

Englewood on the Palisades Charter School
Kindergarten Mathematics Curriculum
Aligned With the 2023 New Jersey Student Learning Standards

The Vision for Mathematics Education in New Jersey

A New Jersey education in Mathematics builds quantitatively and analytically literate citizens prepared to meet the demands of college and career, and to engage productively in an information-driven society. All students will have access to a high-quality mathematics education that fosters a population that:

- leverages data in decision-making and as a lens for discussing, analyzing, and responding to practical questions.
- persists to make sense of and model problems arising in everyday life, society, and the workplace.
- thinks critically and strategically to assess quantitative relationships and to solutions to complex problems.
- employs precise reasoning and constructs viable arguments to deduce conclusions, recognize false statements and assess peers' reasoning.
- interprets, evaluates and critiques the mathematics embedded in social, scientific and commercial systems, as well as the claims made in the private and public sectors.
- communicates precisely when conveying, representing, and justifying both qualitative and quantitative perspectives.

(NJ DOE, 2024)

Standards for Mathematical Practice

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

Standard	Mathematically Proficient Students ...
1. Make sense of problems and persevere in solving them	start by explaining to themselves the meaning of a problem and looking for entry points to its solution. check their answers to problems using a different method, and they continually ask themselves, “Does this make sense?”
2. Reason abstractly and quantitatively	make sense of quantities and their relationships in problem situations.
3. Construct viable arguments and critique the reasoning of others	understand and use stated assumptions, definitions, and previously established results in constructing arguments.
4. Model with mathematics	apply the mathematics they know to solve problems arising in everyday life, society, and the workplace. are comfortable making assumptions and approximations to simplify a complicated situation, realizing that these may need revision later.
5. Use appropriate tools strategically	are sufficiently familiar with tools appropriate for their grade or course to make sound decisions about when each of these tools might be helpful, recognizing both the insight to be gained and their limitations.
6. Attend to precision	try to communicate precisely to others.
7. Look for and make use of structure	look closely to discern a pattern or structure
8. Look for and express regularity in repeated reasoning	notice if calculations are repeated, and look both for general methods and for shortcuts.

(NJ DOE, 2024)

New Jersey Legislative Statutes and Administrative Code Mathematics

Amistad Law: *N.J.S.A. 18A 52:16A-88*

[Radical Math](#): includes lessons on topics for social justice in mathematics
[African American Mathematician Bios](#)

Holocaust Law: *N.J.S.A. 18A:35-28*

<https://www.bbc.com/future/article/20191031-hilda-geiringer-mathematician-who-fled-the-nazis>

LGBT and Disabilities Law: *N.J.S.A. 18A:35-4.35*

<https://prideinstem.org/>
[LGBTQ+ Mathematician Bios](#)
<https://www.ngpf.org/blog/math/math-monday-celebrating-disabled-mathematicians/>
[Mathematicians with Disabilities](#)

Diversity & Inclusion: *N.J.S.A. 18A:35-4.36a*

<http://www.ams.org/about-us/diversity>
<https://mathematicallygiftedandblack.com/>

Standards in Action: *Climate Change*

New Jersey became the first state in the nation to include climate change across content areas with the adoption of the 2020 New Jersey Student Learning Standards (NJSLS). The goal of inclusion of climate change education implementation is to foster generations of New Jersey students that can analyze, question, interpret, to think independently, and bring critical deduction to

fulfill, and to lead in jobs created by burgeoning industries of the future green economy.

Suggestions for how to incorporate climate change examples into math instruction will be noted in **green text** throughout the units.

Kindergarten Math Curriculum

This Kindergarten math curriculum aligns with the 2023 New Jersey Student Learning Standards (NJSLS) and provides a solid foundation for young learners to develop their number sense, problem-solving skills, and mathematical understanding. This curriculum focuses on developing foundational math skills and building a strong mathematical foundation. Throughout the year, lessons should include hands-on activities, games, and manipulatives to engage Kindergarten students and make learning math fun and interactive. Formative assessments, observations, and ongoing progress monitoring should be used to ensure that students are meeting the learning objectives. Instruction should be flexible and adaptable to meet the individual needs and learning styles of the students.

Instruction in Kindergarten focuses broadly on two critical areas:

- representing and comparing whole numbers, initially with sets of objects
- describing shapes and space.

More learning time in Kindergarten should be devoted to numbers than to other topics.

Domains and Cluster Areas

- **Counting and Cardinality**
 - Know number names and the count sequence.
 - Count to tell the number of objects.
 - Compare numbers
- **Operations and Algebraic Thinking**
 - Understand addition as putting together and adding to, and understand subtraction as taking apart and taking from
- **Number and Operations in Base Ten**
 - Work with numbers 11–19 to gain foundations for place value
- **Measurement**
 - Describe and compare measurable attributes

- Work with money
- **Data Literacy**
 - Classify objects and count the number of objects in categories
- **Geometry**
 - Identify and describe shapes (squares, circles, triangles, rectangles, hexagons, cubes, cones, cylinders, spheres).
 - Analyze, compare, create, and compose shapes

Cluster Emphases

Emphases are given at the cluster level. Refer to the New Jersey Student Learning Standards for Mathematics for the specific standards that fall within each cluster. Even though the clusters have different levels of emphasis, this does not mean that standards can be omitted. All standards must be included in instruction throughout a grade level to ensure that students will be prepared for instruction at higher grade levels.

Indicator	Type	Cluster Heading
K.CC.A	M	Know number names and the count sequence
K.CC.B	M	Count to tell the number of objects
K.CC.C	M	Compare numbers
K.OA.A	M	Understand addition as putting together and adding to, and understand subtraction as taking apart and taking from
K.NBT.A	M	Work with numbers 11–19 to gain foundations for place value
K.M.A	A	Describe and compare measurable attributes
K.M.B	A	Work with money
K.DL.A	S	Classify objects and count the number of objects in categories
K.G.A	A	Identify and describe shapes (squares, circles, triangles, rectangles, hexagons, cubes, cones, cylinders, and spheres)

K.G.B	S	Analyze, compare, create, and compose shapes
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Key: M — Major, S — Supporting Clusters, A — Additional Clusters

Required Fluencies in Kindergarten: K.OA.A.5 Add and subtract within 5

(NJDOE, 2024)

Kindergarten Units and Pacing	
Unit 1: Exploring Math and Number Sense	4 weeks
Unit 2: Numbers 1-10	5 weeks
Unit 3: Understanding and Addition and Subtraction	4 weeks
Unit 4: Composing and Decomposing Numbers to 10	4 weeks
Unit 5: Numbers 0 to 20	4 weeks
Unit 6: 2-D and 3-D Shapes	6 weeks
Unit 7: Measurement	3 weeks
Unit 8: Integrating Math Skills	6 weeks
Total	35 weeks

Unit 1: Exploring Math and Number Sense

Unit Goal: Students explore mathematical tools and recognize numbers and quantities in their world.
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Duration: 4 weeks

Essential Questions:

- What are numbers, and how do we count them?
- How can we use a graph to understand information and answer questions?
- What would happen if we didn't have ordinal numbers?
- Why is a calendar or clock important?
- Why are predictions important?
- How can we find patterns, continue patterns, and make new patterns?
- Why is it important to know how to sort objects?

Enduring Understandings:

- Counting is used constantly in everyday life.
- Objects can be counted and compared.
- Counting is a strategy for finding the answer to how many.
- Good math thinkers use math to explain why they are right. They can talk about the math others do too.

Key NJSLS Strands:

- **K.CC.A** Know number names and the count sequence.
 - **K.CC.A.1** Count to 100 by ones and by tens.
- **K.CC.B** Count to tell the number of objects.
 - **K.CC.B.4** Understand the relationship between numbers and quantities; connect counting to cardinality.
 - a. When counting objects, say the number names in the standard order, pairing each object with one and only one number name and each number name with one and only one object.
 - b. Understand that the last number name said tells the number of objects counted. The number of objects is the same regardless of their arrangement or the order in which they were counted.
 - c. Understand that each successive number name refers to a quantity that is one larger.
 - **K.CC.B.5** Count to answer “how many?” questions about as many as 20 things arranged in a line, a rectangular array, or a circle, or as many as 10 things in a scattered configuration; given a number from 1–20, count out that many objects.

- **K.DL** Classify objects and count the number of objects in each category
 - **K.DL.1** Classify objects into given categories; count the numbers of objects in each category and sort the categories by count. (Clarification: Limit category counts to be less than or equal to 10) **Climate Change Example:** With prompting and support, students may ask and answer questions about objects that may be reused, objects that may be recycled, and objects that must be placed in the trash. Students may classify used objects into those categories with no more than 10 objects in each category. Students may count the number of objects in each category and sort the categories by count.

