Georgia Kindergarten Inventory of Developing Skills (GKIDS 2.0)

Administration Manual for 2023-2024
Part 3: Mathematics

GKIDS
GEORGIA KINDERGARTEN INVENTORY OF DEVELOPING SKILLS

GaDOE
Georgia Department of Education

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Universal allowances, shown in the table below, may be used as necessary for all students and with all performance tasks. **These supports are aligned to best practices and provide flexibility to meet the diverse needs of a wide range of students.**

Universal Allowances

Presentation	• Read directions aloud and repeat as many times as needed, either by request of the student or as determined by the teacher. • Rephrase directions and/or questions, if needed. Rephrasing may include providing answer options or allowing for a yes/no response. • Provide audio amplification for verbal directions and tasks as needed. • Redirect the student's attention to a task or a direction as needed. • Provide magnification or enlargement of assessment tasks and/or manipulatives as needed. • Use familiar classroom materials to meet student's needs. Materials can be adapted to meet the needs of the individual learner. • Provide physical support to improve visual acuity. For example, use color contrast overlay, slant board, textures, etc. • Change position or orientation of assessment materials to maximize the student's visual engagement or access to manipulatives.
Response	• Allow the student to respond using his/her preferred mode of communication. • Modes of communication may include speech, eye gaze, pointing/gesturing/orienting to/touching answer choice, sign language, and/or use of augmentative communication systems. • Encourage student response without providing additional cues.
Setting	• Assess the student in naturally occurring classroom contexts, such as during center time, outdoor activities, teacher-directed instruction, and small group activities. • Allow the student to move and change positions during the session. • Consider the arrangement of the furniture, including allowing the student to stand or use alternative seating during a direct assessment activity. • Provide tasks in areas conducive to the student's physical and sensory needs, including one-on-one assessment in a quiet space when necessary.

Scheduling	• Use teacher discretion for starting and stopping a task based on the readiness of the student. • Teachers may administer performance tasks based on student readiness, professional judgement, and/or alignment to local district content pacing guides or curriculum patterns.

For students who need additional support, comprehensive support may be provided. Comprehensive supports provide access to a performance task but may substantially alter what the student is expected to do. If utilizing comprehensive supports, care should be taken when interpreting the student's progress within the learning progression.

The comprehensive supports provided in the table below are intended as *examples* of how teachers might provide comprehensive support to students. Note that examples are not provided for all tasks. Teachers may use their professional judgment to determine the type of support that best meets the needs of each individual student.

Comprehensive Supports

Learning Target	Comprehensive Support Example	Materials Needed
SPL-1	Part A, Part C: The teacher may reduce the number of 2- or 3-dimensional shapes presented to the student at one time (i.e., present two shapes at a time instead of all six), then ask the student to point to a specific shape.	2-dimensional shapes and 3-dimensional shapes
SPL-3	Part B: The teacher can provide the student with only enough attribute blocks to complete the larger shape.	Attribute blocks and composite shape templates
WC-1	Part A, Part B, Part C, Part D, Part E: The teacher can present sets in the arrangement which clearly show the comparison between the sets.	
WC– 2	Part A, Part B, Part C: The teacher can point to each object being counted while the student assigns (counts) a single number with each object the teacher touches. The teacher can present fewer numerals from which the student can choose to show the number of objects in the set.	

WC-3	Part A, Part B, Part C: The teacher can point to each object being counted while the student assigns (counts) a single number with each object the teacher touches.	
RC Activity 2	The teacher can point to each object being counted while the student assigns (counts) a single number with each object the teacher touches.	
CC-1	Part A, Part B, Part C, Part D, Part E: The teacher can point to each object being counted while the student assigns (counts) a single number with each object the teacher touches	
CCO-2	Part B: The teacher can provide a visual example of each category (i.e., color, type of candy, item) by which the group can be sorted.	

LEARNING PROGRESSION: COUNTING & CARDINALITY

Big Idea: Numerical Reasoning[1]
A kindergarten student will explain the relationship between numbers and quantities; count forward and backward in sequence; identify, write, represent, and compare numbers; compose and decompose numbers; and use the concepts of addition, subtraction, and equality to solve problems.

Progression: Counting & Cardinality

Skill	Beginning	Emerging	Developing	Demonstrating	Exceeding
Counts objects and understands cardinality	GKIDS Readiness Check Mathematics Activity 2 (CD-MA2.4b) Counts 10 objects using one-to-one correspondence.	CC-1 Part A (K.NR.1.1/K.NR.1.2) Counts 1-10 objects presented in a line and explains that the last number counted represents the total quantity counted (cardinality).	CC-1 Part B (K.NR.1.1/K.NR/1.2) Counts 11-20 objects presented in a line and explains that the last number counted represents the total quantity counted (cardinality).	CC-1 Part C (K.NR.1.1/K.NR.1.2) Counts 20 objects presented in a variety of structured arrangements and explains that the last number counted represents the total quantity counted (cardinality). CC-1 Part D (K.NR.1.1/K.NR.1.2) Counts up to 10 objects in a scattered arrangement and explains that the last number counted represents the total quantity counted (cardinality).	CC-1 Part E (1.NR.1.1) Counts 30 or more objects, presented in a variety of structured arrangements.
Subitizes			CC-2 Part A (K.NR.1.2) Instantly sees how many objects are in a group of up to 5 objects without counting (subitizing).	CC-2 Part B (K.NR.1.2) Instantly sees how many objects are in a group of 6-10 objects without counting (subitizing).	
Identifies one more or one less			CC-3 Part A (K.NR.1.3) Given a number from 1-10, identifies the number that is one more or one less.	CC-3 Part B (K.NR.1.3) Given a number from 11-20, identifies the number that is one more or one less.	CC-3 Part C (1.NR.5.2) Given a two-digit number, mentally finds 10 more or 10 less than the number, without having to count.

[1] K.MDR.7.3 Asks and answers questions based on gathered information, observations, and graphical displays to solve problems should be integrated across learning progressions. Refer to the Framework for Statistical Reasoning within Georgia's K-12 Mathematics Standards for additional guidance.

MATERIALS

Progression: Counting & Cardinality	
Task ID	**Materials**
RC Activity 2	– Twelve to fifteen small objects (e.g., pencils, crayons, manipulatives, etc.)
CC-1	– 30-40 counters, unifix cubes, counting bears, or other counting objects for each student (manipulatives should all be the same color) – Template or counting frame in which to place objects
CC-2	– Dot cards, five-frames, ten-frames, rekenreks – Objects such as beads, rocks, counting bears, playing cards
CC-3	– 20 counters, unifix cubes, counting bears, or other counting objects for each student (manipulatives should all be the same color) – Template or counting frame in which to place objects

GKIDS Readiness Check: Mathematics Activity 2

Learning Target(s): Beginning	– Counts 10 objects using one-to-one correspondence.

GKIDS is designed to provide teachers with a better understanding of where students are in their learning and development throughout the year. At the beginning of the year, teachers give the GKIDS Readiness Check to elicit evidence to show where a kindergarten student is when he or she enters kindergarten. The baseline data collected in the first six weeks on the GKIDS Readiness Check can serve as the entry point to skills described in the GKIDS 2.0 learning progression.

The following performance task is an activity from the GKIDS Readiness Check. For this progression, Mathematics Activity 2 from the GKIDS Readiness Check can be used to assess the *Beginning* stage of the progression.

If the student was rated as *Demonstrating* or *Exceeding* on Mathematics Activity 2, he or she can be matched to the *Beginning* stage of the progression.

If the student was rated below *Demonstrating* on Mathematics Activity 2, the teacher should continue instruction on counting objects and reassess the student when appropriate.

GKIDS Readiness Check Mathematics Activity 2		
Counts at least 10 objects using one-to-one correspondence.		
Activity	Performance Levels	
Student will count the number of small objects provided by the teacher using one-to-one correspondence. Note: Underlined words represent objects used in this example. Teachers should use objects accessible in their classrooms. Place twelve to fifteen small objects in front of the student (i.e., in a pile or in a straight line). Ask the student to count the number of objects. Say, **"I would like for you to count these <u>objects</u>. When you count, please say the numbers out loud."** <u>Process Clarification:</u> The student must physically touch the objects to demonstrate counting using one-to-one correspondence. The teacher should be able to see that the student is associating one object with one spoken number by physically touching, moving, or sliding the objects. If the presentation of the objects needs to be adjusted during administration, it can be. For example, if the teacher presents the objects in a pile and the student does not respond, the teacher may then place the objects in a straight line. <u>Materials:</u> Twelve to fifteen small objects (e.g., pencils, crayons, manipulatives, etc.)	Not Yet Demonstrated	The student does not engage in the task, or the student does not associate each object with one and only one number name.
	Emerging	The student counts between one and five objects using one-to-one correspondence.
	Developing	The student counts between six and nine objects using one-to-one correspondence.
	Demonstrating	The student counts ten objects using one-to-one correspondence.
	Exceeding	The student counts more than ten objects using one-to-one correspondence.

CC-1

Learning Target(s): Emerging (Part A) Developing (Part B) Demonstrating (Parts C & D) Exceeding (Part E)	– Counts 1-10 objects presented in a line and explains that the last number counted represents the total quantity counted (cardinality). – Counts 11-20 objects presented in a line and explains that the last number counted represents the total quantity counted (cardinality). – Counts 20 objects presented in a variety of structured arrangements and explains that the last number counted represents the total quantity counted (cardinality). – Counts up to 10 objects in a **scattered** arrangement and explains that the last number counted represents the total quantity counted (cardinality). – Counts 30 or more objects, presented in a variety of structured arrangements.

Manipulatives or Materials:

- 30-40 counters, unifix cubes, counting bears, or other counting objects for each student (manipulatives should all be the same color)
- Template or counting frame in which to place objects

Note: Refer to the *Optional Resource Guide* for an optional counting frame.

Process Clarification:

Note: This task is designed to provide evidence of skills described in different stages of the progression. Allow the student to move through as many parts of the task as possible and record performance.

Observe that the student is associating one object with one spoken number by maintaining correspondence with his or her eyes or by pointing, physically touching, moving, or sliding the objects. If necessary, prompt the student to point or physically touch objects to demonstrate one-to-one correspondence. To reduce confusion, ensure that objects are the same color.

To assess cardinality, students should state how they know that the last number is the total number. They can be prompted with the questions listed in the activity below. Sample

responses might include, “I counted each object, and when I counted the last object, I said six.” “The last number is the total number of objects.”

Performance Task Activity:

Note: Teachers should use objects accessible in their classrooms. Underlined words represent the objects used. The underlined words should be replaced with the name of the objects used.

Part A:

Place up to 10 objects in a line in front of the student. Ask the student to count the number of objects. Say, **“I would like for you to count these objects. When you count, please say the numbers out loud.”** Observe the student associating one object with one spoken number by pointing, physically touching, moving, or sliding the objects.

When the student is finished counting, ask the student to verbally state the number of objects counted. Ask, **“How many objects are there?”**

To assess whether the student can recognize the principle of cardinality, ask the student one of the following questions:

- “**How do you know that there are (number of) objects?”**
- **“Can you tell me how you know there are (number of) objects in the line?”**

If the student correctly states the number of objects and explains that the last number counted represents the total quantity counted, the student can be matched to the *Emerging* level of the progression.

Part B:

Place 11-20 objects in a line in front of the student. Ask the student to count the number of objects. Say, **“I would like for you to count these objects. When you count, please say the numbers out loud.”** Observe the student associating one object with one spoken number by pointing, physically touching, moving, or sliding the objects.

When the student is finished counting, ask the student to verbally state the number of objects counted. Ask, **“How many objects are there?”**

To assess whether the student can recognize the principle of cardinality, ask the student one of the following questions:

- “**How do you know that there are (number of) objects?”**
- **“How do you know how many objects are in this line?”**

If the student correctly states the number of objects and explains that the last number counted represents the total quantity counted, the student is partially matched to the *Developing* level of the progression.

Part C:

Place 20 objects in a structured arrangement (arranged in a rectangle, or a circle) in front of the student. Ask the student to count the number of objects. Say, **"I would like for you to count these objects. When you count, please say the numbers out loud."** Observe the student associating one object with one spoken number by pointing, physically touching, moving, or sliding the objects.

When the student is finished counting, ask the student to verbally state the number of objects counted. Ask, **"How many objects are there?"**

To assess whether the student can recognize the principle of cardinality, ask the student one of the following questions:

- "**How do you know that there are (number of) objects?"**
- **"How do you know how many objects are in this line?"**

If the student correctly states the number of objects and explains that the last number counted represents the total quantity counted, the student is partially matched to the *Demonstrating* level of the progression.

Part D:

Place up to 10 objects on the table in front of the student *in a scattered arrangement*. Ask the student to count the number of objects. Say, **"Please count these objects. When you count, please say the numbers out loud."** Observe the student associating one object with one spoken number by pointing, physically touching, moving, or sliding the objects.

When the student is finished counting, ask the student to verbally state the number of objects counted. Ask, **"How many objects are there?"**

To assess whether the student can recognize the principle of cardinality, ask the student one of the following questions:

- "**How do you know that there are (number of) objects?"**
- **"How do you know how many objects are in this group?"**

If the student correctly states the number of objects and explains that the last number counted represents the total quantity counted, the student is partially matched to the *Demonstrating* level of the progression.

Part E:

Note: This task could be administered along with the corresponding part of Task WC-2 and WC-3 from the Written Numerals and Comparison progression.

Place 30 or more objects, in a structured arrangement, in front of the student. Say, **"I would like for you to count these objects. When you count, please say the numbers out loud."** Observe the student associating one object with one spoken number by pointing, physically touching, moving, or sliding the objects.

When the student is finished counting, ask the student to verbally state the number of objects counted. Ask, **"How many objects are there?"**

If the student correctly states the number of objects and explains that the last number counted represents the total quantity counted, the student is partially matched to the *Exceeding* level of the progression.

CC-2

Learning Target(s): Developing (Part A) Demonstrating (Part B)	– Instantly sees how many objects are in a group of up to 5 objects without counting (subitizing). – Instantly sees how many objects are in a group of up to 10 objects without counting (subitizing).

