

Appendix E: Possible Adaptations for Students with Learning Difficulties in Mathematics

of the

Mathematics Framework

*for California Public Schools:
Kindergarten Through Grade Twelve*

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Appendix E

Possible Adaptations for Students with Learning Difficulties in Mathematics

This appendix presents suggested adaptations that teachers can use when planning instruction for students who have learning difficulties in mathematics. For additional information on meeting the instructional needs of all students, see the Universal Access chapter. It should be noted that individualized education programs (IEPs)—for students with disabilities who receive special education services—provide specific guidance for supplementary aids and services (including accommodations, modifications, and assistive technology) that are tailored to address the unique needs of each student.

Possible Adaptations for Students with Visual and Auditory Difficulties

- The student is located close to where the teacher provides instruction and is able to receive peer assistance.
- The student’s desk is free of distractions.
- Visual cues are provided on the wall.
- The teacher previews the content and makes key concepts explicit to students with review and frequent checks for understanding.
- Students are provided with study guides.
- The teacher uses consistent routines.
- When presenting material, the teacher utilizes a moderate tone of voice, clearly enunciates words, and often repeats the lesson’s key ideas.
- The teacher decreases visual complexity by presenting one key idea or problem at a time on the overhead or projector screen. Similarly, templates are used to block out all of the problems on a worksheet page except for the one that the student is completing.
- To maintain respect for student and teacher ideas, there is a rule in the classroom that only one person may talk at any given time. This helps students to remain focused.
- The teacher uses methods of organizing written assignments (e.g., completing computations on centimeter grid paper). Templates are drawn for traditional algorithms.
- The teacher uses concrete models instead of pictures.
- The student is provided with audio or video lessons (or both).
- To assist with reading assignments and problems, the student is provided with access to text according to his or her preferences (e.g., through peer assistance, specialized software and computer access, audio recordings, and so forth).

- Reading tasks are shortened.
- Frequent connections are made between what is happening in class and real-life situations outside of class.

Possible Adaptations for Students with Memory Difficulties

- The teacher provides only one instruction at a time.
- After giving instructions, the teacher asks students to repeat the instructions in their own words. The teacher also writes the instructions on the board.
- The teacher provides frequent reviews (distributed practice).
- Students are able to use calculators.
- Additional time is provided for students to complete assignments and assessments.
- Assignments and a calendar of due dates are available electronically (e.g., on the teacher’s Web site).

Possible Adaptations for Students with Integrative Difficulties (e.g., abstract thinking and conceptualization)

- Teachers utilize concrete models and multimedia for an extended period of time.
- Students communicate what they are doing through words, pictures, and numbers.
- Students are encouraged to justify their thinking.
- New conceptual ideas are repeated and practiced.
- Students are encouraged to re-state word problems in their own words.
- Students are provided with opportunities to teach concepts to each other.
- An abstract concept is represented in a variety of ways—for example, through concrete examples, words, symbols, and drawings, or by acting it out.
- Students are placed in heterogeneous groups for peer assistance and modeling (Vaughn, Bos, and Schumm 2010, 168; Hoover et al. 2008; Van de Walle 2007).
- The teacher scaffolds open-ended inquiries.

Possible Adaptations for Students with Attention Deficit Hyperactivity Disorder (ADHD)

- Novelty in instruction and directions is supported by students who highlight important instructions and key points. For example, students may highlight the operations signs on a math page.
- Classroom schedules and routines are well established and maintained.
- Students are prepared ahead of time for transitions and are provided with support in completing transitions.
- The teacher emphasizes time limits for completing assignments.
- Positive feedback about students’ performance and behavior is provided consistently and often.

- Teacher instructions are brief and clear.
- Assignments and classwork allow for movement and postures other than sitting.
- The classroom environment is arranged to facilitate attention and minimize distractions.
- The teacher uses effective questions to promote active participation by all students and to develop the students' critical-thinking skills.
- Students are given the option to complete fewer problems than are assigned. When using this adaptation, teachers must be careful not to lower their expectations or standards for students.
- Multiple forms of assessment are utilized to determine student learning (Vaughn, Bos, and Schumm 2010, 168; Hoover et al. 2008; Van de Walle 2007).

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