Mathematics Curriculum ~ Kindergarten
Diocese of Cleveland

Unit 1: Calendar

Standards Assessed

CCSS: ELA & Literacy in History/Social Studies, Science, & Technical Subjects K-5, OH: CCSS: Kindergarten, Speaking and Listening

Presentation of Knowledge and Ideas

4. Present information, findings, and supporting evidence such that listeners can follow the line of reasoning and the organization, development, and style are appropriate to task, purpose, and audience.

- SL.K.4. Describe familiar people, places, things, and events and, with prompting and support, provide additional detail.

6. Adapt speech to a variety of contexts and communicative tasks, demonstrating command of formal English when indicated or appropriate.

- SL.K.6. Speak audibly and express thoughts, feelings, and ideas clearly.

CCSS: Mathematics, OH: CCSS: Kindergarten, Mathematical Practice

The Standards for Mathematical Practice describe varieties of expertise that mathematics educators at all levels should seek to develop in their students.

- 1. Make sense of problems and persevere in solving them.
- 2. Reason abstractly and quantitatively.
- 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.

DOC: Mathematics, DOC: Kindergarten, Measurement

A. Measurement Units

- 1. Identify units of time (hour, day, week, month, season, year) and compare calendar elements using analog and digital clocks and calendars.

B. Measurement Techniques and Tools

- 1. Compare and order objects of different lengths, areas, weights, capacities, and temperature using standard and non-standard measuring devices. (Use relative terms, such as longer, shorter, bigger, smaller, heavier, lighter, more, less, warmer and colder.)
- 3. Order events based on time, such as activities that take a long or short time; review what we do first, next, last; recall what we did or plan to do yesterday, today, or tomorrow.

Essential Questions

- How important are numbers in my life?
- How do good problem solvers do their work?
- How do I find patterns in everything around me?

Content

The students will know

1. Units of time (hour, day, week, month, season, year).
2. Structure of a calendar.
3. Sequence of events.
4. Thermometer is a tool for measuring temperature.

Skills

Bloom's Taxonomy

DOK Links

The students will be able to

1. Order events based on time (such as activities that take a long or short time; review what we do first, next, last; recall what we did or plan to do yesterday, today, or tomorrow).
2. Identify and explain an hour, a day, a week, a month, a season, and a year.

	3. Compare calendar elements using analog and digital clocks and calendars. 4. Express temperature as displayed on a thermometer as warmer or colder than a previous temperature. **Reading/Writing Skills** 1. Define, using context clues, specific vocabulary used in this unit and apply the terms and definitions to solve problems and give explanations. 2. Justify solutions, either verbally or in written form. a. Explain step-by-step process. b. Summarize results using specific and appropriate vocabulary. c. Use proper sentence structure for written answers. 3. Work in cooperative groups to practice listening and speaking skills.
Common Core Vocabulary 1. Calendar 2. Day 3. Week 4. Month 5. Season (spring, summer, fall, winter) 6. Year 7. Sequence 8. Event 9. Yesterday 10. Today 11. Tomorrow 12. First 13. Next 14. Last 15. Temperature 16. Thermometer 17. Warmer 18. Colder	**Additional Vocabulary**
Learning Experiences (Suggested) 1. Have students talk about the meaning of an hour, a day, a week, a month, a season, and a year in daily opening exercises and activities. 2. Using a calendar, ask students to determine and explain a sequence of events that happen today, yesterday, or tomorrow. 3. Working with a partner, have students use sequence cards or draw pictures for an activity to show the order of events. 4. Ask students to explain the steps taken to show the order of an event. 5. Have students take turns reading a thermometer to tell the temperature and to relate it to a previous temperature as warmer or colder.	**Assessment (Suggested)** **Calendar** **Formative: Oral Assessment** Students will display a general understanding of a calendar including day, week, month, year, season, and events. Students will demonstrate their understanding of a sequence of events (today, tomorrow, yesterday and first, second, last). **Illustrations of Time** **Summative: Project** Using a calendar or chart paper, students will work with a partner to illustrate the sequence of events (holidays, seasonal symbols, clothing, observations in nature), which occur during specific seasons.
Resources (Suggested) 1. iPad Resources	**Catholic Identity** **Social Justice Teachings**

2. Literature Connection
   Cookies' Week by Cindy Ward
   Calendar by Myra Cohn Livingston and Will Hillenbrand
   A Child's Calendar by John Updike
   Star Mother's Youngest Child by Louise Moeri
3. Internet Resources


Calendar Activity


Calendar ~ Free Games and Activities


Days of the Week Flashcards


Sequencing Activities


Early Learning Activities

- Life And Dignity Of The Human Person
- Call To Family, Community, And Participation
- Rights And Responsibilities
- Solidarity
- Care For God's Creation

Rights of Children

- THE RIGHT TO A SAFE ENVIRONMENT that promotes care, protection and security.
- THE RIGHT TO BE RESPECTED AS INDIVIDUALS with human dignity.
- THE RIGHT TO WORK ACTIVELY TOWARD THEIR OWN EMPOWERMENT through the development of their gifts and talents.
- THE RIGHT TO A LEARNING ENVIRONMENT THAT VALUES COOPERATION, and challenges its members to critical and reflective thinking in their search for truth.
- THE RIGHT TO DEVELOP POSITIVE, RESPONSIBLE AND CARING ATTITUDES AND BEHAVIORS TOWARD OTHERS and to recognize the rights of others to be safe and free from harassment and abuse.
- THE RIGHT TO LEARN THE SKILL OF SELF PROTECTION by identifying safe and unsafe situations.
- THE RIGHT TO LEARN RESPONSIBILITY for themselves and their actions.

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Unit 2: Number Names and Counting Sequence

Standards Assessed

CCSS: ELA & Literacy in History/Social Studies, Science, & Technical Subjects K-5, OH: CCSS: Kindergarten, Writing
3. Write narratives to develop real or imagined experiences or events using effective technique, well-chosen details, and well-structured event sequences.

- W.K.3. Use a combination of drawing, dictating, and writing to narrate a single event or several loosely linked events, tell about the events in the order in which they occurred, and provide a reaction to what happened.

CCSS: ELA & Literacy in History/Social Studies, Science, & Technical Subjects K-5, OH: CCSS: Kindergarten, Speaking and Listening
6. Adapt speech to a variety of contexts and communicative tasks, demonstrating command of formal English when indicated or appropriate.

- SL.K.6. Speak audibly and express thoughts, feelings, and ideas clearly.

CCSS: Mathematics (2011), OH: CCSS: Kindergarten, Mathematical Practice
The Standards for Mathematical Practice describe varieties of expertise that mathematics educators at all levels should seek to develop in their students.

- 6. Attend to precision.
- 7. Look for and make use of structure.
- 8. Look for and express regularity in repeated reasoning.

CCSS: Mathematics (2011), OH: CCSS: Kindergarten, Counting & Cardinality
K.CC: Know number names and the count sequence.

- K.CC.1. Count to 100 by ones and by tens.
- K.CC.2. Count forward beginning from a given number within the known sequence (instead of having to begin at 1).
- K.CC.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).

DOC: Mathematics, DOC: Kindergarten, Numbers, Number Sense and Operations
A. Numbers and Number Systems

- 2. Explain rules of counting, such as each object should be counted once, and that order does not change the number.
- 4. Determine “how many” in sets (groups) of 10 or fewer objects.
- 5. Relate, read, and write numerals 0-20, by modeling and sequencing within a group of objects.

B. Meaning of Operations

- c. Count on (forward) and count back (backward) on a number line between 0 and 10.

Essential Questions

- How important are numbers in my life?
- How many ways can I count?
- What are efficient ways to count?

Content	Skills
The students will know Rules of counting.	Bloom's Taxonomy DOK Links **The students will be able to** 1. Count by rote to 100 by ones and by tens.

1. One to one correspondence.
2. Number order.
3. Written numerals (0-20).
4. Zero as a number.
5. Read number words.
6. Ten as a counting unit.
7. Sequencing by ones and tens.
8. Number line (0-10).
9. Hundreds chart.

2. Form groups of ten.
3. Determine "how many" in sets.
4. Compare and order whole numbers up to 10 using words “first” through “tenth.”
5. Count forward beginning from a given number within a known sequence.
6. Write numbers from 0 to 20.
7. Illustrate a number of objects with a written numeral 0-20.
8. Count on (forward) and count back (backward) on a number line between 0 and 10.
9. Recognize and name numbers on a hundreds chart.
10. Identify and read number names.
11. State the number names in the standard order when pairing an object with one and only one object and each number name with one and only one object.

Reading/Writing Skills

1. Define, using context clues, specific vocabularies used in this unit and apply the terms and definitions to solve problems and give explanations.
2. Justify solutions, either verbally or in written form.
   a. Explain step-by-step process.
   b. Summarize results using specific and appropriate vocabulary.
   c. Use proper sentence structure for written answers.
3. Work in cooperative groups to practice listening and speaking skills.

Common Core Vocabulary

1. One to one correspondence
2. Sequence
3. Number words
4. Ones
5. Tens
6. Sets as number groups
7. Number line
8. Forward
9. Backward
10. Hundreds chart

Additional Vocabulary

1. Empty set

Learning Experiences (Suggested)

1. Students will recite counting rhymes, such as "Ten Little Indians."
2. With a partner, students will go for a walk around the room or school grounds looking for objects to count such as people working in the office or cafeteria, cars in the parking lot.
3. Form two groups of students. The first group calls out a number. The second group can either echo it or call out the number that comes next.
4. Using a large number line on the floor, have students hop to "higher" and "lower" numbers.
5. Using electronic flashcards, have students read number names and match to written numerals.

Assessment (Suggested)

Count to 100
Formative: Oral Assessment

Students will count to 100 by ones and tens.
Using a given number, students will count forward and backward within a known sequence.

Writing numbers 0-20
Summative: Written Assessment

Write the numbers from 0-20.
For a given set of objects write the number of objects with a written numeral 0-20.