Interdisciplinary Connections

- RL.K.1. With prompting and support, ask and answer questions about key details in a text.
- RL.K.4. Ask and answer questions about unknown words in a text.
- RI.K.7. With prompting and support, describe the relationship between illustrations and the text in which they appear.
- K-2-ETS1-1. Ask questions, make observations, and gather information about a situation people want to change to define a simple problem that can be solved through the development of a new or improved object or tool.
- K-2-ETS1-2. Develop a simple sketch, drawing, or physical model to illustrate how the shape of an object helps it function as needed to solve a given problem.
- K-ESS3-1. Use a model to represent the relationship between the needs of different plants or animals (including humans) and the places they live.

21st-Century Skills

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

Career Ready Practices

- CRP 4: Communicate clearly and effectively and with reason during the problem solving portion of the lesson.
- CRP 8: Utilize critical thinking to make sense of problems and persevere in solving them during the independent practice portion of the lesson.

Technology Integration
• TECH.8.1.2 All students will use digital tools to access, manage, evaluate and synthesize information in order to solve problems individually and collaborate and to create and communicate knowledge. • TECH.8.1.2.A.CS2 Select and use applications effectively and productively • TECH.8.2.2.C The design process is a systematic approach to solving problems

Skills	Instructional Topics	Assessment	Resources	Vocabulary
Explore and use math tools.	Explore Connecting Cubes	Formative Assessments: Diagnostic Assessment	Materials: Pattern blocks	count
Share mathematical ideas with a partner.	Explore Pattern Blocks	Mid-topic Checkpoint	Two-color counters	total
Recognize and name groups of up to 4 objects and images without counting.	Explore Two-color Counters and 5-frames	Lesson Quizzes	5-frame	1st
Count groups of up to 10 objects.	Explore Geoblocks	Lesson Self-assessment	Geoblocks	first
Count by ones to 10.	Explore Math Tools	Teacher Observations	Solid shapes	2nd
When counting, each object is paired with only one number name	Recognize Quantities	Class Discussions	Geoblocks	second
Answer “how many”	Look for Small Groups	Classwork/ Homework	Connecting cubes	3rd
	Classroom Scavenger Hunt	Exit Slips/Google Form	Chart Paper	third
	Different Groups, Same Quantity	Summative Assessments: Topic/Unit Assessments	Egg Cartons	4th
	Create Picture Books		Dice	fifth
	Are There Enough?		Dominos	
	Get Enough			

questions about a group of objects up to 10 in a line, rectangular array, and circle by counting Answer "Are there enough?" questions.	Counting Collections How Many Are There? Answer “How Many” Questions Explain How You Counted Represent Our Collections Connecting Cube Sculptures	Constructed Response Questions Projects Cumulative Tests Performance Assessments Alternate and Benchmark Assessments: Progress Monitoring Assessments Cumulative/Benchmark Assessments	Mentor Texts: <i>More or Less</i> by Stuart J. Murphy <i>Seaweed Soup</i> by Stuart J. Murphy <i>Three Little Firefighters</i> by Stuart J. Murphy <i>Just Enough Carrots</i> by Stuart J. Murphy Centers: Center Materials	
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Modifications and Accommodations	
Tier II and III Strategies	Small group instruction (Tier II) ● Explicit instruction ● Schema-based instruction ● Use visuals

	● Use manipulatives ● Use a multi-sensory approach ● Guided notes and/or scaffold outline for written assignments ● Introduce key vocabulary before lesson ● Lesson taught again using a differentiated approach Small group or Individual instruction (Tier III) ● Intensive instruction ● Practice fact retrieval ● Lesson taught again using a differentiated approach ● Allow answers to be given orally or dictated ● Use visuals / Anchor Charts
Students with IEPs and 504 Plans	<u>Universal Design for Learning and Access for Students with Disabilities</u> <u>Movematics (dyscalculia.org)</u> Follow all the IEP/504 plan modifications Allow extra time to complete assignments or tests Guided notes and/or scaffold outline for written assignments Work in a small group Solidify and refine concepts through repetition Allow answers to be given orally or dictated Use multi-sensory teaching approaches Utilize assistive technology and materials Use large print books, Braille, or books on CD (digital text)

	Text to speech/audio recorded selections Amplification system as needed Leveled texts according to ability Fine motor skill stations embedded in rotation as needed Modified or constrained spelling word lists Provide anchor charts with high frequency words and phonemic patterns Students might need guidance as to what actions happen during partner work time. Invite students to discuss what it looks like when they are working with their partner while exploring the connecting cubes. Generate a list of shared expectations for partner work. Invite students to plan a strategy before they begin working. If time allows, invite students to share their plan with a partner. Some students may benefit from feedback that emphasizes effort and time on task. For example, moving counters in the squares of the 5-frame or filling the 5-frame with one counter in each square.
Multi-language Learners	<u>Mathematical Language Development and Access for English Learners</u> Work toward longer passages as skills in English increase Use visuals Introduce/highlight key vocabulary before lesson Teacher models reading aloud daily Provide peer tutoring

	Utilize translation supports including bilingual dictionary, translation device, assistive technology, and peers Guided notes and/or scaffold outline for written assignments Provide students with English Learner leveled readers Support recommended by the grade specific “can do” list outlined by WIDA, including Key Uses Edition and Descriptor Name Charts Create a visual display of what students want to do or make with the connecting cubes. As students share ideas, include a drawing or annotation to illustrate connections. Invite students to use gestures as they count.
Accelerating Students	<u>Accelerating Students Guide</u> Create an enhanced set of introductory activities (e.g. advance organizers, concept maps, concept puzzles) Provide options, alternatives and choices to differentiate and broaden the curriculum Organize and offer flexible small group learning activities Provide whole group enrichment explorations Teach cognitive and methodological skills Use center, stations, or contracts Organize integrated problem-solving simulations Propose interest-based extension activities Expose students to beyond level texts.

Unit 2: Numbers 0-10

Unit Goal: Students answer “how many” questions, count out, and compare groups within 10. Students write a number to represent how many.

Duration: 5 weeks

Essential Questions:

- How can counting objects help me know how many there are?
- How can we count accurately?
- How can we use a numeral to show how many objects?
- How can we write numbers to tell how many?
- How can we tell whether a group or number has more than, less than, or the same amount as another group?
- How can we continue counting when beginning with any number?
- How can we compare numbers to see which one is more? Less?

Enduring Understandings:

- Numerals are used to represent quantities.
- Counting tells how many are in a group, regardless of their arrangement or the order in which they were counted.
- The last number said when counting a group is the total.
- Counting is cumulative.
- Two groups of objects are equal in number if they can be directly matched, one-to-one, with no extras in either group.
- Two groups of objects can be directly compared using a matching process.
- Two sets of objects can be compared by number using counting strategies, which is a more efficient method than matching.
- Two numbers can be compared by using the counting number sequence.
- A number represents a quantity if it is later in the sequence.
- There is a unique symbol that goes with each number word.
- Zero is a number that tells how many objects there are when there are none.
- There is more than one way to show a number.
- There is a specific order to the set of whole numbers.

Key NJSLS Strands:

- **K.CC.A** Know number names and the count sequence.
 - **K.CC.A.1** Count to 100 by ones and by tens.
 - **K.CC.A.2** Count forward beginning from a given number within the known sequence (instead of having to begin at 1)
 - **K.CC.A.3** Write numbers from 0 to 20. Represent a number of objects with a written numeral 0-20 (with 0 representing a count of no objects).
- **K.CC.B** Count to tell the number of objects.
 - **K.CC.B.4** Understand the relationship between numbers and quantities; connect counting to cardinality.
 - a. When counting objects, say the number names in the standard order, pairing each object with one and only one number name and each number name with one and only one object.
 - b. Understand that the last number name said tells the number of objects counted. The number of objects is the same regardless of their arrangement or the order in which they were counted.
 - c. Understand that each successive number name refers to a quantity that is one larger.
 - **K.CC.B.5** Count to answer “how many?” questions about as many as 20 things arranged in a line, a rectangular array, or a circle, or as many as 10 things in a scattered configuration; given a number from 1–20, count out that many objects.
- **K.CC.C** Compare numbers
 - **K.CC.C.6** Identify whether the number of objects in one group is greater than, less than, or equal to the number of objects in another group, e.g., by using matching and counting strategies.
 - **K.CC.C.7** Compare two numbers between 1 and 10 presented as written numerals.

Interdisciplinary Connections

- RL.K.1. With prompting and support, ask and answer questions about key details in a text.
- RL.K.4. Ask and answer questions about unknown words in a text.
- RI.K.7. With prompting and support, describe the relationship between illustrations and the text in which they appear.

