup addends to solve addition problems (1.OA.4)
- 3.4 Identify related addition facts to a given subtraction fact ( $10-8=?$  Is the same as  $8+?=10$ ) (1.OA.4)
- 3.5 Explain the relationship between addition and subtraction (1.OA.3, 1.OA.4)

**Essential Questions**

How can we use addition to solve subtraction problems and vice-versa?  
How are addition and subtraction related?  
How does working with fact families help me learn addition and subtraction

**Conceptual Understandings**

Knowing the relationship between addition and subtraction facts can help us solve problems

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**Assessment Models**

Given 2 numerals write a related fact family  
Identify turn-around facts for addition equations  
Show regrouping to solve addition problems using objects, or pictures, or written equations.  
Solve a subtraction fact using a related addition fact.

**Grade 1 MATHEMATICS**

**TOPIC: Addition and Subtraction**

**Objectives/Cluster Concepts  
Cumulative Progress Indicators  
(CPIs)**

**Goal 4:** The student will be able to use a variety of strategies to solve addition and subtraction equations working toward fluency and automaticity

**The student will be able to:**

**Essential Questions  
Conceptual Understandings**

**Instructional Tools/Materials/Technology/ Resources/Learning  
Activities/Interdisciplinary Activities/Assessment Model**

- 4.1 Count on or back to solve an addition or subtraction equation within 20 (1.OA.5, 1.OA.6)
- 4.2 Use a number line, objects, pictures, or other method to solve addition and subtraction equations within 20 (1.OA.6)
- 4.3 Solve addition and subtraction problems within 20 (1.OA.6)
- 4.4 Demonstrate fluency in solving addition and subtraction problems within 10(1.OA.6)
- 4.5 Explain and properly utilize the symbols (+, -, =) used in writing equations (1.OA.7)
- 4.6 Identify if an addition or subtraction equation is true or false (1.OA.7)
- 4.7 Identify the missing number in a given addition or subtraction equation (1.OA.8)

**Essential Questions**

How does counting help with solving addition and subtraction problems?  
What strategies can we use to solve addition and subtraction problems  
How can we organize a set of objects or numbers to make it easier to solve addition and subtraction problems?  
How can we determine if a given equation is equivalent?  
How can we create equivalency in equations?  
How can we show our understanding of the equal sign?

**Conceptual Understandings**

There are many ways to represent a quantity.  
There are many strategies to use when solving addition or subtraction problems.  
Computational fluency with single digit operations of addition and subtraction helps in solving problems.  
Using the strategy of addition, subtraction, or comparison you can determine if two quantities are equivalent  
Knowing the total and one part of an equation helps solve an unknown part of an equation.  
Using a known combination of numbers helps

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**Assessment Models**

Solve addition and subtraction problems within 20.  
Starting at a given number use number line, objects, or pictures to show where you end up if told to add or subtract from the given number.  
Answer addition facts and subtraction facts within 10 with automatic responses to the equation and without the use of manipulatives (e.g. Unifix cubes, fingers, etc.)  
Identify if an equation is true or false  
Identify the missing number in a given addition or subtraction equation.  
Compare two sides of an equation so they are equal. Understanding of the equal sign.

to solve an unknown combination of numbers

<b>Grade 1 MATHEMATICS</b> <b>Objectives/Cluster Concepts</b> <b>Cumulative Progress Indicators</b> <b>(CPIs)</b> <b>The student will be able to:</b>	<b>TOPIC: Working with Money</b> <b>Goal 5:</b> The student will be able to name and identify the value of coins and bills and explore place value using money as a tool.  <b>Essential Questions</b> <b>Conceptual Understandings</b>	<b>Instructional Tools/Materials/Technology/ Resources/Learning</b> <b>Activities/Interdisciplinary Activities/Assessment Model</b>
<p>5.1 Identify the name and value of coins, including pennies, nickels, dimes, and quarters (1.NBT.1, 1.NBT.4)</p> <p>5.2 Identify the value of coins, including sets of pennies, nickels, and dimes. (1.NBT.1, 1.NBT.4)</p> <p>5.3 Identify the value of mixed groups of pennies, nickels, and dimes (1.NBT.1, 1.NBT.4)</p> <p>5.4 Identify the value of a set of quarters up to 4 (1.NBT.1, 1.NBT.4)</p> <p>5.5 Identify the relationship between pennies, dimes, and dollars to ones, tens, and hundreds (1.NBT.1, 1.NBT.4)</p> <p>5.6 Explore the use of dollar bill amounts, including \$1, \$5, and \$10 (1.NBT.1, 1.NBT.4)</p>	<p><b>Essential Questions</b></p> <p>How do we think mathematically as we use money in our everyday life?</p> <p>How are dollars, dimes, and pennies like hundreds, tens, and ones</p> <p><b>Conceptual Understandings</b></p> <p>There are different names and values of money.</p> <p>Money can be counted.</p> <p>The relationship between pennies, dimes, and dollars is the same as the relationship between ones, tens, and hundreds.</p>	<p><b>Note:</b> The assessment models provided in this document are suggestions for the teacher. If the teacher chooses to develop his/her own model, it must be of equal or better quality and at the same or higher cognitive levels</p> <p>Depending upon the needs of the class, the assessment questions may be answered in the form of essays, quizzes, mobiles, PowerPoint, oral reports, booklets, or other formats of measurement used by the teacher</p> <p><b>Assessment Models</b></p> <p>Identify the name and value of coins including pennies, nickels, dimes and quarters</p> <p>Identify the value of coins including sets of pennies, nickels, and dimes.</p> <p>Identify the value of mixed groups of pennies, nickels, and dimes.</p> <p>Identify the value of a set of quarters up to 4</p> <p>Show the relationship between pennies, dimes, dollars to ones, tens, and hundreds (e.g. using base ten blocks or an equation to relate to the value of the coins</p> <p>Identify values for 1, 5, &amp; 10 dollar bills.</p>

**Grade 1 MATHEMATICS**

**TOPIC: Place Value**

**Objectives/Cluster Concepts  
Cumulative Progress Indicators  
(CPIs)**

**Goal 6:** The student will be able to identify the ten’s and one’s places in two digit numbers while demonstrating a conceptual understanding of a number in its expanded form.

