

Eight Mathematics Teaching Strategies

The teaching strategies below give concrete approaches for mathematics instruction in your classroom. They are designed to guide developmentally appropriate Transitional Kindergarten (TK) instruction, moving your students along a continuum of learning by bridging the [Preschool Learning Foundations](#) with the [Kindergarten Common Core](#).

Strategy 1: Number Sense of Quantity and Counting

Strategy 2: Number Sense of Mathematical Operations

Strategy 3: Measurement

Strategy 4: Shapes

Strategy 5: Patterning

Strategy 6: Problem Solving

Strategy 7: Classification

Strategy 8: Integrated Approaches for English Language Development and Family Engagement

STRATEGY 1: NUMBER SENSE OF QUANTITY AND COUNTING

Competency: Child shows developing understanding of number and quantity (corresponds with DRDP-SR Measure 24).		
	Exploring Competencies	Building Competencies
Embed in Context	After nap time, ask a child who is putting on their shoes, “How many shoes do you have?” To support language understanding, point to the shoes and repeat the word “shoes” while pointing to one shoe, then the other.	Two children want to play bingo. In preparation, ask one child to count out 18 counters for the game.

Model	On the playground, state, "Only two children can use the teeter-totter at a time. Let's see, how many do we have now? One, two, three!"	When coming in from the play yard, count aloud all 24 children as they enter the classroom.
Give Opportunities to Practice	In preparation for lunch, ask a child to put one plate in front of each chair at the small table. Give all children opportunities to practice one-to-one correspondence and counting daily.	In preparation for an art project, ask one of your students to put 20 cotton balls on each of four tables.

STRATEGY 2: NUMBER SENSE OF MATHEMATICAL OPERATIONS

Competency: Child shows increasing ability to add and subtract small quantities of objects (corresponds with DRDP-SR Measure 25).		
	Exploring Competencies	Building Competencies
Embed in Context	While observing in the dramatic play area, you notice differing amounts of muffins (two versus three) on the plates at the table where Tony and Sara are sitting, and ask the children, "Who has more muffins?"	When preparing for lunch, ask a child to figure out how many napkins are needed for two tables with four chairs each.
Model	When supervising the dramatic play area, you say, "We have room for only three children in the dramatic area [show the children three fingers]. Since we have two already [holding up two fingers on one hand], only one more can come in." [Hold up one finger on the other hand and then move both hands together to show three fingers altogether.]	When working at the math center table, you say to approaching children, "I have room for six children and I have four already. Let's see, that means that I can have two more children because four plus two equals six." Placing cards with the numerical number and corresponding dots for the number of children allowed in each center area will encourage children to become confident with math concepts.
Give Opportunities to Practice	When playing a board game that requires three game pieces per child, support language understanding by asking the children how many game pieces they each have. Then say, "All of you have two pieces and you need to have one more. Take one more piece out of the pile." Encourage the children to count the game pieces again and confirm that they each have three pieces.	Supervise a board game in which board pieces are advanced the sum of two spins on a 1-4 numeral spinner during each turn.

STRATEGY 3: MEASUREMENT

Competency: Child shows increasing understanding of measurable properties such as length, weight, and capacity, and begins to quantify those properties (corresponds with DRDP-SR Measure 26).

	Exploring Competencies	Building Competencies
Embed in Context	Ask, "We have two pumpkins today [pointing to a large and small pumpkin]. Which one is bigger?" To support language understanding, repeat the question while gesturing small and big and using corresponding words, then point to the pumpkins again.	Children are arguing in the block area about which train is longer. Provide a tape measure for the children to use and then help them line up the trains and tape measure against the wall so that the starting point is the same.
Model	While playing with the children in the sandbox, say, "I need a lot of sand for my castle, so I'm going to fill the larger bucket with sand."	When setting up the art table, tell the children, "I need a pipe cleaner that is two inches long to connect these two pieces. Let's use a ruler to make sure that it is the right length."
Give Opportunities to Practice	While children are playing outside, ask, "Sienna, would you take the big ball over to Jorge?"	Ask a child to come up to the board to point to the bar on the graph (of favorite fruits created by the class) that represents the most popular fruit named by the children.

STRATEGY 4: SHAPES

Competency: Child shows increasing knowledge of shapes and their characteristics (corresponds with DRDP-SR Measure 27).

	Exploring Competencies	Building Competencies
Embed in Context	Ask children to sort the squares and circles into different piles before putting the pattern block set away. To support language understanding, sort a few squares and circles, while naming their respective shapes, then say, "your turn," as you put them back in the pile.	During block play, ask questions about the building that children are constructing, using geometric concepts such as symmetry, rotation, and part-whole relationships.

Model	Before placing a cone on top of a cylinder in the block area, announce, while running your finger along the cone and then the cylinder, "Look, the bottom of the cone is round just like the top of the cylinder!"	While working with children to create a robot out of boxes, talk about cubes having faces of equal area and edges of equal length.
Give Opportunities to Practice	Set out self-correcting shape puzzles in the math center.	Help the class make a chart that illustrates the number of faces, edges, and vertices on a variety of three-dimensional objects.