- K-2-ETS1-1. Ask questions, make observations, and gather information about a situation people want to change to define a simple problem that can be solved through the development of a new or improved object or tool.
- K-2-ETS1-2. Develop a simple sketch, drawing, or physical model to illustrate how the shape of an object helps it function as needed to solve a given problem.
- K-ESS3-1. Use a model to represent the relationship between the needs of different plants or animals (including humans) and the places they live.

21st-Century Skills

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

Career Ready Practices

- CRP 4: Communicate clearly and effectively and with reason during the problem solving portion of the lesson.
- CRP 8: Utilize critical thinking to make sense of problems and persevere in solving them during the independent practice portion of the lesson.

Technology Integration

- **TECH.8.1.2** All students will use digital tools to access, manage, evaluate and synthesize information in order to solve problems individually and collaborate and to create and communicate knowledge.
- **TECH.8.1.2.A.CS2** Select and use applications effectively and productively.
- **TECH.8.2.2.C** The design process is a systematic approach to solving problems.

Skills	Instructional Topics	Assessment	Resources	Vocabulary
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Connect quantities with spoken words and written numbers. Understand the relationship between number and quantity. Count and compare up to 10 objects and know the number remains the same regardless of the arrangement or order in which the objects are counted. Write numbers 0-10. Compare written numbers 0-10.	Count and Compare Groups of Objects Fingers as a Math Tool Count and Arrange Groups that Look Very Different Groups that Look Alike Make Groups of More, Fewer, or the Same Use More, Fewer, or the Same Number to Describe Groups Count and Compare Groups of Images Count Images in Different Arrangements Compare Matching Images More, Fewer, or the Same Find More or Fewer Create Groups of Images	Formative Assessments: Diagnostic Assessment Mid-topic Checkpoint Lesson Quizzes Lesson Self-assessment Teacher Observations Class Discussions Classwork/ Homework Exit Slips/Google Form Summative Assessments: Topic/Unit Assessments Constructed Response Questions Projects Cumulative Tests Performance Assessments Alternate and Benchmark Assessments:	Materials: Chart paper Counters Sheet protectors Bags (brown paper) Collections of objects Connecting cubes Reference Sheet Numbers (1–10) with 5-Frames Number Mat 1-10 Sort By Number Mat 1-10 Geoblocks Number cards 0–10 Pattern blocks Dice Dominoes Mentor Texts: <i>Ten Black Dots</i> by Donald Crews	compare more greater fewer less 0 zero 1 one 2 two 3 three 4 four 5 five 6 six
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	Connect Quantities and Numbers Numbers in Many Ways Count Out Objects Draw Groups of Things Write Numbers 1-2 to Represent Quantities Write Numbers 3-4 to Represent Quantities Write Numbers 5-6 to Represent Quantities Write Numbers 7-8 to Represent Quantities Write Numbers 9-10 to Represent Quantities Compare Numbers Order Towers and Numbers 1 More or 1 Less with Towers and Numbers Compare Numbers and Images	Progress Monitoring Assessments Cumulative/Benchmark Assessments	<i>Ten Apples on Top</i> by Dr. Seuss <i>Each Orange Had 8 Slices: A Counting Book</i> by Paul Giganti, Jr. <i>Every Buddy Counts</i> by Stuart J. Murphy <i>Fish Eyes a Book You Can Count on</i> by Lois Ehlert <i>Ten Little Ladybugs</i> by Melanie Gerth <i>How Do Dinosaurs Count to Ten?</i> By Jane Yolen and Mark Teague Centers: Center Materials	7 seven 8 eight 9 nine 10 ten
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	Represent and Compare Numbers Compare Numbers			
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Modifications and Accommodations	
Tier II and III Strategies	Small group instruction (Tier II) ● Explicit instruction ● Schema-based instruction ● Use visuals ● Use manipulatives ● Use a multi-sensory approach ● Guided notes and/or scaffold outline for written assignments ● Introduce key vocabulary before lesson ● Lesson taught again using a differentiated approach Small group or Individual instruction (Tier III) ● Intensive instruction ● Practice fact retrieval ● Lesson taught again using a differentiated approach ● Allow answers to be given orally or dictated ● Use visuals / Anchor Charts
Students with IEPs and 504 Plans	<u>Universal Design for Learning and Access for Students with Disabilities</u> <u>Movematics (dyscalculia.org)</u> Follow all the IEP/504 plan modifications Allow extra time to complete assignments or tests

	Guided notes and/or scaffold outline for written assignments Work in a small group Solidify and refine concepts through repetition Allow answers to be given orally or dictated Use multi-sensory teaching approaches Utilize assistive technology and materials Use large print books, Braille, or books on CD (digital text) Text to speech/audio recorded selections Amplification system as needed Leveled texts according to ability Fine motor skill stations embedded in rotation as needed Modified or constrained spelling word lists Provide anchor charts with high frequency words and phonemic patterns Students might need guidance as to what actions happen during partner work time. Invite students to discuss what it looks like when they are working with their partner while exploring the connecting cubes. Generate a list of shared expectations for partner work. Invite students to plan a strategy before they begin working. If time allows, invite students to share their plan with a partner. Some students may benefit from feedback that emphasizes effort and time on task. For example, moving counters in the squares of the 5-frame or filling the 5-frame with one counter in each square.
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Multi-language Learners	<u>Mathematical Language Development and Access for English Learners</u> Work toward longer passages as skills in English increase Use visuals Introduce/highlight key vocabulary before lesson Teacher models reading aloud daily Provide peer tutoring Utilize translation supports including bilingual dictionary, translation device, assistive technology, and peers Guided notes and/or scaffold outline for written assignments Provide students with English Learner leveled readers Support recommended by the grade specific “can do” list outlined by WIDA, including Key Uses Edition and Descriptor Name Charts Create a visual display of what students want to do or make with the connecting cubes. As students share ideas, include a drawing or annotation to illustrate connections. After students share responses, use multimodal examples to show the meaning of 5 in the 5-frame. Point to each square and count to 5. Invite students to chorally read numbers 1–5 aloud. Invite students to use gestures as they count their collections aloud.
Accelerating Students	<u>Accelerating Students Guide</u>

	Create an enhanced set of introductory activities (e.g. advance organizers, concept maps, concept puzzles) Provide options, alternatives and choices to differentiate and broaden the curriculum Organize and offer flexible small group learning activities Provide whole group enrichment explorations Teach cognitive and methodological skills Use center, stations, or contracts Organize integrated problem-solving simulations Propose interest-based extension activities Expose students to beyond level texts.
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Unit 3: Understanding and Addition and Subtraction

Unit Goal: Students relate counting to addition and solve addition and subtraction story problems within 10. Students relate counting to addition and solve addition and subtraction story problems within 10.
Duration: 4 weeks
Essential Questions: • How can we use objects and drawings to show how to take a larger group apart and make smaller numbers? • How can we use objects to show addition and subtraction? • What strategies can we use to solve word problems?
Enduring Understandings: • Addition is putting together and subtraction is taking from.

- Addition and subtraction can be represented using a variety of approaches.
- Quantities can be represented in a variety of ways.
- Numbers can be composed and decomposed in more than one way.
- Developing number sense leads to flexibility with numbers.

Key NJSLS Strands:

- **K.OA.A** Understand addition as putting together and adding to, and understand subtraction as taking apart and taking from.
 - **K.OA.A.1** Represent addition and subtraction up to 10 with objects, fingers, mental images, drawings, sounds (e.g., claps), acting out situations, verbal explanations, expressions, or equations.
 - **K.OA.A.2** Solve addition and subtraction word problems, and add and subtract within 10, e.g., by using objects or drawings to represent the problem. *Climate Change Example: Students may use counters when adding to find the total number of trees that they and a partner observed (e.g., from their front door, in a back yard, from a classroom window). With prompting and support, they may ask and answer questions about how trees may reduce the warming effect of sunlight.*
- **K.CC.A** Know number names and the count sequence.
 - **K.CC.A.1** Count to 100 by ones and by tens.
 - **K.CC.A.2** Count forward beginning from a given number within the known sequence (instead of having to begin at 1).
 - **K.CC.A.3** Write numbers from 0 to 20. Represent a number of objects with a written numeral 0-20 (with 0 representing a count of no objects).
- **K.CC.B** Count to tell the number of objects.
 - **K.CC.B.4** Understand the relationship between numbers and quantities; connect counting to cardinality.
 - **a.** When counting objects, say the number names in the standard order, pairing each object with one and only one number name and each number name with one and only one object.
 - **b.** Understand that the last number name said tells the number of objects counted. The number of objects is the same regardless of their arrangement or the order in which they were counted.
 - **c.** Understand that each successive number name refers to a quantity that is one larger.
 - **K.CC.B.5** Count to answer “how many?” questions about as many as 20 things arranged in a line, a rectangular array, or a circle, or as many as 10 things in a scattered configuration; given a number from 1–20, count out that many objects.

