

**Proclamation 2021 Breakouts to the Texas Prekindergarten Guidelines (TPG)**

**Course**

Prekindergarten

For the full text of the Texas Prekindergarten Guidelines, visit <https://tea.texas.gov/WorkArea/DownloadAsset.aspx?id=25769825386>.

**(V) MATHEMATICS DOMAIN**

Prekindergarten children’s mathematical understandings are built on informal knowledge about quantity that they develop even before any instruction. Young children know immediately if someone gets more cookies than they do. They like telling their age, such as by holding up four fingers to tell an adult how old they are. Children typically use quantity during play to know who scored a goal. Teachers can use this early interest in communicating math-related ideas to foster greater mathematical competencies in the prekindergarten environment. Teachers can plan rich environments and offer sequenced opportunities for prekindergarten children to explore math skills. A suggested sequence for teaching number knowledge would be the following: a) subitizing (small-number recognition), b) counting in a one-to-one fashion, c) determining which set is larger or smaller, d) counting on, e) making close number comparisons, f) number-after equals one more (Frye et.al.,2013).

Effectively supporting early mathematical competencies requires the use of informal representations of math concepts. Concrete representations such as counters, tally marks, fingers, or other concrete objects help children create connections to math. As children gain comfort with concrete representations, they will begin to use pictorial representations which prepares them for abstract representations.

- Concrete representation: the child counts to five to join a set of two objects and a set of three objects
- Pictorial representation: the child uses a sketch to represent the joining of a set of two objects and a set of three objects
- Abstract representation: the child uses math symbols to represent the joining of two sets  $2 + 3 = 5$ .

The core of any early education mathematics curriculum should focus on developing young children’s ability to problem solve—developing their capacity to ask thoughtful questions, to recognize problems in their environment, and to use mathematical reasoning with familiar materials in the classroom. Children require repeated opportunities to hear and practice using math vocabulary. Teachers must recognize that early math instruction is not limited to a specific period or time of day in prekindergarten. Instead it is a natural part of any quality prekindergarten learning environment. Teachers enhance children’s mathematics learning when they ask questions that provoke clarification, extension, and development of new understanding and vocabulary. For example, as children build with blocks, their teacher can introduce such concepts as higher, lower, in front of, behind, larger, and smaller. During an art project, such as putting buttons on an outline of a person, the teacher might say the person needs five buttons on his shirt. One child may place two buttons and a second child places one more button. The teacher might ask, “How many more buttons do we need on his shirt?” All children should be allowed adequate wait time for responses.

Accumulated research evidence indicates that prekindergarten children are ready to receive instruction that builds on a rich set of informal mathematical skills. Teachers should be sensitive to what is known about individual learners’ developmental status and skills. For example, some children may not be ready for oral communication of some mathematical ideas due to delayed speech. Other children may show difficulties with fine motor coordination skills needed to work effectively with manipulatives. Speech-delayed children may be able to learn and express mathematical ideas in ways that reduce demands on oral vocabulary, such as by using concrete materials. These outcomes are provided to help foster a quality mathematics curriculum for prekindergarten children in Texas. The Texas Prekindergarten Guidelines are divided into these skill areas: counting, math symbols, adding and taking away, geometry, measurement, and classification and patterns.

ELL children often will acquire math vocabulary in both the native language and in English. For this reason, it may be beneficial for children who are learning English to learn new concepts and vocabulary in their home language, when possible, with math practice conducted in both the children’s native language and English.

Domain	Skill	Outcome	Breakout
(V) MATHEMATICS DOMAIN	(A) Counting Skill. Prekindergarten-aged children show basic counting readiness and counting by using nonverbal and verbal means.	(1) Child knows that objects, or parts of an object, can be counted	(a) Child knows that objects, or parts of an object, can be counted

Domain	Skill	Outcome	Breakout
(V) MATHEMATICS DOMAIN	(A) Counting Skill	(2) Child uses words to rote count from 1 to 30	(a) Child uses words to rote count from 1 to 30
(V) MATHEMATICS DOMAIN	(A) Counting Skill	(3) Child counts 1–10 items, with one count per item	(a) Child counts 1–10 items, with one count per item
(V) MATHEMATICS DOMAIN	(A) Counting Skill	(4) Child demonstrates that the order of the counting sequence is always the same, regardless of what is counted	(a) Child demonstrates that the order of the counting sequence is always the same, regardless of what is counted
(V) MATHEMATICS DOMAIN	(A) Counting Skill	(5) Child counts up to 10 items and demonstrates that the last count indicates how many items were counted	(a) Child counts up to 10 items
(V) MATHEMATICS DOMAIN	(A) Counting Skill	(5) Child counts up to 10 items and demonstrates that the last count indicates how many items were counted	(b) Child demonstrates that the last count indicates how many items were counted
(V) MATHEMATICS DOMAIN	(A) Counting Skill	(6) Child demonstrates understanding that when counting, the items can be chosen in any order	(a) Child demonstrates understanding that when counting, the items can be chosen in any order
(V) MATHEMATICS DOMAIN	(A) Counting Skill	(7) Child uses the verbal ordinal terms	(a) Child uses the verbal ordinal terms
(V) MATHEMATICS DOMAIN	(A) Counting Skill	(8) Child verbally identifies, without counting, the number of objects from 1 to 5	(a) Child verbally identifies, without counting, the number of objects from 1 to 5
(V) MATHEMATICS DOMAIN	(A) Counting Skill	(9) Child recognizes one-digit numerals, 0–9	(a) Child recognizes one-digit numerals, 0–9
(V) MATHEMATICS DOMAIN	(B) Adding To/Taking Away Skills. Prekindergarten children use informal and formal strategies to make a collection larger or smaller. This includes teacher showing (modeling) children a mathematical behavior and asking the children to do the same.	(1) Child uses concrete objects, creates pictorial models and shares a verbal word problem for adding up to 5 objects	(a) Child uses concrete objects for adding up to 5 objects
(V) MATHEMATICS DOMAIN	(B) Adding To/Taking Away Skills	(1) Child uses concrete objects, creates pictorial models and shares a verbal word problem for adding up to 5 objects	(b) Child creates pictorial models for adding up to 5 objects.
(V) MATHEMATICS DOMAIN	(B) Adding To/Taking Away Skills	(1) Child uses concrete objects, creates pictorial models and shares a verbal word problem for adding up to 5 objects	(c) Child shares a verbal word problem for adding up to 5 objects
(V) MATHEMATICS DOMAIN	(B) Adding To/Taking Away Skills	(2) Child uses concrete models or makes a verbal word problem for subtracting 0–5 objects from a set	(a) Child uses concrete models or makes a verbal word problem for subtracting 0–5 objects from a set
(V) MATHEMATICS DOMAIN	(B) Adding To/Taking Away Skills	(3) Child uses informal strategies to separate up to 10 items into equal groups	(a) Child uses informal strategies to separate up to 10 items into equal groups
(V) MATHEMATICS DOMAIN	(C) Geometry and Spatial Sense Skills. Prekindergarten children recognize, describe, and name attributes of shapes.	(1) Child names common shapes	(a) Child names common shapes
(V) MATHEMATICS DOMAIN	(C) Geometry and Spatial Sense Skills	(2) Child creates shapes	(a) Child creates shapes

