Nick’s parents observe him putting considerable effort into homework, especially in math, but they believe he is becoming discouraged and embarrassed by his poor grades.

Reason for Referral:

Nick is a 10-year-old (10:10) fourth grader referred in March for a comprehensive assessment by the campus Student Assist Team (SAT) because of failing math grades. He was identified as being at risk when the fall AIMSweb® math benchmarks (M-CAP: Math Applied Problems CBM and M-COMP: Math Computation CBM) scores placed him in the bottom 20% of his class. His teacher, Mr. Sosa, reports that in spite of several interventions over the course of the school year, Nick continues to perform below grade level. Nick’s parents note that his poor math grades are inconsistent with the B’s and C’s he receives in his other academic classes.

Referral questions include:

1) Why has Nick not responded to a series of math interventions provided through general education in both Tier 1 and Tier 2?

2) Does Nick have a Specific Learning Disability or any other disability that may require more intensive differentiated instruction?

3) What can be done to assist Nick in the classroom to close the ever-widening achievement gap?
Background Information:

Family history

Nick, an only child, lives with both parents. His father works as a banker and his mother is a teaching assistant in the school district. English is the only language spoken in the home. Mrs. Baron reports that Nick met developmental milestones as expected and is in good health but is absent from school on occasion due to asthma. He uses an inhaler on an as-needed basis, typically no more than five days per month. She indicates that math was difficult for her in high school and that she earned her associate degree two years ago. Nick’s father is a college graduate and does not report any learning difficulties.

Personal Characteristics

His parents describe him as an easy-going youngster who has three to four close friends. He enjoys playing soccer in a city league and participates in Boy Scouts. They observe him putting considerable effort into homework, especially in math, but believe he is becoming discouraged and embarrassed by his poor grades. They report that they typically spend at least an hour every school night doing homework.

Academic History

Nick attended kindergarten and first grade in another state, but has been on this campus since the beginning of second grade. He has never been retained but attended summer school for math following second and third grades. His mother noted that math has always been more difficult for her son, and that he was notably slower than others his age in learning skip counting and in grasping the concept of subtraction with regrouping. In second grade he struggled with time and money concepts and he now has considerable difficulty recalling his multiplication facts and in solving problems using fractions. According to Mr. Sosa, Nick began the year already behind.

Small Group Intervention

As a result of Nick’s failing grades in the first six weeks and his low benchmark scores, his teacher began working with him in a small group for about 10 minutes per day reviewing the day’s lesson. Nick was encouraged to ask questions or receive help solving assigned problems. His performance was erratic, according to Mr. Sosa, and he might “know” a concept one day, and not remember it the next. In late November when he showed minimal progress, he was referred to the SAT to consider more intensive intervention.
Intensive Intervention

Beginning in December, Nick went to after-school tutoring twice weekly for a period of 30 minutes per session. His tutor was another math teacher on campus, Mrs. Martinez, who focused on helping him complete his homework assignments at school with more supervision and weekly progress monitoring. Data that were collected for the next six weeks using AIMSweb® M-COMP and M-CAP reveal very slow progress in comparison to others in the tutorial group, and the mid-year benchmark results provide further evidence of his exceptionally slow response to intervention.

Next, his tutoring was increased to three times weekly for 30-minute sessions. In early February, Mrs. Martinez administered the KeyMath™-3 Diagnostic Assessment to identify specific math strengths and weaknesses and to determine how intervention could be more productive. Test results revealed several skill deficits across a broad range of math concepts and applications. Mrs. Martinez began remediating Nick’s deficits in measurement and multiplication and division using a third-grade text and computer-based calculation games. To date, his progress is steady but slow.

Nick reports that he “can’t do” math and that in spite of the help he has received, he is so far behind he cannot catch up. At the same time he is reluctant to go to summer school again as he believes it has not helped him in the past. He enjoys playing the math video games in tutoring but is distressed that he must spend so much time in the evenings doing homework. Nick indicates that he especially enjoys science class, but that he is concerned that he will not be able to pass to fifth grade with his friends.