Resources (Suggested)

1. iPad Resources
2. Literature Connection
   Numbers All in a Row by Pamela Reeves
   Fliptastic: Numbers by DK Publishing
   City by Numbers by Stephen T. Johnson
   The 512 Ants on Sullivan Street by Carol A. Losi
   A Million Fish . . . More or Less by Patricia C. McKissack
   More Than One by Miriam Schlein
   Only One by Marc Harshman
3. Internet Resources


Online Math Games

Catholic Identity

Social Justice Teachings

- Life And Dignity Of The Human Person
- Call To Family, Community, And Participation
- Rights And Responsibilities
- Solidarity
- Care For God's Creation

Rights of Children

- THE RIGHT TO A SAFE ENVIRONMENT that promotes care, protection and security.
- THE RIGHT TO BE RESPECTED AS INDIVIDUALS with human dignity.
- THE RIGHT TO WORK ACTIVELY TOWARD THEIR OWN EMPOWERMENT through the development of their gifts and talents.
- THE RIGHT TO A LEARNING ENVIRONMENT THAT VALUES COOPERATION, and challenges its members to critical and reflective thinking in their search for truth.
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Unit 3: Counting Objects

Standards Assessed

CCSS: ELA & Literacy in History/Social Studies, Science, & Technical Subjects K-5, OH: CCSS: Kindergarten, Reading: Informational Text

3. Analyze how and why individuals, events, and ideas develop and interact over the course of a text.

RI.K.3. With prompting and support, describe the connection between two individuals, events, ideas, or pieces of information in a text.

CCSS: ELA & Literacy in History/Social Studies, Science, & Technical Subjects K-5, OH: CCSS: Kindergarten, Speaking and Listening

6. Adapt speech to a variety of contexts and communicative tasks, demonstrating command of formal English when indicated or appropriate.

SL.K.6. Speak audibly and express thoughts, feelings, and ideas clearly.

CCSS: Mathematics, OH: CCSS: Kindergarten, Mathematical Practice

The Standards for Mathematical Practice describe varieties of expertise that mathematics educators at all levels should seek to develop in their students.

2. Reason abstractly and quantitatively.
4. Model with mathematics.
6. Attend to precision.
7. Look for and make use of structure.
8. Look for and express regularity in repeated reasoning.

CCSS: Mathematics, OH: CCSS: Kindergarten, Counting & Cardinality

K.CC: Count to tell the number of objects.
K.CC.4. Understand the relationship between numbers and quantities; connect counting to cardinality.
K.CC.4a. When counting objects, say the number names in the standard order, pairing each object with one and only one number name and each number name with one and only one object.
K.CC.4b. Understand that the last number name said tells the number of objects counted. The number of objects is the same regardless of their arrangement or the order in which they were counted.
K.CC.4c. Understand that each successive number name refers to a quantity that is one larger.
K.CC.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.

Essential Questions

- How important are numbers in my life?
- How do the good problem solvers do their work?
- How many ways can I count?
- What are efficient ways to count?

Content

The students will know

1. Rules to counting.
2. One to one correspondence.
3. Numbers increase by one.

Skills

Bloom's Taxonomy
DOK Links

The students will be able to

1. Recite number of objects in a group.
2. Compare and contrast groups in a one-to-one correspondence.
3. Recognize and explain that each successive number name refers to a quantity that is one larger.
4. Explain rules of counting, such as each object should be counted once, and that order does not change the number.

Reading/Writing Skills

1. Define, using context clues, specific vocabularies used in this unit and apply the terms and definitions to solve problems and give explanations.
2. Justify solutions, either verbally or in written form.
   a. Explain step-by-step process.
   b. Summarize results using specific and appropriate vocabulary.
   c. Use proper sentence structure for written answers.
3. Work in cooperative groups to practice listening and speaking skills.

Common Core Vocabulary

1. Successive numbers
2. One-to-one correspondence
3. Quantity
4. Larger means more

Additional Vocabulary

Learning Experiences (Suggested)

1. Working with a partner, have students use a cup or bag of counters and (a) group them into a variety of different sets. Have them group them into sets explaining why they are in the set, and (b) arrange the counters to show one-to-one correspondence.
2. Have students play "Simon Says" as a way to help them identify numbers.

Assessment (Suggested)

Counting objects
Formative: Observation

Working with a partner, students will use a cup or bag of counters and (a) group them into a variety of different sets, and (b) arrange the counters to show one-to-one correspondence.
Students will count to answer "how many" up to 20.
Tell the number of objects

Summative: Writing Assignment

Students will count and write numbers to answer "how many?" (Less than 20 objects).
Working with a partner, students will compare and contrast quantities and identify which quantity is larger.

Resources (Suggested)

1. iPad Resources
2. Literature Connections
   Benny's Pennies by Pat Brisson
   Berries, Nuts, and Seeds by Diane L. Burns
   The Button Box by Margarette S. Reid
   Let's Go Visiting by Sue Williams
   The Napping House by Audrey Wood
   One Monday Morning by Uri Shulevitz
   Ready or Not, Here I Come! by Teddy Slater
   Rooster's Off to See the World by Eric Carle
   Ten Black Dots by Donald Crews
   Who Sank the Boat? by Pamela Allen
3. Internet Resources


Online Math Games

Catholic Identity

Social Justice Teachings

- Life And Dignity Of The Human Person
- Call To Family, Community, And Participation
- Rights And Responsibilities
- Solidarity
- Care For God's Creation

Rights of Children

- THE RIGHT TO A SAFE ENVIRONMENT that promotes care, protection and security.
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Unit 4: Comparing Numbers

Standards Assessed

CCSS: ELA & Literacy in History/Social Studies, Science, & Technical Subjects K-5, OH: CCSS: Kindergarten, Reading: Informational Text
3. Analyze how and why individuals, events, and ideas develop and interact over the course of a text.

- RI.K.3. With prompting and support, describe the connection between two individuals, events, ideas, or pieces of information in a text.

Integration of Knowledge and Ideas
7. Integrate and evaluate content presented in diverse media and formats, including visually and quantitatively, as well as in words.

- RI.K.7. With prompting and support, describe the relationship between illustrations and the text in which they appear (e.g., what person, place, thing, or idea in the text an illustration depicts).

CCSS: ELA & Literacy in History/Social Studies, Science, & Technical Subjects K-5, OH: CCSS: Kindergarten, Speaking and Listening
6. Adapt speech to a variety of contexts and communicative tasks, demonstrating command of formal English when indicated or appropriate.

- SL.K.6. Speak audibly and express thoughts, feelings, and ideas clearly.

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- 1. Make sense of problems and persevere in solving them.
- 2. Reason abstractly and quantitatively.
- 4. Model with mathematics.
- 5. Use appropriate tools strategically.
- 6. Attend to precision.

CCSS: Mathematics, OH: CCSS: Kindergarten, Counting & Cardinality
K.CC: Compare numbers.

- K.CC.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.7. Compare two numbers between 1 and 10 presented as written numerals.

DOC: Mathematics, DOC: Kindergarten, Numbers, Number Sense and Operations
A. Numbers and Number Systems

- 9. Identify and state the value of a penny, nickel, and dime.

Essential Questions

- How important are numbers in my life?
- How do good problems solvers do their work?
- How can numbers be expressed, ordered, and compared?

Content

The students will know

1. Greater than, less than, and equal to.
2. Written numerals between 1 and 10.
3. The value of a penny, nickel, and dime.

Skills

Bloom's Taxonomy
DOK Links

The students will be able to

1. Compare and contrast objects in two groups in order to show greater than, less than, and equal to.

	2. Identify and name written numerals. 3. Compare two numbers between 1 and 10 presented as written numerals. 4. Differentiate the varying values of coins. 5. Explain the "value" of a penny, nickel, and dime. **Reading/Writing Skills** 1. Define, using context clues, specific vocabularies used in this unit and apply the terms and definitions to solve problems and give explanations. 2. Justify solutions, either verbally or in written form. a. Explain step-by-step process. b. Summarize results using specific and appropriate vocabulary. c. Use proper sentence structure for written answers. 3. Work in cooperative groups to practice listening and speaking skills.
Common Core Vocabulary 1. Greater than 2. Less than 3. Equal to 4. Penny 5. Nickel 6. Dime 7. Number names between 1 and 10	**Additional Vocabulary**
Learning Experiences (Suggested) 1. Working with a partner, have students use plastic counters to illustrate and explain the concept of greater than, less than, and equal to. 2. Have students use money manipulatives to show how many pennies are in a nickel and a dime and how many nickels are in a dime. 3. Using electronic flashcards, have students match numerals with the correct number word. 4. Using whiteboards, have students correctly write the numerals between 1 and 10.	**Assessment (Suggested)** **Compare numbers** **Formative: Observation** Students will count the number of objects in two groups. Students will identify and explain which of two groups is greater than, less than, or equal to the other. **Compare written numerals** **Summative: Oral Assessment** Using number cards students will compare two numbers (between 1 and 10). **Identification and value of coins** **Summative: Performance** Using Online Math Games (see resources) students will complete coin activities to demonstrate understanding of the value of coins (penny, nickel, dime).
Resources (Suggested) 1. iPad Resources 2. Literature Connections *My First Number Book* by Marie Heinst *Mother Goose Math: Adorable Activities, Games, and Manipulatives Based on Favorite Nursery Rhymes That Meet*	**Catholic Identity** **Social Justice Teachings** - Life And Dignity Of The Human Person - Call To Family, Community, And Participation - Rights And Responsibilities - Solidarity

the NCTM Standards (Grades K - 2) by Deborah Schecter *Frog Math: Predict, Ponder, Play* by Jaine Kopp *Counting Caterpillars and Other Math Poems* by Betsy Franco 3. Internet Resources  Online Math Games  National Library of Virtual Manipulatives  The Math Worksheets Generator  Math for the Left and Right Brain  MONEY MATH LESSONS, PROBLEMS AND EXERCISES	- Care For God's Creation **Rights of Children** - THE RIGHT TO A SAFE ENVIRONMENT that promotes care, protection and security. - THE RIGHT TO BE RESPECTED AS INDIVIDUALS with human dignity. - THE RIGHT TO WORK ACTIVELY TOWARD THEIR OWN EMPOWERMENT through the development of their gifts and talents. - THE RIGHT TO A LEARNING ENVIRONMENT THAT VALUES COOPERATION, and challenges its members to critical and reflective thinking in their search for truth. - THE RIGHT TO DEVELOP POSITIVE, RESPONSIBLE AND CARING ATTITUDES AND BEHAVIORS TOWARD OTHERS and to recognize the rights of others to be safe and free from harassment and abuse. - THE RIGHT TO LEARN THE SKILL OF SELF PROTECTION by identifying safe and unsafe situations. - THE RIGHT TO LEARN RESPONSIBILITY for themselves and their actions.