**Essential Questions  
Conceptual Understandings**

**Instructional Tools/Materials/Technology/ Resources/Learning  
Activities/Interdisciplinary Activities/Assessment Model**

**The student will be able to:**

- 6.1 Identify the two digits of a two-digit number (1.NBT.2)
- 6.2 Identify the tens place value and ones place value for all two-digit numbers including special case numbers (11-19) and counting by 10’s. (1.NBT.2)
- 6.3 Identify the ten’s place value as a bundle of ten ones which equals a “ten” (1.NBT.2)
- 6.4 Compare two two-digit numbers based on the meaning of tens and ones digits, recording the results of comparisons with the symbols  $<$ ,  $>$ , and  $=$ . (1.NBT.3)
- 6.5 Add a two-digit and a one-digit number within 100, using models, drawings and addition strategies including regrouping. (Relate strategies to written method; be able to explain reasoning) (1.NBT.4)
- 6.6 Add a two-digit number and a multiple of 10 within 100, using models, drawings, and

**Essential Questions**

- How do we represent a two-digit number?
- How are two numbers related to one another and how can we represent this relationship?
- How can we organize a group of objects to they are easy to add or subtract?
- What strategies can we use to solve addition and subtraction equations involving two-digit numbers?
- How do we show our work when solving a problem?

**Conceptual Understandings**

- The place value of two-digit numbers is made up of some groups of tens and some number of ones (including zero).
- A ten represents a bundle of ten ones.
- The position of a digit in a number tells us about the quantity and allows us to compare numbers.
- It is more efficient to group tens and ones to add two two-digit numbers and sometimes it

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Depending upon the needs of the class, the assessment questions may be answered in the form of essays, quizzes, mobiles, PowerPoint, oral reports, booklets, or other formats of measurement used by the teacher

**Assessment Models**

- Given a two-digit number name the ten’s place and the one’s place for the given number.
- Represent a two-digit number using objects and grouping them into tens and ones, including examples for numbers 11-19 and multiples of 10 to 100.
- Identify the tens place value as a bundle of ten ones which equals a ten.
- Compare two two-digit numbers recording the results using the symbols  $<$ ,  $>$ , and  $=$ .
- Within 100, add a two digit + a one digit number (including a problem that involves regrouping, such as  $19+9$ ); demonstrate how to regroup them into tens and ones using concrete models such as manipulatives or drawing and strategies based on place value. Relate the strategy to a written method and explain the reasoning used.
- Within 100, add a two-digit number and a multiple of 10. Relate the strategy to a written method and explain the reasoning used. For

addition strategies, including regrouping. (Relate strategies to written method; be able to explain reasoning) (1.NBT.4)

- 6.7 Group objects or numbers into groups of tens and ones when adding or subtracting. (1.NBT.4)
- 6.8 Demonstrate the ability to compose a 10 to solve the addition of two-digit numbers. (1.NBT.4)
- 6.9 Mentally find 10 more or ten less than a given two-digit number without having to count. (Explain the reasoning used.) (1.NBT.5)
- 6.10 Subtract multiples of 10 in the range of 10-90 from multiples of 10 in the range 10-90 (positive or zero differences), using models, drawings and addition strategies including regrouping. (Relate strategies to written method; be able to explain reasoning.) (1.NBT.6)

is necessary to compose tens.

Adding or subtracting ten to a number changes the value of the tens place by one.

example: Students will choose the written equation that corresponds with their model.

Given a two digit number, mentally find 10 more or 10 less than the number, without having to count; explain the reasoning used.

Subtract multiples of 10 in the range 10-90 from multiples of ten in the range 10-90 (positive or zero differences). Relate the strategy to a written method and explain the reasoning used.

**Grade 1 MATHEMATICS**

**TOPIC: Measurement**

**Objectives/Cluster Concepts  
Cumulative Progress Indicators  
(CPIs)**

**Goal 7:** The student will be able to utilize various forms of measurement to describe an object's/situation's attributes and/or condition.

**Essential Questions  
Conceptual Understandings**

**Instructional Tools/Materials/Technology/ Resources/Learning  
Activities/Interdisciplinary Activities/Assessment Model**

**The student will be able to:**

- 7.1 Order three objects by length (1.MD.1)
- 7.2 Compare the lengths of two objects indirectly by using a third object (1.MD.1)
- 7.3 Measure an object with standard and non-standard units. (1.MD.2)
- 7.4 Use a foot-long ruler to measure an object less than a foot to the nearest inch. (1.MD.2)
- 7.5 Tell and write time in hours and half-hours using analog and digital clocks. (1.MD.3)
- 7.6 Identify the days of the week and months of the year. (K.MD.1)
- 7.7 Identify the date for yesterday, today, and tomorrow, including the year. (K.MD.1)

**Essential questions:**

- How is measurement used in the real world?
- How can we use consistent units to measure accurately?
- Why do we need to use consistent units to measure?

**Conceptual Understandings**

- Length measurement is applied to objects and distances.
- Measurements of the same length are consistently the same when using the same unit to measure.
- Measurement involves estimated to a desired fixed point and using such terms as "a little more than" and "a little less than"
- We measure time in relation to hours and minutes and can record it in different ways
- There are different terms we use to describe time, including months, days of the week, and date.

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Depending upon the needs of the class, the assessment questions may be answered in the form of essays, quizzes, mobiles, PowerPoint, oral reports, booklets, or other formats of measurement used by the teacher

**Assessment Models**

- Identify two objects in relation to a third as bigger or smaller.
- Given three objects place them in order by length.
- Using a given nonstandard length unit measure an object longer than the length unit provided (end to end with no spaces)
- Name the days of the week and identify how many days in a week.
- Name the months of the year.
- Tell the date for today, yesterday, and tomorrow.
- Tell and write time in hours and half-hours using analog and digital clocks.

