



# Kindergarten

## Maryland College and Career Ready Standards for Mathematics

Companion Guide

**Mathematics Branch**

**Version 2, April 2026**

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## Purpose

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### PURPOSE OF COMPANION GUIDE

This document is designed to support a shared understanding of what each mathematics standard means, how it connects to other content, and how it can be authentically enacted in classrooms. It does not replace your high-quality instructional materials (HQIM) but instead works alongside them so that educators have a common interpretation of the mathematical expectations we set for students. Regardless of the HQIM in use, these documents provide clarity about the essence and intentions of the standards and illustrate how those expectations can be realized through instruction.

### DOCUMENT STRUCTURE

Each domain begins with a set of cluster connections to the Numeracy Development Framework (NDF). These connections identify the ways in which individual clusters either:

- **Contribute to milestones:** The cluster builds prerequisite knowledge, skills, or ways of reasoning that *support progress toward* a milestone in the NDF, even if the milestone itself is not fully realized at this stage.
- **Directly contribute to milestones:** The cluster includes content and practices that are *explicitly named within* an NDF milestone, meaning student proficiency with this cluster demonstrates attainment of that milestone.

**For each standard, the companion document provides:**

- **Content Progression:** A description of the content that comes before and after that standard to highlight how it fits within a coherent learning trajectory.
- **Examples and Clarifications:** Explanations and expansions of the standard language that provide additional detail about its intent. These may include illustrative examples, as well as common missteps to avoid that can narrow or distort the mathematical authenticity of the standard.
- **Student Opportunities for Mathematical Experience:** Statements describing the kinds of reasoning, modeling, problem solving, and sense-making students should have the chance to engage in as part of learning the content of the standard. Where relevant, these are connected to the Standards for Mathematical Practice (SMPs). Not every SMP is explicitly called out, but all can be present in any standard depending on how instruction is designed. What is included are non-exhaustive examples. Within this section, additional features include:
  - For standards that directly represent a key milestone in the NDF, a bolded statement reminds educators that students need multiple opportunities and varied ways to demonstrate proficiency with the concept(s).
  - Opportunities to connect with financial literacy are flagged with a **\$** symbol. These indicators point to natural entry points for integration, but they should not limit educators from making additional meaningful connections to financial literacy where appropriate.

## Standards for Mathematical Practice

“The Standards for Mathematical Practice (SMPs) describe varieties of expertise that mathematics educators at all levels should seek to develop in their students” ([Common Core State Standards Initiative](#)). The SMPs develop along a continuum as students progress mathematically, with each grade’s content providing distinct opportunities for students to engage in and demonstrate the practices at an appropriate level of sophistication.

The SMPs should be integrated with content and not taught separately. As students participate in these practices on a regular basis, they become part of the mathematically productive habits of mind that support deep understanding. Intentionally incorporating opportunities to develop the SMPs enhances instruction and enriches students’ mathematical engagement. Students who learn to use these eight mathematical practices as they engage with mathematical concepts and skills have a greater chance of developing conceptual understanding (Van de Walle, et al, 2014).

The table below highlights opportunities to develop the SMPs in general across the given grade band, while the companion guides for individual standards provide more specific connections to the content of each grade. Educators should utilize this resource to assist in planning for opportunities when the SMPs can be emphasized in daily instructional practice. To facilitate the incorporation of SMPs within instruction, notations have been made in the Companion Guide to indicate when a specific SMP may be applicable for a particular standard. These examples should not limit educators from making additional meaningful connections to SMPs where appropriate.

| Standard for Mathematical Practice                                  | What does it look like for students in PreK – Grade 2?                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | How can PreK – Grade 2 teachers support this practice?                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |
|---------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Make sense of problems and persevere in solving them (SMP 1)</b> | Students make sense of familiar situations (e.g., sharing items, organizing objects, or comparing lengths or counts) and use physical objects, fingers, drawings, or movement to explore and respond to the situation. They try different approaches (e.g., recounting or re-building) and, when something doesn’t work or seems “off,” they adjust their thinking. They begin to articulate what the situation is calling for (“We need enough cookies for everyone”). Through this exploration, they develop early confidence, persistence, and curiosity as mathematical thinkers. | Teachers use classroom routines (e.g., lining up, snack distribution, comparing sizes) and play-based experiences to ground problem situations in students’ everyday activity. They encourage students to try different approaches rather than providing answers quickly. Through purposeful questioning (e.g., “What could you try next?” or “What happens if you try it a different way?”) and by valuing effort and persistence, teachers support students in using objects, drawings, or marks as tools to help them keep working when a situation is challenging. |

| Standard for Mathematical Practice                                             | What does it look like for students in PreK – Grade 2?                                                                                                                                                                                                                                                                                                                                                                                                                  | How can PreK – Grade 2 teachers support this practice?                                                                                                                                                                                                                                                                                                                                                                                          |
|--------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Reason abstractly and quantitatively (SMP 2)</b>                            | Students connect numbers to meaningful situations (e.g., how many objects, how long something is) and talk about what those quantities represent (“5 means five blocks”). When amounts change, they express how the situation changes (“If I take one away, now there are 4”). They begin to recognize that numbers and representations can stand for real things and support understanding, not just counting or writing digits.                                       | Teachers prompt students to explain what quantities represent (“5 what?”) and use activities that link actions (e.g., counting, grouping, comparing) with recorded representations such as drawings or numerals. They reinforce that representing quantities helps make sense of a situation, and encourage gradual movement from concrete experiences toward early mathematical notation.                                                      |
| <b>Construct viable arguments and critique the reasoning of others (SMP 3)</b> | Students explain their thinking using everyday language, objects, drawings, or gestures (e.g., “I used 4 blocks because 4 people need one each”). They listen to others’ ideas and notice similarities or differences in approaches (“I counted, but you matched them one by one”). Through these exchanges, students begin to realize that sharing and comparing ideas helps them make sense of situations, and that a problem can be approached in more than one way. | Teachers invite students to share how they approached a situation (“Show me how you figured it out”) and create opportunities for students to listen to and respond to peers’ ideas. They model curiosity about reasoning (“How did you think of that?”) and facilitate brief exchanges between students to emphasize that explaining and comparing ideas is part of learning mathematics, not just about determining who got the answer right. |
| <b>Model with mathematics (SMP 4)</b>                                          | Students begin by noticing things they are curious about (“How many?”, “Which one is more?”, “How far?”) They use drawings, objects, gestures, or simple diagrams to show what is happening in the situation. They use their representations to think about the situation (combining, separating, comparing) and revise their representation when they see it no longer matches. Early modeling is an emergent cycle of show → think → adjust.                          | Teachers provide situations that invite representation and prompt students to connect their drawings or objects to the story or context. They encourage noticing questions that can be answered with mathematics and support small revisions (“Does your picture still show what’s happening?”). Modeling stays informal and helps students connect experiences to early mathematical ideas.                                                    |

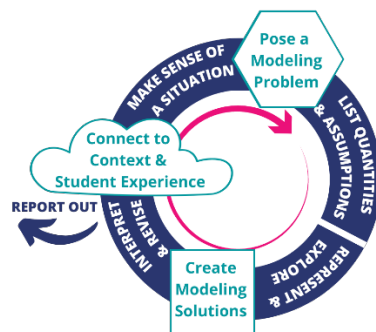
| Standard for Mathematical Practice                 | What does it look like for students in PreK – Grade 2?                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | How can PreK – Grade 2 teachers support this practice?                                                                                                                                                                                                                                                                                                                                                                                                                              |
|----------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Use appropriate tools strategically (SMP 5)</b> | Students explore and use tools such as counters, cubes, drawings, number lines, or digital tools to help them solve problems and represent their thinking. They begin to notice which tools help them see or compare quantities (“I used counters to see which is more.”). Students might switch tools when another one better supports their understanding as they experiment with ways to show their ideas.                                                                                                                        | Teachers provide accessible tools and encourage students to choose what helps them make sense of a situation. They prompt reflection (“How did this help you show your idea?”), demonstrate flexible tool use, and gently guide students toward tools that clarify (not complicate) their reasoning. Tool use remains exploratory and grounded in sense-making.                                                                                                                     |
| <b>Attend to precision (SMP 6)</b>                 | Students begin to express their ideas clearly using everyday words, gestures, drawings, or informal mathematical language (“I have 5 because I counted 5”). When representing data (e.g., tallies or picture graphs), they aim to make their counts, marks, or drawings clear and accurate. They use tools or representations carefully so their ideas are shown clearly and revise their work when they notice it is unclear or incorrect.                                                                                          | Teachers model clear mathematical communication (“I counted 3 here and 2 here, so I have 5”) and help students use consistent and accurate language (e.g., “more,” “less,” “total”). They support students in checking their work, refining drawings or tallies, and using representations that can be interpreted consistently. Precision is nurtured through attention to clarity and accuracy, without overemphasis on formality.                                                |
| <b>Look for and make use of structure (SMP 7)</b>  | Students notice structures in numbers and operations, such as part-whole relationships, “making tens,” doubles, and combinations that show how numbers can be decomposed and recomposed (e.g., seeing 8 as “5 and 3” or “4 and 4”). They begin to recognize structure in join and separate situations (“I had 4 and got 3 more”) and use this understanding to reason about addition and subtraction. Students also see structure in shapes and spatial arrangements and use these observations to make sense of mathematical ideas. | Teachers highlight part-whole relationships, combinations of numbers, and visual structures (ten frames, dot patterns, connecting cubes) that reveal how operations work conceptually. They prompt students to explore how numbers are composed and decomposed (“How could you make this number in different ways?”), and they design experiences where noticing numerical or spatial structure supports reasoning. Teachers emphasize seeing structure over memorizing procedures. |

| Standard for Mathematical Practice                                   | What does it look like for students in PreK – Grade 2?                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | How can PreK – Grade 2 teachers support this practice?                                                                                                                                                                                                                                                                                                                                                                                                                 |
|----------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Look for and express regularity in repeated reasoning (SMP 8)</b> | Students notice when the same mathematical action leads to a predictable result. For example, they recognize that adding 1 moves them to the next number in the count sequence and that taking away 1 moves them back one step. They notice repeating outcomes when they build equal groups or measure using the same-size objects (“Each block I add makes it taller by the same amount, so I know what the next height will be”). Students begin using these regularities to predict what comes next, check their thinking, or choose an efficient approach. | Teachers draw attention to predictable changes that occur during counting, adding on, taking away, skip-counting, and measuring using same-size objects. They ask questions such as, “ <i>What happens to the number each time we add five?</i> ” and encourage students to use these predictable changes to anticipate results, select a strategy, or verify whether their answer makes sense. This supports students in noticing regularity across repeated actions. |

## Modeling

Mathematical modeling is a process for using mathematics to make sense of situations drawn from the real world, other disciplines, or meaningful classroom contexts. Through modeling, students pose questions, identify relevant information and assumptions, represent relationships mathematically, and analyze and interpret results in relation to the original situation. Modeling supports deep understanding of mathematical concepts while strengthening reasoning, problem-solving, and communication skills.

