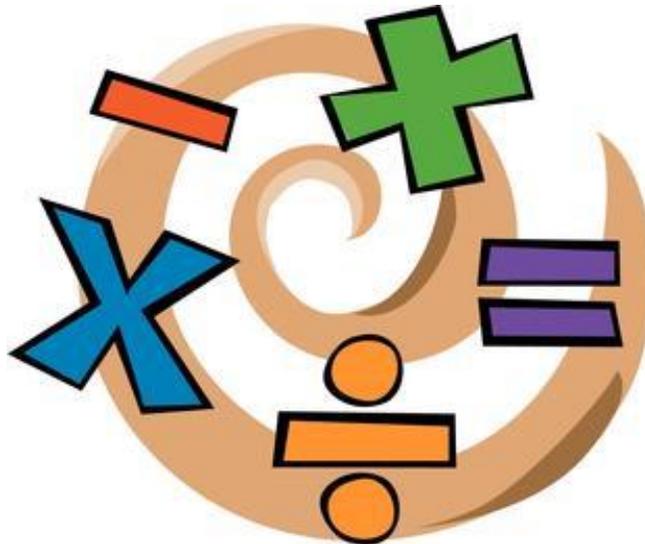


Accommodations and Resources to Enhance and Differentiate within Inclusive Classrooms:

Mathematics



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Academic Difficulty	Potential evidence that a student is struggling with this area	Classroom Accommodations	Resource
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<p>Word Problems</p>	<ul style="list-style-type: none"> • Confusion about terminology, difficulty following verbal explanations, or monitoring the steps of complex calculations • Not being able to decode the words used in a word problem, not comprehending a sentence, or not having the ability to concentrate when reading • Difficulties recognizing and imagining the context in which a word problem is set • Difficulties forming a number sentence to represent the mathematics involved in the word problem • Difficulty carrying out the calculation that is required to answer the problem 	<ul style="list-style-type: none"> • Have the child or teacher read the question aloud, one sentence at a time • Crossing out information that is unimportant to the actual problem • Have the child read through the problem once and then circle the important pieces of the word problem as he or she reads it again. This can help the student maintain focus and avoid making impulsive decisions 	<ul style="list-style-type: none"> • http://www.bsrlm.org/uk/IPs/ip29-3/BSRLM-IP-29-3-06.pdf • https://www.understood.org/en/learning-attention-issues/child-learning-disabilities/math-issues/good-at-math-bad-at-word-problems-how-to-help
<p>Dyscalculia</p>	<ul style="list-style-type: none"> • Child has difficulty understanding number-related concepts or using symbols or functions • Has memorized and is about to recite their 1-2-3's but have not been able to build their "number sense" 	<ul style="list-style-type: none"> • Have the student write out charts or draw sketches to solve problems • Use graph paper to help line up numbers and problems • Give the student a list of math formulas taught in class • Use manipulatives such as coins, blocks, and puzzles • Allow extra time on tests and assignments 	<ul style="list-style-type: none"> • http://www.understood.org/en/school-learning/partnering-with-children/school/instructional-strategies/at-a-glance-classroom-accommodations-for-dyscalculia
<p>Mastering basic number facts</p>	<ul style="list-style-type: none"> • Persistent trouble memorizing basic number facts in all four operations • Continuously will count on fingers for simple addition and subtraction • May have an excellent grasp of math concepts, but consistently has trouble noticing the operational sign, borrowing or carrying over appropriately, or sequencing the steps in more complex operations 	<ul style="list-style-type: none"> • Interactive and intensive practice with motivational materials such as games (attentiveness during practice is as crucial as time spent) • Distributed practice, meaning much practice in small doses • Small number facts per group to be mastered at one time • Emphasis is on "reverses" or "turnarounds" (e.g., $4+5/5+4$ in vertical, horizontal, and oral formats) • Instruction, not just practice (teaching thinking strategies from one fact to another; e.g. double facts, $5+5$, $6+6$, etc. and then double-plus-one-facts, $5+6$, $6+7$, etc.) 	<ul style="list-style-type: none"> • http://www.ldonline.org/article/Math_Learning_Disabilities?theme=print
<p>Visual-Spatial-Motor organization</p>	<ul style="list-style-type: none"> • Difficulties vary • Difficulty with pictorial representations • Poorly controlled handwriting • Confused arrangements of numerals and signs on the page • Those with profoundly impaired conceptual understanding often have substantial perceptual-motor deficits and are presumed to have right hemisphere dysfunction 	<ul style="list-style-type: none"> • May require a very heavy emphasis on precise and clear verbal descriptions • Benefit from substituting verbal constructions for the intuitive/spatial/relational understanding they lack • In need of remediation in the area of picture interpretation, diagram and graph reading, and nonverbal social cues • Great patience and verbal repetition are required to make small incremental steps 	<ul style="list-style-type: none"> • http://www.ldonline.org/article/Math_Learning_disabilities?theme=print