Interdisciplinary Connections
● RL.K.1. With prompting and support, ask and answer questions about key details in a text ● RL.K.4. Ask and answer questions about unknown words in a text ● RI.K.7. With prompting and support, describe the relationship between illustrations and the text in which they appear ● K-2-ETS1-1. Ask questions, make observations, and gather information about a situation people want to change to define a simple problem that can be solved through the development of a new or improved object or tool. ● K-2-ETS1-2. Develop a simple sketch, drawing, or physical model to illustrate how the shape of an object helps it function as needed to solve a given problem. ● K-ESS3-1. Use a model to represent the relationship between the needs of different plants or animals (including humans) and the places they live.
21st-Century Skills
● 9.2.4.A.4 Explain why knowledge and skills acquired in the elementary grades lay the foundation for future academic and career success.
Career Ready Practices
● CRP 4: Communicate clearly and effectively and with reason during the problem solving portion of the lesson. ● CRP 8: Utilize critical thinking to make sense of problems and persevere in solving them during the independent practice portion of the lesson.
Technology Integration
● TECH.8.1.2 All students will use digital tools to access, manage, evaluate and synthesize information in order to solve problems individually and collaborate and to create and communicate knowledge. ● TECH.8.1.2.A.CS2 Select and use applications effectively and productively.

- **TECH.8.2.2.C** The design process is a systematic approach to solving problems

Skills	Instructional Topics	Assessment	Resources	Vocabulary
Understand addition as putting together and subtraction as taking from. Represent and solve: • <i>Add To, Result Unknown</i> • <i>Take From, Result Unknown</i> Story problems within 10. Find the value of addition and subtraction expressions within 10. Relate addition and subtraction expressions to story problems.	Count to Add and Subtract Count 2 Groups of Objects Count 2 Groups of Images Count 2 Groups of Scattered Images Add with Objects Subtract with Objects Tell and Act Out Stories Use Objects to Represent Stories Represent and Solve Story Problems Solve Story Problems Compare Drawings	Formative Assessments: Diagnostic Assessment Mid-topic Checkpoint Lesson Quizzes Lesson Self-assessment Teacher Observations Class Discussions Classwork/ Homework Exit Slips/Google Form Summative Assessments: Topic/Unit Assessments Constructed Response Questions Projects Cumulative Tests Performance Assessments	Materials: Counters Picture books Shape Cards 5-frames Collections of objects Counting mats Triangle Sort Cards Rectangle Sort Cards Bags Play dough or modeling clay Straws Pattern blocks Pattern Block Puzzles	above below beside circle fewer less 3 is less than 9 longer more next to Five-frame rectangle shorter triangle

	Drawings to Represent Story Problems Compare Addition and Subtraction Story Problems Create Story Problems Addition and Subtraction Expressions Expressions and Story Problems Expressions and Drawings Find the Value of Expressions Add 0 and 1 Tell Story Problems for Expressions	Alternate and Benchmark Assessments: Progress Monitoring Assessments Cumulative/Benchmark Assessments	Dice Construction paper Glue Card stock Paint Paper Paper plates Tape Mentor Texts: <i>Mission Addition</i> by Loreen Leedy <i>Subtraction Action</i> by Loreen Leedy <i>Monster Musical Chairs</i> by Stuart J. Murphy <i>Animals on Board</i> by Stuart J. Murphy <i>Elevator Magic</i> by Stuart J. Murphy <i>Addition Strategies</i> by Stuart J. Murphy	
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			Centers: Center Materials	
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Modifications and Accommodations	
Tier II and III Strategies	Small group instruction (Tier II) ● Explicit instruction ● Schema-based instruction ● Use visuals ● Use manipulatives ● Use a multi-sensory approach ● Guided notes and/or scaffold outline for written assignments ● Introduce key vocabulary before lesson ● Lesson taught again using a differentiated approach Small group or Individual instruction (Tier III) ● Intensive instruction ● Practice fact retrieval ● Lesson taught again using a differentiated approach ● Allow answers to be given orally or dictated ● Use visuals / Anchor Charts
Students with IEPS and 504 Plans	<u>Universal Design for Learning and Access for Students with Disabilities</u> <u>Movematics (dyscalculia.org)</u> Follow all the IEP/504 plan modifications Allow extra time to complete assignments or tests Guided notes and/or scaffold outline for written assignments

	Work in a small group Solidify and refine concepts through repetition Allow answers to be given orally or dictated Use multi-sensory teaching approaches Utilize assistive technology and materials Use large print books, Braille, or books on CD (digital text) Text to speech/audio recorded selections Amplification system as needed Leveled texts according to ability Fine motor skill stations embedded in rotation as needed Modified or constrained spelling word lists Provide anchor charts with high frequency words and phonemic patterns Students might need guidance as to what actions happen during partner work time. Invite students to discuss what it looks like when they are working with their partner while exploring the connecting cubes. Generate a list of shared expectations for partner work. Invite students to plan a strategy before they begin working. If time allows, invite students to share their plan with a partner. Some students may benefit from feedback that emphasizes effort and time on task. For example, moving counters in the squares of the 5-frame or filling the 5-frame with one counter in each square.
Multi-language Learners	<u>Mathematical Language Development and Access for English Learners</u>

	Work toward longer passages as skills in English increase Use visuals Introduce/highlight key vocabulary before lesson Teacher models reading aloud daily Provide peer tutoring Utilize translation supports including bilingual dictionary, translation device, assistive technology, and peers Guided notes and/or scaffold outline for written assignments Provide students with English Learner leveled readers Support recommended by the grade specific “can do” list outlined by WIDA, including Key Uses Edition and Descriptor Name Charts Create a visual display of what students want to do or make with the connecting cubes. As students share ideas, include a drawing or annotation to illustrate connections. After students share responses, use multimodal examples to show the meaning of 5 in the 5-frame. Point to each square and count to 5. Invite students to chorally read numbers 1–5 aloud. Invite students to use gestures as they count their collections aloud.
Accelerating Students	<u>Accelerating Students Guide</u> Create an enhanced set of introductory activities (e.g. advance organizers, concept maps, concept puzzles) Provide options, alternatives and choices to differentiate and broaden the curriculum

	Organize and offer flexible small group learning activities Provide whole group enrichment explorations Teach cognitive and methodological skills Use center, stations, or contracts Organize integrated problem-solving simulations Propose interest-based extension activities Expose students to beyond level texts.
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Unit 4: Composing and Decomposing Numbers to 10

Unit Goal: Students compose and decompose numbers within 10.
Duration: 4 weeks
Essential Questions: How can we use objects to show how to add one number to another to make ten?
Enduring Understanding: Numbers can be composed and decomposed in more than one way.
Key NJSLS Strands: K.CC.A Know number names and the count sequence. K.CC.A.1 Count to 100 by ones and by tens. K.CC.A.2 Count forward beginning from a given number within the known sequence (instead of having to begin at 1).

- **K.CC.A.3** Write numbers from 0 to 20. Represent a number of objects with a written numeral 0-20 (with 0 representing a count of no objects).
- **K.OA.A** Understand addition as putting together and adding to, and understand subtraction as taking apart and taking from.
 - **K.OA.A.3** Decompose numbers less than or equal to 10 into pairs in more than one way, e.g., by using objects or drawings, and record each decomposition by a drawing or equation (e.g., $5=2+3$ and $5=4+1$).
 - **K.OA.A.4** For any number from 1 to 9, find the number that makes 10 when added to the given number, e.g., by using objects or drawings and record the answer with a drawing or equation.

Interdisciplinary Connections

- RL.K.1 With prompting and support, ask and answer questions about key details in a text.
- RL.K.4 Ask and answer questions about unknown words in a text.
- RI.K.1 With prompting and support, ask and answer questions about key details in a text.
- RI.K.7 With prompting and support, describe the relationship between illustrations and the text in which they appear.
- K-2-ETS1-1 Ask questions, make observations, and gather information about a situation people want to change to define a simple problem that can be solved through the development of a new or improved object or tool.
- K-2-ETS1-2 Develop a simple sketch, drawing, or physical model to illustrate how the shape of an object helps it function as needed to solve a given problem.
- K-ESS3-1 Use a model to represent the relationship between the needs of different plants or animals (including humans) and the places they live.

21st-Century Skills

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

Career Ready Practices

- CRP 4: Communicate clearly and effectively and with reason during the problem solving portion of the lesson.

- CRP 8: Utilize critical thinking to make sense of problems and persevere in solving them during the independent practice portion of the lesson.