In the classroom, modeling helps students see mathematics as useful, connected, and purposeful. It encourages students to make decisions about tools and representations, explain and justify their thinking, and evaluate whether results make sense in context. As such, modeling is a core component of a comprehensive mathematics education and supports students' ability to use mathematics thoughtfully in academic, civic, and everyday settings.



Although the modeling evidence statements (M.1–M.6) are not formally assessed in PreK–Grade 2, early mathematics instruction should intentionally include experiences that build modeling-related skills and lay the foundation for more formal modeling in later grades.

Within this Companion Guide, connections between modeling and specific content standards are highlighted as entry points for integration. These examples are not exhaustive, and educators are encouraged to identify additional opportunities for modeling whenever meaningful contexts or rich mathematical situations arise.

| Modeling Evidence Statements                                                                                                                                                                           | What does this look like for students in PreK-Grade 2?                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <p><b>M.1</b> Formulate a question about a particular context that can be answered using mathematics.</p>                                                                                              | <p>Students begin modeling by noticing situations and wondering about questions that can be answered using mathematics. Questions focus on quantities in familiar or imaginable contexts and often involve how many, how much, how long, or which has more or less.</p> <p>For example, “There are some cookies on a plate and some were eaten” allows students to ask questions such as, “How many cookies were eaten?”, “How many are left?”, or “How many were on the plate at the beginning?”</p>                                                                                                                             |
| <p><b>M.2</b> Determine the information needed and what assumptions must be made to answer a mathematical question about a context.</p>                                                                | <p>Given a mathematical question about a familiar context, students identify the information needed to answer the question. This includes deciding which quantities matter in the situation and what is already known or needs to be found. Students also make assumptions based on the context.</p> <p>For example, if the context is “There are some cookies on a plate and someone ate some,” and the question is “How many cookies are left?”, students must determine that they need to know how many cookies were on the plate at the start and how many were eaten, and assume no other cookies were added or removed.</p> |
| <p><b>M.3</b> Represent a context mathematically by selecting and applying appropriate concepts, tools, and representations to define variables, model relationships, and/or identify constraints.</p> | <p>Given a familiar context, students represent quantities and relationships by acting it out or using objects, drawings, tallies, number paths, or simple diagrams.</p> <p>For example, to represent the context “There are some cookies on a plate and someone ate some,” students might draw the cookies and cross out how many were eaten, use counters to act out the situation, or show the change on a number path to represent how the quantities are related.</p>                                                                                                                                                        |
| <p><b>M.4</b> Use a mathematical model to perform computations, make predictions, or answer the question posed about a context.</p>                                                                    | <p>Given a mathematical model of a familiar context, students use the model to find an answer to the question posed. Students may count, combine, separate, or compare quantities using their representation to determine an outcome connected to the situation.</p> <p>For example, after drawing or modeling the cookies in the situation “There are some cookies on a plate and someone ate some,” students can use their representation to count how many cookies remain on the plate.</p>                                                                                                                                    |

| Modeling Evidence Statements                                                                                                                                                                                      | What does this look like for students in PreK-Grade 2?                                                                                                                                                                                                                                                                                                                                                                                                                                 |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>M.5</b> Interpret the results or conclusions of a mathematical model in terms of the original context.                                                                                                         | <p>Given a conclusion from a mathematical model, students interpret what the result means for the original situation. This involves connecting the numerical result back to the context and explaining it using everyday language.</p> <p>For example, after determining that 5 cookies remain, students explain that “There are 5 cookies left on the plate,” connecting the number to what is happening in the situation.</p>                                                        |
| <b>M.6</b> Critique the validity of a mathematical model and its conclusions. Revise assumptions, representations, or mathematical approaches based on the context, new understanding, or additional information. | <p>Given a mathematical model and its conclusion, students consider whether the model and answer make sense for the situation. This may involve noticing mismatches between the model and the context or recognizing when information is missing or misunderstood.</p> <p>For example, if a student shows that all the cookies were eaten but the story says some cookies remain, the student can revise the drawing or model so it better matches what happened in the situation.</p> |

## Reasoning

Reasoning is the process of manipulating and analyzing objects, representations, diagrams, symbols, or statements to draw conclusions based on evidence or assumptions. Developing students' capabilities with reasoning and sense making should be the primary goal of mathematics instruction (Battista, et al, 2016). Students who can make sense of mathematical ideas and truly understand them can make use of reasoning skills in new and unfamiliar problem-solving situations. Reasoning and sense-making are inherently satisfying experiences, meaning students who can make sense of the mathematics they are learning are more likely to stay engaged and feel successful.

Although the reasoning evidence statements (R.1–R.4) are not formally assessed in PreK–Grade 2, it is important for students in these early years to engage in classroom experiences that nurture mathematical reasoning. Young learners benefit from opportunities to use visual and symbolic representations, explore patterns and relationships in meaningful contexts, and explain or communicate their thinking. Formulating explanations and communicating reasoning helps children begin to justify their ideas, recognize errors in their own and others' reasoning, and develop logical thinking. By embedding reasoning into early math instruction, educators lay a strong foundation for future success in problem solving and mathematical communication.

Opportunities to connect reasoning with content standards are identified within the Companion Guide. These opportunities are entry points for integration, but they should not limit educators from making additional meaningful connections to reasoning where appropriate.

| Reasoning Evidence Statements                                                                                                                        | What does this look like for PreK-2 students?                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |
|------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>R.1</b> Use visual, symbolic, or contextual representations to explain mathematical ideas.                                                        | <p>Students explain mathematical ideas by showing and talking through their thinking using concrete or familiar representations. Their reasoning is often communicated by pointing, grouping, labeling, or using simple words to explain how quantities or relationships are related.</p> <p>For example, when explaining how they know there are 10 dots, a student circles groups of 5 in a dot picture and explains that “5 and 5 make 10,” or uses a number path to show how counting by fives lands on 10.</p>                                                                               |
| <b>R.2</b> Identify and critique errors in reasoning, misapplied procedures, or invalid assumptions, and provide a mathematically valid alternative. | <p>Students critique reasoning by noticing when an explanation does not match what they see, count, or know and explaining the mismatch using concrete evidence. Reasoning at this level often involves recounting, comparing quantities, or pointing to specific features of a representation to explain what needs to be corrected.</p> <p>For example, if a student explains that two groups have the same number because they “look the same,” another student may count the objects in each group and explain that one group has more and revise the conclusion based on that reasoning.</p> |

| Reasoning Evidence Statements                                                                                                                                                                             | What does this look like for PreK-2 students?                                                                                                                                                                                                                                                                                                                                                                                                         |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>R.3</b> Construct coherent chains of reasoning that connect mathematical properties, ideas, and evidence, such as examples or counterexamples, to support or refute mathematical statements or claims. | Students support a mathematical idea by connecting pieces of thinking in a clear order, such as counting, comparing, and explaining how one idea leads to another. Their reasoning links evidence to a claim so that others can follow how the student knows the idea is true.<br><br>For example, to explain why a group has more than 6 cubes, a student says, "I counted 7 cubes. When counting, 7 comes after 6, so there are more than 6 cubes." |
| <b>R.4</b> Identify and extend patterns or regularities to form general rules and justify their validity using mathematical reasoning.                                                                    | Students notice patterns or repeated changes and use those observations to explain what will happen next or how something works. Their reasoning focuses on identifying what stays the same and using repeated examples to justify why the pattern continues.<br><br>For example, when skip counting by 2s, a student explains, "It goes 2, 4, 6. Each number is 2 more than the last one, so the next number will be 8."                             |

## Numeracy Development Framework

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Kindergarten is a pivotal year for laying the foundations of mathematical learning, with a strong focus on the development of **Number & Operation Sense**. Building on early number experiences from PreK, students extend their understanding of numbers and number sets, moving from perceptual subitizing (instantly recognizing small quantities) to conceptual subitizing (seeing and reasoning about parts within a whole). This transition is critical, as conceptual subitizing underlies the ability to compose and decompose numbers, to count on, and to develop arithmetic fluency and place value understanding (Clements, 1999). In Kindergarten, students also make a major developmental leap as they work with numbers through 20. In particular, learning to coordinate the numbers 11–20 with place value and counting structures requires new forms of reasoning. This is also the year when students formally begin to explore addition and subtraction, which establishes the earliest foundations of the operations.

Alongside this focus, **Geometric Reasoning & Measurement** also plays a significant role. Students learn to identify and describe the attributes of two- and three-dimensional shapes, to sort and compare objects based on those attributes, and to explore how shapes relate to one another. Through hands-on exploration, they combine and decompose shapes as they uncover the structure of geometric figures and deepen their sense of spatial relationships.

Important milestones also emerge in **Algebraic Thinking** and **Reasoning with Data, Statistics, & Probability**. In Kindergarten, students engage in informal explorations of equality through concrete experiences, such as using manipulatives to represent and solve addition and subtraction situations. They also lay the groundwork for data reasoning by categorizing physical objects into groups, then analyzing and comparing those groups by count which, in future grades, will extend to more sophisticated data representation and interpretation.

The developmental milestones identified in the Numeracy Development Framework for Kindergarten are foundational. They launch students into successful mathematical experiences in Grade 1 and beyond. As you read through this companion document, you will see where the Framework's milestones are highlighted and how they align with Kindergarten standards. These connections point to the areas most critical to monitor and assess in multiple ways, as they mark the essential competencies that prepare students for future mathematical growth.

### Reference

Clements, D. H. (1999). *Subitizing: What is it? Why teach it? Teaching Children Mathematics*, 5(7), 400–405. National Council of Teachers of Mathematics.

## Number and Operation Sense (NOS)

| Number and Operation Sense (NOS) Clusters                | Connections to the Numeracy Development Framework                                                                                                                                                             |
|----------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>K.NOS.A</b> Know number names and the count sequence. | Standards within this cluster <b>directly contribute*</b> to the Kindergarten Number and Operation Sense milestones within the <b>Numbers &amp; Number Sets strand</b> of the Numeracy Development Framework. |
| <b>K.NOS.B</b> Count to tell the number of objects.      | Standards within this cluster <b>directly contribute*</b> to the Kindergarten Number and Operation Sense milestones within the <b>Numbers &amp; Number Sets strand</b> of the Numeracy Development Framework. |
| <b>K.NOS.C</b> Develop foundation for place value.       | Standards within this cluster <b>directly contribute*</b> to the Kindergarten Number and Operation Sense milestones within the <b>Numbers &amp; Number Sets strand</b> of the Numeracy Development Framework. |
| <b>K.NOS.D</b> Decompose numbers.                        | Standards within this cluster <b>directly contribute*</b> to the Kindergarten Number and Operation Sense milestones within the <b>Operations strand</b> of the Numeracy Development Framework.                |

**\*Directly contribute to milestones:** The cluster includes content and practices that are *explicitly named within* an NDF milestone, meaning student proficiency with this cluster demonstrates attainment of that milestone.

