

Math Strategies for Striving Students

Student Concern	Suggestions for Instruction	Timeline
Has difficulty solving math word problems	<ul style="list-style-type: none"> ○ Make certain that it is not an inability to read that is the cause of the student's difficulty solving math word problems. ○ Provide short and concise word problems that require a one-step process. ○ Have the student restate math word problems in his/her own words. ○ Ask the student to identify the primary question that must be answered to solve a given word problem. Continue this activity using more difficult word problems containing two or more questions. Make sure the student understands that questions are often implied rather than directly asked. ○ Discuss words and phrases which usually indicate an addition operation (e.g., together, altogether, sum, in all, both, gained, received, total, won, saved, etc.). Provide the students with a list of those words and phrases. ○ Require the student to read math word problems at least twice before beginning to solve the problem. ○ Highlight or underline key words in math problems (i.e., reference to the operation involved, etc.). ○ Provide the student with a checklist to follow in solving math word problems (e.g., what information is given, what question is asked, what operation(s) is used). 	<p>_____ WKS</p>
Fails to change from one math operation to another	<ul style="list-style-type: none"> ○ Develop a math reference sheet for the student to keep at his/her desk (e.g. steps used in doing subtraction, multiplication, addition, and division problems). ○ Have the student estimate math solutions before solving a problem as a tool for self-checking. ○ Enlarge the math operation symbols so the student will be more likely to observe the symbols. ○ Require the student to go through math assignments and highlight or otherwise mark the operation of each problem before beginning to solve the math problems. 	<p>_____ WKS</p>

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	<ul style="list-style-type: none"> ○ Work the first problem or two of a math assignment for the student so he/she knows which operation to use. ○ Color-code the operation symbol for each math problem (e.g., make addition signs green, subtraction signs red, etc.). As the student demonstrates success, gradually reduce the use of color-coding. 	
Does not understand abstract math concepts without concrete examples	<ul style="list-style-type: none"> ○ Have the students draw pictures to illustrate math problems. ○ Introduce abstract math concepts with a concrete example (e.g., use a liquid and measuring cups with ounces indicated to introduce liquid measurement). ○ Provide physical objects to teach math concepts (e.g., provide the student with a yardstick when referring to a yard, etc.) ○ Teach the student abstract concepts (e.g., dimensionality, size, space, shape, etc.) one at a time before pairing the concepts. 	____ WKS
Fails to correctly solve math problems requiring regrouping (i.e., borrowing and carrying)	<ul style="list-style-type: none"> ○ Develop a regrouping reference sheet for the student to use at his/her desk when solving math problems which require regrouping. ○ Have the student practice the concept of regrouping by "borrowing" and "carrying" objects set up in columns like math problems. ○ Have the student solve money math problems using pennies and dimes to practice regrouping. ○ Make certain the student understands the concept of place value and that problems are solved beginning with the ones column on the right and moving to the left. ○ Require the student to check addition problems using subtraction. ○ Require the student to check subtraction problems using addition (e.g., difference plus the subtrahend equals the minuend). ○ Use manipulative objects (e.g., base ten blocks) to teach the student regrouping. 	____ WKS
Works math problems from left to right instead of right to left	<ul style="list-style-type: none"> ○ Display a large poster-board sign or use the chalkboard to create a message that indicates reading begins to the left and math 	____ WKS

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	<p>problems begin to the right.</p> <ul style="list-style-type: none"> ○ Make certain the student understands place value and can explain the concept of the ones column, the tens column, etc. ○ Put the student's math problems on graph paper or vertically lined paper to align columns. Include a reminder to begin each problem at the right. ○ Require the student to work each math problem using a bookmark/strip of paper to cover all columns except the one on the right. Move the marker to the left as he/she moves from the ones column to the tens columns to the hundreds column, etc. ○ Write the place value above each math problem to remind the student to begin with the ones column to solve the problems. ○ Use a marker to highlight the ones columns to show the student where to begin to work math problems. 	
Fails to follow necessary steps in math problems	<ul style="list-style-type: none"> ○ Assign the student math problems which require the same operation to make it easier for the student to follow steps in solving the problems. As the student demonstrates success, introduce problems with a different operation. ○ Have the student write the name of the operation beside each word problem before he/she solves any math word problems. Check the student's choice of operations before he/she begins to solve the problems. ○ Develop a math reference sheet for the student to keep at his/her desk (e.g., steps used in doing subtraction, multiplication, addition, and division problems). ○ Have the student write down directions, explanations, and instructions after they have been give to reinforce retention. ○ Provide sample problems, formulas, formats, etc., as references for solving math problems. ○ Provide the student with a list to keep at his/her desk of the steps necessary for the problems he/she is attempting to solve. 	___ WKS
Fails to correctly solve math problems involving fractions or decimals	<ul style="list-style-type: none"> ○ Provide the student with manipulatives which represent the fractions involved in solving a problem. 	___ WKS