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Unit 5: Understanding Addition

Standards Assessed

CCSS: ELA & Literacy in History/Social Studies, Science, & Technical Subjects K-5, OH: CCSS: Kindergarten, Reading: Informational Text
Key Ideas and Details
1. Read closely to determine what the text says explicitly and to make logical inferences from it; cite specific textual evidence when writing or speaking to support conclusions drawn from the text.

- RI.K.1. With prompting and support, ask and answer questions about key details in a text.

CCSS: ELA & Literacy in History/Social Studies, Science, & Technical Subjects K-5, OH: CCSS: Kindergarten, Speaking and Listening
6. Adapt speech to a variety of contexts and communicative tasks, demonstrating command of formal English when indicated or appropriate.

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- 2. Reason abstractly and quantitatively.
- 4. Model with mathematics.
- 5. Use appropriate tools strategically.
- 6. Attend to precision.
- 8. Look for and express regularity in repeated reasoning.

CCSS: Mathematics (2011), OH: CCSS: Kindergarten, Operations & Algebraic Thinking
K.OA Understand addition as putting together and adding to, and understand subtraction as taking apart and taking from.

- K.OA.1. Represent addition and subtraction with objects, fingers, mental images, drawings, sounds (e.g., claps), acting out situations, verbal explanations, expressions, or equations.
- K.OA.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.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.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.5. Fluently add and subtract within 5.

DOC: Mathematics, DOC: Kindergarten, Numbers, Number Sense and Operations
B. Meaning of Operations

- 1. Model and represent addition as combining sets and as counting on; and subtraction as take-away and comparison.
- a. Create addition and subtraction sentences using the symbols +, –, and =.
- b. Combine and separate small sets of objects in contextual situations; e.g., add or subtract one, two, or another small amount.
- c. Count on (forward) and count back (backward) on a number line between 0 and 10.
- 2. Skip count by 2's to 20, by 5's and 10's to 50.

C. Computation and Estimation

- 1. Develop and use a personal method or a routine to solve number problems.
- 2. Compute using a variety of methods and choose an appropriate method for the situation.

Essential Questions

- How important are numbers in my life?
- How do good problem solvers do their work?
- How does the position of a digit in a number affect its value?

Content

The students will know

1. Addition is combining sets.
2. Addition word problems.
3. Addition facts to 10.
4. Mathematical symbols for addition.
5. Skip counting by 2's, 5's, and 10's to 100.

Skills

Bloom's Taxonomy
DOK Links

The students will be able to

1. Model and represent addition as combining sets and as counting on.
2. Describe and illustrate addition problems with objects, drawings, verbal explanations, expressions, or equations.
3. Solve addition word problems within 10 by using objects or drawings to represent the problem and explain how the problem was solved.
4. Write and explain addition equations to 10.
5. Describe and illustrate a group of 10 from any combination of numbers from 1 to 9.
6. Fluently add within 5.
7. Create and solve addition number sentences using the symbols + and =.
8. Recite skip-counting sequences for 2's, 5's, and 10's to 100.

Reading/Writing Skills

1. Define, using context clues, specific vocabularies used in this unit and apply the terms and definitions to solve problems and give explanations.
2. Justify solutions, either verbally or in written form.
   a. Explain step-by-step process.
   b. Summarize results using specific and appropriate vocabulary.
   c. Use proper sentence structure for written answers.
3. Work in cooperative groups to practice listening and speaking skills.

Common Core Vocabulary

1. Addition
2. Equation
3. Verbal explanations
4. Mathematical symbols (+, –, =)
5. Skip counting

Additional Vocabulary

Learning Experiences (Suggested)

1. Have students use manipulatives such as snap cubes, beads on a string, fingers and counters to make up and act out addition problems.
2. Working with a partner, have students use dominos to create addition number sentences.
3. Have students solve addition problems and explain how they solved the problems.
4. Working with a partner, have students write and explain addition equations to 10.
5. Using white boards, have students illustrate a group of 10 from

Assessment (Suggested)

Understanding addition
Formative: Observation

1. By using manipulatives students will be able to join sets illustrating addition facts to 10.
2. Explain by drawing or using equations how to decompose numbers less than or equal to 10 into pairs in more than one way (e.g., 5=2+3, 5=4+1).
3. Students will be able to make a 10 from any combination of numbers from 1 to 9.

any combination of numbers from 1 to 9. Ask volunteers to explain their work.

6. Working with a partner, have students create addition number sentences using the symbols + and =.
7. As a group, have students skip count in sequences of 2's, 5's, and 10's to 100.

4. Students will solve addition problems and explain how they solved the problem.

Skip count by 2's 5's and 10's to 100
Formative: Oral Assessment

Students will recall the sequence of numbers while counting by 2's, 5's and 10's to 100.

Fluency of addition facts to 5
Summative: Test

Using white boards, students will demonstrate proficiency in addition facts to 5.

Solving addition word problems
Formative: Observation

By using objects or drawings students will solve addition word problems up to 10.

Resources (Suggested)

1. iPad Resources
2. Literature Connection
   The Coin Counting Book by Rozanne Lanczak Williams
   Cats Add Up! by Dianne Ochiltree
   Let's Go Visiting by Sue Williams
   The Napping House by Audrey Wood
   One Monday Morning by Uri Shulevitz
   Quack and Count by Keith Baker
   Ten Flashing Fireflies by Philemon Sturges
   12 Ways to Get to 11 by Eve Merriam
   Two of Everything by Lily Toy Hong
   Animals on Board by Stuart J. Murphy
   Dominoes Addition by Lynette Long
3. Internet Resources


Math practice


National Library of Virtual Manipulatives


Ed Helper ~ Addition


Math for the Left and Right Brain


The Math Worksheets Generator

Catholic Identity

Social Justice Teachings

- Life And Dignity Of The Human Person
- Call To Family, Community, And Participation
- Rights And Responsibilities
- Solidarity
- Care For God's Creation

Rights of Children

- THE RIGHT TO A SAFE ENVIRONMENT that promotes care, protection and security.
- THE RIGHT TO BE RESPECTED AS INDIVIDUALS with human dignity.
- THE RIGHT TO WORK ACTIVELY TOWARD THEIR OWN EMPOWERMENT through the development of their gifts and talents.
- THE RIGHT TO A LEARNING ENVIRONMENT THAT VALUES COOPERATION, and challenges its members to critical and reflective thinking in their search for truth.
- THE RIGHT TO DEVELOP POSITIVE, RESPONSIBLE AND CARING ATTITUDES AND BEHAVIORS TOWARD OTHERS and to recognize the rights of others to be safe and free from harassment and abuse.
- THE RIGHT TO LEARN THE SKILL OF SELF PROTECTION by identifying safe and unsafe situations.
- THE RIGHT TO LEARN RESPONSIBILITY for themselves and their actions.

Mathematics Curriculum ~ Kindergarten
Diocese of Cleveland

Unit 6: Understanding Subtraction

Standards Assessed

CCSS: ELA & Literacy in History/Social Studies, Science, & Technical Subjects K-5, OH: CCSS: Kindergarten, Reading: Informational Text

Key Ideas and Details

1. Read closely to determine what the text says explicitly and to make logical inferences from it; cite specific textual evidence when writing or speaking to support conclusions drawn from the text.

- RI.K.1. With prompting and support, ask and answer questions about key details in a text.

Craft and Structure

4. Interpret words and phrases as they are used in a text, including determining technical, connotative, and figurative meanings, and analyze how specific word choices shape meaning or tone.

- RI.K.4. With prompting and support, ask and answer questions about unknown words in a text.

CCSS: ELA & Literacy in History/Social Studies, Science, & Technical Subjects K-5, OH: CCSS: Kindergarten, Speaking and Listening

6. Adapt speech to a variety of contexts and communicative tasks, demonstrating command of formal English when indicated or appropriate.

- SL.K.6. Speak audibly and express thoughts, feelings, and ideas clearly.

CCSS: Mathematics (2011), OH: CCSS: Kindergarten, Mathematical Practice

The Standards for Mathematical Practice describe varieties of expertise that mathematics educators at all levels should seek to develop in their students.

- 1. Make sense of problems and persevere in solving them.
- 2. Reason abstractly and quantitatively.
- 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.

CCSS: Mathematics (2011), OH: CCSS: Kindergarten, Operations & Algebraic Thinking

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

- K.OA.1. Represent addition and subtraction with objects, fingers, mental images, drawings, sounds (e.g., claps), acting out situations, verbal explanations, expressions, or equations.
- K.OA.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.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.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.5. Fluently add and subtract within 5.

DOC: Mathematics, DOC: Kindergarten, Numbers, Number Sense and Operations

B. Meaning of Operations

- 1. Model and represent addition as combining sets and as counting on; and subtraction as take-away and comparison.
- a. Create addition and subtraction sentences using the symbols +, –, and =.
- b. Combine and separate small sets of objects in contextual situations; e.g., add or subtract one, two, or another small amount.
- c. Count on (forward) and count back (backward) on a number line between 0 and 10.

C. Computation and Estimation

1. Develop and use a personal method or a routine to solve number problems.
2. Compute using a variety of methods and choose an appropriate method for the situation.
3. Recognize whether numerical solutions are reasonable through use of estimation techniques.