**\*\*Contribute to milestones:** The cluster builds prerequisite knowledge, skills, or ways of reasoning that *support progress toward* a milestone in the NDF, even if the milestone itself is not fully realized at this stage.

K.NOS.A KNOW NUMBER NAMES AND THE COUNT SEQUENCE.

K.NOS.A.1: Count to 100 by ones and by tens.

| Content Progression                                                                                                                                                                                                                                                                                                                      | Examples and Clarifications                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | Students should have the opportunity to... |   |   |   |   |   |   |    |    |    |    |    |   |   |   |   |   |   |   |   |   |   |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |
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| <p>Where are students coming from?</p> <ul style="list-style-type: none"><li>Count to 20 by ones (PK.NOS.A.1).</li></ul> <p>Where are students going?</p> <ul style="list-style-type: none"><li>Within 120, count forward and backward by ones starting at any number and skip count forward and backward by tens (1.NOS.A.1).</li></ul> | <ul style="list-style-type: none"><li>Students are expected to orally count, demonstrating accuracy and consistency in number sequence.</li><li>Counting should be meaningfully connected to objects or visuals, so students understand the purpose and meaning of numbers within the count sequence. Avoid focusing solely on rote recitation of number sequences without context or meaning.</li><li>Hundreds charts, number paths (shown below), and manipulatives support students in visualizing the count sequence and making connections to the meaning of and relationship between numbers.<div><table><tr><td>1</td><td>2</td><td>3</td><td>4</td><td>5</td><td>6</td><td>7</td><td>8</td><td>9</td><td>10</td><td>11</td><td>12</td></tr></table></div></li><li>When counting by tens, create groups of physical objects into groups of ten (e.g., using bundles of straws, connecting cubes, etc.) to support counting by groups of ten.</li><li>Ten frames support students in counting by tens. This visual supports students in organizing objects into groups of ten.<div><table><tr><td>●</td><td>●</td><td>●</td><td>●</td><td>●</td></tr><tr><td>●</td><td>●</td><td>●</td><td>●</td><td>●</td></tr></table></div></li></ul> | 1                                          | 2 | 3 | 4 | 5 | 6 | 7 | 8  | 9  | 10 | 11 | 12 | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | <ul style="list-style-type: none"><li>Count regularly as part of daily routines.</li><li>Use physical objects or manipulatives when counting to reinforce one-to-one correspondence.</li><li>Begin with smaller ranges (e.g., 20 or 40) and gradually increase the range to 100 as they become more proficient.</li><li>Engage in focused practice with decade numbers, as these are often more challenging for students. For example, if given 39, the student can identify that 40 is next in the counting sequence.</li><li>Incorporate movement (e.g., clap, stomp, jump) when counting.</li><li>Read books and play games that provide practice with counting.</li><li>Recognize and explain the patterns within the count sequence (SMP 7).</li></ul> |
| 1                                                                                                                                                                                                                                                                                                                                        | 2                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | 3                                          | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 |    |    |   |   |   |   |   |   |   |   |   |   |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |
| ●                                                                                                                                                                                                                                                                                                                                        | ●                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | ●                                          | ● | ● |   |   |   |   |    |    |    |    |    |   |   |   |   |   |   |   |   |   |   |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |
| ●                                                                                                                                                                                                                                                                                                                                        | ●                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | ●                                          | ● | ● |   |   |   |   |    |    |    |    |    |   |   |   |   |   |   |   |   |   |   |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |

Previously K.CC.A.1

**K.NOS.A.2: Count forward from any given number within 100.**

| Content Progression                                                                                                                                                                                                                                                              | Examples and Clarifications                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | Students should have the opportunity to... |    |    |    |    |    |    |    |    |    |    |    |                                                                                                                                                                                                                                                                                        |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------|----|----|----|----|----|----|----|----|----|----|----|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <p>Where are students coming from?</p> <ul style="list-style-type: none"><li>Count to 20 by ones (PK.NOS.A.1).</li></ul> <p>Where are students going?</p> <ul style="list-style-type: none"><li>Count forward by ones starting with any number within 120 (1.NOS.A.1).</li></ul> | <ul style="list-style-type: none"><li>Students are expected to orally count by ones demonstrating accuracy and consistency in number sequence.</li><li>Students should begin counting from a number other than 1. For example, a student may start counting at 42 and continue 42, 43, 44, 45...</li><li>Hundreds charts and number paths (shown below) reinforce the structure and sequence of numbers, especially when starting from numbers other than 1.</li></ul> <table><tr><td>42</td><td>43</td><td>44</td><td>45</td><td>46</td><td>47</td><td>48</td><td>49</td><td>50</td><td>51</td><td>52</td><td>53</td></tr></table> | 42                                         | 43 | 44 | 45 | 46 | 47 | 48 | 49 | 50 | 51 | 52 | 53 | <ul style="list-style-type: none"><li>Count from numbers other than 1 as part of daily routines.</li><li>Practice counting forward from any number through card and dice games.</li><li>Apply patterns within the count sequence to count from numbers other than 1 (SMP 7).</li></ul> |
| 42                                                                                                                                                                                                                                                                               | 43                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | 44                                         | 45 | 46 | 47 | 48 | 49 | 50 | 51 | 52 | 53 |    |    |                                                                                                                                                                                                                                                                                        |

Previously K.CC.A.2

**K.NOS.A.3: Count backwards from any given number within 20.**

| Content Progression                                                                                                                                                                                                                                                                          | Examples and Clarifications                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | Students should have the opportunity to...                                                                                                                                                                                                                                                                        |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <p>Where are students coming from?</p> <ul style="list-style-type: none"> <li>Count back from 10 by ones (PK.NOS.A.2).</li> </ul> <p>Where are students going?</p> <ul style="list-style-type: none"> <li>Count backward by ones starting with any number within 120 (1.NOS.A.1).</li> </ul> | <ul style="list-style-type: none"> <li>Students are expected to orally count, demonstrating accuracy and consistency in number sequence.</li> <li>To count backwards is to count in reverse order from a given number. A student may begin at 15 and count back 15, 14, 13, 12, 11, 10 and so on. Students should be able to begin at any number within 20 and count back by ones to 0.</li> <li>Counting backward supports students understanding of the concept “one less” which is foundational to number sense and subtraction.</li> <li>When counting backward, connect the count to objects, visuals (e.g., hundreds chart, number path), or within a context. Avoid focusing solely on rote recitation of the number sequence in reverse order.</li> </ul> | <ul style="list-style-type: none"> <li>Count backward as part of daily routines.</li> <li>Incorporate movement (e.g., clap, stomp, jump) when counting.</li> <li>Practice counting backward through card and dice games.</li> <li>Apply patterns within the count sequence to count backwards (SMP 7).</li> </ul> |

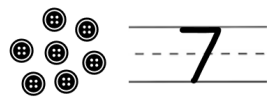
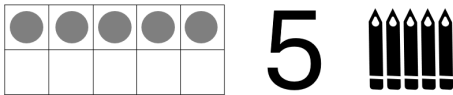
Adopted 2025

**K.NOS.A.4: Write numbers from 0 to 20.**

| Content Progression                                                                                                                                                                                                                                                                                            | Examples and Clarifications                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | Students should have the opportunity to...                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
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| <p>Where are students coming from?</p> <ul style="list-style-type: none"><li>Identify written numerals 0-10 (PK.NOS.A.4).</li></ul> <p>Where are students going?</p> <ul style="list-style-type: none"><li>Read, write numerals, and represent a number of objects with written numeral (1.NOS.A.2).</li></ul> | <ul style="list-style-type: none"><li>To write numbers is to form or produce the numerals using the digits 0-9 accurately and legibly.</li><li>A vertical number path can be used to support students in recognizing the pattern with the teen numbers. This resource may be especially useful for students who transpose or reverse the digits in teen numbers (e.g., recording 91 instead of 19 for nineteen).</li></ul> <div><div>19</div><div>18</div><div>17</div><div>16</div><div>15</div><div>14</div><div>13</div><div>12</div><div>11</div></div> | <ul style="list-style-type: none"><li>Engage in guided practice that may include tracing numbers as students work to develop proficiency. Emphasis should be placed on correct numeral formation as well as spacing (SMP 6).</li><li>Develop fine motor skills through activities such as tracing in sand, using finger paint, and with pencils on paper.</li><li>Analyze various examples of numbers written in correct form as models to support students as they practice writing numbers 0 to 20.</li></ul> <div><div>3</div><div>3</div><div>3</div></div> <ul style="list-style-type: none"><li><b>Students must have multiple opportunities and varied ways to demonstrate mastery, as this standard constitutes key Kindergarten Number and Operation Sense milestones in the Numbers &amp; Number Sets strand of the Numeracy Development Framework.</b></li></ul> |

Previously K.CC.A.1

**K.NOS.A.5: Represent a number of objects with a written numeral within 20 (with 0 representing a count of no objects).**

| Content Progression                                                                                                                                                                                                                                                                                            | Examples and Clarifications                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | Students should have the opportunity to...                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <p>Where are students coming from?</p> <ul style="list-style-type: none"><li>Identify written numerals 0-10 (PK.NOS.A.4).</li></ul> <p>Where are students going?</p> <ul style="list-style-type: none"><li>Read, write numerals, and represent a number of objects with written numeral (1.NOS.A.2).</li></ul> | <ul style="list-style-type: none"><li>A student counts objects (within 20) and represents the total number of objects by selecting a number card or by writing the correct numeral.<br/></li><li>Understanding that “0” means no objects is a key concept for building number sense. It is important that students practice representing all numerals 0 – 20.</li><li>Connect the number of objects in a group to the written numeral in authentic contexts (e.g., books on a shelf).<br/></li></ul> | <ul style="list-style-type: none"><li>Match total number of objects to a written numeral using manipulatives (e.g., dice, dominoes) and number cards.<br/></li><li><b>Students must have multiple opportunities and varied ways to demonstrate mastery, as this standard constitutes key Kindergarten Number and Operation Sense milestones in the Numbers &amp; Number Sets strand of the Numeracy Development Framework.</b></li></ul> |

