

K.MD: MEASUREMENT & DATA

Cluster Statement: B: Classify objects and count the number of objects in each category.

Supporting Cluster (Students should spend the large majority of their time (65-85%) on the major work of the grade/course. Supporting work and, where appropriate, additional work should be connected to and engage students in the major work of the grade.)

<p>Standard Text</p> <p>K.MD.B.3: Classify objects into given categories; count the numbers of objects in each category and sort the categories by count.</p>	<p>Standard for Mathematical Practices</p> <p>SMP 2: Students can reason abstractly and quantitatively by analyzing shapes/objects to create groups and identifying the number in the group based on identified attributes.</p> <p>SMP 6: Students can attend to precision by using specific and accurate language when describing how objects are sorted into categories.</p>	<p>Students who demonstrate understanding can:</p> <ul style="list-style-type: none"> • Identify similarities and differences between objects (e.g., size, color, shape) • Use identified attributes to sort a collection of objects. • Count the number of objects in each collection. • Group the collections by the amount in each one.
		<p>Depth of Knowledge: 1-2</p>
		<p>Bloom’s Taxonomy: Remember, Apply and Analyze</p>
<p>Previous Learning Connections</p> <ul style="list-style-type: none"> • Connect to sorting objects onto a large graph according to one attribute, such as size, shape or color. • Connect to sorting, classifying, and ordering objects by size and other properties. • Connect to arranging objects in order according to characteristics or attributes, such as height. 	<p>Current Learning Connections</p> <ul style="list-style-type: none"> • Connect to using understanding of counting and cardinality to accurately count to tell how many. Connect to recognizing whether the number in a group greater than, less than, or equal to the number in another group. (K.CC.4, 5, 6) 	<p>Future Learning Connections</p> <ul style="list-style-type: none"> • Connect to organizing, representing, interpreting, and comparing data with up to three categories. (1.MD.4)

Clarification Statement:

- K.MD.B.3: Students in Kindergarten **classify** objects into **categories**, initially specified by the teacher and perhaps eventually elicited from students. For example, in a science context, the teacher might ask students in the class to sort pictures of various organisms into two piles: organisms with wings and those without wings. Students can then **count** the number of specimens in each pile. Students can use these category counts and their understanding of **cardinality** to say whether there are more specimens with wings or without wings.

Common Misconceptions

- Not yet counting each object in a set once, and only once with one touch per object (one-to-one correspondence)
- Not yet realizing that objects can be sorted into multiple categories

Multi-Layered System of Supports (MLSS)/Suggested Instructional Strategies

Pre-Teach

Pre-teach (targeted)

What pre-teaching will prepare students to productively struggle with the mathematics for this cluster within your HQIM?

For example, some learners may benefit from targeted pre-teaching that introduces new representations (e.g., number lines) when studying Classify objects and count the number of objects in each category because students might have familiarity with counting on a number line and will need the number line as a point of reference especially if the child is at the count all stage in which the child has to recount everything from one. The number line will help the child classify numbers and determine which number is smaller, or larger than the others for organizing groups of objects when counting.

Pre-teach (intensive)

What critical understandings will prepare students to access the mathematics for this cluster?

K.CC.C.6: This standard provides a foundation for work with classify objects and count the number of objects in each category because comparing numbers is a foundational skill which is critical to learning to classify groups of objects. Students must have previous experience with identifying groups of objects in groups as less than, equal to or greater than a number of objects in another group. Students must have the counting and matching skills. If students have unfinished learning within this standard, based on assessment data, consider ways to provide intensive pre-teaching support prior to the start of the unit to ensure students are ready to access grade level instruction and assignments.

Core Instruction

Access:

Interest: How will the learning for students provide multiple options for recruiting student interest?

For example, learners engaging with Classify objects and count the number of objects in each category benefit when learning experiences include ways to recruit interest such as creating accepting and supportive classroom climate because when students feel a sense of belonging and know that it's okay to make mistakes and there is this mutual understanding of making mistakes is a big part in learning all students will have an equal accessibility to learning.

Build:

Effort and Persistence: How will the learning for students provide options for sustaining effort and persistence?

For example, learners engaging with Classify objects and count the number of objects in each category benefit when learning experiences attend to students attention and affect to support sustained effort and concentration such as creating expectations for group work (e.g., rubrics, norms, etc.) because in kindergarten students need to be able to work in small groups and or partners therefore students need to be cleared on when working together how and what to specifically do. For example, students are working in pairs and are given 3 bags with different counts of objects in them they need to know to count the objects in each bag and order the bags from least to greatest. Next, they get another set and continue working. Students at this level need very explicit directions and lots of modeling on how to do the activities (process of actually completing the task).

Language and Symbols: How will the learning for students provide alternative representations to ensure accessibility, clarity and comprehensibility for all learners? (e.g., a graph illustrating the relationship between two variables may be informative to one learner and inaccessible or puzzling to another; picture or image may carry very different meanings for learners from differing cultural or familial backgrounds)

For example, learners engaging with Classify objects and count the number of objects in each category benefit when learning experiences attend to the linguistic and nonlinguistic representations of mathematics to ensure clarity can comprehensibility for all learners such as presenting key concepts in one form of symbolic representation (e.g., math equation) with an alternative form (e.g., an illustration, diagram, table, photograph, animation, physical or virtual manipulative) because the five-year old children need lots of demonstrations and they also need to have that progression from the concrete to the abstract level, and don't forget to challenge and provide additional assistance to those that need the extra explanation. Students need to count sets of objects and order them from least to greatest. You can provide challenges by providing higher numbers to 20.

Expression and Communication: How will the learning provide multiple modalities for students to easily express knowledge, ideas, and concepts in the learning environment?