Manipulatives or Materials:

- Dot cards, five-frames, ten-frames, rekenreks
- Objects such as beads, rocks, counting bears, playing cards

Note: Refer to the *Optional Resource Guide* for optional dot cards.

Process Clarification:

Early number recognition is not always subitizing. Perceptual subitizing occurs when students, shown small sets of items, develop the ability to instantly recognize the quantity in a set without counting.

For each part of the task, repeat with other numbers within the designated range.

Performance Task Activity:

Note: Teachers should use objects accessible in their classrooms. Underlined words represent the objects used. The underlined words should be replaced with the name of the objects used.

Part A:

Show a dot card ranging from 1 to 5 to the student. Say, **"Without counting, how many dots are on the card?"**

OR

Place up to 5 objects in front of the student. Say, **"Without counting, how many objects are on the table?"**

If the student correctly identifies the objects without counting, with at least 80% accuracy, the student is partially matched to the *Developing* stage of the progression.

Part B:

Show a dot card ranging from 6-10 to the student. Say, **"Without counting, how many <u>dots</u> are on the card?"**

OR

Place 6-10 objects in front of the student. Say, **"Without counting, how many <u>objects</u> are on the table?"**

If the student correctly identifies the objects without counting, with at least 80% accuracy, the student is partially matched to the Demonstrating stage of the progression.

CC-3

Learning Target(s): Developing (Part A) Demonstrating (Part B) Exceeding (Part C)	– Given a number from 1-10, identifies the number that is one more or one less. – Given a number from 11-20, identifies the number that is one more or one less. – Given a two-digit number, mentally finds 10 more or 10 less than the number, without having to count.

Manipulatives or Materials:

- 20 counters, unifix cubes, counting bears, or other counting objects for each student (manipulatives should all be the same color)
- Template or counting frame in which to place objects

Note: Refer to the *Optional Resource Guide* for an optional counting frame.

Performance Task Activity:

Part A:

Say, "**I am thinking of the number 6. What number is one less than six?**" or "**I am thinking of the number 2. What number is one more than 2?**"

OR

Using whiteboards or chalkboards, say a number between 1-10 to the class. Have the students write down the number that is one more or one less than the spoken number.

Provide each student with interlocking cubes, between 1-10. Have the students build a tower of cubes that represents one more than the number or one less than the number spoken.

With a small group of students, provide each student with a number line and manipulatives to represent numbers between 1-10. Ask the student to model a number on that number line, using the manipulatives, that is one more or one less than the number the teacher says.

Place large number cards on the floor (or write on the sidewalk using chalk) and have students step or hop to identify a number that is one more or one less.

Show picture cards with several objects between 1-10. Say (for example), **"This card has 6 cows. If you added 1 more cow, what would the new number be?"** Repeat with different

cards using a variety of numbers/and objects from 1-10. The teacher should say the number here. Students should not have to count.

In a large group, hold up a number card. Ask students to turn to a partner and state either what is one more or one less than the number. Ask the group to call out the answer.

If the student correctly identifies numbers from 1-10 that are one more or one less, with at least 80% accuracy, the student is partially matched to the *Developing* stage of the progression.

Part B:

Say, "**I am thinking of the number 14. What number is one less than 14?**" or "**I am thinking of the number 13. What number is one more than 13?**"

OR

Using whiteboards or chalkboards, say a number between 11-20 to the class. Have the students write down the number that is one more or one less than the spoken number.

Provide each student with interlocking cubes, between 11-20. Have the students to build a tower of cubes that represents one more than the number or one less than the number spoken.

With a small group of students, provide each student with a number line and manipulatives to represent numbers between 11-20. Ask the student to model a number on that number line, using the manipulatives, that is one more or one less than the number the teacher says.

Place large number cards on the floor (or write on the sidewalk using chalk) and have students step or hop to identify a number that is one more or one less.

Show picture cards with several objects between 11-20. Say (for example), **"This card has 14 ducks. If you added 1 more duck, what would the new number be?"** Repeat with different cards using a variety of numbers/and objects from 11-20. The teacher should say the number here. Students should not have to count.

In a large group, hold up a number card. Ask students to turn to a partner and state either what is one more or one less than the number. Ask the group to call out the answer.

If the student correctly identifies numbers from 11-20 that are one more or one less, with at least 80% accuracy, the student is partially matched to the *Demonstrating* stage of the progression.

Part C:

Using number cards to 100, ask the student to choose a card from the pack. Say, **"Starting with the card you selected, please say out loud the number you would get if you**

added 10 to the number." Once the student states that number, ask the student to keep adding 10 to see how far he or she can go until reaching 100. Ask the student to choose a second card from the 100-pack. Say, **"Starting with the card you selected, please say out loud the number you would get if you took away (subtracted, had 10 less than) the number."** Once the student identifies the initial number, say "**Can you keep subtracting (taking away, removing 10) until you get to zero?**

OR

Using the calendar, state the day of the month, ask the students what the day would be if it were 10 more or 10 less.

Number of the Day: This could coincide nicely with activities associated with tracking the number of days in school (e.g., day 100).

- Have a number of the day. Build that number using base ten blocks.
- Model showing ten more/ten less throughout the year as a whole group.
- Use a hundreds pocket chart to build patterns of ten more or ten less.

If the student, when given a two-digit number, mentally finds 10 more or 10 less than the number without having to count, with at least 80% accuracy, the student is partially matched to the *Exceeding* stage of the progression.

LEARNING PROGRESSION: COUNT SEQUENCES

Big Idea: Numerical Reasoning[2]
A kindergarten student will explain the relationship between numbers and quantities; count forward and backward in sequence; identify, write, represent, and compare numbers; compose and decompose numbers; and use the concepts of addition, subtraction, and equality to solve problems.

Progression: Count Sequences
(Note: Expectation is non-written communication in a form appropriate for the student, such as counting out loud or sign language.)

Skill	Beginning	Emerging	Developing	Demonstrating	Exceeding
Counts forward by ones	GKIDS Readiness Check Mathematics Activity 1 (CD-MA1.4a) Counts forward to 20.	CS-1 (K.NR.2.1) Counts forward to 30 by ones. CS-2 Part A (K.NR.2.2) Counts forward to 30 by ones from a given number within 0-30.	CS-1 (K.NR.2.1) Counts forward to 50 by ones. CS-2 Part B (K.NR.2.2) Counts forward to 50 by ones from a given number within 0-50.	CS-1 (K.NR.2.1) Counts forward to 100 by ones. CS-2 Part C (K.NR.2.2) Counts forward to 100 by ones from a given number within 0-100.	CS-2 Part D (1.NR.1.1) Counts forward to 120 by ones from a given number within 0-120.
Counts forward by tens		CS-3 Part A (K.NR.2.1) Counts forward to 30 by tens.	CS-3 Part A (K.NR.2.1) Counts forward to 50 by tens.	CS-3 Part A (K.NR.2.1) Counts forward to 100 by tens.	CS-3 Part B (1.NR.1.1) Counts forward to 120 by tens from a given number within 0-120.
Counts backward by ones		CS-4 Part A (K.NR.2.1) Counts backward from 5 by ones.	CS-4 Part B (K.NR.2.1) Counts backward from 10 by ones.	CS-4 Part C (K.NR.2.1) Counts backward from 20 by ones. CS-4 Part D (K.NR.2.2) Counts backward by ones from a given number within 0–20.	CS-4 Part E (1.NR.1.1) Counts backward from 40 by ones.

[2] K.MDR.7.3 Asks and answers questions based on gathered information, observations, and graphical displays to solve problems should be integrated across learning progressions. Refer to the Framework for Statistical Reasoning within Georgia's K-12 Mathematics Standards for additional guidance.

MATERIALS

Progression: Count Sequences	
Task ID	**Materials**
CS-4	– Number line, a 99-chart, or a 100-chart

GKIDS Readiness Check: Mathematics Activity 1

Learning Target(s): Beginning	– Counts forward to 20.

GKIDS is designed to provide teachers with a better understanding of where students are in their learning and development throughout the year. At the beginning of the year, teachers give the GKIDS Readiness Check to elicit evidence to show where a kindergarten student is when he or she enters kindergarten. The baseline data collected in the first six weeks on the GKIDS Readiness Check can serve as the entry point to skills described in the GKIDS 2.0 learning progression.

The following performance task is an activity from the GKIDS Readiness Check. For this progression, *Mathematics Activity 1* from the GKIDS Readiness Check can be used to assess the *Beginning* stage of the progression.

If the student was rated as *Demonstrating* on *Mathematics Activity 1*, he or she can be fully matched to the *Beginning* stage of the progression.

If the student was rated below *Demonstrating* on *Mathematics Activity 1*, the teacher should continue instruction on counting and reassess the student when appropriate.

Note: Although the target in the GKIDS Readiness Check focuses on counting to 20 in sequence, the instructions allow the student to recite numbers greater than 20. If the student counts higher than 20, the student can be matched to later stages of the learning progression depending on the highest number counted without error.

<table>
<tr><th colspan="3">GKIDS Readiness Check Mathematics Activity 1</th></tr>
<tr><td colspan="3">Recites numbers up to 20 in sequence.</td></tr>
<tr><td>Activity</td><td colspan="2">Performance Levels</td></tr>
<tr><td rowspan="4">Student will verbally recite all numbers from one to twenty in sequence.

Say, “Please count out loud for me.”

<u>Process Clarification</u>: Counting in sequence means reciting each number with no skipped numbers or incorrectly stated numbers. For example, if the student says ten, twelve, thirteen, score the student’s performance according to the academic performance level demonstrating the highest correct response (in this case the student would score emerging). The student may repeat a number, if halted, to restart the activity. For example, if the student says ten, eleven, twelve, then halts and says, twelve, thirteen, fourteen, the student should be given credit for stating the number correctly. The student should also be allowed to restart, if initiated by the student. For example, if the student recites numbers one through five and then stops, the student could restart counting from one through five and continue until either making a mistake or reaching twenty. The student might also use his or her fingers to count and that should be permitted.

<u>Scoring Note</u>: Teachers may allow students to count beyond 20 as a means of collecting data for other purposes (e.g., GKIDS). For the GKIDS Readiness Check, rate student performance based on the descriptors included here.

If the student correctly counts higher than 20, the student can be matched to later stages of the learning progression depending on the highest number counted without error.</td><td>Not Yet Demonstrated</td><td>The student does not make any attempt to recite numbers or says random numbers.</td></tr>
<tr><td>Emerging</td><td>The student correctly recites numbers in sequence between one and ten but does not recite numbers beyond ten.</td></tr>
<tr><td>Developing</td><td>The student correctly recites numbers in sequence from at least one to eleven but less than twenty.</td></tr>
<tr><td>Demonstrating</td><td>The student correctly recites all numbers from one to twenty.</td></tr>
</table>

CS-1

Learning Target(s): Emerging Developing Demonstrating	– Count forward to 30 by ones. – Counts forward to 50 by ones. – Counts forward to 100 by ones.

Process Clarification:

Counting in sequence means reciting each number with no skipped numbers or incorrectly stated numbers. A student may self-correct, or repeat a number, if halted, to restart counting. For example, if the student says “ten, eleven, twelve”, then halts and says, “twelve, thirteen, fourteen”, the student should be given credit for reciting the numbers correctly. The student should also be allowed to restart, if initiated by the student. For example, if the student recites numbers one through five and then stops, the student could restart counting from one through five and continue. The student might also use his or her fingers to count.

Performance Task Activity:

Say, **“Please count out loud by ones for me.”**

Allow the student to count as high as he or she can and record performance. Performance on this task can provide evidence of skills described in different stages of the progression.

If the student correctly counts forward to 30 by ones, the student is partially matched to the *Emerging* stage of the progression.

If the student correctly counts forward to 50 by ones, the student is partially matched to the *Developing* stage of the progression.

If the student correctly counts forward to 100 by ones, the student is partially matched to the *Demonstrating* stage of the progression.

CS-2

Learning Target(s): Emerging (Part A) Developing (Part B) Demonstrating (Part C) Exceeding (Part D)	– Counts forward to 30 by ones from a given number within 0-30. – Counts forward to 50 by ones from a given number within 0-50. – Counts forward to 100 by ones from a given number within 0-100. – Counts forward to 120 by ones from a given number within 0-120.

Process Clarification:

The student may self-correct, or repeat a number, if halted, to restart counting. For example, if the student says “eighty-five, eighty-six, eighty-seven”, then halts and says, “eighty-seven, eighty-eight, eighty-nine”, the student should be given credit for reciting the numbers correctly. The student should also be allowed to restart, if initiated by the student. For example, if the student recites numbers eighty-five, eighty-six, eighty-seven and then stops, the student could restart counting from eighty-five and continue. Teachers may adjust the beginning number and are not required to utilize the numbers provided in the script.

Performance Task Activity:

Part A:

Say, **“Please count out loud for me by ones starting with the number 18.”**

If the student correctly counts forward to 30 from the given number, the student is partially matched to the *Emerging* stage of the progression.

Part B:

Say, **“Please count out loud for me by ones starting with the number 26.”**

If the student correctly counts forward to 50 from the given number, the student is partially matched to the *Developing* stage of the progression.

Part C:

Say, **“Please count out loud for me by ones starting with the number 64.”**

If the student correctly counts forward to 100 from the given number, the student is partially matched to the *Demonstrating* stage of the progression.

Part D:

Say, **“Please count out loud for me by ones starting with the number 72.”**

If the student correctly counts forward to 120 from the given number, the student is partially matched to the *Exceeding* stage of the progression.

CS-3

Learning Target(s): Emerging (Part A) Developing (Part A) Demonstrating (Part A) Exceeding (Part B)	– Count forward to 30 by tens. – Counts forward to 50 by tens. – Counts forward to 100 by tens. – Counts forward to 120 by tens from a given number within 0-120.

Process Clarification:

Counting in sequence means reciting each number with no skipped numbers or incorrectly stated numbers. A student may self-correct, or repeat a number, if halted, to restart counting. For example, if the student says “ten, twenty, thirty”, then halts and says, “thirty, forty, fifty”, the student should be given credit for reciting the numbers correctly. The student should also be allowed to restart, if initiated by the student

When counting by tens, kindergarten students are only expected to master counting by the decade (10, 20, …).