Previously K.CC.A.3

**K.NOS.B COUNT TO TELL THE NUMBER OF OBJECTS.**

**K.NOS.B.6: Use the relationship between numbers and quantities within 20 to count objects with one-to-one correspondence (arranged in a line, a rectangular array, a circle, or as many as 10 things in scatter configuration) and verbalize that the last number stated is the total when asked “how many?” (cardinality).**

| Content Progression                                                                                                                                                                                                                                                                                                                                                              | Examples and Clarifications                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | Students should have the opportunity to...                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <p>Where are students coming from?</p> <ul style="list-style-type: none"> <li>Understand the relationship between numbers and quantities by counting objects (PK.NOS.B.5).</li> </ul> <p>Where are students going?</p> <ul style="list-style-type: none"> <li>Extend understanding of 10 as a group of ten ones to compose and decompose 2-digit numbers (1.NOS.B.3).</li> </ul> | <ul style="list-style-type: none"> <li>One-to-one correspondence refers to the ability to match a unique number to each object in a set.</li> <li>Cardinality refers to the size of a set. A student demonstrates cardinality if after counting a set, they are able to answer the question, “how many?” without recounting.</li> <li>For example, you give a student 8 blocks in a line. The student points to each block individually as counting, “one, two, three, four, five, six, seven, eight.” When asked, “How many blocks?” the student answers, “Eight.” This shows one-to-one correspondence and understanding of cardinality.</li> </ul> | <ul style="list-style-type: none"> <li>Engage in purposeful counting. Students may count the number of children on the carpet, the number of pencils on the desk, etc.</li> <li>See appropriate counting strategies modeled, including organizing objects in a row, counting objects from left to right, touching or moving one object at a time while counting.</li> <li>Use manipulatives and visual models (e.g., ten frames, number paths) as they develop proficiency. Physically moving objects while counting and using visual models helps to ensure objects are counted once and only once.</li> <li>Count objects in a variety of configurations. <div> </div> </li> <li>Make sense of quantities, recognizing that the total number counted represents the quantity of objects (SMP 2).</li> </ul> |

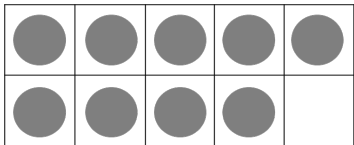
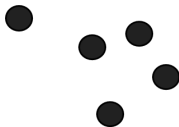
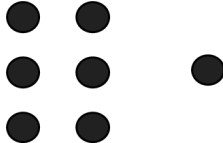
Previously K.CC.B.4

**K.NOS.B.7: When counting objects within 20, recognize that each successive number name refers to a quantity that is one larger.**

| Content Progression                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | Examples and Clarifications                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | Students should have the opportunity to...                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <p>Where are students coming from?</p> <ul style="list-style-type: none"> <li>When counting objects within 10, recognize that each successive number name refers to a quantity that is one larger (PK.NOS.B.6).</li> </ul> <p>Where are students going?</p> <ul style="list-style-type: none"> <li>Extend understanding of 10 as a group of ten ones to compose and decompose 2-digit numbers (1.NOS.B.3).</li> <li>Use counting strategies to add and subtract (1.NOS.D.7).</li> </ul> | <ul style="list-style-type: none"> <li>As students develop their understanding of counting, students recognize that each counting number in the sequence represents a quantity that is one more than the previous number. This <a href="#">graphic</a> can support educators in visualizing the relationship between numbers.</li> <li>When counting, provide tasks that help students to see and experience that the next number said will represent a quantity that is one more than the previous number. Avoid emphasizing the rote memorization of the count sequence without connection to quantities.</li> </ul> | <ul style="list-style-type: none"> <li>Use manipulatives and physical or visual models (e.g., egg cartons, ten frames) to reinforce the concept that when counting, one object is being added each time the next number is counted.</li> <li>Connect counting to addition. For example, if a student has a cup with 14 counters and one more counted is added to the cup, the student can identify that there are now 15 counters in the cup without counting, because 15 is the next number in the counting sequence (SMP 7).</li> </ul> |

Previously K.CC.B.4

**K.NOS.B.8: Recognize the number of objects in a set without counting (subitizing) with both unfamiliar patterns within 6 and familiar patterns within 10.**

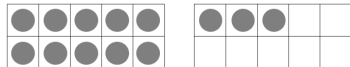
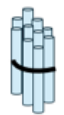
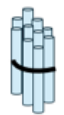
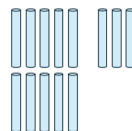
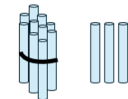
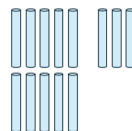
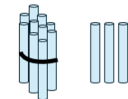
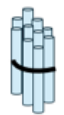
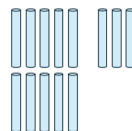
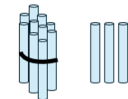
| Content Progression                                                                                                                                                                                                                                                                                                                                                                                                                             | Examples and Clarifications                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | Students should have the opportunity to...                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |
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| <p>Where are students coming from?</p> <ul style="list-style-type: none"> <li>Recognize the number of objects in a set without counting (subitizing) with both unfamiliar patterns within 3 and familiar patterns within 5. (PK.NOS.B.8).</li> </ul> <p>Where are students going?</p> <ul style="list-style-type: none"> <li>Extend understanding of 10 as a group of ten ones to compose and decompose 2-digit numbers (1.NOS.B.3).</li> </ul> | <ul style="list-style-type: none"> <li>Subitizing is the ability to instantly “see” how many objects are in a set without counting one by one.               <ul style="list-style-type: none"> <li><u>Perceptual subitizing</u> is recognizing a quantity without having to count or use other mathematical processes.                    </li> <li><u>Conceptual subitizing</u> is seeing groups or composed parts within a set (e.g., seeing 2 groups of 3) to determine total without counting each item.                    </li> </ul> </li> <li>Familiar patterns are arrangements students often see, such as the dots on dice, dominoes, or ten-frames.                </li> <li>Unfamiliar patterns are random or irregular arrangements that students may not have seen before, such as a group of scattered dots.                </li> </ul> | <ul style="list-style-type: none"> <li>Identify quantities in familiar patterns (e.g., fingers, dice, dominoes, ten frames) as part of daily routines. The use of familiar patterns supports students in recognizing quantities quickly.</li> <li>Engage in <u>Quick Image</u> tasks as a way to practice subitizing and to develop a sense of number and quantity (SMP 2).</li> <li>Discuss and share how they “see” a visual pattern. Construct coherent chains of reasoning to explain how they identified the total. For example, a student may explain “I saw 6 and 1 more so I know there are 7 dots.”                </li> <li><b>Students must have multiple opportunities and varied ways to demonstrate mastery, as this standard constitutes key Kindergarten Number and Operation Sense milestones in the Numbers &amp; Number Sets strand of the Numeracy Development Framework.</b></li> </ul> |

Adopted 2025

K.NOS.C DEVELOP FOUNDATION FOR PLACE VALUE.

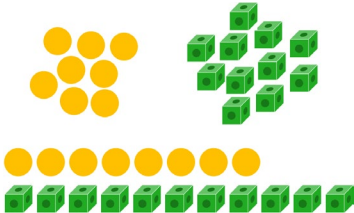
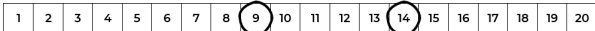
K.NOS.C.9: Understand 10 as a group, collection, or bundle of ten ones called a “ten.”

- a. Compose and decompose numbers from 11 to 19 into ten ones and some further ones by using objects or drawings, and equations (e.g.,  $13 = 10 + 3$ ).
- b. Describe a given number as one ten and the correct number of ones (e.g., 13 is one ten and three ones).

| Content Progression                                                                                                                                                                                                                                                                                                                                                                                               | Examples and Clarifications                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | Students should have the opportunity to...                                           |                                                                                     |                                                                                      |                            |                                                                                     |                                                                                     |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |                      |                                 |                                                                                                                                         |                                                                                                             |
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| <p>Where are students coming from?</p> <ul style="list-style-type: none"><li>When counting objects within 10, recognize that each successive number name refers to a quantity that is one larger (PK.NOS.B.6).</li></ul> <p>Where are students going?</p> <ul style="list-style-type: none"><li>Extend understanding of 10 as a group of ten ones to compose and decompose 2-digit numbers (1.NOS.B.3).</li></ul> | <ul style="list-style-type: none"><li>To compose a number, means to put numbers together and to decompose a number, is to break apart the number into parts. This standard focuses on decomposing “teen” numbers into tens and ones.</li><li>Use manipulatives and equations to represent the numbers 11 to 19 as ten ones and some more ones.</li></ul> <div></div> <ul style="list-style-type: none"><li>Students should begin using ungrouped objects and count by ones to create groups of 10. Consider using objects relevant to curriculum or student experience. Avoid using pre-grouped representations of ten too soon. Pre-grouped tens should only be used once students have developed an understanding of a group of ten objects as a unit.</li></ul> <div><table><tr><td><b>Ungrouped Objects</b></td><td></td><td></td></tr><tr><td><b>Pre-grouped Objects</b></td><td></td><td></td></tr></table></div> | <b>Ungrouped Objects</b>                                                             |  |  | <b>Pre-grouped Objects</b> |  |  | <p>Explore composing and decomposing numbers in a variety of ways, including using objects (e.g., fingers, manipulatives), ten frames, pictures, and equations.</p> <ul style="list-style-type: none"><li>Count by ones and count on from 10 by ones to verify that each model represents an equal amount. In the example below, students count to verify that both sets represent 13.</li></ul> <div><table><tr><td><b>Count by Ones</b></td><td><b>Count on from 10 by Ones</b></td></tr><tr><td><p>“1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13”</p></td><td><p>“10, 11, 12, 13”</p></td></tr></table></div> <ul style="list-style-type: none"><li>Connect visual representations of “teen” numbers to the written numbers to begin recognizing and explaining the base-ten structure. Students should have the opportunity to discuss and explain what “1” represents when written in a “teen” number (SMP 7).</li><li><b>Students must have multiple opportunities and varied ways to demonstrate mastery, as this standard constitutes key Kindergarten Number and Operation Sense milestones in the Numbers &amp; Number Sets strand of the Numeracy Development Framework.</b></li></ul> | <b>Count by Ones</b> | <b>Count on from 10 by Ones</b> | <p>“1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13”</p>  | <p>“10, 11, 12, 13”</p>  |
| <b>Ungrouped Objects</b>                                                                                                                                                                                                                                                                                                                                                                                          |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |  |                                                                                     |                                                                                      |                            |                                                                                     |                                                                                     |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |                      |                                 |                                                                                                                                         |                                                                                                             |
| <b>Pre-grouped Objects</b>                                                                                                                                                                                                                                                                                                                                                                                        |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |   |                                                                                     |                                                                                      |                            |                                                                                     |                                                                                     |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |                      |                                 |                                                                                                                                         |                                                                                                             |
| <b>Count by Ones</b>                                                                                                                                                                                                                                                                                                                                                                                              | <b>Count on from 10 by Ones</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |                                                                                      |                                                                                     |                                                                                      |                            |                                                                                     |                                                                                     |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |                      |                                 |                                                                                                                                         |                                                                                                             |
| <p>“1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13”</p>                                                                                                                                                                                                                                                                            | <p>“10, 11, 12, 13”</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |                                                                                      |                                                                                     |                                                                                      |                            |                                                                                     |                                                                                     |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |                      |                                 |                                                                                                                                         |                                                                                                             |