<b>Grade 1 MATHEMATICS</b> <b>Objectives/Cluster Concepts</b> <b>Cumulative Progress Indicators</b> <b>(CPIs)</b>  <b>The student will be able to:</b>	<b>TOPIC: Data</b>  <b>Goal 8:</b> The student will be able to construct, read, and interpret information on a graph, chart, or diagram  <b>Essential Questions</b> <b>Conceptual Understandings</b>	<b>Instructional Tools/Materials/Technology/ Resources/Learning</b> <b>Activities/Interdisciplinary Activities/Assessment Model</b>
<p>8.1 Organize and represent data (graphs, charts, diagrams) with up to three categories (1.MD.4)</p> <p>8.2 Ask and answer questions about a data set (How many in each category? How many more/less in one category than in another? (1.MD.4)</p> <p>8.3 Identify the likely outcome for a given chance of probability. (1.MD.4)</p> <p>8.4 Generate, collect, and record data gathered from chance devices such as spinners and dice.</p>	<p><b>Essential questions:</b></p> <p>In what ways do we organize information? Why is it important to organize and interpret information? Is there a likely outcome for given chances of probability?</p> <p><b>Conceptual Understandings</b></p> <p>Data can be organized and collected in many different ways. Organizing data can help us make comparisons and identify values such as the most and the least. Likely outcomes for chances of probability can be predicted</p>	<p><b>Note:</b> The assessment models provided in this document are suggestions for the teacher. If the teacher chooses to develop his/her own model, it must be of equal or better quality and at the same or higher cognitive levels</p> <p>Depending upon the needs of the class, the assessment questions may be answered in the form of essays, quizzes, mobiles, PowerPoint, oral reports, booklets, or other formats of measurement used by the teacher</p> <p><b>Assessment Models</b></p> <p>Create a bar graph, tally chart, or pictograph with three categories. Given a bar graph, tally chart, or pictograph identify which category has the most and how much in each category. Given a bar graph, tally chart, or pictograph identify how many more or less in one category than in another. Shown a spinner with tow colors where one is more area than the other, predict which color the spinner is likely to land on. Record on a bar graph or tally chart results of data generated from chance devices such as a spinner or dice.</p>

**Grade 1 MATHEMATICS**

**TOPIC: Geometry**

**Objectives/Cluster Concepts  
Cumulative Progress Indicators  
(CPIs)**

**Goal 9:** The student will be able to analyze, describe, classify, create, and compose shapes. The student will be able to explore the concept of fractions (halves and fourths) in relation to circles and rectangles.

**Essential Questions  
Conceptual Understandings**

**Instructional Tools/Materials/Technology/ Resources/Learning  
Activities/Interdisciplinary Activities/Assessment Model**

**The student will be able to:**

- 9.1 Identify attributes for given shapes (1.G.1)
- 9.2 Identify defining attributes of given shapes and determine the non-defining attributes (1.G.1)
- 9.3 Represent shapes to correspond with attributes (1.G.1)
- 9.4 Use one or more two-dimensional shapes to create a composite shape (1.G.2)
- 9.5 Identify shapes with symmetry (1.G.1)
- 9.6 Draw the line of symmetry for given shapes (only need to name one line of symmetry even if more are present in the shape) (1.G.1)
- 9.7 Divide circles and rectangles into two and four equal shares (1.G.3)
- 9.8 Use the words *halves*, *fourths*, and *quarters* to describe the

**Essential questions:**

- Where are shapes located in our environment?
- How can we use observation of shapes to describe and compare them?
- How can we represent two-dimensional and three-dimensional and shapes in different ways?
- How can we use shapes to make other shapes (including using smaller shapes to represent a larger shape)?
- How are geometric shapes related to one another?
- What is a whole?
- How is a shape divided into equal shares?
- How do we describe the equal shares?
- What happens to the shares when we divide the shapes in different ways?

**Conceptual Understandings**

- Two-dimensional shapes can be sorted by a variety of attributes
- There are relationships among shapes
- Two-dimensional shapes can be identified and

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**Assessment Models**

- Identify shapes based on defining attributes, including sides and corners for 2-D shapes and vertices and curved surfaces and flat faces for 3-D shapes.
- Distinguish between defining attributes and non-defining attributes for given shapes.
- Draw or build a shape based on defining attributes.
- Shown a visual model of a composite shape use two-dimensional/ three-dimensional shapes to represent it.
- Manipulate the composite shapes into a new shape.
- Divide circles and rectangles into two and four equal shares.
- Identify if a shape is symmetrical.
- Given a symmetrical shape, draw a line of symmetry on the shape.
- Given a shape, identify how many lines of symmetry there are for the shape.

	equal shares of a whole (1.G.3)	described.	Describe the shares as <i>halves</i> , <i>fourths</i> , and <i>quarters</i> while using the phrases <i>half of</i> , <i>fourth of</i> , and <i>quarter of</i> .
9.9	Describe the whole in terms of two or four of the shares (1.G.3)	Two-dimensional shapes can be composed of or decomposed of other shapes.  Shapes go together and can be taken apart to make other shapes.	Describe the whole as two of or four of the shares  Explain why splitting a whole into halves or fourths gives you more or less of a share.
9.10	Identify that decomposing whole shapes into more equal shares creates smaller shares (1.G.3)	There is a relationship among two-dimensional and three-dimensional shapes.  A whole can be partitioned into an equal number of parts, and there are terms we can use to describe these parts.  The more a whole is divided into equal parts, the smaller the size of the parts.  Some shapes have symmetry	