Domain	Skill	Outcome	Breakout
(V) MATHEMATICS DOMAIN	(C) Geometry and Spatial Sense Skills	(3) Child demonstrates use of location words (such as “over,” “under,” “above,” “on,” “beside,” “next to,” “between,” “in front of,” “near,” “far,” etc.)	(a) Child demonstrates use of location words
(V) MATHEMATICS DOMAIN	(C) Geometry and Spatial Sense Skills	(4) Child slides, flips, and turns shapes to demonstrate that the shapes remain the same	(a) Child slides shapes to demonstrate that the shapes remain the same
(V) MATHEMATICS DOMAIN	(C) Geometry and Spatial Sense Skills	(4) Child slides, flips, and turns shapes to demonstrate that the shapes remain the same	(b) Child flips shapes to demonstrate that the shapes remain the same
(V) MATHEMATICS DOMAIN	(C) Geometry and Spatial Sense Skills	(4) Child slides, flips, and turns shapes to demonstrate that the shapes remain the same	(c) Child turns shapes to demonstrate that the shapes remain the same
(V) MATHEMATICS DOMAIN	(D) Measurement Skills. Prekindergarten children verbally describe or demonstrate attributes of persons or objects, such as length, area, capacity, or weight.	(1) Child recognizes and compares heights or lengths of people or objects	(a) Child recognizes heights or lengths of people or objects
(V) MATHEMATICS DOMAIN	(D) Measurement Skills	(1) Child recognizes and compares heights or lengths of people or objects	(b) Child compares heights or lengths of people or objects
(V) MATHEMATICS DOMAIN	(D) Measurement Skills	(2) Child recognizes how much can be placed within an object	(a) Child recognizes how much can be placed within an object
(V) MATHEMATICS DOMAIN	(D) Measurement Skills	(3) Child informally recognizes and compares weights of objects or people	(a) Child informally recognizes weights of objects or people
(V) MATHEMATICS DOMAIN	(D) Measurement Skills	(3) Child informally recognizes and compares weights of objects or people	(b) Child informally compares weights of objects or people
(V) MATHEMATICS DOMAIN	(D) Measurement Skills	(4) Child uses language to describe concepts associated with the passing of time	(a) Child uses language to describe concepts associated with the passing of time
(V) MATHEMATICS DOMAIN	(E) Classification and Patterns Skills. Prekindergarten children sort and classify objects using one or more attributes. They begin to use attributes of objects to duplicate and create patterns (typically referred to as algebraic thinking such as described in NCTM focal points.) With formal instruction, they will participate in creating and using real/pictorial graphs	(1) Child sorts objects that are the same and different into groups and uses language to describe how the groups are similar and different	(a) Child sorts objects that are the same into groups
(V) MATHEMATICS DOMAIN	(E) Classification and Patterns Skills	(1) Child sorts objects that are the same and different into groups and uses language to describe how the groups are similar and different	(b) Child sorts objects that are different into groups
(V) MATHEMATICS DOMAIN	(E) Classification and Patterns Skills	(1) Child sorts objects that are the same and different into groups and uses language to describe how the groups are similar and different	(c) Child uses language to describe how the groups are similar
(V) MATHEMATICS DOMAIN	(E) Classification and Patterns Skills	(1) Child sorts objects that are the same and different into groups and uses language to describe how the groups are similar and different	(d) Child uses language to describe how the groups are different
(V) MATHEMATICS DOMAIN	(E) Classification and Patterns Skills	(2) Child collects data and organizes it in a graphic representation	(a) Child collects data
(V) MATHEMATICS DOMAIN	(E) Classification and Patterns Skills	(2) Child collects data and organizes it in a graphic representation	(b) Child organizes [data] in a graphic representation

Domain	Skill	Outcome	Breakout
(V) MATHEMATICS DOMAIN	(E) Classification and Patterns Skills	(3) Child recognizes and creates patterns	(a) Child recognizes patterns
(V) MATHEMATICS DOMAIN	(E) Classification and Patterns Skills	(3) Child recognizes and creates patterns	(b) Child creates patterns