Assessment Plan:

- Teacher Interviews
  (Mr. Sosa, Mrs. Martinez)
- Parent Interview (Mrs. Baron)
- Student Interview
- Classroom observation
- Review of RTI benchmark and progress monitoring data
- Review of KeyMath™–3 Diagnostic Assessment

Administration of norm-referenced standardized tests:

- Math subtests from the WIAT™–III (Wechsler Individual Achievement Test®, Third Edition)
- WISC®–IV (Wechsler Intelligence Scale for Children®, Fourth Edition) with selected subtests from the WISC®–IV Integrated
- Selected subtests from the NEPSY®–II
- Selected subtests from the PAL™–II Diagnostic Assessment for Math
Behavioral Observations:

This examiner conducted a classroom observation during Nick’s math class. The lesson was a review of adding fractions with unlike denominators, and Mr. Sosa was demonstrating at the board how to apply this skill to solve real-world problems. Nick sat at the front of the room and appeared to be engaged; however, he did not volunteer answers nor did he ask questions.

Students were assigned five word problems to complete in 10 minutes. Nick spent the entire time working at his desk. When called on by his teacher to answer the first problem, Nick mumbled something, then replied, “I don’t know.” When his work was reviewed, he had attempted to draw out each fraction using pie charts, but was unable to perform any calculations.

During this evaluation Nick was attentive and on task. He responded well to encouragement although his initial response was to give up when challenged. He was not impulsive but was limited by the number of alternative solutions or strategies he employed. Typically he relied on verbal rehearsal when trying to recall information and when asked how or why he approached a task in a particular way, he was unable to explain his reasoning or strategy even when his response was correct.
Nick was given the **KeyMath-3 Diagnostic Assessment** on February 13, four weeks prior to this evaluation by Mrs. Martinez. His Total Test Composite score was 79 (at the 8th percentile ranking), which falls in the Below Average range in comparison to grade-level peers. His scores in each of the three measured domains also fell below average with a Basic Concepts Standard Score of 79 (8th percentile), an Operations score of 78 (7th percentile), and an Applications score of 83 (13th percentile).

There are few differences among his subtest scores, with every score falling at least one standard deviation below the mean of 10. His lowest scores are on the Measurement and the Multiplication and Division subtests, on which he earned below average scaled scores of 5. Error analysis indicates he has not mastered several of the foundation skills that are necessary for success in fourth-grade math.

Of particular interest is his difficulty in relating math calculation to a real-life context and in identifying and applying effective strategies. Mrs. Martinez noted Nick’s frequent use of his fingers, tally marks, and drawings to aid problem solving, calculation errors related to fact retrieval, and that Nick worked much more slowly than other students she had tested in his grade.

Nick’s parents note that his poor math grades are inconsistent with the B’s and C’s he receives in his other academic classes.
Standardized Test Results of Instruments Administered for Assessment Plan

**Wechsler Individual Achievement Test®, Third Edition**

Nick was administered the **WIAT®-III** Math Problem Solving, Numerical Operations, and Math Fluency (Addition, Subtraction, and Multiplication) subtests since math is the only area of suspected disability. His overall Mathematics score of 76 (at the 5th percentile) is based on consistent scores on the contributing subtests.

**Math Problem Solving**

Nick earned a Standard Score of 76 (5th percentile ranking) on the Math Problem Solving subtest, an untimed measure of his ability to use mathematical reasoning and calculation skills to solve word problems. Although he was able to answer items requiring basic addition and subtraction, pattern identification, reading a calendar, gaining information from a simple graph, and using place value, he was not able to compare coins based on their value, read an analog clock using quarter of an hour, or correctly answer any items using fractions.

**Numerical Operations**

Nick’s score on the Numerical Operations subtest is 79 (8th percentile). This subtest measures written calculation under untimed conditions and includes all four operations using whole numbers, fractions, and decimals. Nick was able to correctly answer items requiring simple addition and subtraction of multi-digit numbers, but missed items related to regrouping and retrieval of multiplication facts. He did not attempt any of the division items or any item using fractions.

