MATHEMATICS

In kindergarten, your child will focus primarily on two important areas. The first is learning numbers and what numbers represent. The second is addition and subtraction. Your child will also learn to identify and work with shapes. Activities in these areas include:

- Counting how many objects are in a group and comparing the quantities of two groups of objects.
- Comparing two numbers to identify which is greater or less than the other.
- Understanding addition as putting together and subtraction as taking away.
- Adding and subtracting very small numbers quickly and accurately.
- Breaking up numbers less than or equal to 10 in more than one way (e.g., 9 = 6+3, 9 = 5+4).
- Finding the missing quantity that is needed to reach ten for any number from 1 to 9.
- Representing addition and subtraction word problems using objects or by drawing pictures.
- Solving addition and subtraction word problems involving numbers that add up to 10 or less, or by subtracting from a number 10 or less.

In most kindergarten classes, math is woven throughout the day's activities. This is especially effective because math becomes more meaningful when it is experienced in real life contexts. Daily kindergarten math activities include learning numbers, practice counting, addition and subtraction, learning concepts of time, and measurement and categorization. In addition, playing with puzzles, building toys, blocks and games will help your child practice and build math skills in an enjoyable and engaging way, making his learning more meaningful and effective.

Your child can count to 100 by ones and by tens.

- Count by reciting numbers in correct order.

HELP AT HOME

- Have your child color the squares in a hundred number chart to show counting by 10's and then have him recite the numbers in order.
- Cut a hundred chart apart into horizontal strips. Have your child place the strips in order, like a puzzle, until the hundred chart is complete again. Count each number as he adds the new strip.

RESOURCES

HUNDRED CHART
Print a hundred chart or create your own on a sheet of notebook paper or construction paper.

HUNDRED CHART

1	2	3	4	5	6	7	8	9	10
11	12	13	14	15	16	17	18	19	20
21	22	23	24	25	26	27	28	29	30
31	32	33	34	35	36	37	38	39	40
41	42	43	44	45	46	47	48	49	50
51	52	53	54	55	56	57	58	59	60
61	62	63	64	65	66	67	68	69	70
71	72	73	74	75	76	77	78	79	80
81	82	83	84	85	86	87	88	89	90
91	92	93	94	95	96	97	98	99	100

Your child can count forward beginning from a given number within the known sequence (instead of having to begin at 1).

- Begin at any given number and count by ones.

HELP AT HOME

- Create a set of number cards 0-100. Have your child draw a visual representation of a number on the card you select. Then have him count forward from that number until you call stop. Then have your child draw visual representation of a number on the second card, counting forward until you stop him. Continue until all 100 cards have been completed.
- Use a hundred chart and have your child locate a number on the chart. Then tell him a second number to count toward. Have your child point to each number as he says it until he reaches the second number. Keep doing this exercise over time until he is proficient with the skill.

Your child can understand the relationship between numbers and quantities. He can also connect counting to cardinality.

- Say the number names in the standard order, pairing each object with one and only one number name and each number name with one and only one object.
- Understand that the last number name said tells the number of objects counted. The number of objects is the same, regardless of their arrangement or the order in which they were counted.
- Understand that each successive number refers to a quantity that is one larger.
- Understand one-to-one correspondence.

HELP AT HOME

- Scatter a handful of buttons, pennies, or anything that can be used as counters on a table. Have your child touch each item as he counts the group of objects aloud.
- Rearrange the counters into two (or more) groups of the same number (but in a different configuration) and make certain your child understands that even though the two groups look different, they have the same number of objects.

Your child can count to answer "How many?" questions about as many as 20 things arranged in a line, a rectangular array, or a circle; or as many as 10 things in a scattered configuration. When given a number from 1-20, your child can count out that many objects.

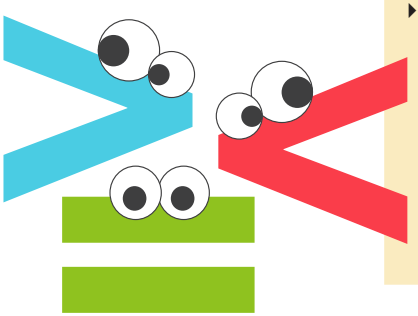
- Counting begins with 1.
- Understand that when counting a group of objects, each object is only counted once.

HELP AT HOME

- Scatter up to 20 objects on the table. Have your child touch and count each object.
- Using a jar of pennies, or other counters, call out a number to your child and allow him to count out that many objects.

Your child can identify whether the number of objects in one group is greater than, less than, or equal to the number of objects in another group (e.g., by using matching and counting strategies).

- Use comparative language such as "greater than," "less than," and "equal to" in order to compare different object groups.
- Understand the term greater than means more than (a larger quantity) and less than means fewer (a smaller quantity).