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	<ul style="list-style-type: none"> ○ Provide the student with paper which has blank boxes and decimal points to guide the student to proper placement of decimal numbers when solving problems involving decimals. 	
Fails to demonstrate knowledge of place value	<ul style="list-style-type: none"> ○ Have the student practice regrouping a number in different positions and determining its value (e.g., 372, 627, 721). ○ Use manipulative objects (e.g., base ten blocks, connecting links, etc.) to teach the student place value and to provide a visual image. ○ Use vertical lines or graph paper to help the student visualize columns and put a single digit in a column. ○ Have the student practice labeling columns to represent ones, tens, hundreds, etc. 	____ WKS
Confuses operational signs when working math problems	<ul style="list-style-type: none"> ○ Have the student practice recognizing operational symbols (e.g., flash cards of \div, $+$, $-$, \times). ○ Color-code math operation symbols next to math problems so the student will be more likely to observe the symbol. ○ Require the student to go through the math problems on each daily assignment highlighting or otherwise marking the operation of each problem before he/she begins to solve them. ○ Provide the student with a math operation symbol reference sheet to keep and use at his/her desk (e.g., $+$ means add, $-$ means subtract, \times means multiply, \div means divide). ○ Highlight operational signs to draw the student's attention to the signs before beginning the operation. 	____ WKS
Fails to correctly solve problems involving money	<ul style="list-style-type: none"> ○ Have the student earn a hypothetical income and solve money-related math problems. The difficulty level of the problems should match the student's ability level (e.g., taxes, social security, savings, rent, food, clothing, auto payments, recreation, etc.). ○ Have the student match equal values of coins (e.g., two nickels to a dime, two dimes and nickel to a quarter, five nickels to a quarter, etc.). ○ Provide the student with real money to simulate transactions in 	____ WKS

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	<p>the classroom (e.g., purchasing lunch, groceries, snacks, clothing, etc.). Have the student practice acting as both a customer and a clerk.</p> <ul style="list-style-type: none"> ○ Teach the student to count by ones, fives, tens, twenties. ○ Teach the student to count by pennies, nickels, dimes, quarters, half-dollars. ○ Teach the student to recognize all of the coins (e.g., penny, nickel, dime, quarter, half-dollar). 	
<p>Fails to correctly solve problems using measurement</p>	<ul style="list-style-type: none"> ○ Develop a measurement reference sheet for the student to use at his/her desk when solving math problems involving measurement. ○ Discuss and provide the students with a list of words and phrases which usually indicate a measurement problem (e.g., pound, inches, millimeter, kilogram, etc.). ○ Provide opportunities for the student to apply measurement skills in real-life situations (e.g., cooking, measuring the length of objects, etc.). ○ Have the student begin solving problems using same and whole units of measurement (e.g., 10 pounds minus 8 pounds, 24 inches plus 12 inches, etc.). Introduce fractions and mixed units (e.g., pounds and ounces, etc.) only after the student has demonstrated success with same and whole units. ○ Have the student practice using smaller units of measurement to create larger units of measurement (e.g., twelve inches to make one foot, three feet to make one yard, eight ounces to make one cup, four cups to make one quart, etc.). 	<p>____ WKS</p>
<p>Does not understand the concept of skip counting</p>	<ul style="list-style-type: none"> ○ Have the student count the value of nickels, dimes, quarters, etc., by adding repeated, equal increments. ○ Provide the student with a number line on his/her desk to use as a reference for skip counting. ○ Have the student use tangible objects (pennies, paper clips, etc.) when counting by 2s, 5s, 10s, etc., to see that the total number is increasing in equal increments. 	<p>____ WKS</p>