Technology Integration

- **TECH.8.1.2** All students will use digital tools to access, manage, evaluate and synthesize information in order to solve problems individually and collaborate and to create and communicate knowledge.
- **TECH.8.1.2.A.CS2** Select and use applications effectively and productively.
- **TECH.8.2.2.C** The design process is a systematic approach to solving problems.

Skills	Instructional Topics	Assessment	Resources	Vocabulary
Compose and decompose numbers up to 9 in more than 1 way. Write expressions to represent decompositions. Solve different types of story problems: ● <i>Put Together</i> ● <i>Total Unknown</i> ● <i>Put Together/Take Apart</i> ● <i>Both Addends Unknown</i> ● <i>Add To, Result Unknown</i> ● <i>Take From,</i>	Make and Break Apart Numbers to 9 Make 2 Parts Make and Break Apart Pattern Block Designs Snap the Cubes Types of Story Problems Put Together Red and Yellow Apples Solve Both Addends Unknown Story Problems	Formative Assessments: Diagnostic Assessment Mid-topic Checkpoint Lesson Quizzes Lesson Self-assessment Teacher Observations Class Discussions Classwork/ Homework Exit Slips/Google Form Summative Assessments:	Materials: Connecting cubes Pattern blocks Two-color counters 5-frame Geoblocks Solid shapes Connecting cubes Pattern blocks Picture books Dominoes	above add (4 plus 3) below beside circle equation expression fewer less (3 is less than 9) longer more

<i>Result Unknown</i> For any number from 1 to 9, find the number that makes 10 when added to the given number.	More Than One Way All of the Story Problems Make and Break Apart 10 Introduce the 10-frame Equations that Show 10 How Many Are Missing? Make 10 Towers of 10	Topic/Unit Assessments Constructed Response Questions Projects Cumulative Tests Performance Assessments Alternate and Benchmark Assessments: Progress Monitoring Assessments Cumulative/Benchmark Assessments	Mentor Texts: <i>Counting Crocodiles</i> by Judy Sierra <i>20 Hungry Piggies</i> by Trudy Harris Centers: <u>Center Materials</u>	next to five-frame 1 one 2 two 3 three 4 four 5 five 6 six 7 seven 8 eight 9
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				nine 10 ten rectangle shorter Subtract (5 minus 2)
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Unit 5: Numbers 0 to 20

Unit Goal: Students answer “how many” questions and count out groups within 20. They understand that numbers 11 to 19 are composed of ten ones and one, two, three, four, five, six, seven, eight, or nine ones. They write numbers within 20.

Duration: 4 weeks

Essential Questions:

- How can we *count on* from a given number?
- What strategies can you use to identify a number that is not in order?
- What strategies can you use to find a missing number in a sequence?
- Why is it important to know how to count backwards?

Enduring Understandings:

- There is a unique symbol that goes with each number word.
- The count sequence is used to count from any number within 20.
- Numbers become greater when you count on.
- Counting tells how many are in a set, regardless of their arrangement or the order in which they were counted.
- The last number said when counting a set is the total. Counting is cumulative.
- Good math thinkers know how to think about words and numbers to solve problems.

- Numbers from 11-19 can be represented as a sum of 10 and some more.
- The numbers 11-20 can be decomposed as the sum of ten and some ones.

Key NJSL Standards:

- **K.CC.A** Know number names and the count sequence.
 - **K.CC.A.1** Count to 100 by ones and by tens.
 - **K.CC.A.2** Count forward beginning from a given number within the known sequence (instead of having to begin at 1).
 - **K.CC.A.3** Write numbers from 0 to 20. Represent a number of objects with a written numeral 0-20 (with 0 representing a count of no objects).
- **K.NBT.A** Work with numbers 11-19 to gain foundations for place value
 - **K.NBT.A.1** Compose and decompose numbers from 11 to 19 into tens ones and some further ones, e.g., by using objects or drawings, and record each composition by drawing or equation (e.g. $18=10+8$); understand that these numbers are composed of ten ones and one, two, three, four, five, six, seven, eight, or nine ones.

Interdisciplinary Connections

- RL.K.1. With prompting and support, ask and answer questions about key details in a text
- RL.K.4. Ask and answer questions about unknown words in a text
- RI.K.1. With prompting and support, ask and answer questions about key details in a text
- RI.K.7. With prompting and support, describe the relationship between illustrations and the text in which they appear
- K-2-ETS1-1. Ask questions, make observations, and gather information about a situation people want to change to define a simple problem that can be solved through the development of a new or improved object or tool.
- K-2-ETS1-2. Develop a simple sketch, drawing, or physical model to illustrate how the shape of an object helps it function as needed to solve a given problem.
- K-ESS3-1. Use a model to represent the relationship between the needs of different plants or animals (including humans) and the places they live.

21st-Century Skills

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

Career Ready Practices

- CRP 4 Communicate clearly and effectively and with reason during the problem solving portion of the lesson.
- CRP 8 Utilize critical thinking to make sense of problems and persevere in solving them during the independent practice portion of the lesson.

Technology Integration

- **TECH.8.1.2** All students will use digital tools to access, manage, evaluate and synthesize information in order to solve problems individually and collaborate and to create and communicate knowledge.
- **TECH.8.1.2.A.CS2** Select and use applications effectively and productively
- **TECH.8.2.2.C** The design process is a systematic approach to solving problems

Skills	Instructional Topics	Assessment	Resources	Vocabulary
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Count groups of up to 20 objects.	Count Larger Collections of Objects	Formative Assessments:	Materials:	fewer
Understand numbers 11-19 as 10 ones and some more ones.	Keep Track of Objects	Diagnostic Assessment	5-frames	less
Count groups of images up to 20.	Count Carefully	Mid-topic Checkpoint	10-frames	more
Represent quantities up to 20 with a written number.	Does the Number Change?	Lesson Quizzes	Collections of objects	11
	10 Ones and Some More	Lesson Self-assessment	Connecting cubes	eleven
	How Many Fingers? How Many Dots?	Teacher Observations	Counting mats	12
	Fingers and 10-frames	Class Discussions	Number Mat 11–20	twelve
	Make Numbers with 10 and Some More	Classwork/ Homework	Collections of objects	13
	Expressions and Equations	Exit Slips/Google Form	Counters	thirteen
	Count Groups of 11–20 Images	Summative Assessments:	Pattern blocks	14
		Topic/Unit Assessments	Two-color counters	fourteen
		Constructed Response Questions	Dot Cards	15
		Projects	Dominoes	fifteen
		Cumulative Tests	Mentor Texts:	16
		Performance Assessments	<i>Counting Crocodiles</i> by Judy Sierra	sixteen
			<i>20 Hungry Piggies</i> by Trudy Harris	17
			<i>Warthogs in the Kitchen: A Sloppy</i>	seventeen
				18
				eighteen

		Alternate and Benchmark Assessments: Progress Monitoring Assessments Cumulative/Benchmark Assessments	<i>Counting Book</i> by Pamela Duncan Edwards <i>Chicka Chicka 123</i> by Bill Martin, Jr. Centers: Center Materials Fingerprint animals on a ten-frame	19 nineteen
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Modifications and Accommodations	
Tier II and III Strategies	Small group instruction (Tier II) ● Explicit instruction ● Schema-based instruction ● Use visuals ● Use manipulatives ● Use a multi-sensory approach ● Guided notes and/or scaffold outline for written assignments ● Introduce key vocabulary before lesson ● Lesson taught again using a differentiated approach Small group or Individual instruction (Tier III) ● Intensive instruction ● Practice fact retrieval ● Lesson taught again using a differentiated approach ● Allow answers to be given orally or dictated ● Use visuals / Anchor Charts

Students with IEPs and 504 Plans	<u>Universal Design for Learning and Access for Students with Disabilities</u> <u>Movematics (dyscalculia.org)</u> Follow all the IEP/504 plan modifications Allow extra time to complete assignments or tests Guided notes and/or scaffold outline for written assignments Work in a small group Solidify and refine concepts through repetition Allow answers to be given orally or dictated Use multi-sensory teaching approaches Utilize assistive technology and materials Use large print books, Braille, or books on CD (digital text) Text to speech/audio recorded selections Amplification system as needed Leveled texts according to ability Fine motor skill stations embedded in rotation as needed Modified or constrained spelling word lists Provide anchor charts with high frequency words and phonemic patterns Students might need guidance as to what actions happen during partner work time. Invite students to discuss what it looks like when they are working with their partner while exploring the connecting cubes. Generate a list of shared expectations for partner work.
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	Invite students to plan a strategy before they begin working. If time allows, invite students to share their plan with a partner. Some students may benefit from feedback that emphasizes effort and time on task. For example, moving counters in the squares of the 5-frame or filling the 5-frame with one counter in each square.
Multi-language Learners	<u>Mathematical Language Development and Access for English Learners</u> Work toward longer passages as skills in English increase Use visuals Introduce/highlight key vocabulary before lesson Teacher models reading aloud daily Provide peer tutoring Utilize translation supports including bilingual dictionary, translation device, assistive technology, and peers Guided notes and/or scaffold outline for written assignments Provide students with English Learner leveled readers Support recommended by the grade specific “can do” list outlined by WIDA, including Key Uses Edition and Descriptor Name Charts Create a visual display of what students want to do or make with the connecting cubes. As students share ideas, include a drawing or annotation to illustrate connections. After students share responses, use multimodal examples to show the meaning of 5 in the 5-frame. Point to each square and count to 5. Invite students to chorally read numbers 1–5 aloud.