Performance Task Activity:

Part A

Say, **“Please count out loud by tens for me.”**

Allow the student to count as high as he or she can and record performance. Performance on this task can provide evidence of skills described in different stages of the progression.

If the student correctly counts forward to 30 by tens, the student is partially matched to the *Emerging* stage of the progression.

If the student correctly counts forward to 50 by tens, the student is partially matched to the *Developing* stage of the progression.

If the student correctly counts forward to 100 by tens, the student is partially matched to the *Demonstrating* stage of the progression.

Part B

Say, **“Please count out loud by tens for me starting with the number 70.”**

If the student correctly counts forward to 120 by tens, the student is partially matched to the *Exceeding* stage of the progression.

CS-4

Learning Target(s): Emerging (Part A) Developing (Part B) Demonstrating (Parts C&D) Exceeding (Part E)	– Counts backward from 5 by ones. – Counts backward from 10 by ones. – Counts backward from 20 by ones. – Counts backwards by ones from a given number within 0-20. – Counts backward from 40 by ones.

Manipulatives or Materials:

Part C, Part D, and Part E:

- Number line, a 99-chart, or a 100-chart

Note: Refer to the *Optional Resource Guide* for a number line and chart.

Process Clarification:

Counting in sequence means reciting each number with no skipped numbers or incorrectly stated numbers. A student may self-correct, or repeat a number, if halted, to restart counting. For example, if the student says “five, four,” then halts and says, “four, three, two, one, zero,” the student should be given credit for reciting the numbers correctly. The student should also be allowed to restart, if initiated by the student. For example, if the student recites numbers five, four, three, two and then stops, the student could restart counting from five and continue. The student might also use his or her fingers to count.

When students count backward from 20, they can use visual resources such as a number line, a 99-chart, or a 100-chart.

Performance Task Activity:

Part A:

Say, **“Starting with the number 5, please count backwards by ones for me.”**

If the student correctly counts backwards starting with 5, the student is partially matched to the *Emerging* stage of the progression.

Part B:

Say, **“Starting with the number 10, please count backwards by ones for me.”**

If the student correctly counts backwards starting with 10, the student is partially matched to the *Developing* stage of the progression.

Part C:

Say, **"Starting with the number 20, please count backwards by ones for me."**

If the student correctly counts backwards starting with 20, the student is partially matched to the *Demonstrating* stage of the progression.

Part D:

Say, **"Starting with the number 16, please count backward by ones for me."**

If the student correctly counts backwards starting with 16, the student is partially matched to the *Demonstrating* stage of the progression.

Part E:

Say, **"Starting with the number 40, please count backwards by ones for me."**

If the student correctly counts backwards starting with 40, the student is partially matched to the *Exceeding* stage of the progression.

LEARNING PROGRESSION: WRITTEN NUMERALS & COMPARISON OF QUANTITIES

Big Idea: Numerical Reasoning[3]
A kindergarten student will explain the relationship between numbers and quantities; count forward and backward in sequence; identify, write, represent, and compare numbers; compose and decompose numbers; and use the concepts of addition, subtraction, and equality to solve problems.

Progression: Written Numerals & Comparison of Quantities

Skill	Beginning	Emerging	Developing	Demonstrating	Exceeding
Compares quantities of objects	WC-1 Part A (K.NR.4.2) Identifies/matches equal sets of objects using one-to-one correspondence.	WC-1 Part B (K.NR.4.2) Given two sets of objects, identifies whether the number of objects in one group is greater than, less than, or the same as the number of objects in another group (0-10 objects per set).	WC-1 Part C (K.NR.4.2) Given two sets of objects, uses counting or matching strategies to explain and/or show whether the number of objects in one group is greater than, less than, or the same as the number of objects in another group (0-10 objects per set).	WC-1 Part D (K.NR.4.2) Compares the number of objects in two groups in authentic situations and identifies whether the number of objects in one group is greater than, less than, or the same as the number of objects in another group (0-10 objects per group).	WC-1 Part E (1.NR.1.3) Compares the number of objects in two groups in authentic situations and identifies whether the number of objects in one group is greater than, less than, or the same as the number of objects in another group (11-20 objects per group).
Identifies numerals		WC-2 Part A (K.NR.4.1) Given a set of up to 10 objects, matches a written numeral to represent the number of objects.	WC-2 Part B (K.NR.4.1) Given a set of 11-20 objects, matches a written numeral to represent the number of objects.		WC-2 Part C (1.NR.1.1) Given a set of 21-30 objects, matches a written numeral to represent the number of objects.
Writes numerals			WC-3 Part A (K.NR.4.1) Writes numerals 1-10 to represent a quantity.	WC-3 Part B (K.NR.4.1) Writes numerals 11-20 to represent a quantity.	WC-3 Part C (1.NR.1.1) Writes numerals 21-30 to represent a quantity.

[3] K.MDR.7.3 Asks and answers questions based on gathered information, observations, and graphical displays to solve problems should be integrated across learning progressions. Refer to the Framework for Statistical Reasoning within Georgia's K-12 Mathematics Standards for additional guidance.

MATERIALS

Progression: Written Numerals & Comparison of Quantities	
Task ID	**Materials**
WC-1	*Parts A, B, and C:* – 20 objects to allow students to compare sets of up to 10 objects (e.g., counters, unifix cubes, counting bears, or other counting objects). Manipulatives should be two different colors with 10 objects of each color – Templates or ten frames in which to place sets being compared *Part D:* – Authentic problems involving comparison of numbers of objects within 10 (refer to the Sample Problems and Exemplar section) – Printed versions of the real-world problems could include digital slide, chart paper, printed document, or a sticker to place in a problem-solving journal – Counters, unifix cubes, counting bears, or other small counting objects in the classroom – Number lines, ten frames, or hundreds charts for comparing numbers greater than 10 – writing tools and/or materials needed to record mathematical thinking *Part E:* – Authentic situations or problems involving comparison of numbers of objects within 11-20 – Printed versions of the authentic situations could include chart paper and printed documents – Number lines, ten frames – Writing tools and/or materials needed to record mathematical thinking
WC-2	– 10 counters, unifix cubes, counting bears, or other counting objects for each student (manipulatives should all be the same color) – Written numerals 1-10 (e.g., number cards) to represent the number of objects – Writing tools and paper
WC-3	– 30 counters, unifix cubes, counting bears, or other counting objects for each student (manipulatives should all be the same color) – Writing tools and paper

WC-1

Learning Target(s): Beginning (Part A) Emerging (Part B) Developing (Part C) Demonstrating (Part D) Exceeding (Part E)	– Identifies/matches equal sets of objects using one-to-one correspondence. – Given two sets of objects, identifies whether the number of objects in one group is greater than, less than, or the same as the number of objects in another group (0-10 objects per set). – Given two sets of objects, uses counting or matching strategies to explain and/or show whether the number of objects in one group is greater than, less than, or the same as the number of objects in another group (0-10 objects per set). – Compares the number of objects in two groups in authentic situations and identifies whether the number of objects in one group is greater than, less than, or the same as the number of objects in another group (0-10 objects per group). – Compares the number of objects in two groups in authentic situations and identifies whether the number of objects in one group is greater than, less than, or the same as the number of objects in another group (11-20 objects per group).

<u>Manipulatives or Materials:</u>

Parts A, B, and C:

- 20 objects to allow students to compare sets of up to 10 objects (e.g., counters, unifix cubes, counting bears, or other counting objects). Manipulatives should be two different colors with 10 objects of each color
- Templates or ten frames in which to place sets being compared

Part D:

- Authentic problems involving comparison of numbers of objects within 10 (refer to the Sample Problems and Exemplar section)
- Printed versions of the real-world problems could include digital slide, chart paper, printed document, or a sticker to place in a problem-solving journal
- Counters, unifix cubes, counting bears, or other small counting objects in the classroom
- Number lines, ten frames, or hundreds charts for comparing numbers greater than 10

- writing tools and/or materials needed to record mathematical thinking

Part E:

- Authentic situations or problems involving comparison of numbers of objects within 11-20
- Printed versions of the authentic situations could include chart paper and printed documents
- Number lines, ten frames
- Writing tools and/or materials needed to record mathematical thinking

Process Clarification:

Part A:

For beginning learners, the teacher might arrange objects that are placed close to one another and formed in a straight line. For students who have assimilated the one-to-one-correspondence skill, the teacher could arrange objects in alternate configurations (e.g., items in a circle, arc, block). The rationale for using a straight line of objects earlier in the students' development is that children often cannot attend to more than one feature of the task (e.g., number of items, spacing between items) to design an identical set indicating one-to-one-correspondence.

To demonstrate one-to-one-correspondence, the student could physically touch the objects in the sets or line them up next to (or on top of) each other. Although not a required component of the *Beginning* stage of this progression, the student might also demonstrate his or her knowledge of one-to-one-correspondence by counting aloud the number of objects as he/she places the objects next to or on top of the teacher's formed set. The teacher should note that the student is associating each object with only one other object. Further, the student could simply verbally state that the number of objects in the two sets match.

Parts B and C:

The student may use a variety of counting or matching strategies to compare the sets. Allow the student to move the counting objects as needed to employ various strategies.

Performance Task Activity:

Note: Teachers should use objects accessible in their classrooms. Underlined words represent the objects used. The underlined words should be replaced with the name of the objects used.

Part A:

Say, **"Today, we are going to compare sets of objects. I'm going to give you two sets of objects."**

Create two sets of small counting objects with quantities including and between 1 and 10. Sets should be arranged so that each set is distinct from the other and can be interpreted as a set by the student (i.e., with enough space between the two sets to be recognized as two separate sets, one in a straight line and one in a group). The arrangement of the objects can vary (e.g., in a line, an array, an arc).

Ask the student to determine if the sets are the same. Ask, **"Are these sets the same?"** or **"Are there the same number of objects in each group?"** Ask, **"Tell me how you know this."** Observe the student demonstrating one-to-one correspondence. First ask the student to identify/match sets between 3-5 objects and then sets between 7-10 objects. For example, students can compare:

- ☐ 3 and 5 objects
- ☐ 4 and 4 objects
- ☐ 8 and 9 objects
- ☐ 10 and 9 objects
- ☐ 9 and 9 objects

If the student correctly identifies equal sets of objects between 1 and 10 with at least 80% accuracy, the student is fully matched to the *Beginning* stage of the progression. You should observe the student demonstrating one-to-one correspondence. For example, if you present the student with a group of blue bears and red bears, the student should match each red bear with a blue bear to show 1:1 correspondence.

Part B:

Say, **"Today, we are going to compare sets of objects. I'm going to give you two sets of objects."**

Place two sets of objects in front of the student, each with a quantity including and between 0 and 10. Sets should be arranged so that each set is distinct from the other and can be interpreted as a set by the student (i.e., with enough space between the two sets to be recognized as two separate sets). The arrangement of the objects can vary (e.g., in a line, an array, an arc, etc.).

Say, **"I have two sets of objects. Tell me about these sets. Are the sets the same or does one set have more or less than the other?"** The student will orally respond with a statement that accurately compares the two groups created by the teacher (e.g., "This set has more than this set."). If the student does not respond, teachers

could rephrase the directions and question **"Do these sets have the same number of objects?"; "Tell me which set has more objects."; "Tell me which set has less (fewer) objects.";"**

First ask the student to compare sets between 3-5 objects and then sets between 7-10 objects. The sets should not be significantly different from each other (e.g., comparing 2 and 9 objects). For example, students can compare:

- ☐ 3 and 5 objects
- ☐ 4 and 4 objects
- ☐ 8 and 9 objects
- ☐ 10 and 9 objects
- ☐ 9 and 9 objects

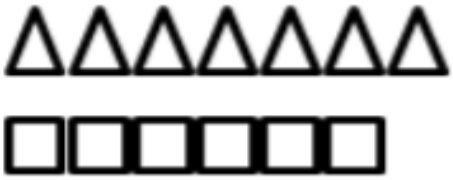
If the student correctly compares two sets of objects with at least 80% accuracy, the student is partially matched to the *Emerging* stage of the progression.

Part C:

With the sets of objects on the table, ask the student to explain the difference between the two sets of objects using counting or matching strategies. Ask, **"Can you tell or show me how you compared these two sets of objects?**

The student should show or explain the difference between the two sets of objects using concrete language to demonstrate using counting or matching strategies. The student could say (or show):

- "I lined up one square and one triangle. Since there is one extra triangle, there are more triangles than squares." (Matching strategy)



- "I counted the squares and I got 6. Then I counted the triangles and got 7. Since 7 is bigger than 6, there are more triangles than squares." (Counting strategy)
- "I put them in a pile. I then took away objects. Every time I took a square, I also took a triangle. When I had taken almost all of the shapes away, there was still a triangle left. That means there are more triangles than squares." (Adding and subtracting strategy)

If the student explains the comparison between two sets of objects using counting or matching strategies with at least 80% accuracy, the student is partially matched to the *Developing* stage of the progression.

Part D:

Have a variety of problem-solving tools (e.g., counters, unifix cubes, counting bears, and writing tools or materials for recording mathematical thinking) available for student access. Direct the student's attention to the tools available for problem solving. Review the tools provided and directions for the activity. Say, **"Today we are going to solve a story problem. I will read you the problem, and you will find the answer. You can show your work with objects, pictures, numbers, or words."** Verbal explanations are acceptable; the key is the student is demonstrating their reasoning.

Show the student an authentic problem involving comparison of numbers. Read the problem aloud to the student and direct the student to solve the problem. Direct the student's attention to the visual representation of the problem and say, "**Listen as I read the problem."** For example, refer to the sample problems. Read the problem to the student as many times as needed. Say, **"Solve the problem. You can tell me your answer or share your thinking with objects, pictures, numbers, or words."** Repeat this activity with a few authentic problems involving comparison of number of objects – greater than, less than, and the same as.

The teacher can also prompt the student to explain the solution if no evidence of a response is observed. Say, **"Tell me how you found the answer."** or **"Can you show me how you solved the problem?"**

If a student solves authentic problems involving comparison of numbers of objects between 1-10 with at least 80% accuracy, the student is partially matched to the *Demonstrating* stage of the progression.

The student solves authentic problems comparing numbers of objects. The student draws a picture, uses a model, writes, or verbally explains his or her problem-solving strategy. The teacher should observe the student's choosing and employing appropriate counting strategies to compare.