Suggest On-Going Progress Monitoring and Mathematics Interventions

<p>EnVision Math Diagnostic and Intervention Toolkit</p>	<ul style="list-style-type: none"> • Number talks: Helping children build mental math and computation strategies, Grades K-5
<p>Formative assessments, checklists, journals, notebooks, district assessments, CBM, Math probes, AIMSweb, Successmaker, iReady, Waterford</p>	<ul style="list-style-type: none"> • Cover, Copy, Compare with math facts • Incremental rehearsal with math facts • Math computation: Intermixing easy and challenging problems • Math computation: Productivity rates
<p>Frequency is increased to every week or may vary depending on the level of need of the students</p>	<ul style="list-style-type: none"> • Errorless learning: Uses prompts with correct answers and systematic fading • Explicit math instruction strategies • Chunking: smaller sets of problems and/or break down into smaller, more manageable
<p>Diagnostic mathematics interviews with the student</p> <p>Monitor the progress of students receiving supplemental instruction and other students who are at risk</p> <p>Include motivational strategies in tier 2 and tier 3 interventions</p> <ul style="list-style-type: none"> • Diagnostic Math Inventory • Key Math (revised) • Stanford Diagnostic mathematics test • Enright Diagnostic of Basic Skills 	<ul style="list-style-type: none"> • Drawing to clarify • Singapore Bar Model: addition, subtraction, multiplication, division • Manipulatives: concrete or virtual for reinforcing prior knowledge and understanding concepts • Introduce and systematically review math vocabulary and post a word wall with easy access • Math journaling: drawing, writing, worth through processes, explain their actions • Coaching cards: used for math fact fluency, automaticity, also for scaffolding multi-step problems • Instructional decision making and problem solving is critical for Tier 3, i.e. identify the specific problem, analyze the problem, develop and implement a solution, and monitor the response to the solution • Intensify variables in support
<p>Ongoing Progress Monitoring (Gresham & Little, 2013 pp.114) Record OPM assessments, results, and dates, be sure to attach charts and graph the results</p> <ul style="list-style-type: none"> • Daily assessment and explicit feedback • CBM will occur weekly • Conduct student interviews • Student behavior will be observed and recorded • Conceptual mapping and organizers will be used • Analysis of error patterns will be ongoing 	<ul style="list-style-type: none"> • Use a variety of classroom methods and resources such as demonstration, manipulative materials, charts, illustrations, diagrams, maps and technology to provide visual representations • Provide visual redundancy • Relate instructional topics, examples, and vocabulary to prior knowledge, interests, and backgrounds of the student • Develop multiple ways for students to demonstrate learning (i.e. role playing, write a script, illustrate key concepts) • Have students work in small groups of two or three to maximize opportunities for active student engagement and interactions • Encourage curriculum specialists, instructional coaches, and other teacher with expertise in mathematics to provide additional assistance <p style="text-align: center;">More Intensive and/or Explicit Intervention</p> <ul style="list-style-type: none"> • Success Maker (5 times a week for 20 minutes for targeted math lessons) • http://www.coedu.usf.edu/main/departments/sped/mathvids/strategies/em.html • Intervention Central (click on teacher resources, then math) • EnVision Math Intervention Toolkit • Use clear, concise directions, questions, explanations, and instruction and walk student through the process • Use as many concrete examples and experiences as possible and chunk the information (base-10 blocks, two-colored counters, ten frames, beans, abacus, etc.) • Present one or 2 problems at a time and review daily • Provide immediate feedback • Use games, computer programs, word problem demonstrations, and representations to build fluency and understanding • Use one-on-one (individualized) instruction