<b>Grade 1 MATHEMATICS</b> <b>Objectives/Cluster Concepts</b> <b>Cumulative Progress Indicators</b> <b>(CPIs)</b>  <b>The student will be able to:</b>	<b>TOPIC: Patterns</b>  <b>Goal 10:</b> The student will be able to identify, extend, and create patterns involving objects, pictures, and numbers.  <b>Essential Questions</b> <b>Conceptual Understandings</b>	<b>Instructional Tools/Materials/Technology/ Resources/Learning</b> <b>Activities/Interdisciplinary Activities/Assessment Model</b>
10.1 Identify and extend patterns involving objects or pictures (1.G.1)	<b>Essential questions:</b> Where do we see patterns in our lives? How does identifying a pattern help us make predictions about what will come next?	<b>Note:</b> The assessment models provided in this document are suggestions for the teacher. If the teacher chooses to develop his/her own model, it must be of equal or better quality and at the same or higher cognitive levels
10.2 Create a pattern using objects or pictures (1.G.1)		Depending upon the needs of the class, the assessment questions may be answered in the form of essays, quizzes, mobiles, PowerPoint, oral reports, booklets, or other formats of measurement used by the teacher
10.3 Identify and extend patterns involving numbers that increase or decrease by a fixed whole number (1.NBT.1)	<b>Conceptual Understandings</b> Patterns are formed using some kind of regularity in a sequence Number sequences can be associated with repeating patterns. Whole number patterns increase or decrease as a result of repeatedly adding or subtracting a fixed number.	<b>Assessment Models</b> Identify examples of patterns. Extend patterns for objects or pictures. Create a pattern using objects or pictures. Identify and extend patterns for numbers

**Scope and Sequence**

**Grade 2 Mathematics**

**Topic: Operations and Algebraic Thinking**

I Operations

- a) Addition
  - a. Writing equations
  - b. Solving word problems
  - c. Key words
  - d. Commutative property
  - e. Compliments of ten
- b) b. Subtraction
  - a. Writing equations
  - b. Solving word problems
  - c. Key words
  - d. Computational fluency
  - e. Numbers within 20
  - f. Fact families

II Strategies

- a) Counting on
- b) Number line
- c) Doubles
- d) Doubles +1
- e) e. Compliments of ten

**Topic: Measurement and Data**

IX. Measurement

- a) Inches, feet, centimeters and meters
- b) Compare lengths
- c) Measurement word problems

X. Time

- a) Time to the 5 minute
- b) A.M. and P.M.
- c) Calendar skills

XI. Data

- a) Line plot
- b) Circle graph
- c) Picture graph
- d) Bar graph
- e) Probability

**Topic: Number and Operations in Base Ten**

III. Place Value

- a) Tens and Ones
- b) Greater than, less than, equal to
- c) Rounding
- d) Numbers through 1,000

IV. Money

- a) Value of coins and bills
- b) Value of coin/bill combinations
- c) Create amounts of money
- d) Determine change from purchases

V. Addition with two-digit numbers

- a) Without regrouping
- b) With regrouping
- c) c. Estimation and answer reasonableness

VI. Addition with three-digit numbers

- a) Without regrouping
- b) With regrouping
- c) Estimation and answer reasonableness

VII. Subtraction with two-digit numbers

- a) Without regrouping
- b) With regrouping
- c) Estimation and answer reasonableness

VIII. Subtraction with three-digit numbers

- a) Without regrouping
- b) With regrouping
- c) c. Estimation and answer reasonableness

**Topic: Geometry**

XII. Geometry

- a) Two-dimensional and three-dimensional shapes
  - i. Faces
  - ii. Angles
- iii. Vertices
- iv. Edges
- b) Compose and decompose shapes
- c) Congruent figures
  - a. Symmetry

XIII. Fractions

- a) Halves
- b) Thirds
- c) Fourths

**Grade 2 MATHEMATICS****TOPIC: Understanding Addition and Subtraction****Objectives/Cluster Concepts  
Cumulative Progress Indicators  
(CPIs)****Goal 1:** The student will be able to use a variety of strategies to solve addition and subtraction equations working towards fluency and automaticity.**Essential Questions  
Conceptual Understandings****Instructional Tools/Materials/Technology/ Resources/Learning  
Activities/Interdisciplinary Activities/Assessment Model****The student will be able to:**

- 1.1 Join two groups together to find how many in all. (2.OA.1)
- 1.2 Write an addition sentence to tell how many in all. (2.OA.1)
- 1.3 Solve a story problem by writing an addition sentence. (2.OA.1)
- 1.4 Take away a number of objects from a group. (2.OA.1)
- 1.5 Compare two groups to find how many more/fewer (2.NBT.4)
- 1.6 Write subtraction sentences to solve both separation and comparison problems (2.NBT.4, 2.NBT.8)
- 1.7 Solve problems by choosing addition or subtraction. (2.NBT.5)
- 1.8 Use clue words to prompt solving word problems for addition and subtraction (2.OA.1)

**Essential questions:**

- In what ways can numbers be used to tell information?
- How does what you know about words help you to know when to add or subtract
- Why is recognizing what strategy to use for a specific purpose helpful?

**Conceptual Understandings**

- There are words that prompt us to add or subtract.
- Determine what information in word problem is needed to solve the problem and what is extra.
- Math sentence can be written and solved using the information found within the word problem.
- There are various strategies that one can apply to solve a word problem such as: drawing and/or writing equations, estimate, number line or one hundred chart.
- Addition is when you put numbers together to make a larger number.

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Depending upon the needs of the class, the assessment questions may be answered in the form of essays, quizzes, mobiles, PowerPoint, oral reports, booklets, or other formats of measurement used by the teacher

**Assessment Models**

- Complete addition and subtraction equations to 20 accurately.
- Identify clue word (highlight, circle or underline) that indicates addition or subtraction for a word problem and write the equation with correct answer.
- List the 11 addition facts for 10.
- Write the 4 equations for a given fact family.
- Complete an equation with a missing addend.

- |      |  |  |
|------|--|--|
| 1.9  | Use the Commutative Property (turn around fact) to find sums (2.NBT.5, 2.NBT.9)      | Subtraction is when you take away to make a smaller number. When adding two numbers, reversing the numbers does not affect the sum.  |
| 1.10 | Recognize facts that have sums of 10 (2.OA.2)  | There is a relationship between addition and subtraction (fact families).  |
| 1.11 | Demonstrate fluency in solving addition and subtraction problems within 20 ((2.OA.2) | Fluency with addition and subtraction is developed when efficient strategies for adding and subtracting to used accurately.<br>Different strategies (mental, paper, drawing) can be used to add and subtract numbers fluently. |
| 1.12 | Write and recognize fact families (2.OA.2)   | A math sentence can be written to solve for unknown information in either addition or subtraction by utilizing the inverted operation.   |
| 1.13 | Find missing addends (2.OA.2,  |  |

**Grade 2 MATHEMATICS**

**TOPIC: Fact Strategies for Addition and Subtraction**

**Objectives/Cluster Concepts  
Cumulative Progress Indicators  
(CPIs)**

**Goal 2:** The student will be able to use a variety of strategies to solve addition and subtraction equations working towards fluency and automaticity.