<u>Sample Problems and Exemplars:</u>

#1 Sample Problem:

Ms. Gomez gives her students a sticker each time they read a book. Brian earned 5 stickers this week and Debra earned 3.

Who earned more stickers?

You can show your work with <u>objects</u>, pictures, numbers, or words.

The student should identify that Brian earned more stickers than Debra. For example, "Brian earned more stickers than Debra. I know this because Brian has 5 stickers and Debra only has 3 stickers. 5 is more than 3 so Brian has more stickers."

#2 Sample Problem:

Kevin gives his cat and dog a treat each time they do a trick. He gave his cat 4 treats, and he gave his dog 4 treats.

Who earned more treats?

You can show your work with objects, pictures, numbers, or words.

The student should identify that Jason gave his cat and dog the same number of treats. For example, “Jason gave his cat the same number of treats as his dog. I know this because the number of treats his cat and dog have are equal.”

#3 Sample Problem:

Kendra and Beth each have new pencils. Kendra has 6 pencils and Beth has 7 pencils.

Who has fewer pencils?

You can show your work with objects, pictures, numbers, or words.

The student should identify that Kendra has fewer pencils than Beth. For example, “Kendra has less pencils than Beth. I know this because Kendra only has 6 pencils and Beth has 7 pencils. 6 is less than 7 so Kendra has less pencils.”

#4 Sample Problem:

James and Kellan collect rocks on the playground. James collected 10 rocks and Kellan collected 8 rocks.

Which boy collected more rocks?

You can show your work with objects, pictures, numbers, or words.

The student should identify that James collected more rocks than Kellan. For example, “James collected more rocks than Kellan. I know this because James collected 10 rocks and Kellan collected 8 rocks. 10 is more than 8 so James has more rocks.”

#5 Sample Problem:

Henry buys oranges and apples to make a salad. Henry buys 9 oranges and 9 apples.

Did Henry buy more oranges or apples?

You can show your work with objects, pictures, numbers, or words.

The student should identify that Henry buys the same number of oranges and apples. For example, “Henry buys an equal number of oranges and apples. I know this because the number of oranges and apples is the same.”

Part E:

Have a variety of problem-solving tools (e.g., counters, unifix cubes, counting bears, and writing tools or materials for recording mathematical thinking) available for student access. Direct the student's attention to the tools available for problem solving. Review the tools provided and directions for the activity. Say, **"Today we are going to solve some story problems. I will read you the problem, and you will find the answer. You can show your work with objects, pictures, numbers, or words."**

Show the student an authentic problem involving comparison of objects. Read the problem aloud to the student and direct the student to solve the problem. Direct the student's attention to the visual representation of the problem and say, "**Listen as I read the problem."** For example, refer to the sample problems. Read the problem to the student as many times as needed. Say, **"Solve the problem. You can tell me your answer or share your thinking with objects, pictures, numbers, or words."** Repeat this activity with a few authentic situations involving comparison of number of objects – greater than, less than, and the same as.

The teacher can also prompt the student to explain the solution if no evidence of a response is observed. Say, **"Tell me how you found the answer."** or **"Can you show me how you solved the problem?"**

If a student solves authentic problems involving comparison of numbers of objects between 11-20 with at least 80% accuracy, student is partially matched to the *Exceeding* stage of the progression.

Sample Problems and Exemplars:

The student solves authentic problems comparing numbers of objects in two groups of objects. The student draws a picture, uses a model, writes, or verbally explains his or her problem-solving strategy. The teacher should observe the student's choosing and employing appropriate counting strategies to compare.

#1 Sample Problem:

Ms. Lee's class is lining up to walk down the hall to go to art class. Ms. Lee asks all the boys to form one line and all of the girls to form another line. There are 16 boys in one line and 11 girls in another line.

Which line has more children?

You can show your work with objects, pictures, numbers, or words.

The student should identify that there are more boys lined up to go to art class than there are girls. For example, "There are more boys than girls. I know this because I have more cubes in the line showing how many boys there are than I do in the line showing how many girls there are. 16 is more than 11, so there are more boys."

#2 Sample Problem:

Gabriel was collecting pencils from his classmates to return them to a storage shelf. On his way to the shelf, he stumbled and dropped the pencils. Some of the pencils fell on the carpet and some of the pencils fell on the tile floor. There were 13 pencils on the carpet and 12 on the tile floor.

Tell me about the pencil that fell. Which part of the flooring has less?

You can show your work with objects, pictures, numbers, or words.

The student should identify that there are fewer pencils that fell on the tile. For example, the student reports, “12 pencils are less than 13 pencils. Gabriel dropped more pencils on the carpet than he did on the tile. The tile has less.”

#3 Sample Problem:

Sarah and Lauren were collecting fallen leaves for an art project. Sarah collected 16 leaves that were red, orange, and yellow. Lauren also collected 16 leaves but hers were all red.

Does Sarah have more leaves, fewer leaves or the same number of leaves as Lauren?

You can show your work with objects, pictures, numbers, or words.

The student should identify that the two students collected the same number of leaves. For example, the student reports, “Both Sarah and Lauren have 16 leaves. The leaves are different colors, but they have the same number.”

#4 Sample Problem:

Kelly and Shannon were putting their crayons back into their pencil cases. Kelly had 2 broken crayons and 18 whole crayons. Shannon had 5 broken crayons and 15 whole crayons.

Who has more whole crayons?

You can show your work with objects, pictures, numbers, or words.

The student should identify that Kelly has more whole crayons. For example, the student reports, “Kelly has fewer broken crayons than Shannon. Kelly has more whole crayons than Shannon.”

#5 Sample Problem:

Heather and James were playing blocks. Heather had 10 red blocks and 5 blue blocks. James had 7 red blocks and 11 blue blocks.

Are there more red blocks or blue blocks? You can show your work with <u>objects</u>, pictures, numbers, or words.

The student should identify that there are more red blocks. For example, the student reports, “Heather and James had 17 red blocks but only 16 blue blocks. There is one more red block than blue block.”

WC-2

Learning Target(s): Emerging (Part A) Developing (Part B) Exceeding (Part C)	– Given a set of up to 10 objects, matches a written numeral to represent the number of objects. – Given a set of 11-20 objects, matches a written numeral to represent the number of objects – Given a set of 21-30 objects, matches a written numeral to represent the number of objects.

Manipulatives or Materials:

- 10 counters, unifix cubes, counting bears, or other counting objects for each student (manipulatives should all be the same color)
- Written numerals 1-10 (e.g., number cards) to represent the number of objects
- Writing tools and paper

Note: Refer to the *Optional Resource Guide* for optional written numeral cards for student use.

Process Clarification:

Due to varied development of fine motor and visual development, a reversal of numerals is anticipated for a majority of students. While reversals should be pointed out to students, the emphasis is on the use of numerals to represent quantities rather than the correct handwriting formation of the actual numeral itself. Similarly, students who transpose digits (e.g., 01 to represent ten) may need additional instruction; transposing digits would not represent a correct quantity.

If the student cannot write the number to represent a quantity, it will be helpful to know if the student can write the number when asked to write that number specifically. Writing numbers and representing a quantity with a written numeral are two distinct skills; however, within a level, concepts could be assessed together.

Performance Task Activity:

Part A:

Place up to 10 objects in front of the student. Place number cards 1-10 in order on the table in front of the student. Say, **"Let's use numbers to tell how many. Which of these numbers could you use to show how many objects are in this set?"**

Repeat with different numbers of objects, within 0-10. If the student correctly matches a written numeral to represent the number of objects with at least 80% accuracy, the student is partially matched to the *Emerging* stage of the progression.

Part B:

Place 11-20 objects in front of the student. Place number cards 11-20 in order on the table in front of the student. Say, **"Let's use numbers to tell how many. Which of these numbers could you use to show how many objects are in this set?"**

Repeat with different numbers of objects, within 11-20. If the student correctly matches a written numeral to represent the number of objects with at least 80% accuracy, the student is partially matched to the *Developing* stage of the progression.

Part C:

Place 21-30 objects in front of the student. Place number cards 21-30 in order on the table in front of the student. Say, **"Let's use numbers to tell how many. Which of these numbers could you use to show how many objects are in this set?"**

Repeat with different numbers of objects, within 21-30. If the student correctly matches a written numeral to represent the number of objects with at least 80% accuracy, the student is partially matched to the *Exceeding* stage of the progression.

WC-3

Learning Target(s): Developing (Part A) Demonstrating (Part B) Exceeding (Part C)	– Writes numerals 1-10 to represent a quantity. – Writes numerals 11-20 to represent a quantity. – Writes numerals 21-30 to represent a quantity.

Manipulatives or Materials:

- 30 counters, unifix cubes, counting bears, or other counting objects for each student (manipulatives should all be the same color)
- Writing tools and paper

Process Clarification

Parts B and C

Due to varied development of fine motor and visual development, a reversal of numerals is anticipated for a majority of students. While reversals should be pointed out to students, the emphasis is on the use of numerals to represent quantities rather than the correct handwriting formation of the actual numeral itself. Similarly, students who transpose digits (e.g., 01 to represent ten) may need additional instruction; transposing digits would not represent a correct quantity.

If the student cannot write the number to represent a quantity, it will be helpful to know if the student can write the number when asked to write that number specifically. Writing numbers and representing a quantity with a written numeral are two distinct skills; however, within a level, concepts could be assessed together.

Performance Task Activity:

Part A:

Place up to 10 objects on the table in front of the student (use a different number of objects than used in the previous part of this task). Ask the student to count the number of objects and write the number. Say, **"I would like for you to count the objects and then write the number that shows how many objects are here."**

If the student verbally says how many objects, remind the student, **"Please write how many objects you counted here."**

Repeat with different numbers of objects, within 0-10. If the student correctly writes numerals to represent the number of objects with at least 80% accuracy, the student is partially matched to the *Developing* stage of the progression.

Part B:

Place 11-20 objects on the table in front of the student (use a different number of objects than used in the previous part of this task). Ask the student to count the number of objects and write the number. Say, **"I would like for you to count the objects and then write the number that shows how many objects are here."**

If the student verbally says how many objects, remind the student, **"Please write how many objects you counted here."** Ask the student to write at least two numbers to represent a quantity between 11-20.

Repeat with different numbers of objects, within 11-20. If the student correctly writes numerals to represent the number of objects with at least 80% accuracy, the student is partially matched to the *Demonstrating* stage of the progression.

Part C:

Place up to 30 objects on the table in front of the student (use a different number of objects than used in the previous part of this task). Ask the student to count the number of objects and write the number. Say, **"I would like for you to count the objects and then write the number that shows how many objects are here."**

If the student verbally says how many objects, remind the student, **"Please write how many objects you counted here."** Ask the student to write at least two numbers to represent a quantity between 21-30.

Repeat with different numbers of objects, within 21-30. If the student correctly writes numerals to represent the number of objects with at least 80% accuracy, the student is partially matched to the *Exceeding* stage of the progression.

LEARNING PROGRESSION: ADDITION & SUBTRACTION

Big Idea: Numerical Reasoning[4]
A kindergarten student will explain the relationship between numbers and quantities; count forward and backward in sequence; identify, write, represent, and compare numbers; compose and decompose numbers; and use the concepts of addition, subtraction, and equality to solve problems.

Progression: Addition & Subtraction

Skill	Beginning	Emerging	Developing	Demonstrating	Exceeding
Composes and decomposes numbers	AS-1 Part A (CD-MA2.4c/ K.NR.5.1) Composes and decomposes numbers up to 5 using objects and drawings.		AS-1 Part B (K.NR.5.1) Composes and decomposes numbers up to 10 using objects and drawings.	AS-1 Part C (K.NR.3.1) Describes numbers from 11 to 19 using the number of ten ones and some more ones.	AS-1 Part D (1.NR.1.2) Explains that the two digits of a two-digit number represent the amounts of tens and ones.
Adds and subtracts		AS-2 Part A (CD-MA2.4c/ K.NR.5.2) Uses objects or drawings to represent addition and subtraction within 5 from a given authentic situation.	AS-2 Part A (K.NR.5.2/K.NR.5.3) Uses objects or drawings to represent and solve addition and subtraction within 5 from a given authentic situation.	AS-2 Part B (K.NR.5.3) Solves addition and subtraction problems within 10 using a variety of strategies. AS-2 Part D (K.NR.5.4) Fluently adds and subtracts within 5 using a variety of strategies to solve practical, mathematical problems.	AS-2 Part C (1.NR.2.1) Solves addition and subtraction problems within 20 using a variety of strategies. AS-2 Part D (1.NR.2.4) Fluently adds and subtracts within 10 using a variety of strategies to solve practical, mathematical problems.

[4] K.MDR.7.3 Asks and answers questions based on gathered information, observations, and graphical displays to solve problems should be integrated across learning progressions. Refer to the Framework for Statistical Reasoning within Georgia's K-12 Mathematics Standards for additional guidance.

MATERIALS

Learning Progression: Addition & Subtraction	
Task ID	**Materials**
AS-1	*Part A:* – At least 5 objects to allow students to compose and decompose numbers up to 5 (e.g., counters, unifix cubes, counting bears, or other small counting objects) – Graphic organizer *Part B:* – At least 10 objects to allow students to compose and decompose numbers up to 10 (e.g., counters, unifix cubes, counting bears, or other small counting objects). – Graphic organizer *Part C:* – Number cards 11 to 19 – 20 objects (e.g., counters, unifix cubes, counting bears, or other small counting objects) – Ten-frame *Part D:* – Number cards 11 to 19 – Objects (e.g., counters, unifix cubes, counting bears, or other small counting objects) – Base-10 rods
AS-2	*Part A:* – At least 5 objects or drawing materials to allow students to represent and solve problems within 5 (e.g., counters, unifix cubes, counting bears, or other small counting objects, paper, crayons, whiteboards, markers) *Part B:* – At least 10 objects or drawing materials to allow students to represent and solve problems within 10 (e.g., counters, unifix cubes, counting bears, or other small counting objects, paper, crayons, whiteboards, markers)

AS-1

Learning Target(s): Beginning (Part A) Developing (Part B) Demonstrating (Part C) Exceeding (Part D)	– Composes and decomposes numbers up to 5 using objects and drawings. – Composes and decomposes numbers up to 10 using objects and drawings. – Describes numbers from 11 to 19 using the number of ten ones and some more ones. – Explain that the two digits of a two-digit number represent the amounts of tens and ones.