	Invite students to use gestures as they count their collections aloud.
Accelerating Students	<u>Accelerating Students Guide</u> Create an enhanced set of introductory activities (e.g. advance organizers, concept maps, concept puzzles) Provide options, alternatives and choices to differentiate and broaden the curriculum Organize and offer flexible small group learning activities Provide whole group enrichment explorations Teach cognitive and methodological skills Use center, stations, or contracts Organize integrated problem-solving simulations Propose interest-based extension activities Expose students to beyond level texts.

Unit 6: 2-D and 3-D Shapes

Unit Goal: This unit introduces students to the foundational concepts of geometry, with a focus on familiar flat (two-dimensional) shapes.
Duration: 6 weeks
Essential Questions: • How are shapes important and how are they used in our environment? • How can we compare shapes? • How are two-dimensional shapes the same and how are they different? • How can building shapes help us to better understand the characteristics of a shape? • How can we tell if a shape is two-dimensional or three-dimensional? • How can we compare shapes? • How can we build or draw shapes we see in our environment?

- How can you identify, describe and create a shape?
- How can you identify and describe a solid figure?
- What shapes/solid figures do you see around you?
- How can you describe where something is using position words?
- How do you identify and create shapes that are exactly the same?
- How do you combine plane shapes to make new plane shapes?

Enduring Understandings:

- Shapes are everywhere.
- Shapes can be described and compared using their attributes.
- Shapes can be combined to form new shapes.
- Geometric properties can be used to construct shapes.
- The position of an object can be described.
- Objects have shape. Some objects are two-dimensional, or flat, shapes. Some objects are three-dimensional, or solid, shapes.

Key NJSLS Strands:

- **K.G.A** Identify and describe shapes (squares, circles, triangles, rectangles, hexagons, cubes, cones, cylinders, and spheres)
 - **K.G.A.1** Describe objects in the environment using names of shapes, and describe the relative positions of these objects using terms such as above, below, beside, in front of, behind, and next to.
 - **K.G.A.2** Correctly name shapes regardless of their orientations or overall size.
 - **K.G.A.3** Identify shapes as two-dimensional (lying in a plane, “flat”) or three-dimensional (“solid”).
- **K.G.B** Analyze, compare, create, and compose shapes
 - **K.G.B.4** Analyze and compare two- and three-dimensional shapes, in different sizes and orientations, using informal language to describe their similarities, differences, parts (e.g., number of sides and vertices/“corners”) and other attributes (e.g., having sides of equal length).
 - **K.G.B.5** Model shapes in the world by building shapes from components (e.g., sticks and clay balls) and drawing shapes. *Climate Change Example: Students may use sticks and clay to model trees and umbrellas and may then draw shapes (e.g., triangle, rectangle) to model those objects. With prompting and support, they may ask and answer questions about how trees and umbrellas may be used to reduce the warming effect of sunlight.*
 - **K.G.B.6** Compose simple shapes to form larger shapes. For example, “Can you join these two triangles with full sides touching to make a rectangle?”

- **K.CC.A** Know number names and the count sequence.
 - **K.CC.A.1** Count to 100 by ones and by tens.
 - **K.CC.A.2** Count forward beginning from a given number within the known sequence (instead of having to begin at 1).
 - **K.CC.A.3** Write numbers from 0 to 20. Represent a number of objects with a written numeral 0-20 (with 0 representing a count of no objects).

Interdisciplinary Connections

- RL.K.1 With prompting and support, ask and answer questions about key details in a text.
- RL.K.4 Ask and answer questions about unknown words in a text.
- RI.K.1 With prompting and support, ask and answer questions about key details in a text.
- RI.K.7 With prompting and support, describe the relationship between illustrations and the text in which they appear.
- K-2-ETS1-1 Ask questions, make observations, and gather information about a situation people want to change to define a simple problem that can be solved through the development of a new or improved object or tool.
- K-2-ETS1-2 Develop a simple sketch, drawing, or physical model to illustrate how the shape of an object helps it function as needed to solve a given problem.
- K-ESS3-1 Use a model to represent the relationship between the needs of different plants or animals (including humans) and the places they live.

21st-Century Skills

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

Career Ready Practices

- CRP 4: Communicate clearly and effectively and with reason during small group instruction.
- CRP 8: Utilize critical thinking to make sense of problems and persevere in solving them during the independent practice portion of the lesson.

● CRP 6: Demonstrate creativity and innovation while creating projects with shapes and solid figures. ● CRP 8: Utilize critical thinking to make sense of problems and persevere in solving them while working independently.
Technology Integration
● TECH.8.1.2 All students will use digital tools to access, manage, evaluate and synthesize information in order to solve problems individually and collaborate and to create and communicate knowledge. ● TECH.8.1.2.A.CS2 Select and use applications effectively and productively ● TECH.8.2.2.C The design process is a systematic approach to solving problems

Note: Students may initially associate names of shapes with everyday objects. For example, a rectangle is a shape that looks like a door. Students need to see and interact with many examples of a shape to accurately relate what's in their environment to the geometric term.

Skills	Instructional Topics	Assessment	Resources	Vocabulary
Recognize and describe shapes in the environment. Use informal language to describe and compare shapes and their attributes. Explore shapes by putting shapes together to form larger shapes.	What We Know About Shapes Match Shapes Describe and Compare Shapes Describe, Compare, and Sort Shapes Circles and Triangles Rectangles and Squares	Formative Assessments: Diagnostic Assessment Mid-topic Checkpoint Lesson Quizzes Lesson Self-assessment Teacher Observations Class Discussions Classwork/ Homework	Materials: Counters Picture books Shape Cards 5-frames Collections of objects Counting mats Triangle Sort Cards Rectangle Sort Cards	Circle Cone Cube Cylinder Flat Rectangle Rhombus Solid Sphere

	Build with Straws Draw Shapes Shapes Are Everywhere Make Shapes Put Together Pattern Blocks Same Shapes More than One Way to Make a Shape Describe and Match Shapes Shapes in Art Compose and Count with Flat Shapes Build Shapes More or Fewer Pattern Blocks Questions and Stories About Shapes Pattern Block Puzzles	Exit Slips/Google Form Summative Assessments: Topic/Unit Assessments Constructed Response Questions Projects Cumulative Tests Performance Assessments Alternate and Benchmark Assessments: Progress Monitoring Assessments Cumulative/Benchmark Assessments	Bags Play dough or modeling clay Straws String Pattern blocks Pattern Block Puzzles Pattern Blocks Recording Sheets Construction paper Glue Shapes in Art - Pictures of Art Card stock Paint Paper Paper plates Tape Connecting cubes	Square Triangle
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	and Equations Story Problems about Shapes Compose and Decompose 10 with Pattern Blocks Describe, Compare, and Create Solid Shapes Flat and Solid Shapes Identify and Describe Solid Shapes Compare and Sort Solid Shapes Build Solid Shapes Describe Solid Shapes Around Us Compose with Solid Shapes Build and Count with Solid Shapes Represent the Classroom with Shapes		Two-color counters 10-frames Cups Geoblocks Solid shapes Flat Shapes Cards Containers of different sizes Sticky notes Geoblocks Materials from previous centers Solid shapes Sticks Folders Activities: Scavenger hunt to find shapes in the classroom, school, environment, etc.	
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			Use pattern blocks to explore different shapes and positions of shapes. Use multisensory items such as wikki-sticks, playdough, popsicle sticks, string, etc. to create shapes Animal Shape Stamp Art Mentor Texts: <i>Shapes That Roll</i> by Karen Berman Nagel <i>The Greedy Triangle</i> by Marilyn Burns <i>Shapes, Shapes, Shapes</i> by Tana Hoban <i>The Shape of Things</i> by Dayle Ann Dodds <i>Go Away Big Green Monster</i> by Ed Emberley	
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Modifications and Accommodations	
Tier II and III Strategies	Small group instruction (Tier II) ● Explicit instruction ● Schema-based instruction ● Use visuals ● Use manipulatives ● Use a multi-sensory approach ● Guided notes and/or scaffold outline for written assignments ● Introduce key vocabulary before lesson ● Lesson taught again using a differentiated approach Small group or Individual instruction (Tier III) ● Intensive instruction ● Practice fact retrieval ● Lesson taught again using a differentiated approach ● Allow answers to be given orally or dictated ● Use visuals / Anchor Charts
Students with IEPs and 504 Plans	<u>Universal Design for Learning and Access for Students with Disabilities</u> <u>Movematics (dyscalculia.org)</u> Follow all the IEP/504 plan modifications Allow extra time to complete assignments or tests Guided notes and/or scaffold outline for written assignments Work in a small group Solidify and refine concepts through repetition