**The student will be able to:**

**Essential Questions  
Conceptual Understandings**

**Instructional Tools/Materials/Technology/ Resources/Learning  
Activities/Interdisciplinary Activities/Assessment Model**

- 2.1 Count on to add 1, 2, or 4 to another number (2.OA.2)
- 2.2 Recognize doubles as a strategy. (2.OA.2)
- 2.3 Use doubles + 1 strategy (2.OA.2)
- 2.4 Find the sum of three addends (2.NBT.6)
- 2.5 Find sums by making a ten when adding 9 (2.OA.2)
- 2.6 Solve problems by writing number sentences (2.OA.1)
- 2.7 Use a number line to count back. (2.OA.2)
- 2.8 Find differences by using doubles facts. (2.OA.2)
- 2.9 Find differences by using known addition facts. (2.OA.2)
- 2.10 Use data in pictures to help find missing numbers in number sentences (2.NBT.9)
- 2.11 Answer addition/subtraction facts through 20 with automatic response to the equation. (2.OA.2)

**Essential questions:**

Why is recognizing what strategy to use for a specific purpose helpful?  
What are some different strategies that can be used to assist in solving addition and subtraction equations

**Conceptual Understandings**

Words or drawings can be used to explain addition and subtraction strategies.  
When adding two numbers, reversing the numbers does not affect the sum.  
There is a relationship between addition and subtraction (fact families).  
Fluency with addition and subtraction is developed when efficient strategies for adding and subtracting to used accurately.  
The same strategies used for two one-digit numbers can be applied when adding three or more one-digit numbers.

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**Assessment Models**

Demonstrate or explain the strategy used to come up with the answer to addition and subtraction equations

**Grade 2 MATHEMATICS**

**TOPIC: Place Value**

**Objectives/Cluster Concepts  
Cumulative Progress Indicators  
(CPIs)**

**Goal 3:** The student will be able to identify the ten’s and one’s places in two-digit numbers while demonstrating a conceptual understanding of a number in its expanded form.

The student will be able to extend the working sequence of numbers to include those up to 1,000.

**The student will be able to:**

**Essential Questions  
Conceptual Understandings**

**Instructional Tools/Materials/Technology/ Resources/Learning  
Activities/Interdisciplinary Activities/Assessment Model**

3.1 Count groups of 10 up to 10 tens and write how many (2.NBT.1, 2.NBT.2)

**Essential questions:**

In what ways can numbers be used to tell information?

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3.2 Use groups of 10’s and 1’s to show a given number (2.NBT.1, 2.NBT.2)

How does the position of a digit in a number help you understand the value?

Depending upon the needs of the class, the assessment questions may be answered in the form of essays, quizzes, mobiles, PowerPoint, oral reports, booklets, or other formats of measurement used by the teacher

3.3 Read and write number words for given numbers up to 1000 (2.NBT.3)

**Conceptual Understandings**

Each place in a number has a specific value in relation to the base ten number system.

**Assessment Models**

Identify the value of a digit in a given number up to 1000.

3.4 Solve a problem by making an organized list. (2.NBT.5, 2.NBT.7)

Numbers follow a pattern that repeats even when place value changes.

Write the number in expanded form.

3.5 Compare numbers using  $<$ ,  $>$ ,  $=$  up to 1000 (2.NBT.4)

Place value can be represented in standard, expanded, number words and orally expressed.

Use symbols ( $<$ ,  $>$ ,  $=$ ) to compare the value of numbers up to 1000.

3.6 Use a number line to determine the closest 10 (2.NBT.7)

Symbols ( $<$ ,  $>$ ,  $=$ ) can be used to compare the value of numbers through 1000.

Label numbers as odd/even.

Determine the closest ten to a set of various numbers.

3.7 Identify and write number s that are before, after, or between (2.NBT.4)

Different strategies (mental, paper, drawing) can be used to add and subtract numbers fluently.

Identify and explain the pattern based on a given set of numbers.

Write number before, after and between various given numbers.

3.8 Extend skip counting pattern

Even numbers are those that are

Write numeral from reading number words.

- on a 100's chart (2.NBT.2)
- 3.9 Recognize and extend addition/subtraction patterns when given a set of numbers up through 1000. (2.NBT.2)
- 3.10 Identify numbers as odd or even (2.OA.3)
- 3.11 Read and write numerals up to 1000 (2.NBT.1)
- characterized as making groups of two (partners) or making two equal groups (teams) and odd numbers do not.
- A math sentence can be written to solve for unknown information in either addition or subtraction by utilizing the inverted operation.

<b>Grade 2 MATHEMATICS</b>  <b>Objectives/Cluster Concepts</b> <b>Cumulative Progress Indicators</b> <b>(CPIs)</b>  <b>The student will be able to:</b>	<b>TOPIC: Money</b>  <b>Goal 4:</b> The student will be able to utilize money to make purchases and calculate the change from a purchase  <b>Essential Questions</b>  <b>Conceptual Understandings</b>	<b>Instructional Tools/Materials/Technology/ Resources/Learning</b> <b>Activities/Interdisciplinary Activities/Assessment Model</b>
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- 4.1 Demonstrate knowledge of names and values of coins. (2.MD.8)
- 4.2 Count mixed money amounts using dollars including \$5, \$10, \$20, half dollars, quarters, dimes, nickels, and pennies. (2.MD.8)
- 4.3 Determine the money necessary to pay for a target price. (2.MD.8)
- 4.4 Compare amounts of money using  $<$ ,  $>$ ,  $=$ . (2.NBT.8)
- 4.5 Show the same amount of money using different sets of coins (2.MD.8)
- 4.6 Use counting on to count and write change with different denominations of coins. (2.MD.8)

**Essential questions:**  
How does use of money help you in real life?  
  
In what ways can numbers be used to tell information?