Manipulatives or Materials:

Part A:

- At least 5 objects to allow students to compose and decompose numbers up to 5 (e.g., counters, unifix cubes, counting bears, or other small counting objects)
- Graphic organizer

Part B:

- At least 10 objects to allow students to compose and decompose numbers up to 10 (e.g., counters, unifix cubes, counting bears, or other small counting objects)
- Graphic organizer

Part C:

- Number cards 11 to 19
- 20 objects (e.g., counters, unifix cubes, counting bears, or other small counting objects)
- Ten-frame

Part D:

- Number cards 11 to 19
- Objects (e.g., counters, unifix cubes, counting bears, or other small counting objects)
- Base-10 rods

Note: Refer to the *Optional Resource Guide* for number cards.

Performance Task Activity:

Note: Teachers should use objects accessible in their classrooms. Underlined words represent the objects used. The underlined words should be replaced with the name of the objects used.

Part A:

Composing: Give the student a pile of up to 5 objects. Say, "**Use these objects to show me one way to make 5**." Then ask, "**How did you make 5 with the objects?**" The student might say, "I used 3 objects and 2 objects." Repeat this process with a range of other number combinations between 1 and 5.

Sample Problems:

- ☐ One way to make 3: I used 2 objects and 1 object.
- ☐ One way to make 4: I used 2 objects and 2 objects.

Decomposing: Using the same blocks, say, "**Use these objects to show me one way you can break apart the number 5.**" Then ask, "**What do you have now?**" The student might say 3 and 2 or 4 and 1 or 5 and 0. Repeat this process with a range of other number combinations between 0 and 5.

Sample Problems:

- ☐ One way to break apart 3: I used 2 objects and 1 object.
- ☐ One way to break apart 4: I used 3 objects and 1 object.

Teachers could use circle frames to allow the student to combine, separate and name the groups by number.

If the student composes and decomposes numbers up to 5 multiple times, with at least 80% accuracy, the student is fully matched to the *Beginning* stage of the progression.

Part B:

Composing: Give the student a pile of up to 10 objects. Say, "**Use these objects to show me one way to make 10**." Then ask, "**How did you make 10 with the objects?**" The student might say, "I used 4 objects and 6 objects." Repeat this process with a range of other number combinations between 1 and 10.

Sample Problems:

- ☐ One way to make 6: I used 4 objects and 2 objects.
- ☐ One way to make 7: I used 3 objects and 4 objects.
- ☐ One way to make 8: I used 2 objects and 6 objects.

☐ One way to make 9: I used 5 objects and 4 objects.

Decomposing: Using the same blocks, say, "**Use these objects to show me one way you can break apart the number 10.**" Then ask, "**What do you have now?**" The student might say 5 and 5 or 9 and 1 or 3 and 7. Repeat this process with a range of other number combinations between 0 and 10.

Sample Problems:

☐ One way to break apart 6: 5 and 1
☐ One way to break apart 7: 4 and 3
☐ One way to break apart 8: 2 and 6
☐ One way to break apart 9: 8 and 1

Teachers could use circle frames to allow the student to combine, separate and name the groups by number.

If the student composes and decomposes numbers up to 10 multiple times, with at least 80% accuracy, the student is partially matched to the *Developing* stage of the progression.

Part C:

Have ten frames and 20 objects available on the table for the student to use. Explain the task to the student. Say, **"Today, we are going to look at numbers and how they make tens and ones.** Demonstrate an example to the student to ensure he or she understands the directions. Show a number card between 11 and 19. Say, **"How many groups of ten are in the number __? How many ones are in the number __?"** Show the student how to use the objects to help make a ten and some leftover ones. Say, "**You may use these objects to help you make __."** Show the student by grouping ten objects and the leftover ones. Ask the student, **"Which one of these [point to the groups] is a ten?"** The student should recognize "a ten" as the bundle of ten ones.

Ensure the student understands the directions. Show the student number card, 12. Ask the student, **"How many groups of ten are in the number 12? How many ones are in the number 12?"**

The student should explain, "The number 12 has 1 ten and 2 ones." The student can also show a bundle of ten ones with two leftover ones. Repeat this process with a range of several other numbers between 11 and 19.

Sample Problems:

☐ 12
☐ 14

☐ 17
☐ 19
☐ 13

If the student describes numbers from 11 to 19 using the number of ten ones and some more ones, with at least 80% accuracy, the student is partially matched to the *Demonstrating* stage of the progression.

Part D:

Show the student a number card, 14. Ask the student, **"What does the 1 represent in this number? What does the 4 represent in this number?"**

Sample Problems:

☐ 13
☐ 11
☐ 17
☐ 19
☐ 15

If the student explains that the two digits of a two-digit number represent the amounts of tens and ones with at least 80% accuracy, the student is partially matched to the *Exceeding* stage of the progression.

AS-2

Learning Target(s): Emerging (Part A) Developing (Part A) Demonstrating (Parts B&D) Exceeding (Parts C&D)	– Uses objects or drawings to represent addition and subtraction within 5 from a given authentic situation. – Uses objects or drawings to represent and solve addition and subtraction within 5 from a given authentic situation. – Solves addition and subtraction problems within 10 using a variety of strategies. – Fluently adds and subtracts within 5 using a variety of strategies to solve practical, mathematical problems. – Solves addition and subtraction problems within 20 using a variety of strategies. – Fluently adds and subtracts within 10 using a variety of strategies to solve practical, mathematical problems.

Materials and Manipulatives:

Part A:

- At least 5 objects or drawing materials to allow students to represent and solve problems within 5 (e.g., counters, unifix cubes, counting bears, or other small counting objects, paper, crayons, whiteboards, markers)

Part B:

- At least 10 objects or drawing materials to allow students to represent and solve problems within 10 (e.g., counters, unifix cubes, counting bears, or other small counting objects, paper, crayons, whiteboards, markers)

Process Clarification:

Students should be provided with a variety of problem types including Join: Result Unknown, Part-Part-Whole: Whole Unknown, and Part-Part-Whole: Both Parts Unknown; however, students are not required to know or use this terminology.

Join: Result Unknown

- 3 birds were sitting in a tree and 2 more birds flew onto the tree. How many birds were in the tree then?

Separate: Result Unknown

- Toni had 8 guppies. She gave 3 guppies to Roger. How many guppies does Toni have now?

Part-Part-Whole: Whole Unknown

- 6 girls and 4 boys were playing soccer. How many children were playing soccer?

Part-Part-Whole: Both Parts Unknown

- Ann has 15 cap erasers. Some are pink and some are blue. How many could be pink and how many could be blue?

Performance Task Activity:

Note: Teachers should use objects accessible in their classrooms. Underlined words represent the objects used. The underlined words should be replaced with the name of the objects used.

Part A:

Give the student at least 5 objects. Say, **"Today we are going to solve story problems. I will read the problem to you, and you will find the answer. You can use these objects or your fingers to help you find the answer or you can draw a picture to show me your answer."** Direct the student's attention to the objects or drawing materials.

Read the problems aloud to the student. Say, **"Listen as I read the story problem."** Read the problem to the student as many times as needed. Say, **"Solve the story problem. I want you to use these objects or your fingers or a drawing to help you find the answer."**

Sample Problems:

- There are 2 bees on the flower. 3 more bees come. How many bees are on the flower now?
- There are 5 frogs in the pond. Then, 2 frogs leave the pond. How many frogs are left in the pond?
- Aiden has 1 blue toy car and 3 red toy cars. How many cars does Aiden have total?
- Sam has 5 erasers. Some are green and some are blue. How many could be green and how many could be blue?

- Laura has 3 flowers. She gives 1 flower to her teacher. How many flowers does Laura have left?

If the student correctly represents and solves authentic addition and subtraction problems within 5, with at least 80% accuracy, the student is partially matched to the *Developing* stage of the progression.

If the student correctly represents, but does not correctly solve, authentic addition and subtraction problems within 5, with at least 80% accuracy, the student is fully matched to the *Emerging* stage of the progression. Continue instruction and reassess solving addition and subtraction within 5 when the student is ready.

Part B:

Present the student with authentic addition and subtraction problems within 10. Say, "**Today we are going to solve a story problem. I will read the problem to you, and I want you to find the answer. Listen as I read the story problem."** Read the problem to the student as many times as needed. Say, **"Solve the story problem."** Allow the students ample time to solve the problem by drawing, using manipulatives, writing equations, or responding orally.

After the student has solved the problem, ask the student to explain the strategy he or she used to solve the problem. Say, **"Tell me how you found your answer."** The student produces some evidence of a strategy (e.g., drawing, manipulatives, equation, or oral response) and when asked can explain the strategy used.

Sample Problems:

- There are 6 kids on the playground and 3 more kids joined them on the playground. How many kids are on the playground now?
- Marcus brought 10 donuts to school. He shared 6 with his friends at lunch. How many donuts does Marcus have left?
- Isabella uses 6 square blocks and 3 rectangle blocks to build a tower. How many blocks are in Isabella's tower in all?
- Jose' has 9 pencils. Some pencils are red, and some pencils are black. How many pencils could be red and how many pencils could be black?
- Alan had 7 toy cars. He shared 6 cars with his friend Chris. How many cars does Alan have left?

If the student solves authentic addition and subtraction problems within 10 and explains the strategy used with at least 80% accuracy, the student is partially matched to the *Demonstrating* stage of the progression.

Part C:

Present the student with authentic addition and subtraction problems within 20. Say, "**Today we are going to solve a story problem. I will read you the problem, and I want you to find the answer. Listen as I read the story problem."** Read the problem to the student as many times as needed. Say, **"Solve the story problem."** Allow the students ample time to solve the problem by drawing, using manipulatives, writing equations, or responding orally.

After the student has solved the problem, ask the student to explain the strategy he or she used to solve the problem. Say, **"Tell me how you found your answer."** The student produces some evidence of a strategy (e.g., drawing, manipulatives, equation, or oral response) and when asked can explain the strategy used.

Sample Problems:

- There are 8 students sitting at the lunch table. Then 8 more students sit at the same lunch table. How many students sitting at the lunch table now?
- George has 15 cookies. He gives some to his friends at lunch. Now he has 8 cookies left. How many cookies did George give to his friends?
- Jamal has 14 chocolate chip cookies and 4 oatmeal raisin cookies. How many cookies does Jamal have?
- Mrs. Samson ordered 18 pizzas. Some pizzas are pepperoni, and some pizzas are cheese. How many pizzas could be cheese and how many could be pepperoni?
- Heather has a pack of 20 crayons. She gives 6 crayons to James. How many crayons does Heather have left?

If the student solves addition and subtraction problems within 20 and explains the strategy used with at least 80% accuracy, the student is partially matched to the *Exceeding* stage of the progression.

Part D:

Within this learning progression, students are expected to fluently add and subtract within 5 using a variety of strategies to solve practical, mathematical problems. Fluency includes three ideas: efficiency, accuracy, and flexibility.

Efficiency implies that the student does not get bogged down in too many steps or lose track of the logic of the strategy. An efficient strategy is one that the student can carry out easily, keeping track of subproblems and making use of intermediate results to solve the problem.

Accuracy depends on several aspects of the problem-solving process, among them careful recording, knowledge of number facts and other important number relationships, and double-checking results.

Flexibility requires the knowledge of more than one approach to solving a particular kind of problem. Students need to be flexible in order to choose an appropriate strategy for the problem at hand, and also to use one method to solve a problem and another method to double-check the results. Fluency demands more of students than does memorization of a single procedure.

While administering addition and subtraction tasks in parts A-C, watch to see that students are choosing logical, efficient, and effective methods to solve problems (based on knowledge of number relationships) and checking their results.

Evidence of fluency can be used to partially match students to the *Demonstrating* and *Exceeding* levels of the progression.

LEARNING PROGRESSION: PATTERNS & PASSAGE OF TIME

Big Idea: Patterning & Algebraic Reasoning[5] A kindergarten student will explain, extend, and create repeating patterns and describe patterns involving the passage of time.					
Progression: Patterns & Passage of Time					
Skill	**Beginning**	**Emerging**	**Developing**	**Demonstrating**	**Exceeding**
Creates, extends, and describes repeating patterns	PPT-1 Part A (CD-MA4.4c) Reproduces simple patterns using objects.	PPT-1 Part B (K.PAR.6.1) Extends repeating patterns with two or three terms.	PPT-1 Part C (K.PAR.6.1) Extends repeating patterns with four terms.	PPT-1 Part D (K.PAR.6.1) Creates repeating patterns with four iterations (repetitions) and explains the rationale for the pattern.	PPT-1 Part E (1.PAR.3.1) Makes predictions based on a repeating pattern involving a repeated operation.
Describes patterns involving the passage of time	PPT-2 Part A (CD-MA3.4d/K.PAR.6.2) Describes the passage of time with actual events using terms related to past, present, and future, although may confuse terms (e.g., “yesterday when I was a baby”).	PPT-2 Part B (K.PAR.6.2) Associates and describes the passage of time with words and phrases related to actual events (e.g., morning, afternoon).	PPT-2 Part C (K.PAR.6.2) Associates and describes the passage of time with words and phrases related to actual events (e.g., now, earlier, later, before, and after).	PPT-2 Part D (K.PAR.6.2) Associates and describes the passage of time with words and phrases related to actual events (e.g., yesterday, today, and tomorrow).	PPT-2 Part E (K.PAR.6.2) Associates and describes the passage of time with words and phrases related to actual events (e.g., day of the week, week, month, and year).

[5] K.MDR.7.3 Asks and answers questions based on gathered information, observations, and graphical displays to solve problems should be integrated across learning progressions. Refer to the Framework for Statistical Reasoning within Georgia’s K-12 Mathematics Standards for additional guidance.

MATERIALS

Progression: Patterns & Passage of Time	
Task ID	**Materials**
PPT-1	– classroom objects – pictures of common objects (classroom supplies, toys, treats, etc.)
PPT-2	– pictures from activities (places visited such as the park or the store, vacations, after school activities such as sports practices, dance classes, etc.)