Previously K.NBT.A.1

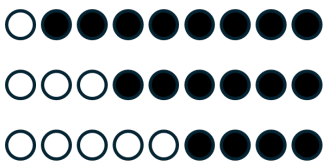
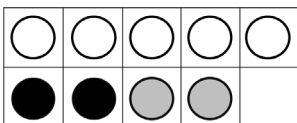
**K.NOS.C.10: Compare two quantities within 20 using greater than, equal to, or less than, with objects, location on number paths, and written numerals.**

| Content Progression                                                                                                                                                                                                                                                                                                                                                | Examples and Clarifications                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | Students should have the opportunity to...                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
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| <p>Where are students coming from?</p> <ul style="list-style-type: none"> <li>Compare two groups of objects to 10 using the language more than, equal to, or less than (PK.NOS.C.9).</li> </ul> <p>Where are students going?</p> <ul style="list-style-type: none"> <li>Compare two numbers within 100 and record comparisons with symbols (I.NOS.B.5).</li> </ul> | <ul style="list-style-type: none"> <li>When using objects, students may use matching as a strategy to solve the problem: Compare the number of counters and number of cubes. Students apply one-to-one correspondence to match objects from each set to make pairs, determining that there are extra cubes that don't have a match, so there is a greater number of cubes. Students may also count each set and recognize that 8 is less than 11.</li> </ul>  <ul style="list-style-type: none"> <li>Use number paths to compare. When comparing the numbers 9 and 14 as shown on the number path, students recognize that 9 is said before 14 when counting, so 9 is less than 14. Students may also recognize that 14 is further along the number path so it is the greater number.</li> </ul>  <ul style="list-style-type: none"> <li>Ask a variety of questions when asking students to compare. Avoid only asking "Which is more?" questions. Students are often less familiar with the concept of "less" so they need experience with these types of questions.</li> <li>Students are not expected to use comparison symbols (<math>&gt;</math>, <math>=</math>, and <math>&lt;</math>).</li> </ul> | <ul style="list-style-type: none"> <li>Use a variety of representations and strategies to compare numbers.</li> <li>Connect comparisons on a number path to their understanding of each number in the count sequence representing a quantity that is one more than the previous (K.NOS.B.7).</li> <li>Explore sets with equal quantities. Students may identify that one set has the "same as" another set and should be encouraged to use "equal" when describing sets with equal quantities.</li> <li>Explain their thinking and prove why their comparisons are accurate using mathematical language (SMP 3). Students should be encouraged to use a visual representation to explain their comparison.</li> <li>Identify and critique errors in reasoning. For example, if student A says that 8 blocks is greater than 12 blocks, student B recognizes the error and can explain why that is incorrect (SMP 3).</li> <li><b>Students must have multiple opportunities and varied ways to demonstrate mastery, as this standard constitutes key Kindergarten Number and Operation Sense milestones in the Numbers &amp; Number Sets strand of the Numeracy Development Framework.</b></li> </ul> |

Previously K.CC.C.6

**K.NOS.D DECOMPOSE NUMBERS.**

**K.NOS.D.11: Decompose numbers within 10 in more than one way, by using objects or drawings, and record each decomposition with a drawing or equation (e.g.,  $10 = 4 + 6$  and  $10 = 4 + 5 + 1$ ).**

| Content Progression                                                                                                                                                                                                                                                                                                           | Examples and Clarifications                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | Students should have the opportunity to...                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |
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| <p>Where are students coming from?</p> <ul style="list-style-type: none"> <li>Decompose numbers within 5 (PK.NOS.D.10).</li> </ul> <p>Where are students going?</p> <ul style="list-style-type: none"> <li>Extend understanding of 10 as a group of ten ones to compose and decompose 2-digit numbers (1.NOS.B.3).</li> </ul> | <ul style="list-style-type: none"> <li>To decompose a number is to break apart the number into parts. Decomposing numbers in multiple ways supports students in developing an understanding of the part-part-whole relationship.</li> <li>Use objects (e.g., fingers, manipulatives) to represent how the whole (e.g., 9) is decomposed into parts (e.g., 1 and 8, 3 and 6, or 5 and 4). Use drawings or equations to record.</li> </ul> <div style="text-align: center;">  <div style="display: inline-block; vertical-align: middle; margin-left: 10px;"> <math>1 + 8 = 9</math><br/> <math>3 + 6 = 9</math><br/> <math>5 + 4 = 9</math> </div> </div> <ul style="list-style-type: none"> <li>When decomposing a number, the number can be broken into two or more parts (e.g., 9 can be thought of as <math>5 + 4</math> or <math>5 + 2 + 2</math>). Avoid only identifying number pairs when decomposing a number.</li> </ul> <div style="text-align: center;">  <math>5 + 2 + 2 = 9</math> </div> | <ul style="list-style-type: none"> <li>Physically manipulate objects (e.g., fingers, manipulatives) to represent the composing and decomposing of numbers.</li> <li>Engage in games that allow students to explore and identify a variety of ways to decompose numbers. For example, a student may shake and then spill 7 two-sided counters, count the number of counters of one color and then the other color and record the combination with a drawing or equation.</li> <li>Identify number combinations by counting on or counting back. For example, if working to identify combinations that make 9 a student may begin at 1 and count on to identify <math>1 + 8 = 9</math>. A student may also begin at 9 and count back 1 to 8 to identify <math>9 - 1 = 8</math>.</li> <li>Develop strategies for identifying and organizing their decompositions in a systematic way (SMP 8).</li> <li>Connect concrete objects, drawings, and mathematical symbols. The use of mathematical symbols should be consistently modeled for students. As students become more proficient, students can use mathematical symbols to represent their decompositions.</li> <li><b>Students must have multiple opportunities and varied ways to demonstrate mastery, as this standard constitutes key Kindergarten Number and Operation Sense milestones in the Operations strand of the Numeracy Development Framework.</b></li> </ul> |

Previously K.OA.A.1

# Algebraic Thinking (AT)

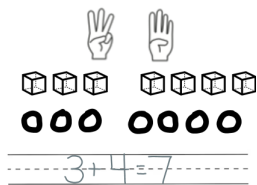
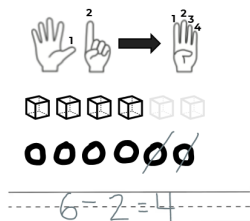
| Algebraic Thinking (AT) Clusters                          | Connections to the Numeracy Development Framework                                                                                                                                                                                                                                                                      |
|-----------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| K.AT.A Solve problems involving addition and subtraction. | Standards within this cluster <b>directly contribute*</b> to the Kindergarten Algebraic Thinking milestones within the <b>Solving Equations &amp; Inequalities strand</b> of the Numeracy Development Framework.                                                                                                       |
| K.AT.B Understand repeating patterns.                     | Standards within this cluster reinforce important mathematical concepts and provide opportunities for meaningful practice and application of skills. While they do not directly contribute to PreK milestones within the Numeracy Development Framework, they support students' overall readiness for future learning. |

**\*Directly contribute to milestones:** The cluster includes content and practices that are *explicitly named within* an NDF milestone, meaning student proficiency with this cluster demonstrates attainment of that milestone.

**\*\*Contribute to milestones:** The cluster builds prerequisite knowledge, skills, or ways of reasoning that *support progress toward* a milestone in the NDF, even if the milestone itself is not fully realized at this stage.

**K.AT.A SOLVE PROBLEMS INVOLVING ADDITION AND SUBTRACTION.**

**K.AT.A.1: Represent addition and subtraction situations (presented with numerals or mathematical symbols) within 10 with objects, fingers, drawings, sounds (e.g., claps), acting out situations, using verbal explanations, and/or writing expressions and equations.**

| Content Progression                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | Examples and Clarifications                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | Students should have the opportunity to...                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
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| <p>Where are students coming from?</p> <ul style="list-style-type: none"> <li>Represent addition and subtraction situations within 5 (PK.AT.A.1).</li> <li>Identify the quantity that must be added to a given quantity to equal 5 (PK.AT.A.2).</li> </ul> <p>Where are students going?</p> <ul style="list-style-type: none"> <li>Add within 100 using a 2-digit and a 1-digit number, or a 2-digit number and a multiple of 10 (1.NOS.E.10).</li> <li>Subtract two multiples of 10 within 90 (1.NOS.E.12) and subtract a 1-digit number from a 2-digit number (1.NOS.E.13).</li> </ul> | <ul style="list-style-type: none"> <li>Numerals or mathematical symbols refer to written numbers (e.g., 3, 7, 10) and operation signs (+, -) in expressions or equations.</li> <li>When presenting addition and subtraction situations, include situations that involve result unknown, total unknown, and both addends unknown in alignment with <a href="#">Addition and Subtraction Situations by Grade Level</a>.</li> <li>Given an addition situation, represent the sum of <math>3 + 4</math> using a variety of representations.</li> </ul>  <ul style="list-style-type: none"> <li>Given a subtraction situation, represent the difference of <math>6 - 2</math> using a variety of representations.</li> </ul>  <ul style="list-style-type: none"> <li>Model and encourage the use of multiple representations. Avoid using only one representation or strategy.</li> <li>When using equations, emphasize the meaning of the equal sign as a symbol that represents equality. Avoid using the equal sign as symbol that signals the answer.</li> </ul> | <ul style="list-style-type: none"> <li>Physically manipulate objects/fingers to represent contexts. Students may also act out situations (e.g., five students join a group to demonstrate addition, or four students leave a group to demonstrate subtraction). Students begin to recognize that everyday situations can be represented mathematically.</li> <li>Describe what is happening in an addition or subtraction situation in their own words (SMP 1).</li> <li>Connect concrete objects, visual models, and mathematical symbols (SMP 4). The use of mathematical symbols should be consistently modeled for students. As students become more proficient, students use mathematical symbols to represent these situations on their own.</li> <li>Make connections between addition and subtraction situations and part-part-whole relationships. For example, a student may explain that in the equation <math>3 + 4 = 7</math>, the addends 3 and 4 are the parts put together to make 7, the whole.</li> <li><b>Students must have multiple opportunities and varied ways to demonstrate mastery, as this standard constitutes key Kindergarten Algebraic Thinking milestones in the Creating Equations &amp; Inequalities strand of the Numeracy Development Framework.</b></li> </ul> |