Essential Questions

- How important are numbers in my life?
- How do good problem solvers do their work?
- How does the position of a digit in a number affect its value?

Content

The students will know

1. Subtraction is taking apart and taking from.
2. Subtraction word problems.
3. Subtraction facts to 10.
4. Mathematical symbols for subtraction.

Skills

Bloom's Taxonomy
DOK Links

The students will be able to

1. Model and represent subtraction as take-away and comparison.
2. Describe and illustrate subtraction problems with objects, drawings, verbal explanations, expressions, or equations.
3. Solve subtraction word problems within 10 by using objects or drawings to represent the problem and explain how the problem was solved.
4. Write and explain subtraction equations to 10.
5. Fluently recall subtraction facts from 5.
6. Create subtraction number sentences using the symbols – and =.

Reading/Writing Skills

1. Define, using context clues, specific vocabularies used in this unit and apply the terms and definitions to solve problems and give explanations.
2. Justify solutions, either verbally or in written form.
   a. Explain step-by-step process.
   b. Summarize results using specific and appropriate vocabulary.
   c. Use proper sentence structure for written answers.
3. Work in cooperative groups to practice listening and speaking skills.

Common Core Vocabulary

1. Subtraction
2. Equation
3. Verbal explanations
4. Number Sentences
5. Mathematical symbols (+, –, =)

Additional Vocabulary

Learning Experiences (Suggested)

1. Have students use manipulatives such as snap cubes, beads on a string, fingers and counters to make up and act out subtraction problems.
2. Working with a partner, have students use dominos to create subtraction number sentences.
3. Have students solve subtraction problems and explain how they solved the problems.

Assessment (Suggested)

Understanding subtraction
Formative: Observation

Using manipulatives students will be able to disjoin sets illustrating subtraction facts to 10. Students will solve subtraction problems and explain how they solved the problem.

4. Working with a partner, have students write and explain subtraction equations to 10. 5. Working with a partner, have students create subtraction number sentences using the symbols + and =.	**Understanding Subtraction** **Summative: Written Assessment** Working with a partner, students will write and explain subtraction equations to 10. Working with a partner, students will create subtraction number sentences using the symbols + and =.
Resources (Suggested) 1. iPad Resources 2. Literature Connections *Monster Musical Chairs* by Stuart J. Murphy *A Fair Bear Share* by Stuart J. Murphy *Elevator Magic* by Stuart J. Murphy *Shark Swimathon* by Stuart J. Murphy *Subtraction Action* by Loreen Leedy *Cats Add Up!* by Dianne Ochiltree *Ten Sly Piranhas: A Counting Story in Reverse* by William Wise *26 Letters And 99 Cents* by Tana Hoban *Bag Full of Pups* by Dick Gackenbach *The Great Math Tattle Battle* by Anne Bowen *How Will We Get to the Beach?* by Brigitte Luciani and Eve Tharlet *Lulu's Lemonade* by Barbara Derubertis and Paige Billin-Frye *More, Fewer, Less* by Tana Hoban 3. Internet Resources  Subtraction Practice  The Math Worksheets Generator  National Library of Virtual Manipulatives	**Catholic Identity** **Social Justice Teachings** - Life And Dignity Of The Human Person - Call To Family, Community, And Participation - Rights And Responsibilities - Solidarity - Care For God's Creation **Rights of Children** - THE RIGHT TO A SAFE ENVIRONMENT that promotes care, protection and security. - THE RIGHT TO BE RESPECTED AS INDIVIDUALS with human dignity. - THE RIGHT TO WORK ACTIVELY TOWARD THEIR OWN EMPOWERMENT through the development of their gifts and talents. - THE RIGHT TO A LEARNING ENVIRONMENT THAT VALUES COOPERATION, and challenges its members to critical and reflective thinking in their search for truth. - THE RIGHT TO DEVELOP POSITIVE, RESPONSIBLE AND CARING ATTITUDES AND BEHAVIORS TOWARD OTHERS and to recognize the rights of others to be safe and free from harassment and abuse. - THE RIGHT TO LEARN THE SKILL OF SELF PROTECTION by identifying safe and unsafe situations. - THE RIGHT TO LEARN RESPONSIBILITY for themselves and their actions.

Mathematics Curriculum ~ Kindergarten
Diocese of Cleveland

Unit 7: Numbers 11-19

Standards Assessed

CCSS: ELA & Literacy in History/Social Studies, Science, & Technical Subjects K-5, OH: CCSS: Kindergarten, Speaking and Listening
6. Adapt speech to a variety of contexts and communicative tasks, demonstrating command of formal English when indicated or appropriate.

- SL.K.6. Speak audibly and express thoughts, feelings, and ideas clearly.

CCSS: Mathematics, OH: CCSS: Kindergarten, Mathematical Practice
The Standards for Mathematical Practice describe varieties of expertise that mathematics educators at all levels should seek to develop in their students.

- 4. Model with mathematics.
- 5. Use appropriate tools strategically.
- 7. Look for and make use of structure.

CCSS: Mathematics, OH: CCSS: Kindergarten, Number & Operations in Base Ten
K.NBT Work with numbers 11-19 to gain foundations for place value.

- K.NBT.1. Compose and decompose numbers from 11 to 19 into ten ones and some further ones, e.g., by using objects or drawings, and record each composition or decomposition by a drawing or equation (such as 18 = 10 + 8); understand that these numbers are composed of ten ones and one, two, three, four, five, six, seven, eight, or nine ones.

DOC: Mathematics, DOC: Kindergarten, Numbers, Number Sense and Operations
A. Numbers and Number Systems

- 5. Relate, read, and write numerals 0-20, by modeling and sequencing within a group of objects.
- 9. Identify and state the value of a penny, nickel, and dime.

Essential Questions

- What do numbers convey?
- How can numbers be expressed?
- What are different ways to count?
- What are efficient ways to count?

Content

The students will know

1. Numbers from 11-19.
2. Place value of tens and ones.
3. Value of penny and dime.

Skills

Bloom's Taxonomy
DOK Links

The students will be able to

1. Draw or use objects to compose and decompose numbers from 11 to 19 into ten ones and some further ones.
2. Write and read equations involving tens and ones (e.g., 18 = 10+8).
3. Calculate the value of a small collection of coins using pennies and dimes and explain how the answer was obtained.

Reading/Writing Skills

1. Define, using context clues, specific vocabularies used in this unit and apply the terms and definitions to solve problems.
2. Justify solutions, either verbally or in written form.
   a. Explain step-by-step process.

	b. Summarize results using specific and appropriate vocabulary. c. Use proper sentence structure for written answers. 3. Work in cooperative groups to practice listening and speaking skills.
Common Core Vocabulary 1. Tens 2. Ones 3. Penny 4. Dime 5. Place value 6. Equations	**Additional Vocabulary**
Learning Experiences (Suggested) 1. Working with a partner, ask students to create models of tens and ones using base ten blocks, place value charts, straws, etc. Ask volunteers to explain their models. 2. Working with a partner, students will create models of tens and ones using pennies and dimes. Ask volunteers to explain their models. 3. Using white boards, have students write and then read equations involving tens and ones (e.g., 18 = 10+8). 4. Have students calculate the value of a small collection of coins using pennies and dimes and explain how the answer was obtained.	**Assessment (Suggested)** **Model place value for numbers 10-19** **Formative: Teacher Observation** Working with a partner, students will create models of tens and ones using base ten blocks, place value charts, straws, etc. **Model place value for coins valued from 10 cents - 19 cents** **Formative: Teacher Observation** Working with a partner, students will create models of tens and ones using pennies and dimes. **Equations with Tens and Ones** **Summative: Observation** Using white boards, students write equations involving tens and ones (e.g., 18 = 10+8). **How Much Do You Have?** **Summative: Written Assessment** Students will calculate the value of a small collection of coins using pennies and dimes and explain how the answer was obtained.
Resources (Suggested) 1. iPad resources 2. Literature Connections *City by Numbers* by Stephen T. Johnson *How Tall, How Short, How Faraway* by David A. Adler *More Than One* by Miriam Schlein *The 500 Hats of Bartholomew Cubbins* by Dr. Seuss *Among the Odds & Evens: A Tale of Adventure* by Priscilla Turnerand Whitney Turner *Even Steven and Odd Todd* by Kathryn Cristaldi, Hank Morehouse, and Henry Morehouse *Henry the Fourth* by Stuart J. Murphy and Scott Nash *Math Fables: Lessons That Count* by Greg Tang and Heather Cahoon *Odds and Evens: A Numbers Book* by Heidi Goennel 3. Internet Resources	**Catholic Identity** **Social Justice Teachings** - Life And Dignity Of The Human Person - Call To Family, Community, And Participation - Rights And Responsibilities - Solidarity - Care For God's Creation **Rights of Children** - THE RIGHT TO A SAFE ENVIRONMENT that promotes care, protection and security. - THE RIGHT TO BE RESPECTED AS INDIVIDUALS with human dignity. - THE RIGHT TO WORK ACTIVELY TOWARD THEIR OWN EMPOWERMENT through the development of their gifts and talents. - THE RIGHT TO A LEARNING ENVIRONMENT THAT VALUES

 Creating Numbers Using Base Ten Blocks  Place Value  Place Value Song  National Library of Virtual Manipulatives	COOPERATION, and challenges its members to critical and reflective thinking in their search for truth. - THE RIGHT TO DEVELOP POSITIVE, RESPONSIBLE AND CARING ATTITUDES AND BEHAVIORS TOWARD OTHERS and to recognize the rights of others to be safe and free from harassment and abuse. - THE RIGHT TO LEARN THE SKILL OF SELF PROTECTION by identifying safe and unsafe situations. - THE RIGHT TO LEARN RESPONSIBILITY for themselves and their actions.