STRATEGY 5: PATTERNING

Competency: Child shows increasing ability to recognize, reproduce, and create patterns of varying complexity (corresponds with DRDP-SR Measure 28).		
	Exploring Competencies	Building Competencies
Embed in Context	Noticing a two-color bead necklace that a child has created using alternating colors, ask, "That is a really long necklace, can you name the colors of the beads?" Then, call attention to the pattern of the two colors.	Provide drums, cymbals, and triangle instruments to children in the classroom. Then work with them to strike their instruments in order of drum, cymbals, and triangle during a simple melody.
Model	During a whole group beanbag game with blue and yellow beanbags, pass out beanbags so that no child in the circle has the same color as the child next to them. Then ask each child to call out the color of their beanbag in turn, following with the announcement that there is a pattern of blue, yellow, blue, yellow, in the circle.	While working with children building a wall around a castle in the block area, suggest creating a pattern with three types of blocks and then facilitate discussion about which blocks and what type of pattern.
Give Opportunities to Practice	During a movement activity, ask the children to use a pattern of hop, clap, hop, clap, and lead the way around the classroom alternately hopping and clapping, supporting language understanding by saying the word "hop" while hopping and "clap" while clapping.	Play a game in which you use blue and red beads to create a blue, red, red, blue, red, red, blue pattern and then ask the children if they can figure out the pattern unit.

STRATEGY 6: PROBLEM SOLVING

Competency: Child shows increasing ability to reason logically in using strategies to solve problems (corresponds with DRDP-SR Measure 29).

	Exploring Competencies	Building Competencies
Embed in Context	You are reading to a small group of children, but not all of the children can see the book clearly from where they are sitting. Ask the children to help each other find places where they will be able to see the book well.	Three children are arguing over a set of 24 cars. They are concerned that the division of cars isn't fair. Suggest that they divide up the trains equally between them. The children solve this problem through dealing (like a deck of cards) and then suggest they count each of their sets to confirm that they each have the same number of cars.
Model	When making play dough with the children, hold up one finger for each cup of water added so that you and the children can keep track.	The rubber band holding the calendar numerals together in order breaks and the numerals fall in disarray on the floor. Gather a few children together and then sort the numerals by decades (ones, tens, twenties, thirties) before putting them in order.
Give Opportunities to Practice	Ask the children to try moving blocks, forming a road for miniature cars closer together so that the cars do not fall off in the gaps. When children only move some together and the miniature cars still fall through the remaining gaps, ask, "Do you see anything you should change so that the cars don't fall?"	Provide two sets of children with flexible plastic blocks and rigid plastic blocks to make bridges. Say that the goal of the bridge construction is to use all of the flexible plastic blocks to make the suspension piece and the rigid blocks the supports. When children finish, pose the problem, "What is the smallest number of rigid blocks needed to keep the suspension piece up?" If needed, scaffold children as they remove and adjust blocks.

STRATEGY 7: CLASSIFICATION

Competency: Child shows increasing ability to compare, match, and sort objects (living and non-living things) into groups according to their attributes (corresponds with DRDP-SR Measure 30).

	Exploring Competencies	Building Competencies
Embed in Context	During cleanup, ask two children to divide the mixed up Duplos and Legos into two containers.	Ask the children to put away the vehicles— separating plastic from metal and then cars/trucks from construction vehicles.
Model	Help children clean up the easel and put all of the varying colors of paint cups in separate rows.	Ask the children to vote on whether they want to paint at an easel, use play dough or finger paint. As children raise their hands for each activity, write their names down under the headings: “EASEL,” “PLAYDOUGH,” and “FINGERPAINT.”
Give Opportunities to Practice	At the math center, put out a bucket of plastic teddy bears (red, yellow, purple) and three big cups (red, yellow, purple) and ask the children to put the colored teddy bears in the same color cups.	Put out a set of attribute blocks and ask two children to work together to separate the blocks first into the five shapes, then into the three colors, and then into the two thicknesses.

STRATEGY 8: INTEGRATED APPROACHES FOR ENGLISH LANGUAGE DEVELOPMENT AND FAMILY ENGAGEMENT:

Integrated Approach: English Language Development	Teach new mathematical vocabulary (e.g., quantity, length, many, few, counting) using realia and embedding new words in songs, chants, and stories. Read stories that include these words throughout the day. Offer opportunities for children to use new mathematical vocabulary through peer conversations (have children talk about a topic in pairs). For example, have children work together to make shapes with their bodies, develop a pattern of movements (e.g., walk, walk, jump, walk, walk), etc.
Collaborative Approach: Family Engagement	Share target vocabulary and every day math activities with families. Plan for on-going family math nights where you can share new math themes, vocabulary, and activities for families to do at home. For example, setting the table and counting food items at dinner time (e.g., peas, carrots, beans) or simple board games for families to bring home and play together. Encourage families to have these conversations in their home language. Invite families to participate in small group, math learning stations every week.