**Conceptual Understandings**  
  
Money knowledge can be used to solve word problems.  
  
Symbols ( $<$ ,  $>$ ,  $=$ ) can be used to compare the value of money.

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**Assessment Models**

Count a given set of money.

Show money needed to purchase a target priced item.

Compare sums of money using  $<$ ,  $>$  and  $=$ .

Given a money value, show the coins/bills to use in two or more ways.

**Grade 2 MATHEMATICS**

**TOPIC: Addition of Two-Digit Numbers With and Without Regrouping**

**Objectives/Cluster Concepts  
Cumulative Progress Indicators  
(CPIs)**

**Goal 5:** The student will be able to demonstrate an understanding of place value for tens and ones by accurately adding with two-digit numbers.

**The student will be able to:**

**Essential Questions  
Conceptual Understandings**

**Instructional Tools/Materials/Technology/ Resources/Learning  
Activities/Interdisciplinary Activities/Assessment Model**

5.1 Use manipulative to show regrouping of tens and ones. (2.NBT.7)

**Essential questions:**

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How can I use what I know about number relationships to add and subtract?

5.2 Explain how regrouping is done and represent with manipulatives (2.NBT.7)

Why is recognizing what strategy to use for a specific purpose helpful?

Depending upon the needs of the class, the assessment questions may be answered in the form of essays, quizzes, mobiles, PowerPoint, oral reports, booklets, or other formats of measurement used by the teacher

**Conceptual Understandings**

5.3 Compute addition problems of 2 digit numbers (with and without regrouping) (2.NBT.5)

Different strategies (mental, paper, drawing) can be used to add numbers fluently.

**Assessment Models**

Illustrate/explain adding two-digit numbers with/without regrouping.

5.4 Add a 1 digit to a 2 digit and record in vertical format (2.NBT.9)

The same strategies used for two two-digit numbers can be applied when adding three or more than two-digit numbers.

Accurately compute two and three two-digit numbers with/without regrouping for addition.

5.5 Calculate sums of money to \$.99 (2.MD.8)

Different strategies (mental, paper, drawing, concrete models) can be applied to add within 100.

Accurately compute money sums up to \$.99 using two two-digit numbers.

5.6 Add three two digit addends (2.NBT.6)

Place value affects the other place values when adding (regrouping, trading, composing/decomposing)

Give a table with various two-digit numbers and solve addition with/without regrouping.

5.7 Solve problems involving addition using data from a table (2.MD.10)

When adding two-digit numbers knowing the value of that digit in a given position determines the next step one must take to

Choose from a list of strategies/tools one could use to solve a given two-digit math addition equation to determine which is the best way to attain the correct answer.

5.8 Recognize and use different strategies /tools (calculator, manipulatives, drawings,

Give an equation using 2 two-digit numbers. Solve the problem

	number line, mental math) to add 2 two-digit numbers (2.NBT.7)	solve an equation.	giving an estimate and exact sum.
5.9	Solve a problem by using estimation to determine reasonableness of the sum (2.NBT.8)	Multiples of 10 and 100 can be used as landmark numbers in computation.	Identify clue word (highlight, circle or underline) that indicates addition for a word problem and write the equation with correct answer.
		Words or drawings can be used to explain addition strategies.	
5.10	Use clue words to prompt solving word problems for double digit addition (2.OA.1, 9.1.4.A.1)	Money knowledge can be used to solve word problems.	
		Picture graphs, bar graphs, charts and tables can be used to solve comparative and addition problems.	

**Grade 2 MATHEMATICS**

**TOPIC: Addition of Three-Digit Numbers With and Without Regrouping**

**Objectives/Cluster Concepts  
Cumulative Progress Indicators  
(CPIs)**

**Goal 6:** The student will be able to demonstrate an understanding of place value for hundreds, tens and ones by accurately adding with three-digit numbers.

**The student will be able to:**

**Essential Questions**

**Instructional Tools/Materials/Technology/ Resources/Learning  
Activities/Interdisciplinary Activities/Assessment Model**

**Conceptual Understandings**

- 6.1 Add three-digit numbers mentally when there is no regrouping (2.NBT.8)
- 6.2 Use manipulative to show regrouping of hundreds, tens and ones (2.NBT.7)
- 6.3 Compute addition problems involving three-digit numbers (with and without regrouping) (2.NBT.5)
- 6.4 Add two three-digit numbers and record in vertical format (2.NBT.9)
- 6.5 Solve problems involving addition using data from a table. (2.NBT.10)
- 6.6 Find missing addends in an equation containing three-digit numbers (2.NBT.8, 2.OA.1)

**Essential questions:**

How can I use what I know about number relationships to add and subtract?

Why is recognizing what strategy to use for a specific purpose helpful?

**Conceptual Understandings**

A math sentence can be written to solve for unknown information in either addition by utilizing the inverted operation.

Numbers follow a pattern that repeats even when place value changes.

Symbols (<, >, =) can be used to compare the value of numbers.

Different strategies (mental, paper, drawing) can be used to add numbers fluently.

Different strategies (mental, paper, drawing, concrete models) can be applied to add within 1000.

Place value affects the other place values when adding (regrouping, trading,

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**Assessment Models**

Illustrate/explain adding three-digit numbers with and without regrouping.

Accurately compute two and three three-digit numbers with and without regrouping for addition.

Give a table with various three-digit numbers and solve addition with and without regrouping.

Choose from a list of strategies/tools one could use to solve a given three-digit math addition equation

to determine which is the best way to attain the correct answer.

Give an equation using 2 three-digit numbers. Solve the problem giving an estimate and exact sum.

Accurately extend three-digit number patterns from any given

6.7 Apply knowledge of number patterns to extend existing patterns with numbers within 1000 (2.NBT.2)

composing/decomposing).

When adding two- or three-digit numbers, knowing the value of that digit in a given position determines the next step one must take to solve an equation.

Multiples of 10 and 100 can be used as landmark numbers in computation.

Words or drawings can be used to explain addition strategies.