Mathematics Curriculum ~ Kindergarten
Diocese of Cleveland

Unit 8: Measurable Attributes

Standards Assessed

CCSS: ELA & Literacy in History/Social Studies, Science, & Technical Subjects K-5, OH: CCSS: Kindergarten, Speaking and Listening
6. Adapt speech to a variety of contexts and communicative tasks, demonstrating command of formal English when indicated or appropriate.

- SL.K.6. Speak audibly and express thoughts, feelings, and ideas clearly.

CCSS: Mathematics (2011), OH: CCSS: Kindergarten, Mathematical Practice
The Standards for Mathematical Practice describe varieties of expertise that mathematics educators at all levels should seek to develop in their students.

- 2. Reason abstractly and quantitatively.
- 4. Model with mathematics.
- 5. Use appropriate tools strategically.
- 8. Look for and express regularity in repeated reasoning.

CCSS: Mathematics (2011), OH: CCSS: Kindergarten, Measurement & Data
K.MD Describe and compare measurable attributes.

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

DOC: Mathematics, DOC: Kindergarten, Measurement
B. Measurement Techniques and Tools

- 1. Compare and order objects of different lengths, areas, weights, capacities, and temperature using standard and non-standard measuring devices. (Use relative terms, such as longer, shorter, bigger, smaller, heavier, lighter, more, less, warmer and colder.)
- 2. Measure length and volume (capacity) using uniform objects in the environment.

Essential Questions

- How do I find patterns in everything around me?
- How do I describe a pattern?
- How do I express a pattern to show a relationship?
- How are shapes and objects classified?

Content

The students will know

1. Attributes of objects such as length and weight.
2. Objects can be classified by common attributes.
3. Thermometer is used to measure temperature.

Skills

Bloom's Taxonomy
DOK Links

The students will be able to

1. Describe and illustrate measurable attributes of objects (e.g., length or weight).
2. Identify, label and name several measurable attributes of single objects.
3. Order events based on time, such as activities that take a long or short time; review what we do first, next, last; recall what we did yesterday or plan to do today or tomorrow.
4. Compare two objects with a measurable attribute in common to see which object has "more of"/"less of" the attribute, and describe the difference.

	5. Compare and order objects of different lengths, areas, weights, capacities, and temperature using standard and non-standard measuring devices. (Use relative terms, such as longer, shorter, bigger, smaller, heavier, lighter, more, less, warmer and colder.) 6. Measure length and volume (capacity) using uniform objects in the environment. 7. Describe and illustrate the attributes of a thermometer in relation to temperature. **Reading/Writing Skills** 1. Define, using context clues, specific vocabularies used in this unit and apply the terms and definitions to solve problems and give explanations. 2. Justify solutions, either verbally or in written form. a. Explain step-by-step process. b. Summarize results using specific and appropriate vocabulary. c. Use proper sentence structure for written answers. 3. Work in cooperative groups to practice listening and speaking skills.
Common Core Vocabulary 1. Length 2. Width 3. Attributes 4. Weight 5. Taller 6. Shorter 7. "More of" 8. "Less of" 9. Temperature 10. Thermometer	Additional Vocabulary
Learning Experiences (Suggested) 1. Working with a partner, have students identify, label and describe the measurable attributes of various objects found about the classroom (e.g., length, width, weight, taller, shorter). 2. Working with a partner, have students compare and order objects of different lengths, areas, weights, capacities, and temperature using standard and non-standard measuring devices. (Use relative terms, such as longer, shorter, bigger, smaller, heavier, lighter, more, less, warmer and colder.) Ask volunteers to explain their work. 3. Give students at least five objects and have them measure length and volume (capacity). Share their results with the class. 4. Using material from http://prek-8.com/kindergarten/kindergartenmath_measurement_index8.php, have students name and describe the attributes of a thermometer in relation to temperature.	**Assessment (Suggested)** **Measurable Attributes** **Formative: Observation** Students will identify, label and describe the measurable attributes of various objects found about the classroom (e.g., length, width, weight, taller, shorter). **Measurable Attributes** **Summative: Observation** Students will compare and order objects of different lengths, areas, weights, capacities, and temperature using standard and non-standard measuring devices. (Use relative terms, such as longer, shorter, bigger, smaller, heavier, lighter, more, less, warmer and colder.) **Measuring Length and Volume** **Summative: Observation** Given at least five objects and a measuring device, students will measure length and volume (capacity) of each. Share their results with the class. **Knowing the Thermometer**

	Summative: Observation Students will name and describe the attributes of a thermometer in relation to temperature.
Resources (Suggested) 1. iPad Resources 2. Literature Connections *A House for Hermit Crab* by Eric Carle *A Pig Is Big* byDouglas Florian *Carrie Measures Up* by Linda Aber and Joy Allen *Fannie in the Kitchen : The Whole Story From Soup to Nuts of How Fannie Farmer Invented Recipes with Precise Measurements* by Deborah Hopkinson and Nancy Carpenter *How Big Is a Foot?* by Rolf Myller *Inch by Inch* by Leo Lionni *Long, short, high, low, thin, wide* by James Taylor Fey *Marvin Measures Up* by Dave Browning *Big and Little* by Steve Jenkins *Biggest, Strongest, Fastest* by Steve Jenkins *My Map Book* by Sara Fanelli *Telling Time: How to Tell Time on Digital and Analog Clocks!* by Jules Older 3. Internet Resources Measurement Worksheets Brain Pop National Library of Virtual Manipulatives	**Catholic Identity** **Social Justice Teachings** - Life And Dignity Of The Human Person - Call To Family, Community, And Participation - Rights And Responsibilities - Solidarity - Care For God's Creation **Rights of Children** - THE RIGHT TO A SAFE ENVIRONMENT that promotes care, protection and security. - THE RIGHT TO BE RESPECTED AS INDIVIDUALS with human dignity. - THE RIGHT TO WORK ACTIVELY TOWARD THEIR OWN EMPOWERMENT through the development of their gifts and talents. - THE RIGHT TO A LEARNING ENVIRONMENT THAT VALUES COOPERATION, and challenges its members to critical and reflective thinking in their search for truth. - THE RIGHT TO DEVELOP POSITIVE, RESPONSIBLE AND CARING ATTITUDES AND BEHAVIORS TOWARD OTHERS and to recognize the rights of others to be safe and free from harassment and abuse. - THE RIGHT TO LEARN THE SKILL OF SELF PROTECTION by identifying safe and unsafe situations. - THE RIGHT TO LEARN RESPONSIBILITY for themselves and their actions.

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Unit 9: Classifying and Counting Objects

Standards Assessed

CCSS: ELA & Literacy in History/Social Studies, Science, & Technical Subjects K-5, OH: CCSS: Kindergarten, Speaking and Listening
6. Adapt speech to a variety of contexts and communicative tasks, demonstrating command of formal English when indicated or appropriate.

- SL.K.6. Speak audibly and express thoughts, feelings, and ideas clearly.

CCSS: Mathematics (2011), OH: CCSS: Kindergarten, Mathematical Practice
The Standards for Mathematical Practice describe varieties of expertise that mathematics educators at all levels should seek to develop in their students.

- 2. Reason abstractly and quantitatively.
- 4. Model with mathematics.
- 5. Use appropriate tools strategically.
- 7. Look for and make use of structure.
- 8. Look for and express regularity in repeated reasoning.

CCSS: Mathematics (2011), OH: CCSS: Kindergarten, Measurement & Data
K.MD Classify objects and count the number of objects in each category.

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

DOC: Mathematics, DOC: Kindergarten, Patterns, Functions, and Algebra
A. Patterns, Relations and Functions

- 2. Identify, create, extend, and copy sequences of sounds (such as musical notes), shapes (such as buttons, leaves, or blocks), motions (such as hops or skips), and numbers from 1 to 10.
- 3. Describe orally the pattern of a given sequence and use repeating and growing patterns to make predictions.

Essential Questions

- How do I find patterns in everything around me?
- How do I describe a pattern?
- How do I express a pattern to show a relationship?
- How are shapes and objects classified?

Content

The students will know

1. Objects can be classified into categories.
2. Objects can be classified in more than one way.
3. The number of objects in each category.
4. Patterns are created by arranging objects.

Skills

Bloom's Taxonomy
DOK Links

The students will be able to

1. Sort and classify objects into categories (size, number, color, shape, and other properties).
2. Describe and illustrate how objects can be classified in more than one way.
3. Name the attributes of objects that have already been sorted.
4. Classify objects into given categories.
5. Name and count the number of objects in given categories.
6. Sort given categories by count.
7. Arrange objects into patterns.
8. Identify, create, extend, and copy various sequences.
9. Describe orally the pattern of a given sequence.