	Allow answers to be given orally or dictated Use multi-sensory teaching approaches Utilize assistive technology and materials Use large print books, Braille, or books on CD (digital text) Text to speech/audio recorded selections Amplification system as needed Leveled texts according to ability Fine motor skill stations embedded in rotation as needed Modified or constrained spelling word lists Provide anchor charts with high frequency words and phonemic patterns Students might need guidance as to what actions happen during partner work time. Invite students to discuss what it looks like when they are working with their partner while exploring the connecting cubes. Generate a list of shared expectations for partner work. Invite students to plan a strategy before they begin working. If time allows, invite students to share their plan with a partner. Some students may benefit from feedback that emphasizes effort and time on task. For example, moving counters in the squares of the 5-frame or filling the 5-frame with one counter in each square.
Multi-language Learners	<u>Mathematical Language Development and Access for English Learners</u> Work toward longer passages as skills in English increase

	Use visuals Introduce/highlight key vocabulary before lesson Teacher models reading aloud daily Provide peer tutoring Utilize translation supports including bilingual dictionary, translation device, assistive technology, and peers Guided notes and/or scaffold outline for written assignments Provide students with English Learner leveled readers Support recommended by the grade specific “can do” list outlined by WIDA, including Key Uses Edition and Descriptor Name Charts Create a visual display of what students want to do or make with the connecting cubes. As students share ideas, include a drawing or annotation to illustrate connections. After students share responses, use multimodal examples to show the meaning of 5 in the 5-frame. Point to each square and count to 5. Invite students to chorally read numbers 1–5 aloud. Invite students to use gestures as they count their collections aloud.
Accelerating Students	<u>Accelerating Students Guide</u> Create an enhanced set of introductory activities (e.g. advance organizers, concept maps, concept puzzles) Provide options, alternatives and choices to differentiate and broaden the curriculum Organize and offer flexible small group learning activities

	Provide whole group enrichment explorations Teach cognitive and methodological skills Use center, stations, or contracts Organize integrated problem-solving simulations Propose interest-based extension activities Expose students to beyond level texts.
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Unit 7: Measurement

Unit Goal: Students identify, describe, analyze, and compare two- and three- dimensional shapes. Counting, addition, and subtraction are revisited in the geometric contexts. Students also identify coins and dollar bills, and name their values.
Duration: 3 weeks
Essential Questions: • What are some ways to measure objects? • How can you compare measurements of objects? • How can knowing the name and value of a penny, nickel, dime, and quarter help us in the real world?
Essential Understandings: • Measurement is the dimension, quantity or capacity of an object compared to a standard.. • When comparing two lengths or heights, one end of each length must match. • Coins and dollars have differing values and can be used to purchase items in our daily lives.
Key NJSLS Strands: • K.M.A Describe and compare measurable attributes.

- **K.M.A.1** Describe measurable attributes of objects, such as length or weight. Describe several measurable attributes of a single object.
- **K.M.A.2** Directly compare two objects with a measurable attribute in common, to see which object has “more of”/ “less of” the attribute.
- **K.M.B** Work with money
 - **K.M.B.1** Understand that certain objects are coins and dollar bills, and that coins and dollar bills represent money. Identify the values of all U.S. coins and the one-dollar bill.

Interdisciplinary Connections

- RL.K.1. With prompting and support, ask and answer questions about key details in a text.
- RL.K.4. Ask and answer questions about unknown words in a text.
- 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.
- K-2-ETS1-1. Ask questions, make observations, and gather information about a situation people want to change to define a simple problem that can be solved through the development of a new or improved object or tool.
- K-2-ETS1-2. Develop a simple sketch, drawing, or physical model to illustrate how the shape of an object helps it function as needed to solve a given problem.

21st-Century Skills

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

Career Ready Practices

- CRP 4 Communicate clearly and effectively during the problem solving portion of the lesson.
- CRP 11 Use technology to enhance productivity.

Technology Integration

- **TECH.8.1.2** All students will use digital tools to access, manage, evaluate and synthesize information in order to solve problems individually and collaborate and to create and communicate knowledge.
- **TECH.8.1.2.A.CS2** Select and use applications effectively and productively
- **TECH.8.2.2.C** The design process is a systematic approach to solving problems

Skills	Instructional Topics	Assessment	Resources	Vocabulary
Explain that objects have measurable attributes, such as length or weight. Describe measurable attributes of objects, such as length or weight. Describe several measurable attributes of a single object. Compare two objects that share a measurable attribute to see which object has “more of”/”less of” the attribute. Describe the difference between two objects that share the same	What is Weight? Which Is Heavier/Lighter? What is Length? Which Is Longer/Shorter? What is Capacity? Which Holds More/Less? What is money? Identifying Coins Sorting Coins What is the value? Dollars Story Problems with measuring and money	Formative Assessments: Diagnostic Assessment Mid-topic Checkpoint Lesson Quizzes Lesson Self-assessment Teacher Observations Class Discussions Classwork/ Homework Exit Slips/Google Form Summative Assessments: Topic/Unit Assessments Constructed Response Questions	Materials: Balance scale Ruler Tape measure Paper clips Connecting cubes Coins Dollars Sorting mats Measuring cups Objects to measure Activities: Shape <i>Write the Room</i> Measure the Room with non-standard items Shape Magazine	Weight Heavy Light Length Long Short Capacity More Less Money Value Penny Nickel Dime

measurable attribute. Identify the names of each coin - penny, nickel, dime, and quarter. Identify the value of each coin - penny, nickel, dime, and quarter. Identify the name of the dollar. Identify the value of the dollar.		Projects Cumulative Tests Performance Assessments Alternate and Benchmark Assessments: Progress Monitoring Assessments Cumulative/Benchmark Assessments	Hunt-find and cut objects and sort by shape Shape and Solid Figure Stamping Mentor Texts: <i>Where's My Teddy?</i> by Jez Alborough <i>Inch by Inch</i> by Leo Lionni <i>The Best Bug Parade</i> by Stuart J. Murphy <i>Inch by Inch</i> by Leo Lionni <i>How Tall, How Short, How Far Away?</i> by David Adler <i>Super Sandcastle Saturday</i> by Stuart J. Murphy <i>Me and the Measure of Things</i> by Joan Sweeny Centers: Center Materials	Quarter Dollar
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Modifications and Accommodations	
Tier II and III Strategies	Small group instruction (Tier II) ● Explicit instruction ● Schema-based instruction ● Use visuals ● Use manipulatives ● Use a multi-sensory approach ● Guided notes and/or scaffold outline for written assignments ● Introduce key vocabulary before lesson ● Lesson taught again using a differentiated approach Small group or Individual instruction (Tier III) ● Intensive instruction ● Practice fact retrieval ● Lesson taught again using a differentiated approach ● Allow answers to be given orally or dictated ● Use visuals / Anchor Charts
Students with IEPs and 504 Plans	<u>Universal Design for Learning and Access for Students with Disabilities</u> <u>Movematics (dyscalculia.org)</u> Follow all the IEP/504 plan modifications Allow extra time to complete assignments or tests Guided notes and/or scaffold outline for written assignments Work in a small group Solidify and refine concepts through repetition Allow answers to be given orally or dictated

	Use multi-sensory teaching approaches Utilize assistive technology and materials Use large print books, Braille, or books on CD (digital text) Text to speech/audio recorded selections Amplification system as needed Leveled texts according to ability Fine motor skill stations embedded in rotation as needed Modified or constrained spelling word lists Provide anchor charts with high frequency words and phonemic patterns Students might need guidance as to what actions happen during partner work time. Invite students to discuss what it looks like when they are working with their partner while exploring the connecting cubes. Generate a list of shared expectations for partner work. Invite students to plan a strategy before they begin working. If time allows, invite students to share their plan with a partner. Some students may benefit from feedback that emphasizes effort and time on task. For example, moving counters in the squares of the 5-frame or filling the 5-frame with one counter in each square.
Multi-language Learners	<u>Mathematical Language Development and Access for English Learners</u> Work toward longer passages as skills in English increase Use visuals

	Introduce/highlight key vocabulary before lesson Teacher models reading aloud daily Provide peer tutoring Utilize translation supports including bilingual dictionary, translation device, assistive technology, and peers Guided notes and/or scaffold outline for written assignments Provide students with English Learner leveled readers Support recommended by the grade specific “can do” list outlined by WIDA, including Key Uses Edition and Descriptor Name Charts Create a visual display of what students want to do or make with the connecting cubes. As students share ideas, include a drawing or annotation to illustrate connections. After students share responses, use multimodal examples to show the meaning of 5 in the 5-frame. Point to each square and count to 5. Invite students to chorally read numbers 1–5 aloud. Invite students to use gestures as they count their collections aloud.
Accelerating Students	<u>Accelerating Students Guide</u> Create an enhanced set of introductory activities (e.g. advance organizers, concept maps, concept puzzles) Provide options, alternatives and choices to differentiate and broaden the curriculum Organize and offer flexible small group learning activities Provide whole group enrichment explorations

	Teach cognitive and methodological skills Use center, stations, or contracts Organize integrated problem-solving simulations Propose interest-based extension activities Expose students to beyond level texts.
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Unit 8: Integrating Math Skills

Unit Goal: Students consolidate and solidify their understanding of various concepts and skills on major work of the grade. They also continue to work toward fluency goals of the grade.