PPT-1

Learning Target(s): Beginning (Part A) Emerging (Part B) Developing (Part C) Demonstrating (Part D) Exceeding (Part E)	– Reproduces simple patterns using objects. – Extends repeating patterns with two or three terms. – Extends repeating patterns with four terms. – Creates repeating patterns with four iterations (repetitions) and explains the rationale for the pattern. – Makes predictions based on a repeating pattern involving a repeated operation.

Manipulatives or Materials:

- classroom objects
- pictures of common objects (classroom supplies, toys, treats, etc.)

Process Clarification

Patterns should include spatial, color, location, shape, and symbols (letter/number). The repetition (iteration) of pattern should not exceed 4.

Parts B, C, and D:

Some example patterns include:

- 3 6 3 6 3 6
- Triangle, square, triangle, square
- 2 2 4 2 2 4
- Triangle, triangle, square, triangle, triangle, square
- Using a strip, ask the child to extend the observed patterns with stamps, stickers, etc., or use a 100s chart and ask the students to extend the pattern.
- Using holiday manipulatives or pictures, create a pattern. Have students extend the pattern. An example might be to create the pattern with red and yellow leaves, strips on the socks of a scarecrow, etc.

Performance Task Activity:

Note: Teachers should use objects accessible in their classrooms. Underlined words represent the objects used. The underlined words should be replaced with the name of the objects used.

Part A:

Using small objects from the classroom, create a simple pattern (AB, AB) for the student. Place several objects in front of the student. Say, "**Using these objects, can you make this pattern?"** The student should reproduce the pattern.

If the student uses objects to make the pattern, with at least 80% accuracy, the student is partially matched to the *Beginning* stage of the progression.

Part B:

Using small objects from the classroom, create a pattern for the student with two objects or terms such as triangle, triangle, circle. Say, "**Using these objects, can you continue this pattern?"** The student should extend the pattern.

If the student uses objects to continue the pattern with two or three terms, with at least 80% accuracy, the student is partially matched to the *Emerging* stage of the progression.

Part C:

Using small objects from the classroom, create a pattern for the student with four terms (ABCD, ABCD). Say, "**Using these objects, can you continue this pattern?"** The student should extend the pattern.

OR

- Using a strip, ask the student to replicate the observed patterns with stamps, stickers, etc., or use a 100s chart and ask the students to extend the pattern.
- Using holiday manipulatives or pictures, create a pattern. Have students extend the pattern. An example might be to create a pattern with different colored leaves, strips on the socks of a scarecrow, etc.
- During calendar time, create a pattern (red apple, red apple, red apple, green apple) with the days on the calendar. Have students extend the pattern.

If the student uses objects to extend the pattern with four terms, with at least 80% accuracy, the student is partially matched to the *Developing* stage of the progression.

Part D:

Using small objects from the classroom, provide an opportunity for students to create a pattern. Say, "**Using these objects, can you create a pattern and repeat it four times?"** The student should create a pattern with four iterations (repetitions). Once the student has repeated the pattern, say, **"Please tell me about your pattern."**

A child might respond “I switched back and forth to make the pattern. See boy, girl, boy, girl.” or “I copied the three pictures over and over in order. See house, car, bike, house, car, bike. There are three things, and they have to be in the same order for the pattern to work.”

If the student is able to create and repeat a pattern four times and explain it, with at least 80% accuracy, the student is partially matched to the *Demonstrating* stage of the progression.

Part E:

Write the following pattern on the board: 2, 4, 6. Say, “**Look at this pattern. What number comes next in the pattern?”** The student should indicate that 8 comes next because two has been added each time.

Another example could be 10, 7, 4. The student should indicate that 1 comes next because 3 has been taken away each time**.**

If the student is able to make a prediction based on a repeating pattern involving a repeated operation, with at least 80% accuracy, the student is partially matched to the *Exceeding* stage of the progression.

PPT-2

Learning Target(s): Beginning (Part A) Emerging (Part B) Developing (Part C) Demonstrating (Part D) Exceeding (Part E)	– Describes the passage of time with actual events using terms related to past, present, and future, although terms may confuse terms (e.g., “yesterday when I was a baby”). – Associates and describes the passage of time with words and phrases related to actual events (e.g., morning, afternoon). – Associates and describes the passage of time with words and phrases related to actual events (e.g., now, earlier, later, before, and after). – Associates and describes the passage of time with words and phrases related to actual events (e.g., yesterday, today, and tomorrow). – Associates and describes the passage of time with words and phrases related to actual events (e.g., day of the week, week, month, year).

Manipulatives or Materials:

- pictures from activities (places visited such as the park or the store, vacations, after school activities such as sports practices, dance classes, etc.)

Process Clarification:

The length of time in the past, present, and future might be variable in students’ descriptions of events.

Teachers could rephrase the schedule examples above to reflect their personal classroom or school schedule elements.

Performance Task Activity:

Part A:

Using activities in which students are very familiar, during morning meeting or calendar time, say, “**Today, we are going to music class. Can someone tell me what special class we went to yesterday? What special class will we go to tomorrow?”**

In small group settings or with individual students, ask:

- **"What is something you did yesterday in class?"**
- **"What is something you did last summer?"**
- **"What is something you did over winter break?"**

- **"Let's talk about what happened last week when John fell during recess…"**
- **"What will we do today after recess?"**

Other opportunities to ask questions about past, present, and future include during free play in the classroom, discussing memorable school events, etc.

If the student is able to describe the passage of time with actual events using terms related to past, present and future, with at least 80% accuracy, the student is partially matched to the *Beginning* stage of the progression.

Part B:

In small groups or in individual conversations with students, ask:

- **"Think about your whole day. Tell me something you did in the morning. Now tell me something you will do at night."**
- **"Who can tell me what is next on our daily schedule?" "What are some things we're going to do today?"** Responses could include "We'll go to lunch and music." Include additional prompting such as **"When will we go to music?"** Responses could include after lunch, in the afternoon, before we go home.

Other activities might include:

- Discuss the parts of the school day during morning meeting. Include key time phrases during the meeting.
- Ask students to draw pictures of events that happened during the day and explain their drawings.
- Ask students to sort activities that are done throughout the day into morning and afternoon.

If the student is able to associate and describe the passage of time with words and phrases related to actual events with at least 80% accuracy, the student is partially matched to the *Emerging* stage of the progression.

Part C:

In small groups or in individual conversations with students, using pictures, ask **"Here are three things that we do each day. They are homework, getting dressed, and eating lunch. Which thing do you do before you come to school?"**

Other questions might be:

- **"Think about your whole day. Tell me something you did (earlier) this morning. What will you do later?"**
- **"Tell me something you do here at school before lunch. Now tell me something you do here at school after lunch."**
- **"Who can tell me what is next on our daily schedule?"**

- **“Tell me about something that happened before you came to school today. Tell me something that will have after you leave school today.”**

Other activities might include:

- Ask students to draw pictures of events that they have recently experienced. Ask the children to sort the activities in order of when the events took place. For example, (1) I ate breakfast, (2) I woke up, (3) I am going to my grandma’s house.
- Discuss the parts of the school day during morning meeting. Include key time phrases during the meeting.
- Using a visual schedule, and given a time of reference, ask what activities the class did earlier in the day at school and what activities will happen later in the day.

If the student is able to associate and describe the passage of time with words and phrases related to actual events, with at least 80% accuracy, the student is partially matched to the *Developing* stage of the progression.

Part D:

In small groups or in individual conversations with students or at calendar time, ask, **“What day is today? What will tomorrow be? What day was yesterday?”**

Other questions might be:

- **“Please tell me when you were at home all day, when you came back to school, and what happens tomorrow.”**
- **“What will happen tomorrow? What fun things did you do last weekend? What did you do yesterday?”**
- **“Tell me one thing you will get to do with your family or your friends tomorrow. What was one fun thing you were able to do yesterday before you came back to school today?”**

Other activities might include:

- Discuss the days of the week during morning meeting. Include key time phrases during the meeting.
- Ask students to draw pictures of events that happened yesterday and explain when they happened in relation to the other drawings about an event in the future.
- Using a visual schedule, and given a time of reference, ask what activities the class did earlier today at school and what activities will happen later in the week.

If the student is able to associate and describe the passage of time with words and phrases related to actual events, with at least 80% accuracy, the student is partially matched to the *Demonstrating* stage of the progression.

Part E:

In small groups or in individual conversations with students or at calendar time, ask, **“Today is Wednesday and we have art class today, what activity do we have tomorrow?” “In October, we had the holiday of Halloween. What holiday is celebrated next month?”**

Other questions might be:

- **“Tell me one thing you will get to do with your family or your friends next week.”**
- **“What was one fun thing you were able to do last week?”**
- **“What will you do on your birthday next year?”**
- **“What will you do in the summer when school is out?"**
- **“What will you do before/after winter break?"**

Other activities might include:

- Discuss the months of the year during calendar time.
- Ask students to draw pictures of events that happened last week and explain when they happened in relation to the other drawings about an event in the future (next week, next month).
- Using a visual schedule, and given a time of reference, ask what activities the class did this week at school and what activities will happen later either next week or next month.

If the student is able to associate and describe the passage of time with words and phrases related to actual events, with at least 80% accuracy, the student is partially matched to the *Exceeding* stage of the progression.

LEARNING PROGRESSION: COMPARISON & CLASSIFICATION OF OBJECTS

Big Idea: Measurement & Data Reasoning[6]
A kindergarten student will observe, describe, and compare the physical and measurable attributes of objects, and analyze graphical displays of data.

Progression: Comparison & Classification of Objects

Skill	Beginning	Emerging	Developing	Demonstrating	Exceeding
Compares, describes, and orders objects using measurable attributes	GKIDS Readiness Check Mathematics Activity 4 Sorts and classifies objects using one or more attributes or relationships.	CCO-1 Part A (K.MDR.7.1) Directly compares measurable attributes (i.e., length, height, width, or weight) of two objects and describes the difference (e.g., heavier, lighter, longer, shorter).	CCO-1 Part B (K.MDR.7.1) Orders three to five common objects using measurable attributes (i.e., length, height, width, or weight).		CCO-1 Part C (1.MDR.6.1) Estimates, measures, and records lengths of objects using non-standard units; compares and orders up to three objects using the recorded measurements.
Classifies and sorts objects into categories			CCO-2 Part A (K.MDR.7.2) Classifies and sorts up to ten objects by a measurable attribute (i.e., length, height, width, or weight).	CCO-2 Part B (K.MDR.7.2) Counts the number of objects in a category and sorts the categories by count.	
Names and tells the value of coins		CCO-3 Part A (K.NR.1.4) Identifies a penny, a nickel, and a dime.	CCO-3 Part B (K.NR.1.4) Names a penny, a nickel, and a dime.	CCO-3 Part C (K.NR.1.4) Gives the value of a penny, a nickel, and a dime.	CCO-3 Part D (K.NR.1.4) Compares the value of a penny, a nickel, and a dime.

[6] K.MDR.7.3 Asks and answers questions based on gathered information, observations, and graphical displays to solve problems should be integrated across learning progressions. Refer to the Framework for Statistical Reasoning within Georgia's K-12 Mathematics Standards for additional guidance.

MATERIALS

Progression: Comparison & Classification of Objects	
Task ID	**Materials**
RC Activity 4	– Teachers may either use their own classroom materials (e.g., blocks, manipulatives) or the provided optional worksheet of colored shapes.
CCO-1	– Classroom objects such as staplers, scissors, pencils, crayons, books, glue sticks, etc. – Tools to measure non-standard units such as one-inch paper clips, one-inch tiles, centimeter cubes, etc.
CCO-2	– Classroom objects such as staplers, scissors, pencils, crayons, books, glue sticks, etc.
CCO-3	– Coins – Pictures of coins

GKIDS Readiness Check: Mathematics Activity 4

Learning Target(s): Beginning	– Sorts and classifies objects using one or more attributes or relationships.

GKIDS is designed to provide teachers with a better understanding of where students are in their learning and development throughout the year. At the beginning of the year, teachers give the GKIDS Readiness Check to elicit evidence to show where a kindergarten student is when he or she enters kindergarten. The baseline data collected in the first six weeks on the GKIDS Readiness Check can serve as the entry point to skills described in the GKIDS 2.0 learning progression.

The following performance task is an activity from the GKIDS Readiness Check. For this progression, *Mathematics Activity 4* from the GKIDS Readiness Check can be used to assess the *Beginning* stage of the progression.

If the student was rated as *Demonstrating* on *Mathematics Activity 4*, he or she can be fully matched to the *Beginning* stage of the progression.

If the student was rated below *Demonstrating* on *Mathematics Activity 4*, the teacher should continue instruction on counting and reassess the student when appropriate.

<table>
<tr><th colspan="3">Mathematics Activity 4</th></tr>
<tr><th colspan="3">Sorts and classifies objects using one or more attributes or relationships.</th></tr>
<tr><th>Activity</th><th colspan="2">Performance Levels</th></tr>
<tr><td rowspan="3">Student will sort small objects of at least two different sizes and colors.

Note: Underlined words represent objects used in this example. Teachers may substitute other objects accessible in their classrooms.

Have a group of at least twenty objects of at least two obviously different sizes and colors. Ask the student to first sort the objects by color. Say, “I have many different <u>objects</u> in this box. Please sort the <u>objects</u> by color.”

If the student does not sort by color, ask the student to try to sort by size.

After the student finishes sorting by color (or size), put the objects back together in one pile and ask the student to sort the objects in another way. Say, “Please sort these <u>objects</u> in another way.”

After the student finishes sorting, say, “Tell me about the objects you grouped together. Tell me why you put these things together.”