	10. Use repeating and growing patterns to make predictions. **Reading/Writing Skills** 1. Define, using context clues, specific vocabulary from the Common Core and apply the terms and definitions to solve problems. 2. Justify solutions, either verbally or in written form. a. Explain step-by-step process. b. Summarize results using specific and appropriate vocabulary. c. Use proper sentence structure for written answers. 3. Work in cooperative groups to practice listening and speaking skills.
Common Core Vocabulary 1. Sort 2. Patterns 3. Category 4. Prediction 5. Classify 6. Sequence	**Additional Vocabulary**
Learning Experiences (Suggested) 1. Have students group themselves according to colors they are wearing, color of hair, height, etc. 2. Give each student a set of attribute or pattern blocks to sort according to his or her own rule. Challenge other students to guess the rule. 3. Display a "pattern of the day" as a center activity. Have students continue the pattern and they may record it in a math journal. 4. Using a variety of resources (crayons, blocks, markers, etc.), have the students work with a partner to classify the objects into categories by size, shape, color, etc. Ask them to explain why the items are in the same category. 5. Extend the above activity by having the partners show how the objects can be classified in more than one way. 6. Have the students name the attributes of objects already placed in categories. 7. Working with a partner, have students work with various sequences to a) identify the sequence, b) create a new sequence, c) extend the sequence, and d) copy the sequence. 8. Given a number of sequences, have students work with a partner to make predictions about what will come next in the sequence. Ask them to explain their thinking.	Assessment (Suggested) **Classifying and Counting** **Formative: Class Discussion** Students will group themselves according to certain criteria. **Classifying and Counting Objects** **Formative: Oral Assessment** Students will make their own pattern and then have another student extend the pattern. **Classifying and Counting** **Summative: Response Journal** Students will copy the "pattern for the day" and continue it in their math journal. **Classifying Objects** **Formative: Class Work** Using a variety of resources (crayons, blocks, markers, etc.), students will work with a partner to classify the objects into categories by size, shape, color, etc. Ask them to explain why the items are in the same category. **Object Attributes** **Formative: Class Work** Students will name the attributes of objects already placed in categories. **Working with Sequences** **Formative: Observation**

	Working with a partner, students will work with various sequences to a) identify the sequence, b) create a new sequence, c) extend the sequence, and d) copy the sequence. **Working with Sequences** **Summative: Class Work** Given a number of sequences, students will work with a partner to make predictions about what will come next in the sequence. They will be asked to explain their thinking.
Resources (Suggested) 1. iPad Resources 2. Technology Connection: *Millie's Math House* 3. Literature Connection: *I Spy* by Jean Marzollo 4. iPad application -- Patterns, Colors, and Shapes -- Complete patterns with color or shape. 5. Literature Connections *The Button Box* by Margarette S. Reid *Pattern Fish* by Trudy Harris *A Pair of Socks* by Stuart J. Murphy *Beep Beep, Vroom Vroom!* by Stuart J. Murphy *Eight Hands Round: A Patchwork Alphabet* by Ann Whitford Paul*Lots and Lots of Zebra Stripes* by Stephen R. Swinburne *Pattern (Math Counts)* by Henry Pluckrose *Pattern Bugs* by Trudy Harris *Pattern Fish* by Trudy Harris *The Quilting Bee* by Gail Gibbons 6. Internet Resources Attribute Blocks For Sorting National Library of Virtual Manipulatives The Math Worksheets Generator Patterns in Math	**Catholic Identity** **Social Justice Teachings** - Life And Dignity Of The Human Person - Call To Family, Community, And Participation - Rights And Responsibilities - Solidarity - Care For God's Creation **Rights of Children** - THE RIGHT TO A SAFE ENVIRONMENT that promotes care, protection and security. - THE RIGHT TO BE RESPECTED AS INDIVIDUALS with human dignity. - THE RIGHT TO WORK ACTIVELY TOWARD THEIR OWN EMPOWERMENT through the development of their gifts and talents. - THE RIGHT TO A LEARNING ENVIRONMENT THAT VALUES COOPERATION, and challenges its members to critical and reflective thinking in their search for truth. - THE RIGHT TO DEVELOP POSITIVE, RESPONSIBLE AND CARING ATTITUDES AND BEHAVIORS TOWARD OTHERS and to recognize the rights of others to be safe and free from harassment and abuse. - THE RIGHT TO LEARN THE SKILL OF SELF PROTECTION by identifying safe and unsafe situations. - THE RIGHT TO LEARN RESPONSIBILITY for themselves and their actions.

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Unit 10: Geometric Shapes

Standards Assessed

CCSS: ELA & Literacy in History/Social Studies, Science, & Technical Subjects K-5, OH: CCSS: Kindergarten, Speaking and Listening
6. Adapt speech to a variety of contexts and communicative tasks, demonstrating command of formal English when indicated or appropriate.

- SL.K.6. Speak audibly and express thoughts, feelings, and ideas clearly.

CCSS: Mathematics, OH: CCSS: Kindergarten, Mathematical Practice
The Standards for Mathematical Practice describe varieties of expertise that mathematics educators at all levels should seek to develop in their students.

- 2. Reason abstractly and quantitatively.
- 4. Model with mathematics.
- 5. Use appropriate tools strategically.
- 7. Look for and make use of structure.

CCSS: Mathematics, OH: CCSS: Kindergarten, Geometry
K.G Identify and describe shapes (squares, circles, triangles, rectangles, hexagons, cubes, cones, cylinders, and spheres).

- K.G.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.2. Correctly name shapes regardless of their orientations or overall size.
- K.G.3. Identify shapes as two-dimensional (lying in a plane, "flat") or three-dimensional ("solid").

Essential Questions

- How do geometric models describe spatial relationships?
- How are geometric shapes and objects classified?
- How are geometric properties used to solve problems in everyday life?
- How can plane and solid shapes be described?

Content

The students will know

1. Shapes of objects: Square, Circle, Triangle, Rectangle, Hexagon, Cube, Cone, Cylinder, Sphere.
2. Names of shapes.
3. Relative position of objects: above, below, beside, in front of, behind, and next to.
4. Orientations or overall size of shapes.
5. Two-dimensional (flat).
6. Three-dimensional (solid).

Skills

Bloom's Taxonomy
DOK Links

The students will be able to

1. Identify and sort two-dimensional shapes and three-dimensional objects, including circle, square, triangle, rectangle, cube, sphere, cylinder, cone, and pyramid.
2. Describe objects in the environment using names of shapes.
3. Compare and sort shapes and objects into groups based on size and shape.
4. Select all shapes or objects of one type from a group.
5. Describe relative position of objects by using correct terms.
6. Place and describe objects as over, under, inside, outside, on, beside, between, above, below, on top of, upside-down, behind, in back of, in front of.
7. Name shapes regardless of orientations or overall size.
8. Identify shapes as two-dimensional or three-dimensional.

Reading/Writing Skills

	1. Define, using context clues, specific vocabulary from the Common Core and apply the terms and definitions to solve problems. 2. Justify solutions, either verbally or in written form. a. Explain step-by-step process. b. Summarize results using specific and appropriate vocabulary. c. Use proper sentence structure for written answers. 3. Work in cooperative groups to practice listening and speaking skills.
Common Core Vocabulary 1. Environment 2. Relative position 3. Above 4. Below 5. Beside 6. In front of 7. Behind 8. Next to 9. Orientation (place) 10. Overall size 11. Two-dimensional (flat) 12. Three-dimensional (solid) 13. Square 14. Circle 15. Triangle 16. Rectangle 17. Hexagon 18. Cube 19. Cone 20. Cylinder 21. Sphere 22. Pyramid	**Additional Vocabulary**
Learning Experiences (Suggested) 1. Working with a partner, have students construct two-dimensional figures using paper shapes or tangrams. 2. Working with a partner, have students build simple three-dimensional objects using blocks. 3. Ask students to put books or toys away on three shelves by specifying top shelf, middle shelf, or bottom shelf. 4. Have students toss a beanbag at a container and tell whether it landed inside or outside, beside, or in front of the container. 5. Have students look for objects in the classroom that are examples of each shape studied and match the shape to an example drawn on a paper.	**Assessment (Suggested)** **Two-dimensional Shapes** **Formative: Observation** Working with a partner, students will construct two-dimensional figures using paper shapes or tangrams. **Three-dimensional Shapes** **Formative: Observation** Working with a partner, students will build simple three-dimensional objects using blocks. **Orientation** **Formative: Observation** Students will be asked to put books or toys away on three shelves by specifying top shelf, middle shelf, or bottom shelf. **Outside-Inside...** **Formative: Observation** Students will toss a beanbag at a container and tell whether it landed

	inside or outside, beside, or in front of the container. **Knowing Your Shapes** **Summative: Written Assessment** Students will look for objects in the classroom that are examples of each shape studied and match the shape to an example drawn on a paper.
Resources (Suggested) 1. iPad Resources 2. Literature Connections *Cubes, Cones, Cylinders, and Spheres* by Tana Hoban *The Shape of Things* by Dayle Ann Dodds *A Star in My Orange: Looking for Nature's Shapes* by Dana Meachen Rau *What Is Square?* by Rebecca Kai Dotlich *When a Line Bends . . . a Shape Begins* by Rhonda Gowler Greene *The Wing on a Flea: A Book About Shapes* by Ed Emberley *Captain Invincible and the Space Shapes* by Stuart J. Murphy and Remy Simard *Changes, Changes* by Pat Hutchins *Exploring Triangles: Paper-Folding Geometry by* Jo McKeeby Phillips *I Spy Shapes in Art* by Lucy Micklethwait 3. Internet Resources  National Library of Virtual Manipulatives  Enchanted Learning  Geometric Shapes ~ 2-Dimensional	**Catholic Identity** **Social Justice Teachings** - Life And Dignity Of The Human Person - Call To Family, Community, And Participation - Rights And Responsibilities - Solidarity - Care For God's Creation **Rights of Children** - THE RIGHT TO A SAFE ENVIRONMENT that promotes care, protection and security. - THE RIGHT TO BE RESPECTED AS INDIVIDUALS with human dignity. - THE RIGHT TO WORK ACTIVELY TOWARD THEIR OWN EMPOWERMENT through the development of their gifts and talents. - THE RIGHT TO A LEARNING ENVIRONMENT THAT VALUES COOPERATION, and challenges its members to critical and reflective thinking in their search for truth. - THE RIGHT TO DEVELOP POSITIVE, RESPONSIBLE AND CARING ATTITUDES AND BEHAVIORS TOWARD OTHERS and to recognize the rights of others to be safe and free from harassment and abuse. - THE RIGHT TO LEARN THE SKILL OF SELF PROTECTION by identifying safe and unsafe situations. - THE RIGHT TO LEARN RESPONSIBILITY for themselves and their actions.

Mathematics Curriculum ~ Kindergarten
Diocese of Cleveland

Unit 11: Analyzing Shapes

Standards Assessed

CCSS: ELA & Literacy in History/Social Studies, Science, & Technical Subjects K-5, OH: CCSS: Kindergarten, Reading: Informational Text
Integration of Knowledge and Ideas
7. Integrate and evaluate content presented in diverse media and formats, including visually and quantitatively, as well as in words.

- RI.K.7. With prompting and support, describe the relationship between illustrations and the text in which they appear (e.g., what person, place, thing, or idea in the text an illustration depicts).