HELP AT HOME

- Scatter two sets of coins, colored counters, or other objects on the table. Have your child compare the two groups of objects. Have your child use terms such as "greater than," "less than," or "equal to" each other.
- While out in your community, point out things that your child can compare (e.g., boys to girls, cats to dogs, cars to trucks). Have your child use terms such as "greater than," "less than," or "equal to" each other.

Your child can compare two numbers between 1 and 10 presented as written numerals.

- Use comparative language such as "greater than," "less than," and "equal to" when comparing different groups of objects.
- Understand the term greater than means more than (a larger quantity) and less than means fewer (asmaller quantity).
- Use mathematical tools such as tens frames, counters, etc.

HELP AT HOME

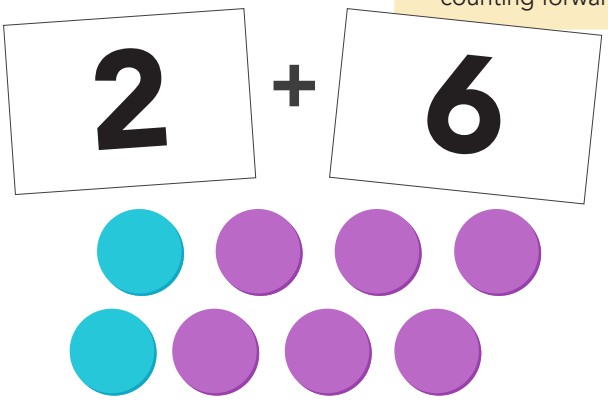
- Using some type of counters (e.g., pennies, cubes), create two groups. Have your child compare the two groups using terms such as "greater than," "less than," or "equal to" for each comparison.

Your child can represent addition and subtraction with objects, fingers, mental images, drawings, sounds (e.g., claps), acting out situations, verbal explanations, expressions, or equations.

- Demonstrate rapid recall of numbers 0-5.
- Understand that each object represents one (one-to-one correspondence).
- Understand that when counting, the last number named represents the number of objects in the group.
- Know that addition (+) means to add and subtraction (-) means to take away.

HELP AT HOME

- Write numbers 0-10 on individual cards. Have your child choose two cards. Using counters, count out each number of items. Then have your child add the two groups together, counting the objects.
- Using the same 0-10 number cards, have your child create a number sentence (4 + 2 = _) after drawing two cards. Have your child draw each number using drawings of objects, then add the two numbers by touching each picture and counting forward.

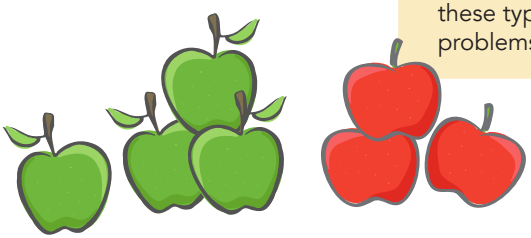


Your child can solve addition and subtraction word problems, and add and subtract within 10 (e.g., by using objects or drawings to represent the problem).

- Demonstrate rapid recall of numbers 0-10.
- Use manipulatives such as ten frames, dot pattern cards, etc. to compose or decompose numbers.
- Understand that there are multiple ways to solve a problem.
- Know that addition (+) means to add and subtraction (-) means to take away.

HELP AT HOME

- Use everyday life situations to create story problems for your child. For example, while buying groceries, have your child get 3 red apples and 4 green apples. Have him create a math sentence to solve. While at a restaurant, have your child determine how many more chairs are needed to seat everyone. Practice these type of real-world problems often.



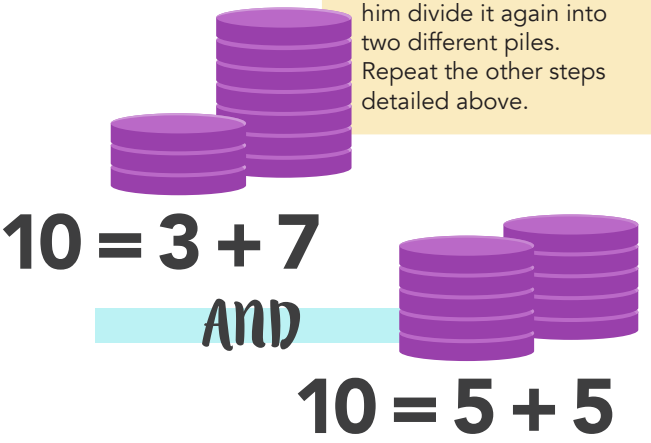
4 + 3 = ___

Your child can decompose numbers less than or equal to 10 into pairs in more than one way (e.g., by using objects or drawings) and record each decomposition by a drawing or equation: 5 = 2 + 3 and 5 = 4 + 1.