Previously K.OA.A.1

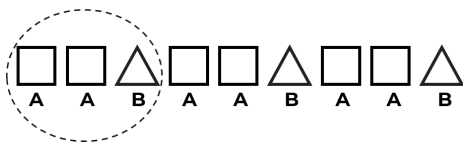
**K.AT.A.2: Solve addition and subtraction problems in context (add to, take from, put together/take apart) within 10 and represent by using objects, drawings, and/or equations.**

| Content Progression                                                                                                                                                                                                                                                                    | Examples and Clarifications                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | Students should have the opportunity to...                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |
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| <p>Where are students coming from?</p> <ul style="list-style-type: none"> <li>Represent addition and subtraction situations within 5 (PK.AT.A.1).</li> </ul> <p>Where are students going?</p> <ul style="list-style-type: none"> <li>Add and subtract within 20 (1.AT.A.2).</li> </ul> | <ul style="list-style-type: none"> <li>Addition and subtraction problems should be presented in authentic contexts. Refer to <a href="#">Addition and Subtraction Situations by Grade Level</a> for examples of add to, take from, and put together/take apart situations.</li> <li>As students develop understanding of addition and subtraction, support them in making connections to part-part-whole relationships. When solving the problem shown below, students recognize the red apples and green apples as the parts that are put together to make the whole (e.g., 3 red apples + 2 green apples = 5 apples total).</li> </ul> <p style="text-align: center;"><b>There are 3 red apples and 2 green apples in a basket. How many apples are in the basket?</b></p> <p style="text-align: center;"></p> <ul style="list-style-type: none"> <li>A variety of representations and strategies can be used to represent and solve addition and subtraction problems. Avoid modeling or requiring a specific representation or strategy.</li> <li>When using equations, emphasize the meaning of the equal sign as a symbol that represents equality. Avoid using the equal sign as symbol that signals the answer.</li> </ul> | <ul style="list-style-type: none"> <li>Build understanding of addition and subtraction as operations through the exploration of contextual problems.</li> <li>Describe what is happening in an addition or subtraction situation in their own words (SMP 1). Students may physically manipulate object/fingers to represent or act out the situation.</li> <li>Discuss the meaning of quantities in context and how the quantities are related (SMP 2). Students should have the opportunity to determine the information needed to answer the mathematical question.</li> <li>Represent addition or subtraction situations mathematically by selecting and applying appropriate representations.</li> <li>Develop flexibility in their use of various strategies, such as counting on, counting back, using number paths, or acting out situations to solve problems.</li> <li>Interpret their numerical results in terms of the context or situation.</li> <li>Use visual (e.g., fingers, manipulatives, drawings) and symbolic (e.g., expressions or equations) representations to explain, verbally and in writing, how they solved a problem (e.g., "first..., then..., because...") so that others understand their thinking.</li> <li>Engage in problem contexts that involve saving and spending (e.g., You saved \$3 last week. You saved \$4 this week. How much have you saved altogether?). \$</li> <li><b>Students must have multiple opportunities and varied ways to demonstrate mastery, as this standard constitutes key Kindergarten Algebraic Thinking milestones in the Creating Equations &amp; Inequalities and Solving Equations and Inequalities strands of the Numeracy Development Framework.</b></li> </ul> |

Previously K.OA.A.2

**K.AT.B UNDERSTAND REPEATING PATTERNS.**

**K.AT.B.3: Identify, extend, and create repeating patterns (AABAAB, ABCABC, or AABBC) using concrete objects, drawings, sounds, or movements.**

| Content Progression                                                                                                                                                                                                                                                                                                                                                                                                                                                | Examples and Clarifications                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | Students should have the opportunity to...                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
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| <p>Where are students coming from?</p> <ul style="list-style-type: none"> <li>Identify and extend a repeating pattern (PK.AT.B.3).</li> </ul> <p>Where are students going?</p> <ul style="list-style-type: none"> <li>Apply patterns in numbers to skip count by tens (1.NOS.A.1) and to identify 10 more or 10 less than a given number without counting (1.NOS.E.11).</li> <li>Apply patterns in numbers to identify even and odd numbers (2.AT.B.3).</li> </ul> | <ul style="list-style-type: none"> <li>AABAAB, ABCABC, and AABBC are examples of repeating patterns where a specific sequence of elements is repeated. Each letter represents a distinct item, action, or sound, and the pattern continues by repeating the same sequence (e.g., AABAAB means the sequence “AAB” is repeated).</li> </ul>  <ul style="list-style-type: none"> <li>Students are not expected to use letters to label patterns, however, students should be able to describe the core, or the unit being repeated, to identify, extend, or create patterns. In the example above, students would be expected to identify the core (or unit being repeated) as square, square, triangle.</li> </ul> | <ul style="list-style-type: none"> <li>Work with varying types of patterns, including visual patterns (e.g., connecting cubes, pattern blocks, stickers, drawings), auditory patterns (e.g., clapping or using instruments), and kinesthetic patterns (e.g., stomp, jump, spin).</li> <li>Listen to or read stories that feature patterns.</li> <li>Explore, predict, and verify ways to extend repeating patterns.</li> <li>Identify patterns that exist in real world contexts (e.g., days of the week, months in a year, tile design on a floor or wall, beads on a bracelet) (SMP 4).</li> </ul> |

Adopted 2025

## Geometric Reasoning (GR)

| Geometric Reasoning Clusters                                          | Connections to the Numeracy Development Framework                                                                                                                                                                                                            |
|-----------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>K.GR.A</b> Describe and compare measurable attributes.             | Standards within this cluster <b>directly contribute*</b> to the Kindergarten Geometric Reasoning milestones within the <b>Measurement strand</b> of the Numeracy Development Framework.                                                                     |
| <b>K.GR.B</b> Work with two-dimensional and three-dimensional shapes. | Standards within this cluster <b>directly contribute*</b> to the Kindergarten Geometric Reasoning milestones within the <b>Classifying Figures, Reasoning with Geometric Structure, and Spatial Reasoning strands</b> of the Numeracy Development Framework. |

**\*Directly contribute to milestones:** The cluster includes content and practices that are *explicitly named within* an NDF milestone, meaning student proficiency with this cluster demonstrates attainment of that milestone.

**\*\*Contribute to milestones:** The cluster builds prerequisite knowledge, skills, or ways of reasoning that *support progress toward* a milestone in the NDF, even if the milestone itself is not fully realized at this stage.

**K.GR.A DESCRIBE AND COMPARE MEASURABLE ATTRIBUTES.**

**K.GR.A.1: Describe measurable attributes of an object such as length, height, weight, and capacity using appropriate vocabulary (e.g. long, short, tall, heavy, light, wide, narrow, full, empty).**

| Content Progression                                                                                                                                                                                                                                                                                                                                    | Examples and Clarifications                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | Students should have the opportunity to...                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |
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| <p>Where are students coming from?</p> <ul style="list-style-type: none"> <li>Describe measurable attributes of an object (PK.GR.A.1).</li> </ul> <p>Where are students going?</p> <ul style="list-style-type: none"> <li>Order three objects by length; compare the lengths of two objects indirectly by using a third object. (1.GR.A.1).</li> </ul> | <ul style="list-style-type: none"> <li>Students describe objects by talking about one or more of their attributes (length, height, weight, and capacity). For example, a student may describe a feather as long and light.               <ul style="list-style-type: none"> <li>Length: the distance between the endpoints of an object</li> <li>Height: the vertical distance between the endpoints of an object</li> <li>Weight: how heavy an object is</li> <li>Capacity: how much an object can hold</li> </ul> </li> <li>Students are not expected to use measurement tools or units to physically measure objects.</li> </ul> | <ul style="list-style-type: none"> <li>Explore measurement comparisons through hands-on experiences with everyday objects.</li> <li>Practice using appropriate vocabulary to describe objects. Kindergarten students may begin using words such as “small” or “big” to describe an object. Students should be encouraged to use more precise mathematical language such as short, narrow, long, tall, etc. (SMP 6).</li> <li>Ask questions in measurement contexts that can be answered by identifying measurable attributes of objects. For example, a student may ask which of the books is heavy.</li> <li>Begin to use objects of roughly the same size to measure. For example, students may use their feet by walking the length of the object toe to heel to determine to describe the length of the carpet. Students may also begin using familiar objects of the same size such as blocks or cubes, etc.</li> </ul> |

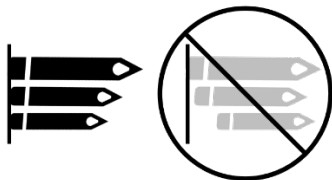
Previously K.MD.A.1

**K.GR.A.2: Directly compare two objects with a measurable attribute in common, using words such as “greater/less,” “more/fewer,” “longer/shorter,” “lighter/heavier,” or “taller/shorter.”**

| Content Progression                                                                                                                                                                                                                                                                                                                                                           | Examples and Clarifications                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | Students should have the opportunity to...                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |
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| <p>Where are students coming from?</p> <ul style="list-style-type: none"> <li>Directly compare two objects with a measurable attribute in common (PK.GR.A.2).</li> </ul> <p>Where are students going?</p> <ul style="list-style-type: none"> <li>Order three objects by length; compare the lengths of two objects indirectly by using a third object. (I.GR.A.1).</li> </ul> | <ul style="list-style-type: none"> <li>To directly compare two objects, students will place the objects side by side to observe similarities or differences of a measurable attribute (length, height, weight, and capacity). Students are not expected to use measurement tools or units to physically measure objects.</li> <li>It is important for students to identify the measurable attribute that is being compared, especially when using comparative terms, such as greater/less and more/fewer. For example, if the blue container is greater than the red container, it is important to identify whether the blue container has greater height or greater capacity than the red container.</li> <li>When comparing length and/or height, it is important that the objects are appropriately aligned to ensure accurate comparison.</li> </ul> <div> </div> <ul style="list-style-type: none"> <li>Ask a variety of questions when asking students to compare. Avoid only asking “Which is more?” questions. Students are often less familiar with the concept of “less” so they need experience with these types of questions.</li> <li>Students should also recognize when an object appears to have similar length/height/weight/capacity to another object. Avoid only providing objects of differing length/height/weight/capacity.</li> </ul> | <ul style="list-style-type: none"> <li>Explore measurement comparisons through hands-on experiences with everyday objects. For example, comparing backpacks by saying “My backpack is heavier than your backpack” helps students connect mathematical language to everyday contexts and develop a deeper understanding of measurable attributes.</li> <li>Fill containers to compare their capacities using appropriate vocabulary (e.g., full, empty, holds more, holds less).</li> <li>Practice using appropriate vocabulary to describe objects. Kindergarten students may begin using words such as “smaller” or “bigger” to compare objects. Model and encourage the use of more precise mathematical language (e.g., “The rock is heavier than the feather.”) (SMP 6).</li> <li><b>Students must have multiple opportunities and varied ways to demonstrate mastery, as this standard constitutes key Kindergarten Geometric Reasoning milestones in the Measurement strand of the Numeracy Development Framework.</b></li> </ul> |

Previously K.MD.A.2

**K.GR.A.3: Order up to 3 objects by a measurable attribute (e.g. greatest to least in height).**

| Content Progression                                                                                                                                                                                                                                                                                                                                                           | Examples and Clarifications                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | Students should have the opportunity to...                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |
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| <p>Where are students coming from?</p> <ul style="list-style-type: none"> <li>Directly compare two objects with a measurable attribute in common (PK.GR.A.2).</li> </ul> <p>Where are students going?</p> <ul style="list-style-type: none"> <li>Order three objects by length; compare the lengths of two objects indirectly by using a third object. (1.GR.A.1).</li> </ul> | <ul style="list-style-type: none"> <li>Use direct comparison by physically placing objects side by side and visually or tactically determining which has more or less of the attribute (e.g., which is taller, shorter, heavier, lighter).</li> <li>When ordering, students should focus on a single measurable attribute.</li> <li>When ordering lengths and/or heights, it is important that the objects are appropriately aligned to ensure accurate comparison.</li> </ul>  | <ul style="list-style-type: none"> <li>Explore measurement comparisons through hands-on experiences with everyday objects. For example, ordering weights of backpacks or ordering heights of plants.</li> <li>Use mathematical language to describe comparisons of everyday objects. For example, stating “The sunflower is the tallest, the tomato plant is the next tallest, and the bean plant is the shortest” helps students connect mathematical language to everyday contexts and develop a deeper understanding of measurable attributes.</li> <li>Construct a coherent chain of reasoning to describe their process for ordering objects a certain way, using vocabulary like “longer,” “shorter,” “heavier,” and “lighter.”</li> </ul> |