Duration: 6 weeks

Essential Questions:

- How can we count in different ways to get to a certain number?
- What does it mean to count by twos? Fives? Tens?
- How can we count in different ways to get to a certain number?
- How can practicing math facts help us quickly add and subtract?

Enduring Understanding:

- There are multiple strategies to count to a certain number, such as counting by ones, twos, fives, or tens.
- Counting in different ways helps us understand number patterns and relationships.
- We can use objects, fingers, drawings, or number lines to help us count in different ways.
- Counting by twos means skipping one number each time and saying every second number aloud (e.g., 2, 4, 6, 8...).
- Counting by fives means skipping four numbers each time and saying every fifth number aloud (e.g., 5, 10, 15, 20...).
- Counting by tens means skipping nine numbers each time and saying every tenth number aloud (e.g., 10, 20, 30, 40...).
- Counting by groups (twos, fives, tens) helps us quickly find the total number of objects without counting each one

individually.

- Practicing math facts helps us remember basic addition and subtraction combinations, making it easier to solve problems quickly.
- Knowing math facts by heart allows us to perform calculations faster and with greater confidence.
- Regular practice of math facts builds a strong foundation for more advanced math skills in the future.
- There are various methods to count to a specific number, such as counting forward, backward, or by grouping numbers.
- Counting in different ways can make it easier to understand and solve problems involving numbers.
- Using tools like number charts, counters, and visual aids can support different counting methods.

NJSLS:

- **K.CC.A** Know number names and the count sequence.
 - **K.CC.A.1** Count to 100 by ones and by tens.
 - **K.CC.A.2** Count forward beginning from a given number within the known sequence (instead of having to begin at 1).
 - **K.CC.A.3** Write numbers from 0 to 20. Represent a number of objects with a written numeral 0-20 (with 0 representing a count of no objects).
- **K.OA.A** Understand addition as putting together and adding to, and understand subtraction as taking apart and taking from.
 - **K.OA.A.5** Demonstrate accuracy and efficiency for addition and subtraction within 5.

Interdisciplinary Connections

- RL.K.1. With prompting and support, ask and answer questions about key details in a text.
- RL.K.4. Ask and answer questions about unknown words in a text.
- RI.K.1. With prompting and support, ask and answer questions about key details in a text .
- RI.K.7. With prompting and support, describe the relationship between illustrations and the text in which they appear.
- K-2-ETS1-1. Ask questions, make observations, and gather information about a situation people want to change to define a simple problem that can be solved through the development of a new or improved object or tool.
- K-2-ETS1-2. Develop a simple sketch, drawing, or physical model to illustrate how the shape of an object helps it function as needed to solve a given problem.

● K-ESS3-1. Use a model to represent the relationship between the needs of different plants or animals (including humans) and the places they live.
21st-Century Skills
● 9.2.4.A.4 Explain why knowledge and skills acquired in the elementary grades lay the foundation for future academic and career success.
Career Ready Practices
● CRP 4: Communicate clearly and effectively and with reason during the problem solving portion of the lesson. ● CRP 8: Utilize critical thinking to make sense of problems and persevere in solving them during the independent practice portion of the lesson.
Technology Integration
● TECH.8.1.2 All students will use digital tools to access, manage, evaluate and synthesize information in order to solve problems individually and collaborate and to create and communicate knowledge. ● TECH.8.1.2.A.CS2 Select and use applications effectively and productively ● TECH.8.2.2.C The design process is a systematic approach to solving problems

Skills	Instructional Topics	Assessment	Resources	Vocabulary
Count to 100 by ones and tens Count and compare groups of objects and images. Represent and write	Sort, Count, and Compare Groups of Objects Count and Compare Collections Count to Add and Subtract	Formative Assessments: Diagnostic Assessment Mid-topic Checkpoint Lesson Quizzes	Materials: Bags Collections of objects 10-frames Connecting cubes	Skip count Thirty Forty Fifty Sixty

numbers up to 20. Represent and write quantities and numbers up to 20. Fluently add and subtract within 5.	One More and One Less Order Numbers 1-20 Create Number Books Find Someone Who, Find Something That Tell Stories about Our School Share Story Problems Fluency within 5 Make Dot Images Dominoes to 5 Sort and Color Expressions and Images within 5 Addition and Subtraction Expressions within 5 Parts to Make 5 Make and Break Apart 10	Lesson Self-assessment Teacher Observations Class Discussions Classwork/ Homework Exit Slips/Google Form Summative Assessments: Topic/Unit Assessments Constructed Response Questions Projects Cumulative Tests Performance Assessments Alternate and Benchmark Assessments: Progress Monitoring Assessments Cumulative/Benchmark Assessments	Two-color counters Number Mat 1-20 One More, One Less Mat Number Cards 1-20 Paper Number Book Dice Geoblocks Solid shapes <i>Find Someone Who</i> Recording Sheet Tools for creating a visual display Dot Image Cards Sorting Chart 1-5 Dominoes Domino Cards Pipe cleaners Mentor Texts:	Seventy Eighty Ninety One Hundred More Less
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	All the Ways to Make 10 Find the Number that Makes 10 More or Less than 10? Compose and Decompose Numbers 11–19		<i>Two Ways to Count to Ten</i> by Ruby Dee <i>How Many Feet in the Bed?</i> by Diane Johnston Hamm <i>Toasty Toes</i> by Michael Dahl <i>One is a Snail, Ten is a Crab</i> by April Pulley Sayre and Jeff Sayre <i>Eggs and Legs</i> by Michael Dahl	
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Modifications and Accommodations

Tier II and III Strategies

Small group instruction (Tier II)

- Explicit instruction
- Schema-based instruction
- Use visuals
- Use manipulatives
- Use a multi-sensory approach
- Guided notes and/or scaffold outline for written assignments
- Introduce key vocabulary before lesson
- Lesson taught again using a differentiated approach

Small group or Individual instruction (Tier III)

- Intensive instruction
- Practice fact retrieval
- Lesson taught again using a differentiated approach

	● Allow answers to be given orally or dictated ● Use visuals / Anchor Charts
Students with IEPs and 504 Plans	<u>Universal Design for Learning and Access for Students with Disabilities</u> <u>Movematics (dyscalculia.org)</u> Follow all the IEP/504 plan modifications Allow extra time to complete assignments or tests Guided notes and/or scaffold outline for written assignments Work in a small group Solidify and refine concepts through repetition Allow answers to be given orally or dictated Use multi-sensory teaching approaches Utilize assistive technology and materials Use large print books, Braille, or books on CD (digital text) Text to speech/audio recorded selections Amplification system as needed Leveled texts according to ability Fine motor skill stations embedded in rotation as needed Modified or constrained spelling word lists Provide anchor charts with high frequency words and phonemic patterns

	Students might need guidance as to what actions happen during partner work time. Invite students to discuss what it looks like when they are working with their partner while exploring the connecting cubes. Generate a list of shared expectations for partner work. Invite students to plan a strategy before they begin working. If time allows, invite students to share their plan with a partner. Some students may benefit from feedback that emphasizes effort and time on task. For example, moving counters in the squares of the 5-frame or filling the 5-frame with one counter in each square.
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(NJ DOE, 2024)

Prepared by Julie Lang, MA

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- NJ DOE. (2024). *New Jersey Mathematics 2023 Student Learning Standards*. Office of Standards, Division of Teaching and Learning Services, New Jersey Department of Education. <https://www.nj.gov/education/standards/math/Index.shtml>