- Demonstrate rapid recall of numbers 0-10.
- Know that addition (+) means to add and subtraction (-) means to take away.
- Understand that a whole number can be separated into smaller parts that equal the whole number.
- Know that numbers on both either side of an equal sign must be the same.

HELP AT HOME

- Using any type of small object from home, put a group of objects in one pile. Have your child divide the whole group of objects into two separate parts. Get your child to record his answer by drawing a picture and/or writing a number sentence. For example, have a group of 10 pennies in a pile on the table. Have your child separate the pile into two piles, writing an addition number sentence to represent what was done. Then using the same group of 10 pennies have him divide it again into two different piles. Repeat the other steps detailed above.



Your child can find the number that makes 10 when added to the given number (e.g., by using objects or drawings, and record the answer with a drawing or equation).

- Demonstrate rapid recall of number 0-10.
- Name each number when counting, in order.
- Know that addition (+) means to add and subtraction (-) means to take away.

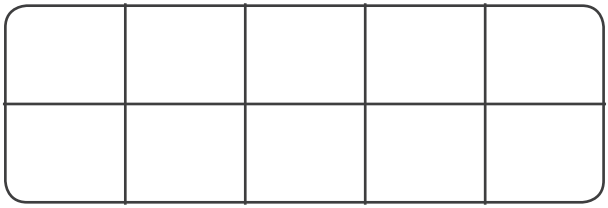
HELP AT HOME

- Using a ten frame (two rows of 5 boxes), have your child place counters in the boxes for any number 0-9. After your child places the counters in the ten frame, have him count the remaining boxes to see how many more counters are needed to make ten.
- Give your child a group of counters, have him count the counters and then determine how many more he will need to make 10. He can use the remaining counters to help him count out the remaining number needed.

RESOURCES

TEN FRAME AND COUNTERS

On a sheet of notebook paper or construction paper, draw a ten frame. Use small objects such as buttons, stones, or bottle caps as counters.



Your child can fluently add and subtract within 5.

- Demonstrate rapid recall of numbers 0-5.
- Knows that addition (+) means to add and subtraction (-) means to take away.
- Use addition and subtraction strategies such as counting on, counting back, fingers, mental math, pictures, etc. to solve math problems.

HELP AT HOME

- Use flash cards to practice fluency with addition and subtraction math facts within 5.
- Using a ten frame (two rows of 5 boxes), have your child place counters in the boxes for any number 0-9. After placing the counters in the ten frame have your child count the remaining boxes to see how many more counters are needed to make ten.

VOCABULARY

FLUENCY is being able to know addition and subtraction facts quickly and correctly without the use of manipulatives to help.

Your child can compose and decompose numbers from 11 to 19 into ten ones and some further ones (e.g., by using objects and drawings), and record each composition or decomposition by a drawing or equation (e.g., 18 = 10 + 8). Your child can understand that numbers from 11 to 19 are composed of ten ones and one, two, three, four, five, six, seven, eight, or nine ones.

- Understand how to count in a sequence.
- Practice one-to-one correspondence when counting.
- Know how to write and read numbers 11-19.

HELP AT HOME

- Using straws, create a group of straws that represent the number 11-19 by counting out that many straws. Using a rubber band, bundle a group of ten. Have your child practice counting by starting at 10 (show the bundle of 10 that is rubber banded) then counting on the remaining straws (10 + 8= 18).

Your child can describe measurable attributes of objects, such as length or weight. Your child can also describe several measureable attributes of a single object.

- Understand that objects can be measured for different purposes.
- Know that length is used to determine how long an object is, and weight is used to determine how heavy an object is.

HELP AT HOME

- Using nonstandard units (e.g., paperclips, blocks, straws, coins), have your child measure random objects found around the house.
- Have your child compare the weights of different objects. Use terms such as heavier and lighter.

Your child can directly compare two objects with a measurable attribute in common, to see which object has "more of"/ "less than" the attribute, and describe the difference. For example, directly compare the heights of two children and describe one child as taller or shorter.

- Using nonstandard units (e.g., paperclips, blocks, straws, coins), have your child measure random objects found around the house.

HELP AT HOME

- Using two similar objects (e.g., spoons, children, toys) have your child compare the height of each item using terms such as taller or shorter, more or less.

Your child can classify objects into given categories. Your child can count the number of objects in each category and sort the categories by count.

- Understand how to count objects 1-10.
- Compare and contrast objects.
- Use one-to-one correspondence.
- Understand that objects can be sorted into different categories.

HELP AT HOME

- Have your child sort random groups of items around the house (e.g., socks, utensils, canned food) by color, size, length, weight, etc.

Your child can describe objects in the environment using names of shapes, and describe the relative positions of these objects using terms such as above, below, beside, in front of, behind, and next to.

- Understand the terms that describe the position of something (e.g., above, below, beside, in front of, behind, next to).

