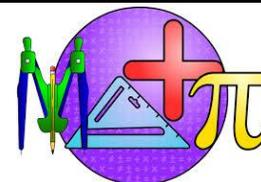


QUICK REFERENCE GUIDE TO TEACHING INCLUSIVE MATHEMATICS TO STUDENTS WITH DISABILITIES

Best Practices For Math Inclusion

- *Teach and adapt an appropriate curriculum
- *Teach both explicitly and constructively
- *Teach for understanding
- *Utilize a problem-solving approach
- *Utilize techniques of effective instruction

- *Model thinking and problem-solving strategies
- *Promote connections and communication
- *Promote a positive attitude
- *Use multiple representations
- *Incorporate technology



Learning Disabilities	Potential Challenges	Intervention Strategies for Teachers
Visual Processing <u>Key Words:</u> <i>figure ground</i> <i>visual discrimination</i> <i>reversal</i> <i>spatial perception</i>	<ul style="list-style-type: none"> *Expressing written mathematical ideas *Seeing small print or print with many distracters *Lining up numbers *Understanding concepts related to time *Discriminating between sizes and parts in fractional models *Reversing digits *Discriminating numbers with decimals, mathematical symbols *Keeping place when copying 	<ul style="list-style-type: none"> *Color code *Provide ample working space *Use larger font size with fewer problems on a page *Use grid paper for lining up mathematical problems *Identify critical information needed to solve complex problems *Introduce new skills with concrete materials, then abstract *Repeat steps (verbally) of complex processes *Use concrete teaching materials instead of pictorial representations
Auditory Processing <u>Key Words:</u> <i>auditory discrimination</i>	<ul style="list-style-type: none"> *Following oral directions *Focusing during oral lectures *Discriminating between words that sound similar (fourteen, forty; hundred, hundredth) *Processing oral-drill activities 	<ul style="list-style-type: none"> *Keep directions simple; one step at a time *Give directions both orally and visually *Maintain eye contact while speaking *Limit background noise during instruction and giving directions *Teach vocabulary and provide opportunities to practice *Have student repeat information to build comprehension skills *Allow student to work in a quiet space as needed *Allow use of tape recorder for lectures
Motor Processing <u>Key Words:</u> <i>visual-motor integration</i>	<ul style="list-style-type: none"> *Writing numbers, symbols and words *Writing accuracy and speed *Completing work in a timely manner *Copying from board or overhead 	<ul style="list-style-type: none"> *Provide ample working space *Break written assignments into shorter increments *Limit quantity of written work *Provide back-up copies of notes *Consider assessing student orally when possible *Set realistic expectations for neatness
Memory Deficits <u>Key Words:</u> <i>short term</i> <i>long term</i> <i>sequential</i>	<ul style="list-style-type: none"> *Remembering basic facts *Solving multi-step problems *Retaining skills from one day to the next 	<ul style="list-style-type: none"> *Teach strategies for accessing and retrieving stored information such as mnemonic devices, vocabulary words with pictorial representations, color coding, linking *Use a multi-sensory approach including visuals and manipulatives *Teach and practice thinking strategies for mastery of basic facts *Provide math fact charts to allow student to progress to higher level complex computation and problem-solving math applications *Allow use of a calculator when the focus of the assignment is not a computation skill

<p>Attention Problems</p> <p><u>Key Words:</u> <i>Attention Deficit Disorder</i> <i>Attention Deficit</i> <i>Hyperactivity Disorder</i></p>	<ul style="list-style-type: none"> *Sustaining attention *Missing pertinent information *Staying organized *Transitioning between assignments or activities *Following multiple step instructions *Discriminating between relevant and irrelevant information 	<ul style="list-style-type: none"> *Use verbal or nonverbal cues for regaining attention *Use verbal or nonverbal cues for important information/directions *Have student restate information and/or directions *Check frequently understanding *Pair auditory and visual information *Move student away from distractions *Introduce with concrete examples
<p>Language</p> <p><u>Key Words:</u> <i>expressive language</i> <i>receptive language</i></p>	<ul style="list-style-type: none"> *Following verbal explanations *Articulating complex computations *Solving word problems *Completing oral drills 	<ul style="list-style-type: none"> *Model and demonstrate <i>think aloud</i> strategy using appropriate mathematical terminology *Use think/pair/share techniques to allow students to process *Teach mathematics vocabulary *Provide a word bank for vocabulary *Highlight key words
<p>Cognitive and Metacognitive</p> <p><u>Key Words:</u> <i>cognition</i> <i>metacognition</i></p>	<ul style="list-style-type: none"> *Solving word problems *Patterning *Sequencing 	<ul style="list-style-type: none"> *Model and demonstrate <i>think aloud</i> strategy using appropriate mathematical terminology *Introduce with concrete examples *Foster student mathematical understanding *Monitor the problem-solving process *Develop students' reflective thinking skills

Working with Students and Parents

<p>The Individuals with Disabilities Education Act (IDEA) Federal special education law ensures public schools serve the educational needs of students with disabilities. * National Center for Learning Disabilities: http://www.ncld.org/</p> <p>Benefits of parental involvement:</p> <ul style="list-style-type: none"> *Ensures school-to-home continuity *Increases expectations for students and results in academic and social gains *Provides a safeguard so that needs of the student are discussed and met by the school system *Shares significant insight about the student 	<p>Effective student collaboration strategies:</p> <ul style="list-style-type: none"> *Students should be included in the development of the Individualized Education Plan *Students should be encouraged to self-advocate regarding accommodations in the classroom <p>Effective parent collaboration strategies:</p> <ul style="list-style-type: none"> *Work together toward a common goal *Build positive relationships *Focus on needs and interests of the student *Respect parents rights to have their own values and opinions
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Resources:

Teaching Inclusive Mathematics to Special Learners, K-6 by J. Sliva
Teaching Students Who are Exceptional, Diverse, and At Risk in the General Education Classroom by S. Vaughn, C. Bos, and J. Schumm
http://www.doe.virginia.gov/special_ed/disabilitites/index.shtml

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