Previously 1.MD.A.1

**K.GR.B WORK WITH TWO-DIMENSIONAL AND THREE-DIMENSIONAL SHAPES.****K.GR.B.4: Describe the relative positions of objects using terms such as above, below, beside, in front of, behind, and next to.**

| Content Progression                                                                                                                                                                                                                                                                                                                                                                                    | Examples and Clarifications                                                                                                                                                                                                               | Students should have the opportunity to...                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
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| <p>Where are students coming from?</p> <ul style="list-style-type: none"> <li>This is the first formal introduction of positional language.</li> </ul> <p>Where are students going?</p> <ul style="list-style-type: none"> <li>Distinguish between defining and non-defining attributes of shapes (1.GR.B.3).</li> <li>Compose two-dimensional shapes to create composite shapes (1.G.B.4).</li> </ul> | <ul style="list-style-type: none"> <li>Use appropriate positional or directional language to tell where objects are in the environment. For example, “the clock is above the chalkboard” or “the pencil is next to the paper.”</li> </ul> | <ul style="list-style-type: none"> <li>Use classroom objects or manipulatives to physically demonstrate positions and use accurate language to describe the spatial relationships (SMP 6).</li> <li>Hear directional language modeled by teacher when providing directions. For example, “we will line up next to the door.”</li> <li>Engage in games, such as Simon Says, to practice applying the use of positional or directional language.</li> <li>Use positional language to describe body movements. For example, when standing with arms outstretched the student may explain “my hands are above my head.”</li> <li>Draw scenes and describe the positions of items in their drawings.</li> <li>Apply understanding of positional or directional language to describe position of shapes in composite figures (K.GR.B.9).</li> <li><b>Students must have multiple opportunities and varied ways to demonstrate mastery, as this standard constitutes key Kindergarten Geometric Reasoning milestones in the Spatial Reasoning strand of the Numeracy Development Framework.</b></li> </ul> |

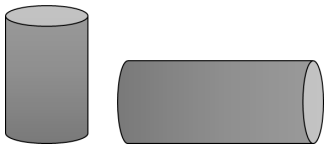
Previously K.G.A.1

**K.GR.B.5: Identify and describe given shapes and shapes of objects in everyday situations including two-dimensional shapes (circle, triangle, rectangle, square, hexagon) and three-dimensional shapes (cone, cube, cylinder, and sphere) regardless of their orientation or overall size.**

| Content Progression                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | Examples and Clarifications                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | Students should have the opportunity to...                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |
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| <p>Where are students coming from?</p> <ul style="list-style-type: none"> <li>Match, name, and sort two-dimensional shapes (PK.GR.B.3, PK.GR.B.4).</li> <li>Match and sort three-dimensional shapes (PK.GR.B.5).</li> </ul> <p>Where are students going?</p> <ul style="list-style-type: none"> <li>Distinguish between defining attributes versus non-defining attributes of shapes (1.GR.B.3).</li> <li>Compose two-dimensional shapes to create composite shapes (1.G.B.4).</li> </ul> | <ul style="list-style-type: none"> <li>Students are expected to name two-dimensional shapes (circle, triangle, rectangle, square, hexagon) and describe them using appropriate mathematical language (e.g., number of sides, corners).</li> <li>Students are expected to name three-dimensional shapes (cone, cube, cylinder, and sphere) and describe them using appropriate mathematical language (e.g., number of edges, corners, faces).</li> <li>Shapes should be shown in various sizes and orientations. This helps students to recognize that the orientation or size does not impact its identification. For example, a student should recognize each of the shapes below as a triangle. Avoid providing examples that use the same orientation and size every time.</li> </ul>  <ul style="list-style-type: none"> <li>Carefully select examples to distinguish between two- and three-dimensional shapes. For instance, a clock face is a circle (two-dimensional), while the entire clock is a cylinder (three-dimensional). Avoid using examples that may be misleading.</li> </ul> | <ul style="list-style-type: none"> <li>Explore shapes through hands-on experiences with everyday objects. For example, identifying the shape of a given object by saying “This can is a cylinder” helps students connect mathematical language to everyday contexts and develop a deeper understanding of geometric reasoning.</li> <li>Practice using appropriate mathematical language. Kindergarten students may begin describing shapes as “pointy” or “curvy.” Model and encourage the use of more precise mathematical language (e.g., “The triangle as 3 sides and 3 corners.”) (SMP 6)</li> <li>Explain how they identified a particular shape, referring to its attributes, such as number of sides or corners (SMP 3). Students should be encouraged to use a visual representation to explain.</li> <li>Examine examples and counterexamples of given shapes. Students should be prompted to explain their thinking. Teachers may ask questions like “How do you know a square is a square?” or “How do you know that is not a rectangle?”</li> <li>Engage in games that involve shape identification or descriptions (e.g., shape relay races or hopscotch with shapes).</li> <li>Apply their understanding of shape names and attributes to analyze and compare shapes (K.GR.B.7).</li> </ul> |

Previously K.G.A.2

**K.GR.B.6: Identify shapes as two-dimensional (lying in a plane, “flat”) or three-dimensional (“solid”).**

| Content Progression                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | Examples and Clarifications                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | Students should have the opportunity to...                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |
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| <p>Where are students coming from?</p> <ul style="list-style-type: none"> <li>Match, name, and sort two-dimensional shapes (PK.GR.B.3, PK.GR.B.4).</li> <li>Match and sort three-dimensional shapes (PK.GR.B.5).</li> </ul> <p>Where are students going?</p> <ul style="list-style-type: none"> <li>Distinguish between defining attributes versus non-defining attributes of shapes (1.GR.B.3).</li> <li>Compose two-dimensional shapes to create composite shapes (1.G.B.4).</li> </ul> | <ul style="list-style-type: none"> <li>For kindergarten students, two-dimensional shapes include circle, triangle, rectangle, square, and hexagon and three-dimensional shapes include cone, cube, cylinder, and sphere.</li> <li>Carefully select examples to distinguish between two- and three-dimensional shapes. For instance, a clock face is a circle (two-dimensional), while the entire clock is a cylinder (three-dimensional). Avoid using examples that may be misleading.</li> <li>Shapes should be shown in various sizes and orientations. This helps students recognize that the orientation or size does not impact its identification. For example, a student should recognize each of the shapes below as a cylinder, which is three-dimensional. Avoid providing examples that use the same orientation and size every time.</li> </ul>  | <ul style="list-style-type: none"> <li>Find examples and counterexamples of two-dimensional and three-dimensional shapes in their environment.</li> <li>Sort shapes or objects into 2 categories: two-dimensional and three-dimensional.</li> <li>Explain how they identified a shape as two-dimensional or three-dimensional by describing its attributes. For example, a student may explain that “a cylinder is three-dimensional because it is not flat like a circle, and I can hold it” (SMP 3).</li> <li>Identify and critique errors in reasoning. For example, if the teacher identifies a ball as a two-dimensional shape, the student may identify the teacher’s error and explain why the ball is a three-dimensional shape and not two-dimensional.</li> <li>Make connections between faces of three-dimensional shapes and two-dimensional shapes, recognizing that a face of a three-dimensional shape is a flat surface that matches a two-dimensional shape.</li> </ul> |

Previously K.G.A.2

**K.GR.B.7: 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, edges, and vertices/"corners") and other attributes (e.g., having sides of equal length).**

| Content Progression                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | Examples and Clarifications                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | Students should have the opportunity to...                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <p>Where are students coming from?</p> <ul style="list-style-type: none"> <li>Match, name, and sort two-dimensional shapes (PK.GR.B.3, PK.GR.B.4).</li> <li>Match and sort three-dimensional shapes (PK.GR.B.5).</li> </ul> <p>Where are students going?</p> <ul style="list-style-type: none"> <li>Distinguish between defining attributes versus non-defining attributes of shapes (I.GR.B.3).</li> <li>Compose two-dimensional shapes to create composite shapes (I.G.B.4).</li> </ul> | <ul style="list-style-type: none"> <li>For kindergarten students, two-dimensional shapes include circle, triangle, rectangle, square, hexagon and three-dimensional shapes include cone, cube, cylinder, and sphere.</li> <li>Present students with a set of shapes for students to compare. The sets may include all two-dimensional shapes, all three-dimensional shapes, or a combination of both.</li> <li>Students identify similarities and differences when analyzing shapes. For example, a student recognizes that a square and rectangle each have 4 sides and 4 corners, but the square has 4 equal sides and the rectangle does not.</li> <li>Carefully select examples to distinguish between two- and three-dimensional shapes. For instance, a clock face is a circle (two-dimensional), while the entire clock is a cylinder (three-dimensional). Avoid using examples that may be misleading.</li> <li>Shapes should be shown in various sizes and orientations. This helps students to recognize that the orientation or size does not impact its identification. For example, a student should recognize each of the shapes below as a triangle. Avoid providing examples that use the same orientation and size every time.</li> </ul>  | <ul style="list-style-type: none"> <li>Sort two- and three-dimensional shapes based on attributes (e.g., number of corners, having sides of equal length).</li> <li>Develop appropriate vocabulary to compare shapes based on their attributes. Kindergarten students may begin describing shapes as "pointy" or "curvy." Model and encourage the use of more precise mathematical language (e.g., "The triangle has 3 corners and a square has 4 corners.") (SMP 6).</li> <li>Construct arguments to explain similarities and difference of shapes (SMP 3).</li> <li><b>Students must have multiple opportunities and varied ways to demonstrate mastery, as this standard constitutes key Kindergarten Geometric Reasoning milestones in the Classifying Figures strand of the Numeracy Development Framework.</b></li> </ul> |