9. Analyze how two or more texts address similar themes or topics in order to build knowledge or to compare the approaches the authors take.

- RI.K.9. With prompting and support, identify basic similarities in and differences between two texts on the same topic (e.g., in illustrations, descriptions, or procedures).

CCSS: ELA & Literacy in History/Social Studies, Science, & Technical Subjects K-5, OH: CCSS: Kindergarten, Speaking and Listening
6. Adapt speech to a variety of contexts and communicative tasks, demonstrating command of formal English when indicated or appropriate.

- SL.K.6. Speak audibly and express thoughts, feelings, and ideas clearly.

CCSS: Mathematics (2011), OH: CCSS: Kindergarten, Mathematical Practice
The Standards for Mathematical Practice describe varieties of expertise that mathematics educators at all levels should seek to develop in their students.

- 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.

CCSS: Mathematics (2011), OH: CCSS: Kindergarten, Geometry
K.G Analyze, compare, create, and compose shapes.

- K.G.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.5. Model shapes in the world by building shapes from components (e.g., sticks and clay balls) and drawing shapes.
- K.G.6. Compose simple shapes to form larger shapes.

DOC: Mathematics, DOC: Kindergarten, Geometry and Spatial Sense
B. Spatial Relationships

- 2. Recognize and describe spatial relationships utilizing both spatial memory and visualization.

Essential Questions

- How do geometric models describe spatial relationships?
- How are geometric shapes and objects classified?
- How are geometric properties used to solve problems in everyday life?
- How can plane and solid shapes be described?

Content	Skills
The students will know	Bloom's Taxonomy DOK Links

1. Two and three-dimensional shapes have similar properties.
2. Two and three-dimensional shapes have different properties.
3. Number of sides and vertices (corners) of shapes.
4. Simple shapes can form larger shapes.

The students will be able to

1. Analyze and compare two and three-dimensional shapes by size and orientations.
2. Analyze and compare two and three-dimensional shapes by 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).
3. Model shapes by using building components (e.g., sticks and clay ball) and drawing shapes.
4. Compose simple shapes to form larger shapes (two triangles make one rectangle).
5. Identify and create examples of symmetry in two-dimensional objects.
6. Recognize and describe spatial relationships utilizing both spatial memory and visualization.

Reading/Writing Skills

1. Define, using context clues, specific vocabulary from the Common Core and apply the terms and definitions to solve problems.
2. Justify solutions, either verbally or in written form.
   a. Explain step-by-step process.
   b. Summarize results using specific and appropriate vocabulary.
   c. Use proper sentence structure for written answers.
3. Work in cooperative groups to practice listening and speaking skills.

Common Core Vocabulary

1. Two-dimensional (flat)
2. Three-dimensional (solid)
3. Similar
4. Differences
5. Sides
6. Vertices (corners)
7. Triangle
8. Rectangle
9. Symmetry

Additional Vocabulary

Learning Experiences (Suggested)

1. Working with a partner, have students analyze and compare two and three dimensional shapes according to:
   a. size and orientation
   b. similarities
   c. differences
   d. parts
   e. other attributes
2. Working with a partner, have students construct two-dimensional figures using paper shapes or tangrams.
3. Working with a partner, have students build simple three-dimensional objects using blocks.
4. Show students solid objects, such as cereal boxes, paper towel rolls, paper party hats, cube-shaped boxes and have them name and describe the shapes.
5. Working with a partner, students will create larger shapes by combining simple shapes. They will be asked to name the new

Assessment (Suggested)

Analyzing Shapes
Formative: Posters

Children will create a poster using pictures from magazines, which contain a specific solid shape.

Analyzing Shapes
Summative: Project

Working cooperatively, students will build a neighborhood using two-dimensional and three-dimensional shapes from environmental packaging, e.g., paper towel tubes, cereal boxes.

Knowing Your Shape
Formative: Class Work

shape and explain how they got it.

6. Have students fold a piece of paper in half. Ask them to draw a shape on the fold and then cut it out and open it. Ask them to describe what they see and talk about symmetry.
7. Using one of the resources listed in the Resource section, students will be engaged in activities that will reinforce their knowledge and understanding of geometric shapes.

Working with a partner, have students analyze and compare two and three dimensional shapes according to:
a. size and orientation
b. similarities
c. differences
d. parts
e. other attributes

Creating Shapes
Summative: Class Work

Working with a partner, have students a) construct two-dimensional figures using paper shapes or tangrams and b) build simple three-dimensional objects using blocks. Have the students name their shapes.

Resources (Suggested)

1. iPad Resources
2. Literature Connections
   Cubes, Cones, Cylinders, and Spheres by Tana Hoban
   The Shape of Things by Dayle Ann Dodds
   A Star in My Orange: Looking for Nature's Shapes by Dana Meachen Rau
   What Is Square? by Rebecca Kai Dotlich
   When a Line Bends . . . a Shape Begins by Rhonda Gowler Greene
   The Wing on a Flea: A Book About Shapes by Ed Emberley
   Captain Invincible and the Space Shapes by Stuart J. Murphy and Remy Simard
   Changes, Changes by Pat Hutchins
   Exploring Triangles: Paper-Folding Geometry by Jo McKeeby Phillips
3. Internet Resources


National Library of Virtual Manipulatives


Geometric Shapes


Geometric Figures Game


Geometric Shapes to Cut, Color, Etc.

Catholic Identity

Social Justice Teachings

- Life And Dignity Of The Human Person
- Call To Family, Community, And Participation
- Rights And Responsibilities
- Solidarity
- Care For God's Creation

Rights of Children

- THE RIGHT TO A SAFE ENVIRONMENT that promotes care, protection and security.
- THE RIGHT TO BE RESPECTED AS INDIVIDUALS with human dignity.
- THE RIGHT TO WORK ACTIVELY TOWARD THEIR OWN EMPOWERMENT through the development of their gifts and talents.
- THE RIGHT TO A LEARNING ENVIRONMENT THAT VALUES COOPERATION, and challenges its members to critical and reflective thinking in their search for truth.
- THE RIGHT TO DEVELOP POSITIVE, RESPONSIBLE AND CARING ATTITUDES AND BEHAVIORS TOWARD OTHERS and to recognize the rights of others to be safe and free from harassment and abuse.
- THE RIGHT TO LEARN THE SKILL OF SELF PROTECTION by identifying safe and unsafe situations.
- THE RIGHT TO LEARN RESPONSIBILITY for themselves and their actions.

Parent Guide
Kindergarten Mathematics Curriculum
Diocese of Cleveland

Below is a list of skills your child will be taught in Kindergarten Mathematics.
As parents, you are encouraged to support the work of your child's teacher in helping your child acquire each of these skills.

Counting and Cardinality	
Know number names and the count sequence.	
	Count to 100 by ones and tens.
	Count forward and backward beginning from a given number within the sequence.
	Write numbers from 0 to 20. Represent a number of objects with a written numeral 0 to 20.
	Explain rules of counting.
	Determine how many in groups of 10 or fewer objects.
Count to tell the number of objects.	
	Understand the relationship between numbers and quantities; connect counting to cardinality.
	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.
	Understand that the last number name said tells the number of objects counted and that the number of objects is the same regardless of their arrangement or the order in which they were counted.
	Understand that each successive number name refers to a quantity that is one larger.
	Count to answer "how many" questions about as many as 20.
Compare numbers.	
	Identify whether the number of objects in one group is greater than, less then, or equal to the number of objects in another group, e.g., by using matching and counting strategies.
	Compare two numbers between 1 and 10 presented as written numerals.
	Identify and state the value of a penny, nickel, and dime.
Operations and Algebraic Thinking	
Understand addition as putting together and add to, and understand subtraction as taking apart and taking from.	
	Represent addition and subtraction with objects, fingers, mental images, drawings, sounds, acting out situations, verbal explanations, expressions, or equations.
	Solve addition and subtraction word problems, and add and subtract within 10.
	Decompose numbers less than or equal to 10 into pairs in more than one way and record each decomposition by writing a number sentence (equation) using the symbols +, –, and =.
	For any number from 1 to 9, find the number that makes 10 when added to the given number and record the answer with a drawing or an equation.
	Fluently add and subtract within 5.
	Skip count by 2's, by 5's, and by 10's to 100.
Number and Operations in Base Ten	
Work with numbers 11-19 to gain foundations for place value.	
	Compose and decompose numbers 11 to 19 into ten ones and some further ones and record each composition and decomposition by a drawing; understand that these numbers are composed of ten ones and one, two, three, four, five, six, seven, eight, or nine ones.
	Identify and state the value of a penny, nickel, and dime.

Measurement and Data	
Describe and compare measurable attributes.	
	Describe measurable attributes of objects, such as length or weight.
	Describe several measurable attributes of a single object.
	Directly compare two objects with a measurable attribute in common, to see which object has “more of ” or “less of ” the attribute, and describe the difference.
	Measure length and volume (capacity) using uniform objects in the environment.
	Compare and order objects of different lengths, areas, weights, capacities, and temperature using standard and non-standard measuring devices.
	Identify units of time (hour, day, week, month, season, year) and compare calendar elements using analog and digital calendars.
	Order events based on time, such as activities that take a long or short time; review what we do first, next, last; and recall what we did yesterday and plan to do today, or tomorrow.
Geometry	
Identify and describe shapes (squares, circles, triangles, rectangles, hexagons, cubes, cones, cylinders, and spheres).	
	Describe objects in the environment using names and shapes, and describe the relative positions of these objects using terms such as above, below, beside, in front of, behind, and next to.
	Correctly name shapes regardless of their orientations or overall size.
	Identify shapes as two-dimensional (lying in a plane, “flat”) or three-dimensional (“solid”).
Analyze, compare, create, and compose shapes.	
	Analyze and compare two- and three-dimensional shapes, in different sizes and orientations, using informal language to describe their similarities, differences, parts (number of sides and vertices/”corners”) and other attributes (e.g., having sides of equal length).
	Model shapes in the world by building shapes from components and drawing shapes.
	Compose simple shapes to form larger shapes. For example, joining two triangles to form a rectangle.
	Recognize and describe spatial relationships utilizing both spatial memory and visualization.
DOC: Numbers, Number Sense and Operations	
Numbers and Number Systems	
	Explain rules of counting, such as each object should be counted once, and that order does not change the number.
	Determine “how many” in sets (groups) of 10 or fewer objects.
	Relate, read, and write numerals 0-20, by modeling and sequencing within a group of objects.
	Identify and state the value of a penny, nickel, and dime.
Meaning of Operations	
	Model and represent addition as combining sets and as counting on; and subtraction as take-away and comparison.
	Create addition and subtraction sentences using the symbols +, –, and =.
	Combine and separate small sets of objects in contextual situations; e.g., add or subtract one, two, or another small amount.
	Count on (forward) and count back (backward) on a number line between 0 and 10.
	Skip count by 2’s to 20, by 5’s and 10’s to 50.
Computation and Estimation	
	Develop and use a personal method or a routine to solve number problems.
	Compute using a variety of methods and choose an appropriate method for the situation.
	Recognize whether numerical solutions are reasonable through use of estimation techniques.