Picture graphs, bar graphs, charts and tables can be used to solve comparative and addition problems.

number up to 1,000.

**Grade 2 MATHEMATICS**

**TOPIC: Subtraction of Two-Digit Numbers With and Without Regrouping**

**Objectives/Cluster Concepts  
Cumulative Progress Indicators  
(CPIs)**

**Goal 7:** The student will be able to demonstrate an understanding of place value for tens and ones by accurately subtracting two-digit numbers.

**The student will be able to:**

**Essential Questions  
Conceptual Understandings**

**Instructional Tools/Materials/Technology/ Resources/Learning  
Activities/Interdisciplinary Activities/Assessment Model**

7.1 Use manipulative to show regrouping of tens and ones (2.NBT.7)

**Essential questions:**

How can I use what I know about number relationships to add and subtract?

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7.2 Explain how regrouping is done and represent with manipulatives (2.NBT.7)

Why is recognizing what strategy to use for a specific purpose helpful?

Depending upon the needs of the class, the assessment questions may be answered in the form of essays, quizzes, mobiles, PowerPoint, oral reports, booklets, or other formats of measurement used by the teacher

**Conceptual Understandings**

7.3 Compute subtraction problems of two-digit numbers (with and without regrouping) (2.NBT.5)

Different strategies (mental, paper, drawing) can be used to subtract numbers fluently.

**Assessment Models**

Illustrate/explain subtracting two-digit numbers with and without regrouping.

7.4 Subtract a one-digit number from a two-digit number and record in vertical format (2.NBT.9)

Different strategies (mental, paper, drawing, concrete models) can be applied to subtract within 100.

Accurately compute two two-digit numbers with and without regrouping for subtraction.

Place value affects the other place values when subtracting (regrouping, trading, composing/decomposing).

Accurately subtract money amounts less than \$1.00 with and without regrouping.

7.5 Subtract amounts of money less than a dollar with and without regrouping (2.MD.8)

When subtracting two- or three-digit numbers, knowing the value of that digit in a given position determines the next step one must take to solve an equation.

Give a table with various two-digit numbers and solve subtraction with and without regrouping.

7.6 Solve problems involving subtraction using data from a table (2.MD.10)

Multiples of 10 and 100 can be used as landmark numbers in computation.

Choose from a list of strategies/tools one could use to solve a given two-digit math subtraction equation to determine which is the best way to obtain the correct answer.

7.7 Solve a problem by using estimation to determine reasonableness of difference

Words or drawings can be used to explain subtraction strategies.

Give an equation using two two-digit numbers.

Money knowledge can be used to solve word

Solve the problem giving an estimate and exact difference.

Identify clue word (highlight, circle or underline) that indicates subtraction for a word problem and write the equation with

(2.NBT.8)

- 7.8 Use clue words to prompt solving word problems for double digit subtraction.  
(2.OA.1, 9.1.4.A.1)
- 7.9 Use addition to check subtraction (2.NBT.9)
- 7.10 Estimate differences by rounding to the nearest 10  
(2.NBT.8)
- 7.11 Identify and solve problems with too much information  
(2.OA.1, 9.1.4.A.1)

problems.

Picture graphs, bar graphs, charts and tables can be used to solve comparative and subtraction problems.

There is a relationship between addition and subtraction (fact families).

correct answer.

**Grade 2 MATHEMATICS**

**TOPIC: Subtraction of Three-Digit Numbers With and Without Regrouping**

**Objectives/Cluster Concepts  
Cumulative Progress Indicators  
(CPIs)**

**Goal 8:** The student will be able to demonstrate an understanding of place value for hundreds, tens and ones by accurately subtracting with three-digit numbers.

**The student will be able to:**

**Essential Questions  
Conceptual Understandings**

**Instructional Tools/Materials/Technology/ Resources/Learning  
Activities/Interdisciplinary Activities/Assessment Model**

- 8.1 Add three-digit numbers within 1,000 mentally when there is no regrouping (2.NBT.8)
- 8.2 Use manipulative to show regrouping of hundreds, tens, and ones (2.NBT.7)
- 8.3 Compute addition problems with three-digit numbers (with and without regrouping) within 1,000 (2.NBT.5)
- 8.4 Add two three-digit numbers and record in vertical format (2.NBT.9)
- 8.5 Solve problems involving addition using data from a table. (2.MD.10)
- 8.6 Find missing addends in an equation involving three digit numbers (2.NBT.8, 2.OA.1)
- 8.7 Apply knowledge to number patterns to extend existing patterns with numbers within

**Essential questions:**

How can I use what I know about number relationships to add and subtract?

Why is recognizing what strategy to use for a specific purpose helpful?

**Conceptual Understandings**

A math sentence can be written to solve for unknown information in subtraction by utilizing the inverted operation.

Numbers follow a pattern that repeats even when place value changes.

Different strategies (mental, paper, drawing, concrete models) can be applied to subtract within 1000.

Place value affects the other place values when either subtracting (regrouping, trading, composing/decomposing).

When subtracting two or three digit numbers, knowing the value of that digit in a given position determines the next step one must take to solve an equation.

Multiples of 10 and 100 can be used as landmark numbers in computation.

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**Assessment Models**

Illustrate/explain subtracting three- digit numbers with and without regrouping within 1,000.

Accurately compute three-digit numbers with and without regrouping for subtraction.

Give a table with various three-digit numbers and solve subtraction with and without regrouping.

Give an equation using two three-digit numbers.

Solve the problem giving an estimate and exact difference.

	1,000 (2.NBT.2)	Words or drawings can be used to explain subtraction strategies.
8.8	Use addition to check subtraction (2.NBT.9)	Picture graphs, bar graphs, charts and tables can be used to solve comparative, probability, and addition/subtraction problems.
8.9	Estimate differences by rounding to the nearest 10 or 100 (2.NBT.8)	

**Grade 2 MATHEMATICS**

**TOPIC: Geometry and Fractions**

**Objectives/Cluster Concepts  
Cumulative Progress Indicators  
(CPIs)**

**Goal 9:** The student will be able to analyze, describe, classify, create, and compose shapes utilizing information about a shape’s attributes (faces, angles, vertices, and edges).