<u>Process Clarification:</u> When the student is describing the attribute or criteria by which he or she has grouped objects, the teacher can ask follow-up questions to fully understand the student’s explanation of his or her classification</td><td>Not Yet Demonstrated</td><td>The student does not sort objects by the teacher-given category and the student does not sort objects by a self-determined category.</td></tr>
<tr><td>Emerging</td><td>The student either sorts objects by the teacher-given category or by a self-determined category, but not both.</td></tr>
<tr><td>Developing</td><td>The student sorts objects by the teacher-given category and sorts objects by a self-determined category but does not describe how he or she classifies the objects.</td></tr>
</table>

strategy. Accept all reasonable explanations for the classification. Reasonable explanations include a focus on the attributes or relationship between the objects (as opposed to categorizing the objects by what the student likes and doesn't like, for example). Materials: Teachers may either use their own classroom materials (e.g., blocks, manipulatives) or the provided optional worksheet of colored shapes.	Demonstrating	The student sorts objects by the teacher-given category and sorts objects by a self-determined category by describing how he or she classifies the objects.

CCO-1

Learning Target(s): Emerging (Part A) Developing (Part B) Exceeding (Part C)	– Directly compares measurable attributes (i.e., length, height, width, or weight) of two objects and describes the difference (e.g., heavier, lighter, longer, shorter). – Orders three to five common objects using measurable attributes (i.e., length, height, width, or weight). – Estimates, measures, and records lengths of objects using non-standard units; compares and orders up to three objects using the recorded measurements.

Manipulatives or Materials:

- Classroom objects such as staplers, scissors, pencils, crayons, books, glue sticks, etc.
- Tools to measure non-standard units such as one-inch paper clips, one-inch tiles, centimeter cubes, etc.

Process Clarification

Parts A and B:

Students should use language such as heavier, lighter, longer, taller, shorter, wider, larger, smaller.

Performance Task Activity:

Note: Teachers should use objects accessible in their classrooms. Underlined words represent the objects used. The underlined words should be replaced with the name of the objects used.

Note: Teachers are provided options within each part to assess the student. It is not necessary to utilize more than one activity per part.

Part A:

Place two objects in front of the student. Say, **"Let's use these objects for our activity. Can you pick up the pencil and glue stick? Which one is longer (or shorter)?"**

Repeat with:

"**I am going to place a cup and a water bottle side by side. Which one is taller (or shorter)?"**

"Please hold this stapler in one hand and this crayon in the other hand. Which one is heavier (or lighter)?"

OR

Say, **"I have this object. "Let's go on a scavenger hunt. Find an object in our classroom that is shorter/taller/longer/heavier than the one I have."** Ask individual students to explain how their object is shorter/taller/longer/heavier.

If the student correctly compares the measurable attributes with two objects, with 80% accuracy, the student is partially matched to the *Emerging* stage of the progression.

Part B:

Place three to five objects in front of the student. Say, **"Let's use these objects for our activity. Can you pick up the pencil, ruler, and glue stick? Comparing them together, place them in order from shortest to longest."**

Repeat with:

"Please pick up each of these objects one at a time (paper clip, crayon, stapler). Place them in order from heaviest to lightest."

"Here are three pictures. Based on the objects in the picture, order them from shortest to tallest." (Teachers can also use photos they might have in their classroom materials.)

If the student correctly orders three to five objects using measurable attributes, with 80% accuracy, the student is partially matched to the *Developing* stage of the progression.

Part C:

Say, **"Let's use these paper clips for our measuring activity."** Place an object in front of the student. Ask, **"How many paper clips long are these scissors? Please measure the scissors with paper clips. Will you tell me how many paper clips long the scissors were?"** For this task, you could also use one-inch tiles, centimeter cubes, etc.

Set a pair of scissors, a new pencil, and a glue stick in front of the child. Say, **"How many paper clips long are the scissors, the new pencil, and the glue stick?"** Once the student has measured the three objects, say, **"Please place them in order by their length."**

OR

Say, “**Here is a picture of a train. Use these unifix cubes to measure the length of the train in the picture.”** Repeat with two more train pictures. **“Please place the trains in order by length. Please tell me how you arranged your pictures.”**

Give students play dough to make a worm. Say, “**Using one of these objects** (e.g., unifix cubes, paper clips), **how many objects long is your worm?** Ask the students, “**Which classmate has the longest worm? How do we know? Thinking about the object you used to measure your worm, did you use more or fewer objects than your classmate?”**

If the student correctly compares and orders up to three objects using the recorded measurements, with 80% accuracy, the student is partially matched to the *Exceeding* stage of the progression.

CCO-2

Learning Target(s): Developing (Part A) Demonstrating (Part B)	– Classifies and sorts up to ten objects by a measurable attribute (i.e., length, height, width, or weight). – Counts the number of objects in a category and sorts the categories by count.

Manipulatives or Materials:

- Classroom objects such as staplers, scissors, pencils, crayons, books, glue sticks, etc.

Performance Task Activity:

Part A:

Place up to 10 objects in front the student. Say, **"Let's use these objects for our activity."** Give the child 10 objects that contain some heavy and some light objects. Say, **"Let's sort these objects into two groups. One group will be heavy objects and one group will be light objects."** Once the objects have been divided up by the student, use the objects to discuss other measurable attributes such as their length, height, and width.

OR

Using two tables in the classroom labeled light and heavy, say **"Let's find five objects that could be placed on each table."** Once the objects are placed, use the objects to discuss other measurable attributes such as their length, height, and width.

If the student correctly classifies and sorts up to ten objects using various measurable attributes, with 80% accuracy, the student is partially matched to the *Developing* stage of the progression.

Part B:

Give the student blocks varying in color. Ask the student to separate the blocks into different piles based on color. Then, ask the student to count the number of blocks in each pile. Finally, ask the student to organize the groups by the quantity in each group: orange blocks (3), green blocks next (4), red blocks with the green blocks because green also had (4), blue blocks last (5).

OR

Spread out a variety of colored objects. "**Please sort these objects into four groups by color."** Repeat with different objects (different kinds of cups/different kinds of candies) as needed to gauge level of understanding.

OR

Say**, "Mrs. Pat keeps a drawer of assorted items in her kitchen. She needs help in sorting these items by height and then counting the items."** (Give students an assortment of items...pens, pencils, rubber bands, coupons, ketchup packets, old keys, etc.). **"From Mrs. Pat's items, tell me which group has the tallest items? Which group has the most? How did you know?"**

If the student correctly counts the number of objects in a category and sorts the categories by count, with 80% accuracy, the student is partially matched to the *Demonstrating* stage of the progression.

CCO-3

Learning Target(s): Emerging (Part A) Developing (Part B) Demonstrating (Part C) Exceeding (Part D)	– Identifies a penny, a nickel, and a dime. – Names a penny, a nickel, and a dime. – Gives the value of a penny, a nickel, and a dime. – Compares the value of a penny, a nickel, and a dime.

Manipulatives or Materials:

- coins
- pictures of coins

Note: Refer to the *Optional Resource Guide* for pictures of coins.

Performance Task Activity:

Note: Teachers are provided options within each part to assess the student. It is not necessary to utilize more than one activity per part.

Part A:

Show students actual coins or pictures of coins. Say, "**Point to the penny."** After the student has identified the penny, say **"Point to the dime."** Then say, **"Point to the nickel."**

If the student correctly identifies a penny, a nickel, and a dime, the student is partially matched to the *Emerging* stage of the progression.

Part B:

Place several pennies, nickels, and dimes on the table. Say, **"Please hand me one coin. Tell me the name of that coin**."

OR

Show students pictures of coins. As you point to the picture of the coins, say, **"Name the coin as I point to it."** Repeat for each coin (penny, nickel, and dime).

If the student correctly names a penny, a nickel, and a dime, the student is partially matched to the *Developing* stage of the progression.

Part C:

Place several pennies, nickels, and dimes on the table. Say, **“Please hand me one coin. What is the value of this coin?”**

OR

Show students pictures of coins. As you point to the picture of the coins, say, **“What is the value of this coin?”** Repeat for each coin (penny, nickel, and dime.)

If the student gives the value of a penny, a nickel, and a dime, the student is partially matched to the *Demonstrating* stage of the progression.

Part D:

Place several pennies, nickels, and dimes on the table. Say, **“Please hand me one coin. Now hand me another. Which coin has a greater value?**

OR

Show students pictures of coins. As you point to the picture of the coins, say, **"Which coin has a greater value? Would you rather have a dime or a penny? Would you rather have a penny or a nickel? Why?"** Ask, **“Which coin has the most value, which has the least value?”**

LEARNING PROGRESSION: SHAPES & POSITIONAL LANGUAGE

Big Idea: Geometric & Spatial Reasoning*
A kindergarten student will identify, describe, and compare basic shapes, form two-dimensional shapes and three-dimensional figures, and describe the relative location of an object using positional words.

Progression: Shapes & Positional Language

Skill	Beginning	Emerging	Developing	Demonstrating	Exceeding
Identifies, describes, and compares basic shapes	Readiness Check Mathematics Activity 5 Identifies (points to) 2-dimensional shapes: square, triangle, circle, and rectangle.	SPL-1 Part A (K.GSR.8.1) Identifies and names 2-dimensional shapes: square, triangle, circle, rectangle, hexagon, and octagon.	SPL-1 Part B (K.GSR.8.1) Describes 2-dimensional shapes using their attributes.		
			SPL-1 Part C (K.GSR.8.1) Identifies and names 3-dimensional shapes: sphere, cylinder, cube, and cone.	SPL-1 Part D (K.GSR.8.1) Describes 3-dimensional shapes using their attributes.	
			SPL-1 Part E (K.GSR.8.1) Classifies, sorts, or identifies shapes as 2- or 3- dimensional.	SPL-1 Part F (K.GSR.8.1) Explains similarities and differences among 2- and 3- dimensional shapes using attributes when classifying, sorting, or identifying.	
Describes the relative position of an object		SPL-2 Part A (K.GSR.8.2) Identifies objects in a given relative location using positional words (e.g., above, below, beside, in front of, behind, next to).	SPL-2 Part B (K.GSR.8.2) Describes the relative location of an object using positional words (e.g., above, below, beside, in front of, behind, next to).		
Uses basic shapes to represent or form other shapes				SPL-3 Part A (K.GSR.8.4) Uses basic shapes to represent specific shapes found in the environment by creating models and drawings.	SPL-3 Part C (1.GSR.4.1) Builds or draws 2- and 3-dimensional shapes from given defining attributes.
				SPL-3 Part B (K.GSR.8.3) Uses two or more basic shapes to form larger shapes.	

MATERIALS

Progression: Shapes & Positional Language	
Task ID	Materials
RC Activity 5	– Teachers may either use their own classroom materials (e.g., manipulatives such as attribute blocks) or the provided optional worksheet with common 2-D shapes.
	Parts A and B: – 2-dimensional shapes: square, triangle, circle, rectangle, hexagon, and octagon (e.g., attribute blocks) *Part C:* – 3-dimensional shapes: sphere, cylinder, cube, and cone (e.g., geometric shapes) *Part D:* – 3-dimensional shapes: sphere, cylinder, cube, and cone (e.g., geometric shapes) *Part E:* – 2-dimensional shapes: square, triangle, circle, rectangle, hexagon, and octagon (e.g., attribute blocks) – 3-dimensional shapes: sphere, cylinder, cube, and cone (e.g., geometric shapes) – Graphic organizer for sorting (e.g., T-chart) *Part F:* – 2-dimensional shapes: square, triangle, circle, rectangle, hexagon, and octagon (e.g., attribute blocks) – 3-dimensional shapes: sphere, cylinder, cube, and cone (e.g., geometric shapes) – Graphic organizer to identify similarities and differences (e.g., Venn diagram)
	Parts A and B: – Classroom objects such as staplers, eraser, pencils, crayons, books, glue sticks, chalk board, clock, calendar, etc. – Pictures of objects
	Part A: – Classroom container of shapes such as attribute blocks (e.g., squares, triangles, circles, rectangles, hexagons, and octagons)

	– Materials for students to create models (e.g., paper for drawings, sticks, toothpicks, modeling clay, play dough, geoboards) – Real-world figures, or pictures of real-world figures (e.g., soda can, toy car, baseball, people, animals) *Part B:* – A reasonable number of shapes such as attribute blocks or real-world objects available in classroom (e.g., squares, triangles, circles, rectangles, hexagons, and octagons) depending on the number of shapes needed to fill the templates. – Composite shape templates consisting of an outline of a larger shape that can be made by composing the smaller shape manipulatives that are provided. Templates could include but are not limited to: square (composed of smaller squares), square (composed of rectangles), square (composed of triangles), rectangle (composed of squares), rectangle (composed of triangles), triangle (composed of smaller triangles), or rhombus (composed of triangles). *Part C:* – Materials for students to create models (e.g., paper for drawings, sticks, toothpicks, modeling clay, play dough, geoboards).

GKIDS Readiness Check: Mathematics Activity 5

Learning Target(s): Beginning	– Identifies (points to) 2-dimensional shapes; square, triangle, circle, and rectangle (e.g., point to the circle).

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The following performance task is an activity from the GKIDS Readiness Check. For this progression, Mathematics Activity 5 from the GKIDS Readiness Check can be used to assess the *Beginning* stage of the progression.

If the student was rated as *Demonstrating* on Mathematics Activity 5, he or she can be matched to the *Beginning* stage of the progression.

If the student was rated below Demonstrating on Mathematics Activity 5, the teacher should continue instruction on recognizing and naming shapes and reassess the student when appropriate.

<table>
<tr><th colspan="3">GKIDS Readiness Check Mathematics Activity 5</th></tr>
<tr><th colspan="3">Recognizes and names common two-dimensional shapes.</th></tr>
<tr><th>Activity</th><th colspan="2">Performance Levels</th></tr>
<tr><td rowspan="4">Student will identify and name four basic shapes (circle, square, rectangle, and triangle).

The teacher will need attribute blocks or paper cut-outs, for example, of the four basic shapes.

Hold up each shape one at a time and say, “What is the name of this shape?” The teacher will repeat this question for each shape, unless the student offers the name of the shape as the teacher presents it.

Note: If the student correctly names all four shapes, it is not necessary to complete the second part of this activity. Rate the student as Demonstrating and conclude the activity.

If the student cannot name all four shapes, mix up the order of the shapes, and ask the student to recognize and identify each shape. Place all of the shapes side-by-side in front of the student and say, “Point to the circle. Point to the square. Point to the triangle. Point to the rectangle.”