**Math Fluency**

Nick’s lowest scores are on the timed Addition, Subtraction, and Multiplication Fluency subtests scoring 72, 70, and 68, respectively. When combined into a Math Fluency composite, his overall score is 68, which places him at the 2nd percentile ranking. He attempted a small percentage of the items and typically used his fingers and tally marks to solve rather than relying on retrieval of math facts.

Nick’s scores on the WIAT®-III Math subtests and the previously administered Key Math™-3 Diagnostic Assessment are consistent and representative of the significant math difficulties he experiences.
He commented that the timed tasks made him “nervous” and that he knew he had made several mistakes. His low scores, however, are more the result of fewer completed items than of actual errors. Nick’s scores on the WIAT®-III Math subtests and the previously administered Key Math™-3 are consistent and representative of the significant math difficulties he experiences.

**Wechsler Intelligence Scale for Children®, Fourth Edition**

In an effort to better understand why Nick has been unable to master grade-level math concepts and operations, he was given the WISC®-IV. This individually administered test battery consists of a variety of subtests assessing various cognitive abilities that are categorized by the domains of Verbal Comprehension (VCI), Perceptual Reasoning (PRI), Working Memory (WMI), and Processing Speed (PSI).

**Verbal Comprehension (VCI)**

The Verbal Comprehension subtest scores identify Nick’s strengths in verbal fluid reasoning, expressive language, and lexical and semantic knowledge. Three subtests—Similarities, Comprehension, and Vocabulary—contribute to Nick’s Verbal Comprehension Index Score of 99 (47th percentile ranking), which falls in the Average range. Similarities, a measure of his ability to use verbal reasoning and concept formation to explain how two objects or concepts are alike, yielded an average Scaled Score of 9. In similar fashion, he earned a 10 on Comprehension, a measure of his ability to answer questions based on his understanding of general principles and social situations, and an 11 on Vocabulary, an evaluation of word knowledge requiring learning ability, long-term memory and retrieval, and verbal expression.

**Perceptual Reasoning (PRI)**

Nick’s Perceptual Reasoning Standard Score of 86 (18th percentile), in the Low Average range, reveals some of the difficulties he has on visual tasks requiring nonverbal concept formation, visual perception and organization, simultaneous processing, nonverbal fluid reasoning, and abstract categorical reasoning. Three subtests contribute to this composite—Block Design, Picture Concepts, and Matrix Reasoning.

His Scaled Score of 8 on Block Design, a measure of his ability to recreate a pictured design using colored blocks within time limits, is at the lower limits of the Average range and is due in part to the fact that he did not obtain any time bonuses for quick responses.
His Scaled Score of 7 on Picture Concepts falls in the Below Average range. This subtest requires abstract, categorical reasoning much like the Similarities subset but does not rely on oral expression to explain why pictured objects might be grouped together.

His Scaled Score of 8 on Matrix Reasoning, a nonverbal subtest for which he looked at an incomplete matrix and selected the missing portion from five response options, also falls at the lower limits of the Average range.

Nick’s approach to each of the three tasks was to talk to himself as he considered potential responses, use trial and error (although somewhat inefficiently), and frequently look at the examiner for approval or feedback. When his initial category did not work on Picture Concepts, he was unable to generate other options, indicating a lack of cognitive flexibility. On two of the Block Design items he tried using a block with the incorrect side showing, then picked up a second or third block and repeated the same error. His response time on both Picture Concepts and Matrix Reasoning was slower than typically seen in students his age.

**Working Memory (WMI)**

Nick’s scores on the Working Memory domain subtests reveal additional weaknesses related to rote learning of verbal information, sequencing, mental manipulation, transformation of information, and visual-spatial imaging. His Working Memory Index Standard Score of 86 (18th percentile) falls in the Low Average range. This domain is composed of two subtests: Digit Span and Letter-Number Sequencing.