The student will be able to explore the concept of fractions (halves, thirds, and fourths) in relation to circles and rectangles.

**The student will be able to:**

**Essential Questions  
Conceptual Understandings**

**Instructional Tools/Materials/Technology/ Resources/Learning  
Activities/Interdisciplinary Activities/Assessment Model**

9.1 Identify plane and solid shapes by geometric attributes such as face, angle, vertex, and edge (2.G.1)

**Essential questions:**

How are shapes a part of our world?  
In what ways can numbers be used to tell information?

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9.2 Draw shapes having specified attributes such as a given number of angles or a given number of faces (2.G.1)

**Conceptual Understandings**

Shapes are determined by the number of angles and/or given number of equal faces.

Depending upon the needs of the class, the assessment questions may be answered in the form of essays, quizzes, mobiles, PowerPoint, oral reports, booklets, or other formats of measurement used by the teacher

9.3 Identify and construct congruent figures (2.G.1)

A rectangle can be partitioned into same size squares and counted to find the total number.

**Assessment Models**

Identify and draw plane and solid shapes.

9.4 Demonstrate and describe the decomposing (two triangles = square) and combining (two squares = rectangle) shapes to make new shapes (2.G.1)

Shapes can be broken into smaller equal parts (halves, thirds, half of, a third of) and together those parts make a whole.

Accurately identify geometric attributes (face, angle, vertex, and edge) of a given solid shape.

Given two figures, differentiate congruent and non-congruent figures.

9.5 Identify and draw lines of symmetry (4.G.3)

Using pattern blocks, compose and decompose shapes.

Given a shape, draw a line of symmetry.

9.6 Partition a rectangle, using graph paper, into rows and columns of the same size squares and count to find the

Using graph paper, give the area and perimeter of a given shape.

Identify halves, thirds, and fourths of a circle or rectangle.

total number to determine  
the area and perimeter (2.G.2)

- 9.7 Partition circles and  
rectangles into two, three, or  
four equal shares and name  
the fraction as halves, thirds,  
or fourths.

**Grade 2 MATHEMATICS**

**TOPIC: Measurement, Time, and Data**

**Objectives/Cluster Concepts  
Cumulative Progress Indicators (CPIs)**

**Goal 10:** The student will be able to utilize various forms of measurement to describe an object's/situation's attributes and/or condition.

**The student will be able to:**

**Essential Questions  
Conceptual Understandings**

**Instructional Tools/Materials/Technology/ Resources/Learning  
Activities/Interdisciplinary Activities/Assessment Model**

- 10.1 Measure lengths with inches, feet, yards, and centimeters (2.MD.1)
- 10.2 Estimate length measurement in inches, feet, centimeters, and meters(2.MD.3)
- 10.3 Measure same object/space using standard and metric units (2.MD.2)
- 10.4 Choose appropriate measuring tool to measure a given space (2.MD.1)
- 10.5 Compare the measurement of two different objects using the same standard of measurement (2.MD.4)
- 10.6 Determine a length of an object from any given point on a number line diagram (2.MD.2)
- 10.7 Solve word problems that use standard units of measurement within 100 (2.MD.5)
- 10.8 Tell time to the five minutes (2.MD.7)

**Essential questions:**

- In what ways can numbers be used to tell information?
- How is measurement used in your world?

**Conceptual Understandings**

- Continuous length is countable by using standard tools of measurement such as rulers, yardsticks, meter sticks and measuring tapes.
- The same object can be measured using standard and metric units.
- Looking at the object/space and considering the unit of measurement assists in making accurate estimations.
- Measuring in the same unit helps you compare the size of two or more objects.
- Common units of measurement can be added or subtracted when solving word problems.
- A given length is the same length no matter where it is placed on a measurement tool (8 inches of yarn will cover 8 units no matter where on a ruler/yard stick it is placed).
- Addition and/or subtraction can be used to

**Note:** The assessment models provided in this document are suggestions for the teacher. If the teacher chooses to develop his/her own model, it must be of equal or better quality and at the same or higher cognitive levels

Depending upon the needs of the class, the assessment questions may be answered in the form of essays, quizzes, mobiles, PowerPoint, oral reports, booklets, or other formats of measurement used by the teacher

**Assessment Models**

- Given an object student will be able to measure in inches, feet, yards, and centimeters and compare measurement to another object.
- Determine the length of an object using a section of a number line with a non-zero starting point.
- Identify clue word (highlight, circle or underline) to solve word problems using standard units of measurement within 100.
- Accurately tell time to the five minutes, draw hands accurately for given time, and distinguish between AM and PM.
- Given a calendar, identify any given date and be able to find a date previous or subsequent to that date.
- Be able to describe the relationship between hours in a day, days in a week, and months in a year.
- Given data, create a bar graph or pictograph and be able to interpret data using the information from the graph.

- 10.9 Distinguish between AM and PM (2.MD.7)
- 10.10 Determine number of days in month and year (2.MD.7)
- 10.11 Determine number of weeks in month and year (2.MD.7)
- 10.12 Name the next/previous month when given any month (2.MD.7)
- 10.13 Find today's date on a calendar (2.MD.7)
- 10.14 Count on weeks within a given month and determine the date (2.MD.7)
- 10.15 Place and compare information on a line plot graph (2.MD.9)
- 10.16 Interpret data on a circle graph (2.MD.10)
- 10.17 Draw a picture and/or bar graph to represent a data set with up to four categories (2.MD.10)
- 10.18 Solve simple addition and subtraction problems using information from a bar graph (2.MD.10)
- 10.19 Collect, generate, and record data generated from chance devices such as spinners and dice (2.MD.79)

determine the length of an object when it is placed on a non-zero starting point (8 inches of yarn is placed on a 2 and reaches 10:  $10-2=8$ ).

Time can be measured using an analog or digital clock.

Lengths (or related measured data such as temperature) can be compared by placing the information on a line plot graph.

Graphs represent a set of data.

Picture and bar graphs can be used to solve comparative addition and subtraction problems.

Given a circle graph or line plot, interpret the data