<u>Materials:</u> Teachers may either use their own classroom materials (e.g., manipulatives such as attribute blocks) or the provided optional worksheet with common 2-D shapes.</td><td>Not Yet Demonstrated</td><td>The student does not recognize or correctly name any of the shapes.</td></tr>
<tr><td>Emerging</td><td>The student recognizes or names one to three shapes.</td></tr>
<tr><td>Developing</td><td>The student recognizes all four shapes and names one to three shapes.</td></tr>
<tr><td>Demonstrating</td><td>The student recognizes and names all four shapes.</td></tr>
</table>

SPL-1

Learning Target(s): Emerging (Part A) Developing (Part B, C&E) Demonstrating (Parts D&F)	– Identifies and names 2-dimensional shapes: square, triangle, circle, rectangle, hexagon, and octagon. – Describes 2-dimensional shapes using their attributes. – Identifies and names 3-dimensional shapes: sphere, cylinder, cube, and cone. – Classifies, sorts, or identifies shapes as 2- or 3-dimensional. – Describes 3-dimensional shapes using their attributes. – Explains similarities and differences among 2-and 3-dimensional shapes using attributes when classifying, sorting, or identifying.

Parts A and B:

- 2-dimensional shapes: square, triangle, circle, rectangle, hexagon, and octagon (e.g., attribute blocks)

Part C:

- 3-dimensional shapes: sphere, cylinder, cube, and cone (e.g., geometric shapes)

Part D:

- 3-dimensional shapes: sphere, cylinder, cube, and cone (e.g., geometric shapes)

Part E:

- 2-dimensional shapes: square, triangle, circle, rectangle, hexagon, and octagon (e.g., attribute blocks)
- 3-dimensional shapes: sphere, cylinder, cube, and cone (e.g., geometric shapes)
- Graphic organizer for sorting (e.g., T-chart)

Part F:

- 2-dimensional shapes: square, triangle, circle, rectangle, hexagon, and octagon (e.g., attribute blocks)
- 3-dimensional shapes: sphere, cylinder, cube, and cone (e.g., geometric shapes)
- Graphic organizer to identify similarities and differences (e.g., Venn diagram)

Note: Refer to the *Optional Resource Guide* for optional graphic organizers for student use.

Process Clarification:

Part A:

If a student recognized and named all four shapes (circle, square, triangle, rectangle) on the GKIDS Readiness Check Mathematics Activity 5, rated as *Demonstrating*, then the student only needs to name and/or identify a hexagon and octagon in Part A of this task.

If students can name the shapes, then it is assumed they can also correctly identify the shapes. If the student is not successful in naming the shapes, then ask the student to identify the shapes.

Part B:

In Part B, students should focus on describing the defining attributes of shapes, moving beyond what shapes "look like" to identifying particular geometric attributes that define a shape. For 2-dimensional shapes, attributes include number of sides, number of corners, flat, etc.

Part C:

Ask students to name 3-dimensional shapes: sphere, cylinder, cube, and cone. If students can name the shapes, then it is assumed they can also correctly identify the shapes. If the student is not successful in naming the shapes, then ask the student to identify the shapes.

Part D:

In Part D, students should focus on describing the defining attributes of shapes, moving beyond what shapes "look like" to identifying particular geometric attributes that define a shape. For 3-dimensional shapes, attributes include number of edges, number of corners, solids, shape of faces, and number of faces.

Part F:

Students should focus on explaining similarities and differences among 2- and 3-dimensional shapes using defining attributes of two and three dimensions (e.g., number of sides for 2-dimensional shapes or number of faces for 3-dimensional shapes, respectively). The student should not focus on the words *two-dimensional* and *three-dimensional*. The similarities and differences should focus on defining attributes, not general attributes like color and size. Allow the student to manipulate or move the shapes to classify, sort, and identify how they are the same or different. If the student sorts, observe as the student forms groupings.

It is natural for students to initially talk about the faces as “sides” but as you talk about them, use the word face, not side. Gradually, students will pick up on this and will start calling the “sides” faces.

Performance Task Activity:

Part A

Place 2-dimensional shapes (square, triangle, circle, rectangle, hexagon, and octagon) on the table in front of the student (or only hexagon and octagon, if the student was rated as *Demonstrating* on the GKIDS Readiness Check, Mathematics Activity 5).

Hold up each shape one at a time and ask the student to name the shape. Say, **“What is the name of this shape?”** Allow the student to respond orally.

If the student does not correctly name all the shapes, place the shapes in front of the student again. Ask the student to identify the different shapes by pointing to them. Say, **“Point to the square.”** Repeat the process by asking the student to point to the square, triangle, circle, rectangle, hexagon, and octagon (or only hexagon and octagon, if the student rated as *Demonstrating* on the GKIDS Readiness Check, Mathematics Activity 5).

If the student correctly names all 2-dimensional shapes in Part A, the student is partially matched to the *Emerging* stage of the progression.

Part B:

Place a 2-dimensional shape in front of the student. Ask the student to describe the attributes of the shape. Say, **“Describe the shape.”** Allow the student to respond orally. If the student only offers one attribute, prompt them to share more than one attribute of the shape. Say, **“Can you tell me more about this shape?”** Repeat with all the other 2-dimensional shapes.

If the student correctly describes two or more attributes of each shape from Part A, the student is partially matched to the *Developing* stage of the progression.

Part C:

Place 3-dimensional shapes (sphere, cylinder, cube, and cone) on the table in front of the student.

Hold up each shape one at a time and ask the student to name the shape. Say, **“What is the name of this shape?”** Allow the student to respond orally.

If the student does not correctly name all the shapes, place the shapes in front of the student again. Ask the student to identify the different shapes by pointing to them. Say, **“Point to**

the cube." Repeat the process by asking the student to point to the cylinder, cone, and sphere.

If the student correctly names all 3-dimensional shapes in Part C, the student is partially matched to the *Developing* stage of the progression.

Part D:

Place a 3-dimensional shape in front of the student. Ask the student to describe the attributes of the shape. Say, **"Describe this shape."** Allow the student to respond orally. If the student only offers one attribute, prompt them to share more than one attribute of the shape. Say, "**Can you tell me more about this shape?"** Repeat with all the other 3-dimensional shapes.

If the student correctly describes two or more attributes of each shape from Part C, the student is partially matched to the *Demonstrating* stage of the progression.

Part E:

Place the 2- and 3-dimensional shapes on the table in front of the student. The shapes should be in a mixed group where there is not a definitive group of 2-dimensional and 3-dimensional shapes. Ask the student to sort the shapes as either 2- or 3-dimensional. Say, **"Sort these shapes into two groups: flat shapes and solid shapes**." Allow the student to move the shapes and observe as the student forms two groups.

If the student correctly sorts all 2- and 3-dimensional shapes in Part E, the student is partially matched to the *Developing* stage of the progression.

Part F:

In Part F, students explain the similarities and differences among 2-dimensional and 3-dimensional shapes, respectively.

Place a group of 2-dimensional shapes in front of the student. The shapes should be a mixed group where there is not a definitive group presented to the student (for example, square, triangle, circle, rectangle, hexagon, and octagon). Say, **"Look at these shapes. How are they the same?"** Allow the student to explain how the shapes are similar using defining attributes. Then, ask, **"How are they different?"** Allow the student to explain how the shapes are different using defining attributes.

The student explains at least one way in which the shapes in the group are the same. Similarities may include, but are not limited to:

- These shapes have sides (e.g., square, triangle).
- These shapes have four corners (e.g., rectangle, square).

The student explains at least one way in which the shapes in the group are different. Differences may include, but are not limited to:

- These shapes have corners (e.g., triangle, rectangle, hexagon). These shapes do not have corners (e.g., circle).
- These shapes have equal sides (e.g., square, hexagon). These shapes have different length sides (e.g., triangle, rectangle).
- These shapes have sides (e.g., square, triangle). These shapes do not have sides (e.g., circle).

Place a group of 3-dimensional shapes in front of the student. The shapes should be a mixed group where there is not a definitive group presented to the student (for example, sphere, cylinder, cube, cone). Say, **"Look at these shapes. How are they the same?"** Allow the student to explain how the shapes are similar, using defining attributes. Then, ask **"How are they different?"** Allow the student to explain how the shapes are different, using defining attributes.

The student explains at least one way the shapes in the group are the same. Similarities may include, but are not limited to:

- These solid shapes have flat faces (e.g., cone, cube, cylinder).

The student explains at least one way the shapes in the group are different. Differences may include, but are not limited to:

- These solid shapes have faces (e.g., cone, cube, cylinder). These solid shapes do not (e.g., sphere).
- These solid shapes have square faces (e.g., cube). These solid shapes have circular faces (e.g., cone, cylinder).

If the student correctly explains at least one way the shapes in each group are the same and at least one way the shapes in each group are different, the student is partially matched to the *Demonstrating* stage of the progression.

SPL-2

Learning Target(s): Emerging (Part A) Developing (Part B)	– Identifies objects in a given relative location using positional words (e.g., above, below, beside, in front of, behind, next to). – Describes the relative location of an object using positional words (e.g., above, below, beside, in front of, behind, next to).

Manipulatives or Materials:

Parts A and B:

- Classroom objects such as staplers, eraser, pencils, crayons, books, glue sticks, chalk board, clock, calendar, etc.
- Pictures of objects

Performance Task Activity:

Part A:

Note: Teachers should use objects accessible in their classrooms. Underlined words represent the objects used. The underlined words should be replaced with the name of the objects used.

Arrange a group of objects on the table or refer to objects that are located around the room. Say, **"I am going to ask some questions about where different objects are located."**

a. **"Say or point to the object that is above the object (e.g., calendar)."**
b. **"Say or point to the object that is below the object (e.g., clock)."**
c. **"Say or point to the object that is beside the object (e.g., crayon)."**
d. **"Say or point to the object that is front of the object (e.g., chair)."**
e. **"Say or point to the object that is behind the object (e.g., desk.)"**

If the student correctly identifies objects in a given relative location using positional words, with at least 80% accuracy, the student is partially matched to the *Emerging* stage of the progression.

Part B:

Say, **"Let's look around our classroom. Find two objects in our classroom and using one of our positional words, describe where the object is located. Here is an example- the clock is above the door."** Ask individual students to explain how their objects are:

a. above

b. below

c. beside

d. in front of

e. behind

f. next to

If the student correctly describes the relative location of objects using positional words, with at least 80% accuracy, the student is partially matched to the *Developing* stage of the progression.

OR

During naturally occurring events in the classroom, ask students questions using position terms. For example,

a. During calendar time, if teachers are using shapes or figures on the calendar, ask a student to describe the position of two objects (e.g., the blue bear is **above** the red bear). Ask a student how he or she knows one bear was above another.

b. As students are lining up to leave the classroom, ask students to identify a peer who is **in front of, behind, next to** another child in the classroom.

c. As students are cleaning up their work areas, ask the students to use a position word to describe their objects (e.g., my folder is **below** my book, my pencil case is **next to** my nametag).

SPL-3

Learning Target(s): Demonstrating (Parts A&B) Exceeding (Part C)	– Uses basic shapes to represent specific shapes found in the environment by creating models and drawings. – Uses two or more basic shapes to form larger shapes. – Builds or draws 2-and 3-dimensional shapes from given defining attributes.

Manipulatives or Materials:

Part A:

- Classroom container of shapes such as attribute blocks (e.g., squares, triangles, circles, rectangles, hexagons, and octagons)
- Materials for students to create models (e.g., paper for drawings, sticks, toothpicks, modeling clay, play dough, geoboards)
- Real-world figures, or pictures of real-world figures (e.g., soda can, toy car, baseball, people, animals)

Part B:

- A reasonable number of shapes such as attribute blocks or real-world objects available in classroom (e.g., squares, triangles, circles, rectangles, hexagons, and octagons) depending on the number of shapes needed to fill the templates.

- Composite shape templates consisting of an outline of a larger shape that can be made by composing the smaller shape manipulatives that are provided. Templates could include but are not limited to: square (composed of smaller squares), square (composed of rectangles), square (composed of triangles), rectangle (composed of squares), rectangle (composed of triangles), triangle (composed of smaller triangles), or rhombus (composed of triangles).

Part C:

- Materials for students to create models (e.g., paper for drawings, sticks, toothpicks, modeling clay, play dough, geoboards)

Note: Refer to the *Optional Resource Guide* for example composite shape templates for student use.

Process Clarification:

Part A:

The student should be able to choose which real-world figures for which he or she wants to create models and which materials to use.

Part C:

The student could create a variety of shapes for each prompt with the exception of the prompt for a square. Triangles could be right, isosceles, or scalene. The shape without corners could be an oval or circle. For the last prompt, any quadrilateral, other than a square, could be drawn.

Performance Task Activity:

Part A:

Have a variety of materials available for the student. Have real-world figures, or pictures, for observation displayed prominently. Explain the task to the student.

Say, **"Today we will use flat and solid shapes to build models of things we see every day."** Direct the student's attention to the figures, or pictures, collected for his or her observation. Say, **"You may choose to build your model of one of the objects I have provided, or you may choose to model another object in the room."** Direct the student's attention to the collection of materials available for their modeling. **"You can use any of the materials here to build your model."**

If the student correctly creates a model by composing 2- and 3-dimensional shapes, the student is partially matched to the *Demonstrating* stage of the progression.

Part B:

Have attribute shapes available on the table for the student to access. Place a composite shape template with the outline of one shape in front of the student.

Ask the student to create the given shape using a particular attribute block. For example, say, **"Today, we're going to put shapes together to make larger shapes. Here is a picture of a large square. Show me how you could use small squares to make this larger square."** Observe as the student joins attribute blocks to compose the larger shape. Repeat this process with other composite shape templates (e.g., rectangle, triangle, hexagon, and octagon).

If the student correctly composes the larger shape for two or more composite shape templates, the student is partially matched to the *Demonstrating* stage of the progression

Part C:

Have modeling materials available for the student to use. Ask the student to create a shape with given attributes:

- **"Create a shape with four corners, four sides, and where all the sides are the same length."**
- **"Create a shape that has three sides and three corners."**
- **"Create a shape that has no corners."**
- **"Create a shape that has four corners, four sides, and where the sides are not all the same length."**

If the student correctly builds or draws 2- and 3-dimensional shapes with the given attributes with at least 80% accuracy, the student is fully matched to the *Exceeding* stage of the progression.

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