For example, learners engaging with Classify objects and count the number of objects in each category benefit when learning experiences attend to the multiple ways students can express knowledge, ideas, and concepts such as using physical manipulatives (e.g., blocks, 3D models, base-ten blocks) because kindergarteners need to count objects they need to physically manipulate them, therefore they need lots of different manipulatives and sets of them to count. Students can also classify the objects if they are given 3 sets of buttons of different color (5 blue, 6 red and 7 yellow) students would have to sort them out according to the color then count the buttons and organize them according to the number of buttons from least to greatest. Students will need lots of exposure to counting sets of objects and sorting in order to become fluent and to understand counting, and classifying, etc. All these tasks (activities) have to be intentional, eventually these activities can be moved from teacher directed to centers for students to gain more experience with classifying and counting objects.

Internalize:

Self-Regulation: How will the design of the learning strategically support students to effectively cope and engage with the environment?

For example, learners engaging with Classify objects and count the number of objects in each category benefit when learning experiences set personal goals that increase ownership of learning goals and support healthy responses and interactions (e.g., learning from mistakes), such as increasing the length of on-task orientation in the face of distractions because 5 year old children have a short attention span as teachers we have to be intentional in planning and foreseeing the need to decrease or increase the length of on-task orientation in the face of distractions. We are working with kindergarteners and distractions are inevitable so flexibility is key in addressing distractions by increasing or decreasing certain tasks and activities.

Re-teach

Re-teach (targeted)

What formative assessment data (e.g., tasks, exit tickets, observations) will help identify content needing to be revisiting during a unit?

Examine assessments for evidence of lingering misconceptions (see common misconceptions). If students exhibit one more of these misconceptions, consider addressing the misconception, for example, students may benefit from re-engaging with content during a unit on classify objects and count the number of objects in each category by critiquing student approaches/solutions to make connections through a short mini-lesson because in kindergarten is all about kid-watch approach the teacher is everywhere and has ears and eyes everywhere, this means we have to be in constant

interaction with the class and actively surveying and checking for understanding. You know when they give you that look or their board is blank you can quickly be responsive to students who are struggling. It might mean the child needs access to a number line, number chart or just needs one more push to get it. You will know once you are roaming the room and seeing what the kids are demonstrating with manipulatives, paper and pencil etc.

Re-teach (intensive)

What assessment data will help identify content needing to be revisited for intensive interventions? Examine assessments for evidence of students still developing the underlying ideas, for example, some students may benefit from intensive extra time during and after a unit classify objects and count the number of objects in each category by addressing conceptual understanding because students must have a foundation in counting and also comparing numbers which one is bigger, smaller or if the numbers are the same. Students will need intensive reteach in the foundational skills in order to support students as they internalize the content. This support will mean maybe going back to counting and cardinality in order to build on the numeracy in order to move on to counting groups of objects and organizing them in order from least to greatest.

Extension

What type of extension will offer additional challenges to ‘broaden’ your student’s knowledge of the mathematics developed within your HQIM?
To extend students learning about classifying objects and counting the number of objects in each category, some learners may benefit from an extension such as the opportunity to explore links between various topics when studying classify objects and count the number of objects in each category because the students can count shapes and categorize them, the students can classify the different shapes by color size or sides. Students can make a presentation of their work; they can model their work with pictures

Culturally and Linguistically Responsive Instruction:

Validate/Affirm: How can you design your mathematics classroom to intentionally and purposefully legitimize the home culture and languages of students and reverse the negative stereotypes regarding the mathematical abilities of students of marginalized cultures and languages?

Build/Bridge: How can you create connections between the cultural and linguistic behaviors of your students’ home culture and language the culture and language of school mathematics to support students in creating mathematical identities as capable mathematicians that can use mathematics within school and society?

Building Procedural Fluency from Conceptual Understanding: Instruction should build from conceptual understanding to allow students opportunities to make meaning of mathematics before focusing on procedures. When new learning begins with procedures it privileges those with strong prior familiarity with school mathematics procedures for solving problems and does not allow learning to build for more methods for solving tasks that occur outside of school mathematics. For example, when studying classifying objects and counting the number of objects in each category the types of mathematical tasks are critical because students at this level will have difficulty remembering number names and understanding new vocabulary for example identifying and classifying and categorizing. Therefore, the tasks associated with this cluster must be ongoing, it should be part of the kindergarten daily routine.

Standards Aligned Instructionally Embedded Formative Assessment Resources:

Source: <http://tasks.illustrativemathematics.org/content-standards/K/MD/B/3/tasks/990>

The purpose of this task is for students to sort the same set of objects according to different attributes and to practice counting to tell the number of objects in a set (K.MD.B). The teacher can extend the task by asking the students which group has the most and which group has the least and if any of the groups have the same number.

Relevance to families and communities:

During a unit focused on classifying objects and counting the number of objects in each category, consider options for learning from your families and communities the cultural and linguistic ways this mathematics exists outside of school to create stronger home to school connections for students, for example, the home school connection activity can be send home and the objective will be for students to help their mother with pairing up socks. The students will have to categorize white socks, black socks etc., then they would have to pair socks according to size. Once students are done, they will have to put the socks away etc. This will also elicit conversation with parents and other siblings when helping with laundry.

Cross-Curricular Connections:

Science: Consider providing opportunities to sort various organisms or animals into two piles, such as organisms with wings and those without wings. Students can then count the number of specimens in each pile. Finally, students can use these category counts and their understanding of cardinality to say whether there are more specimens with wings or without wings.

Language Arts: Consider providing opportunities for students to sort words spelling pattern or word families. Follow up with questions related to category counts and count comparisons.