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	<ul style="list-style-type: none"> ○ Use manipulative objects (e.g., abacus, base ten blocks, etc.) to provide a visual image when teaching the student the concept of skip counting. 	
Cannot tell time	<ul style="list-style-type: none"> ○ Make certain the student understands the concept of length of a minute, five minutes, ten minutes, fifteen minutes, one hour, ninety minutes, twenty-four hours, etc. ○ Make certain the student has a standard clock in the classroom to use as a visual reference. ○ Make certain the student knows the number of hours in a day, days in a week, weeks in a year, etc. ○ Make certain the student understands the terms used in telling time (e.g., "a quarter 'til," "half-past," "ten 'til," "a quarter after," etc.). ○ Have the student recognize when events occur in the daily routine (e.g., recess at 10:15, lunch at 11:45, dismissal at 3:20, etc.) ○ Make certain the student has a clock face with hands to manipulate when learning to tell time. 	____ WKS
Fails to correctly solve math problems requiring addition	<ul style="list-style-type: none"> ○ Develop a math facts reference sheet for addition for the student to use at his/her desk when solving math problems. ○ Discuss and provide the student with a list of words and phrases which indicate an addition operation in word problems (e.g., together, altogether, sum, in all, both, gained, received, total, saved, etc.). ○ Provide opportunities for the students to apply addition facts in real-life situations (e.g., getting change in the cafeteria, measuring the length of objects in industrial arts, etc.). ○ Have the student add numbers of objects. Have him/her then pair number symbols with the correct number of objects while he/she solves simple addition problems. As the student demonstrates success in solving simple addition problems, gradually reduce pairing objects with the number symbols until only number symbols are used. 	____ WKS

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	<ul style="list-style-type: none"> ○ Have the student group objects into sets and then add the sets together to obtain a sum. ○ Provide the student with a number line attached to his/her desk to help solve addition problems. ○ Use daily drill activities to help the student memorize addition facts (e.g., written problems, flash cards, etc.). ○ Provide the student with many concrete experiences to help him/her learn and remember math facts. Use popsicle sticks, tongue depressors, paper clips, buttons, fingers, etc., to form groupings to teach addition facts. 	
Fails to correctly solve math problems requiring subtraction	<ul style="list-style-type: none"> ○ Develop a math facts reference sheet for subtraction for the student to use at his/her desk when solving math problems. ○ Discuss and provide the student with a list of words and phrases which usually indicates subtraction operations (e.g., difference between, from, left, how many less, how much taller, how much farther, etc.). ○ Provide opportunities for the student to apply subtraction facts in real-life situations (e.g., getting change in the cafeteria, measuring the length of objects in industrial arts, etc.) ○ Have the student solve subtraction problems by manipulating objects and stating the process(es) involved. ○ Provide the student with a number line attached to his/her desk to help solve subtraction problems. ○ Teach the student the concept of "take away" (e.g., "You have three toys and I take away two of them. How many do you have left?"). ○ Require the student to check subtraction problems using addition (i.e., the difference plus the subtrahend equals the minuend). Reinforce the student for each error he/she corrects. 	____ WKS
Fails to correctly solve math problems requiring multiplication	<ul style="list-style-type: none"> ○ Have the student practice the multiplication tables each day using flash cards. ○ Have the student count by equal distances on a number line. Demonstrate that the equal distances represent skip counting, 	____ WKS