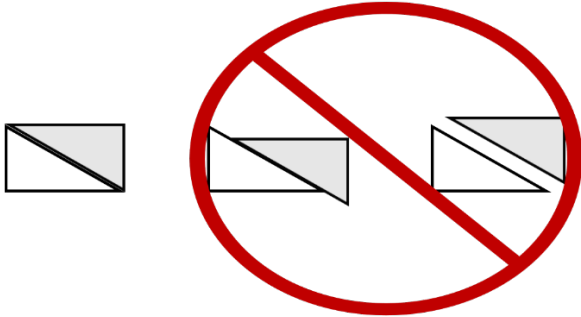
Previously K.G.B.4

**K.GR.B.8: Draw two-dimensional shapes and build or create models of three-dimensional shapes.**

| Content Progression                                                                                                                                                                                                                                                                                                                                                                 | Examples and Clarifications                                                                                                                                                                                                     | Students should have the opportunity to...                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <p>Where are students coming from?</p> <ul style="list-style-type: none"> <li>Match, name, and sort two-dimensional shapes (PK.GR.B.3, PK.GR.B.4).</li> <li>Match and sort three-dimensional shapes (PK.GR.B.5).</li> </ul> <p>Where are students going?</p> <ul style="list-style-type: none"> <li>Compose two-dimensional shapes to create composite shapes (I.G.B.4).</li> </ul> | <ul style="list-style-type: none"> <li>For kindergarten students, two-dimensional shapes include circle, triangle, rectangle, square, hexagon and three-dimensional shapes include cone, cube, cylinder, and sphere.</li> </ul> | <ul style="list-style-type: none"> <li>Trace shapes using stencils or by outlining objects (e.g., tracing around a cup to draw a circle).</li> <li>Build three-dimensional shapes using physical materials (e.g., playdough, clay, straws, toothpicks, etc.).</li> <li>Select and use various tools (e.g., drawing tools, patterns blocks, clay, technology, etc.) to create accurate models of two- and three-dimensional shapes (SMP 5).</li> <li>Use visual representation to explain why drawing or building accurately portrays a particular shape using attributes of the shape and explain how the model of the three-dimensional shape was constructed (SMP 3).</li> </ul> |

Previously K.G.B.5

**K.GR.B.9: Compose simple shapes to form larger shapes (e.g. join two triangles with full sides touching to compose a rectangle).**

| Content Progression                                                                                                                                                                                                                                                                                                                                                | Examples and Clarifications                                                                                                                                                                                                                                                                                                                        | Students should have the opportunity to...                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <p>Where are students coming from?</p> <ul style="list-style-type: none"><li>• Match and name two-dimensional shapes (PK.GR.B.4).</li><li>• Match and sort three-dimensional shapes (PK.GR.B.5).</li></ul> <p>Where are students going?</p> <ul style="list-style-type: none"><li>• Compose two-dimensional shapes to create composite shapes (I.G.B.4).</li></ul> | <ul style="list-style-type: none"><li>• For kindergarten students, two-dimensional shapes include circle, triangle, rectangle, square, and hexagon.</li><li>• Compose shapes by matching length sides with no gaps or overlaps to form larger shapes.</li></ul>  | <ul style="list-style-type: none"><li>• Use paper shapes, pattern blocks, or tangram pieces to compose larger shapes.</li><li>• Use trial and error as they begin composing shapes to form larger shapes. With continued practice, students begin to consider the attributes of shapes when combining.</li><li>• Explain their process for fitting shapes together to form larger shapes.</li><li>• Apply understanding of positional or directional language to describe position of shapes in composite figures (K.GR.B.4).</li><li>• Students must have multiple opportunities and varied ways to demonstrate mastery, as this standard constitutes key Kindergarten Geometric Reasoning milestones in the Reasoning with Geometric Structure strand of the Numeracy Development Framework.</li></ul> |

Previously K.G.B.6

# Reasoning with Data and Statistics (DS)

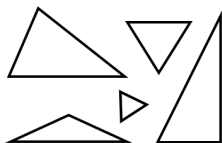
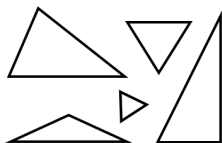
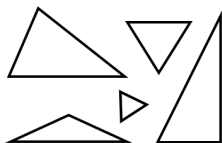
| Reasoning with Data and Statistics Clusters                | Connections to the Numeracy Development Framework                                                                                                                                                                                                                                   |
|------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| K.DS.A Classify objects into categories to represent data. | Standards within this cluster <b>directly contribute*</b> to the Kindergarten Reasoning with Data, Statistics, and Probability milestones within the <b>Collecting &amp; Representing Data and Interpreting &amp; Analyzing Data strands</b> of the Numeracy Development Framework. |

**\*Directly contribute to milestones:** The cluster includes content and practices that are *explicitly named within* an NDF milestone, meaning student proficiency with this cluster demonstrates attainment of that milestone.

**\*\*Contribute to milestones:** The cluster builds prerequisite knowledge, skills, or ways of reasoning that *support progress toward* a milestone in the NDF, even if the milestone itself is not fully realized at this stage.

**K.DS.A CLASSIFY OBJECTS INTO CATEGORIES TO REPRESENT DATA.**

**K.DS.A.1: Organize data by classifying objects into given categories and counting the number of objects in each category (Limit the total in any one category to maximum of 20).**

| Content Progression                                                                                                                                                                                                                                                                                                              | Examples and Clarifications                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | Students should have the opportunity to... |                     |                                                                                   |                                                                                    |                     |                     |                                                                                          |                                                                                           |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
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| <p>Where are students coming from?</p> <ul style="list-style-type: none"><li>Organize data sets by sorting objects into categories. (PK.DS.A.1).</li></ul> <p>Where are students going?</p> <ul style="list-style-type: none"><li>Ask and answer questions by collecting, organizing and summarizing data. (1.DS.A.1).</li></ul> | <ul style="list-style-type: none"><li>Students recognize shared attributes among objects (e.g., shape, number of sides) in order to classify objects into given categories (e.g., shapes with 3 sides and shapes with 4 sides).</li></ul> <table border="1"><thead><tr><th>Shapes with 3 Sides</th><th>Shapes with 4 Sides</th></tr></thead><tbody><tr><td></td><td></td></tr></tbody></table> <p><i>Note: Students are not expected to name a trapezoid or rhombus but should be able to identify these shapes as having 4 sides.</i></p> <ul style="list-style-type: none"><li>Students will count the number of items in each category. In the example above, a student would count to identify 5 shapes that have 3 sides and count to identify that there are 4 shapes that have 4 sides.</li><li>Students will organize or display their data using drawings and numbers. For example, a student may draw each object from a category and record the number of objects in the category.</li></ul> <table border="1"><thead><tr><th>Shapes with 3 Sides</th><th>Shapes with 4 Sides</th></tr></thead><tbody><tr><td><br/>5</td><td><br/>4</td></tr></tbody></table> | Shapes with 3 Sides                        | Shapes with 4 Sides |  |  | Shapes with 3 Sides | Shapes with 4 Sides | <br>5 | <br>4 | <ul style="list-style-type: none"><li>Explore classification through hands-on experiences with everyday objects and using visual aids to support organization (e.g., plates, cups, muffin tins, graphic organizers, or work mats).</li><li>Classify small sets of objects (within 10) as they develop accuracy with counting. As students become more proficient with counting beyond 10, students can work with larger sets of objects.</li><li>Classify objects based on predetermined categories but also develop their own categories for classification.</li><li>Apply their understanding of measurable attributes to classify objects into categories (K.G.R.A.1).</li><li>Model their classifications using drawings and numbers (SMP 4).</li><li>Describe the process for classifying and explain why objects belong in a particular category (SMP 3). Encourage students to use evidence, such as examples or counterexamples to support their explanations.</li><li>Apply understanding of shapes and their attributes to classifying objects (K.G.R.B.5, K.G.R.B.6, K.G.R.B.7).</li><li><b>Students must have multiple opportunities and varied ways to demonstrate mastery, as this standard constitutes key Kindergarten Reasoning with Data, Statistics, and Probability milestones in the Collecting &amp; Representing Data strand of the Numeracy Development Framework.</b></li></ul> |
| Shapes with 3 Sides                                                                                                                                                                                                                                                                                                              | Shapes with 4 Sides                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |                                            |                     |                                                                                   |                                                                                    |                     |                     |                                                                                          |                                                                                           |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
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| Shapes with 3 Sides                                                                                                                                                                                                                                                                                                              | Shapes with 4 Sides                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |                                            |                     |                                                                                   |                                                                                    |                     |                     |                                                                                          |                                                                                           |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
| <br>5                                                                                                                                                                                                                                         | <br>4                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |                                            |                     |                                                                                   |                                                                                    |                     |                     |                                                                                          |                                                                                           |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |

Previously K.MD.B.3

**K.DS.A.2: Analyze data sets by ordering the categories by count.**

| Content Progression                                                                                                                                                                                                                                                                                                                                   | Examples and Clarifications                                                                                                                                                                                                                                                                                                                                                                                                                                                      | Students should have the opportunity to...                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |
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| <p>Where are students coming from?</p> <ul style="list-style-type: none"> <li>Analyze data sets by comparing the categories using comparison language (PK.DS.A.2).</li> </ul> <p>Where are students going?</p> <ul style="list-style-type: none"> <li>Ask and answer questions by collecting, organizing and summarizing data. (I.DS.A.1).</li> </ul> | <ul style="list-style-type: none"> <li>Students count objects or items within each category to order the categories by count (e.g., least to greatest or greatest to least).</li> <li>Limit the total in any one category to maximum of 20</li> <li>Provide examples with equal quantities. Students may identify that one category has the “same as” another set and should be encouraged to use “equal” when describing categories or groups with equal quantities.</li> </ul> | <ul style="list-style-type: none"> <li>Participate in surveys relevant to their experiences to collect class data that can be analyzed and discussed. For example, students may respond to the question “How did you get to school today?”</li> <li>Use the data to answer questions about the categories or groups, such as “Which group has more? Which category has less?” (SMP4 4).</li> <li>Use comparison language and numbers to describe and compare the categories or group (e.g., “There are 18 students who ride the bus to school and 5 students who walk to school. There are more students who ride the bus.”) (K.NOS.10).</li> <li>Identify and critique errors in reasoning. For example, if student A orders the counts as 2 buttons, 5 buttons, 3 buttons, student B recognizes the error and can explain why that is incorrect.</li> <li><b>Students must have multiple opportunities and varied ways to demonstrate mastery, as this standard constitutes key Kindergarten Reasoning with Data, Statistics, and Probability milestones in the Interpreting &amp; Analyzing Data strand of the Numeracy Development Framework.</b></li> </ul> |

Previously K.MD.B.3

## References

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Ebby, C. B., Hulbert, E. T., & Broadhead, R. M. (2020). *A focus on addition and subtraction: Bringing mathematics education research to the classroom* (1st ed.). Routledge.

Erikson Institute. (n.d.). *Early Math Collaborative*. <https://earlymath.erikson.edu/> (<https://earlymath.erikson.edu/>)

National Research Council. (2009). *Mathematics Learning in Early Childhood: Paths Toward Excellence and Equity*. Washington, DC: The National Academies Press.

Van de Walle, J. A., Karp, K. S., & Bay-Williams, J. M. (2020). *Elementary and middle school mathematics: Teaching developmentally* (10th ed.). Pearson

## Provide Feedback

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Your feedback is essential in helping us understand how these resources are being used, their effectiveness in supporting instruction, and how they can be improved to better serve educators, students, and stakeholders across the state. If you are interested in providing feedback, please completed the [Feedback: PreK-8 Mathematics Standards Companion Guide survey](#).

The survey includes general questions about your overall impressions of the companion guides, as well as opportunities to provide grade-level specific feedback. Your responses will inform future revisions and professional learning efforts to ensure the guides are clear, useful, and aligned with the needs of Maryland's diverse learning communities.