HELP AT HOME

- Place a ball in different areas around your child (e.g., above, below, beside, in front of, behind, next to). Have your child describe where the ball is using the terms above, below, beside, in front of, behind, next to, etc.

Your child can correctly name shapes regardless of their orientations or overall size.

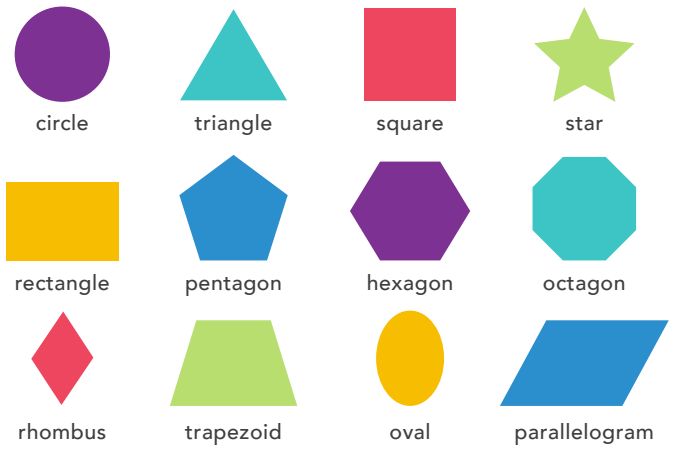
- Know the names of basic shapes (e.g., circle, triangle, square, rectangle, hexagon, cube, cylinder).
- Understand that objects can be sorted based on different attributes (e.g., size, color, shape).

HELP AT HOME

- Draw shapes of different sizes on index cards. Have your child sort the shapes into different categories. Help your child realize that no matter the size of the shape, the shape remains the same.

RESOURCES

BASIC 2D SHAPES



Your child can identify shapes as two-dimensional (flat) or three-dimensional (solid).

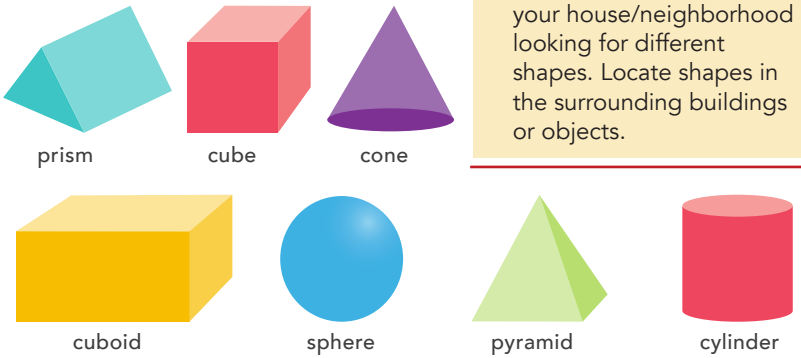
- Know the names of basic shapes (e.g., circle, triangle, square, rectangle, hexagon, cube, cylinder).
- Describe everyday objects by telling the name of its shape.

HELP AT HOME

- Have your child locate different objects in your home that are two-dimensional (e.g., square, triangle, rectangle, circle) and objects that are three-dimensional (e.g., sphere, cylinder, pyramid, cone).
- Enjoy a "Shape Walk" with your child. Walk around your house/neighborhood looking for different shapes. Locate shapes in the surrounding buildings or objects.

RESOURCES

BASIC 3D SHAPES



Your child can analyze and compare two and three-dimensional shapes, in different sizes and orientations, using informal language to describe their similarities, differences, parts (e.g., number of sides and vertices/"corners") and other attributes (e.g., having sides of equal length).

- Know the names of basic shapes (e.g., circle, triangle, square, rectangle, hexagon, cube, cylinder).
- Describe everyday objects by telling the name of their shape.
- Understand the difference between a two-dimensional and a three-dimensional shape.

HELP AT HOME

- Using cut outs of shapes or pictures of shapes, have your child describe each shape based on its sides, corners, or other attributes.

Your child can model shapes in the world by building shapes from components (e.g., sticks and clay balls) and drawing shapes.

- Know the names of basic shapes (e.g., circle, triangle, square, rectangle, hexagon, cube, cylinder).
- Describe everyday objects by telling the name of their shape.
- Understand the difference between a two-dimensional and a three-dimensional shape.

HELP AT HOME

- Using modeling clay or putty and straws, popsicle sticks or pipe cleaners, help your child create different models of shapes.

Your child can compose simple shapes to form larger shapes.

- Identify basic shapes (e.g., triangle, square, rectangle, hexagon).

HELP AT HOME

- Cut basic shapes out of paper or foam. Allow your child to explore turning, flipping and rotating shapes in order to form different shapes (e.g., use two triangles to create a rectangle or use six triangles to create a hexagon).