DOC: Measurement	
Measurement Units	
	Identify units of time (hour, day, week, month, season, year) and compare calendar elements using analog and digital clocks and calendars.
Measurement Techniques and Tools	
	Compare and order objects of different lengths, areas, weights, capacities, and temperature using standard and non-standard measuring devices. (Use relative terms, such as longer, shorter, bigger, smaller, heavier, lighter, more, less, warmer and colder.)
	Measure length and volume (capacity) using uniform objects in the environment.
	Order events based on time, such as activities that take a long or short time; review what we do first, next, last; recall what we did or plan to do yesterday, today, or tomorrow.
DOC: Geometry and Spatial Sense	
Spatial Relationships	
	Recognize and describe spatial relationships utilizing both spatial memory and visualization.
DOC: Patterns, Functions and Algebra	
Patterns, Relations and Functions	
	Identify, create, extend, and copy sequences of sounds (such as musical notes), shapes (such as buttons, leaves, or blocks), motions (such as hops or skips), and numbers from 1 to 10.
	Describe orally the pattern of a given sequence and use repeating and growing patterns to make predictions.
OH: CCSS: Literacy: Reading: Informational Text	
Key Ideas and Details	
	With prompting and support, ask and answer questions about key details in a text.
	With prompting and support, describe the connection between two individuals, events, ideas, or pieces of information in a text.
Integration of Knowledge and Ideas	
	With prompting and support, describe the relationship between illustrations and the text in which they appear (e.g., what person, place, thing, or idea in the text an illustration depicts).
	With prompting and support, identify basic similarities in and differences between two texts on the same topic (e.g., in illustrations, descriptions, or procedures).
OH: CCSS: Literacy: Writing	
Text Types and Purposes	
	Use a combination of drawing, dictating, and writing to narrate a single event or several loosely linked events, tell about the events in the order in which they occurred, and provide a reaction to what happened.
OH: CCSS: Literacy: Speaking and Listening	
Presentation of Knowledge and Ideas	
	Describe familiar people, places, things, and events and, with prompting and support, provide additional detail.
	Speak audibly and express thoughts, feelings, and ideas clearly.

(Source: [1] National Governors Association Center for Best Practices, Council of Chief State School Officers. 2010. *Common Core State Standards for Mathematics*. Washington, D.C.: National Governors Association Center for Best Practices, Council of Chief State School Officers.[2] Office of Catholic Education. 2007. *Mathematics Curriculum*. Cleveland, Ohio: Office of Catholic Education.)

Mathematics Curriculum
Kindergarten

Checklist for Common Core State Standards & Diocesan Curriculum

Date Taught	
Counting and Cardinality	
Know number names and the count sequence.	
	Count to 100 by ones and tens.
	Count forward and backward beginning from a given number within the sequence.
	Write numbers from 0 to 20. Represent a number of objects with a written numeral 0 to 20.
	Explain rules of counting.
	Determine how many in groups of 10 or fewer objects.
Count to tell the number of objects.	
	Understand the relationship between numbers and quantities; connect counting to cardinality.
	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.
	Understand that the last number name said tells the number of objects counted and that the number of objects is the same regardless of their arrangement or the order in which they were counted.
	Understand that each successive number name refers to a quantity that is one larger.
	Count to answer "how many" questions about as many as 20.
Compare numbers.	
	Identify whether the number of objects in one group is greater than, less then, or equal to the number of objects in another group, e.g., by using matching and counting strategies.
	Compare two numbers between 1 and 10 presented as written numerals.
	Identify and state the value of a penny, nickel, and dime.
Operations and Algebraic Thinking	
Understand addition as putting together and add to, and understand subtraction as taking apart and taking from.	
	Represent addition and subtraction with objects, fingers, mental images, drawings, sounds, acting out situations, verbal explanations, expressions, or equations.
	Solve addition and subtraction word problems, and add and subtract within 10.
	Decompose numbers less than or equal to 10 into pairs in more than one way and record each decomposition by writing a number sentence (equation) using the symbols +, –, and =.
	For any number from 1 to 9, find the number that makes 10 when added to the given number and record the answer with a drawing or an equation.
	Fluently add and subtract within 5.
	Skip count by 2's, by 5's, and by10's to 100.
Number and Operations in Base Ten	
Work with numbers 11-19 to gain foundations for place value.	
	Compose and decompose numbers 11 to 19 into ten ones and some further ones and record each composition and decomposition by a drawing; understand that these numbers are composed of ten ones and one, two, three, four, five, six, seven, eight, or nine ones.
	Identify and state the value of a penny, nickel, and dime.

Date Taught	
Measurement and Data	
Describe and compare measurable attributes.	
	Describe measurable attributes of objects, such as length or weight.
	Describe several measurable attributes of a single object.
	Directly compare two objects with a measurable attribute in common, to see which object has “more of ” or “less of ” the attribute, and describe the difference.
	Measure length and volume (capacity) using uniform objects in the environment.
	Compare and order objects of different lengths, areas, weights, capacities, and temperature using standard and non-standard measuring devices.
	Identify units of time (hour, day, week, month, season, year) and compare calendar elements using analog and digital calendars.
	Order events based on time, such as activities that take a long or short time; review what we do first, next, last; and recall what we did yesterday and plan to do today, or tomorrow.
Geometry	
Identify and describe shapes (squares, circles, triangles, rectangles, hexagons, cubes, cones, cylinders, and spheres).	
	Describe objects in the environment using names and shapes, and describe the relative positions of these objects using terms such as above, below, beside, in front of, behind, and next to.
	Correctly name shapes regardless of their orientations or overall size.
	Identify shapes as two-dimensional (lying in a plane, “flat”) or three-dimensional (“solid”).
Analyze, compare, create, and compose shapes.	
	Analyze and compare two- and three-dimensional shapes, in different sizes and orientations, using informal language to describe their similarities, differences, parts (number of sides and vertices/”corners”) and other attributes (e.g., having sides of equal length).
	Model shapes in the world by building shapes from components and drawing shapes.
	Compose simple shapes to form larger shapes. For example, joining two triangles to form a rectangle.
	Recognize and describe spatial relationships utilizing both spatial memory and visualization.
DOC: Numbers, Number Sense and Operations	
Numbers and Number Systems	
	Explain rules of counting, such as each object should be counted once, and that order does not change the number.
	Determine “how many” in sets (groups) of 10 or fewer objects.
	Relate, read, and write numerals 0-20, by modeling and sequencing within a group of objects.
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Meaning of Operations	
	Model and represent addition as combining sets and as counting on; and subtraction as take-away and comparison.
	Create addition and subtraction sentences using the symbols +, –, and =.
	Combine and separate small sets of objects in contextual situations; e.g., add or subtract one, two, or another small amount.
	Count on (forward) and count back (backward) on a number line between 0 and 10.
	Skip count by 2’s to 20, by 5’s and 10’s to 50.
Computation and Estimation	
	Develop and use a personal method or a routine to solve number problems.
	Compute using a variety of methods and choose an appropriate method for the situation.
	Recognize whether numerical solutions are reasonable through use of estimation techniques.

Date Taught	
DOC: Measurement	
Measurement Units	
	Identify units of time (hour, day, week, month, season, year) and compare calendar elements using analog and digital clocks and calendars.
Measurement Techniques and Tools	
	Compare and order objects of different lengths, areas, weights, capacities, and temperature using standard and non-standard measuring devices. (Use relative terms, such as longer, shorter, bigger, smaller, heavier, lighter, more, less, warmer and colder.)
	Measure length and volume (capacity) using uniform objects in the environment.
	Order events based on time, such as activities that take a long or short time; review what we do first, next, last; recall what we did or plan to do yesterday, today, or tomorrow.
DOC: Geometry and Spatial Sense	
Spatial Relationships	
	Recognize and describe spatial relationships utilizing both spatial memory and visualization.
DOC: Patterns, Functions and Algebra	
Patterns, Relations and Functions	
	Identify, create, extend, and copy sequences of sounds (such as musical notes), shapes (such as buttons, leaves, or blocks), motions (such as hops or skips), and numbers from 1 to 10.
	Describe orally the pattern of a given sequence and use repeating and growing patterns to make predictions.
OH: CCSS: Literacy: Reading: Informational Text	
Key Ideas and Details	
	With prompting and support, ask and answer questions about key details in a text.
	With prompting and support, describe the connection between two individuals, events, ideas, or pieces of information in a text.
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	With prompting and support, identify basic similarities in and differences between two texts on the same topic (e.g., in illustrations, descriptions, or procedures).
OH: CCSS: Literacy: Writing	
Text Types and Purposes	
	Use a combination of drawing, dictating, and writing to narrate a single event or several loosely linked events, tell about the events in the order in which they occurred, and provide a reaction to what happened.
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	Describe familiar people, places, things, and events and, with prompting and support, provide additional detail.
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