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	<p>which is the concept of multiplication.</p> <ul style="list-style-type: none"> ○ Have the student solve multiplication problems by manipulating objects and stating the process(es) involved. ○ Identify specific multiplication problems the student fails to correctly solve. Target those problems for additional instruction, tutoring, and drill activities. ○ Practice skip counting by 2s, 3s, and 5s. ○ Teach the student that multiplication is a way of adding that takes less time. Given examples of how much longer it takes to add than to multiply. ○ Use daily drill activities to help the student memorize multiplication facts (e.g., written problems, flash cards, etc.). 	
<p>Fails to correctly solve math problems requiring division</p>	<ul style="list-style-type: none"> ○ Develop a math fact reference sheet for division for the student to use at his/her desk when solving math problems. ○ Discuss and provide the student with a list of words and phrases which usually indicate a division operation in word problems (e.g., into, share, each, average, quotient, half as many, etc.). ○ Provide opportunities for the student to apply division facts in real-life situations (e.g., money, average length of time it takes to do a job, etc.). ○ Give the student several objects (e.g., one inch cubes, plastic links, etc.) and have him/her divide them into groups. ○ Identify specific division problems the student fails to correctly solve. Target those problems for additional instruction, tutoring, and drill activities. ○ Teach the student to divide numbers of objects. Then have the student pair number symbols with the number of objects while solving the division problem. In the last step, the student divides without using objects. ○ Have the student list all the skills necessary to work a division problem (e.g., subtraction, multiplication, etc.). ○ Have the student practice the division tables each day. ○ Teach the student the concept of sets. Have the student practice 	<p style="text-align: center;">____ WKS</p>

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	<p>dividing sets into two subsets, etc., to reinforce the concept of division.</p> <ul style="list-style-type: none"> ○ Provide practice of division facts that gives immediate feedback to the student. ○ Provide the student with many concrete experiences to help him/her learn and remember math facts. Use popsicle sticks, tongue depressors, paper clips, buttons, fingers, etc., to form groupings to teach division facts. ○ Provide the student with self-checking materials. Require corrections to be made before turning in assignments. ○ Use daily drill activities to help the student memorize division facts. 	
Does not remember math facts	<ul style="list-style-type: none"> ○ Be certain addition and subtraction facts have been mastered before introducing multiplication and division facts. ○ Separate the basic addition and subtraction facts into "sets." Require the students to memorize each set in succession. ○ Build upon and reinforce math facts the student has mastered. As the student demonstrates success, add one new fact at a time. ○ Choose one fact the student has not mastered, make it the student's "fact of the day," and review it several times throughout the day. ○ Develop a math facts reference sheet for addition, subtraction, multiplication, or division for the student to use at his/her desk when solving math problems. ○ Develop and post basic addition, subtraction, multiplication, and division charts which the student can use in solving math problems. ○ Provide opportunities for the student to apply math facts in real-life situations (e.g., getting change in the cafeteria, measuring the length of objects in industrial arts, etc.). ○ Have students complete a math facts quiz sheet as they arrive each morning. ○ Have the student use a number line attached to his/her desk to 	<p>____ WKS</p>

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	<p>add and subtract.</p> <ul style="list-style-type: none"> ○ Have the student practice skip counting to reinforce multiplication facts (e.g., 5s: 5, 10, 15, 20, 25, 30, etc.). ○ If a student has difficulty memorizing facts, allow him/her to keep a chart of facts. ○ Provide practice of math facts that gives immediate feedback to the student. ○ Using the tracking technique to help the student learn math facts, present a few facts at a time. As the student demonstrates success, gradually increase the number of facts the student must memorize. 	
<p>Does not make use of columns when working math problems</p>	<ul style="list-style-type: none"> ○ Develop a marked column format (e.g., / thousands / hundreds / tens / ones/) which can be copied from an original for the student to use in solving all assigned math problems. ○ Have the student exchange 10 pennies for a dime and correlate that activity with grouping ten one and placing a 1 in tens column and a 0 in the ones column. ○ Have the student practice labeling columns to represent ones, tens, hundreds, etc. ○ Have the student practice regrouping a number in different positions and determining its value (e.g., 372, 723, 237). ○ Have the student practice using columns when solving math problems by using a computer program which automatically chooses the correct column at input. ○ Teach the student that math problems of addition, subtraction, and multiplication move from right to left beginning with the ones column. ○ Teach the student that the collective value of ten "ones" is equal to one "ten" and that ten "tens" is equal to one hundred. ○ Provide the student with a masked window to help the student use columns accurately. ○ Use vertical lines on graph paper to help the student visualize columns and put a single digit in each column. 	<p style="text-align: center;">____ WKS</p>

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	<ul style="list-style-type: none">○ Teach the student to place a number in the ones column and move to the left to the next column from ones to tens, hundreds, thousands, etc.○ Use manipulative objects (e.g., base ten blocks, connecting links, etc.) to provide a visual image when teaching the student place value.○ Provide the student with color-coded columns to help the student use columns accurately.	
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