**Digit Span and Letter-Number Sequencing**

Digit Span is further composed of Digits Forward, which required him to listen to a series of digits and repeat them back in the same order they were presented, and Digits Backward, which required him to reverse the order of the digits prior to repeating them. Nick was able to recall a series of five digits forward (a Scaled Score of 8) and a series of three digits reversed (a Scaled Score of 7), yielding a Digit Span Scaled Score of 7. The difference in the two scores is not statistically significant or unusual for his age.

On Letter-Number Sequencing, he was read a sequence of numbers and letters and was asked to recall the numbers in ascending order and the letters in alphabetical order. His Scaled Score for this subtest is 8 and his longest recalled span was three. He did not get far enough along in this subtest to enable adequate measurement of the more complex demands of manipulation of information in that he passed items that required sorting and recall but was only able to sort, reorder, and recall a series of three items.
Nick demonstrated similar behaviors on each of these subtests; specifically, he engaged in verbal rehearsal as he repeatedly whispered the numbers or letters to himself, his errors were typically the result of incorrect sequencing of the correct digits, and he was obviously anxious about his performance. His heavy reliance on verbal rehearsal actually may be counterproductive on working memory tasks since it can produce interference that makes learning the new information more challenging.

**Visual Span and Spatial Span**

In order to determine if his difficulties are related primarily to the verbal presentation and response required on the Digit Span and Letter-Number Sequencing subtests, the Visual Span and Spatial Span subtests were also administered. The addition of these two WISC®-IV Integrated subtests also allows an analysis of whether deficits are related to registration of information into short-term memory or active manipulation in working memory.

On Visual Span, a series of digits were presented for a few seconds visually and Nick then was asked to orally repeat them in the order of presentation. His Scaled Score is 7. Like the verbal Digit Span, Spatial Span includes two components: Spatial Span Forward, which requires the child to watch as the examiner touches a series of blocks embedded randomly in a tray and then touch the same blocks in the same order; and a Spatial Span Backward task, for which he must touch the blocks in the reverse of the order in which they were touched by the examiner. Nick scored a Scaled Score of 6 on both tasks.

**Summary of Working Memory subtests**

His low- to below-average scores from Digits Forward, Visual Span, and Spatial Span Forward characterize difficulties with initial registration of incoming information regardless of input modality. Of the three scores, his higher score on the verbally presented tasks suggests that he is only slightly better at registering verbal information. There are, in fact, no statistically significant differences among the scores.

Scores from Digits Backward and Spatial Span Backward reveal similar difficulty in manipulating information in working memory. His identified problem in registering information no doubt impacts his ability to manipulate it. Once more, there is no discrepancy between his scores when information is presented verbally or visual-spatially.

His persistent sequencing errors suggest that although the storage capacity to recall content is present—albeit somewhat restricted—the ability to maintain the memory trace over time to reorder the data is even more limited. This can result in inconsistent memory performance when the
sequential order of recently acquired knowledge is required. This could shed light on why Nick does not always recall the order of steps necessary to perform more complex calculations, such as subtraction with regrouping or the multiplication of multi-digit numbers.

**Processing Speed (PSI)**

Nick’s Processing Speed Index score of 85 (16th percentile) based on two subtests—Coding and Symbol Search—yields his lowest domain score and falls in the Low Average range. He also was given the supplemental Cancellation subtest.

**Coding**

On Coding, Nick copied symbols that were paired with numbers presented in a key at the top of the page. This task is timed and his score is based on the number of correctly copied symbols he produces in two minutes. His Low Average score of 7 is the result of fewer completed items rather than of copy errors. Throughout the task, he returned to the key to locate the match rather than depend on short-term recall or paired associative learning. He talked his way through the task—a behavior also observed on Symbol Search and Cancellation.

**Symbol Search**

His Symbol Search Scaled Score of 8 is based on his ability to visually scan a search group of symbols and indicate whether the target symbol matches any of the symbols in the search group within a time limit. Once more, Nick worked slowly, comparing each symbol in the search group to the target rather than relying on short-term visual memory.
Cancellation

His Scaled Score of 7 on Cancellation reflects his difficulty in visually scanning both a random and a structured arrangement of pictures while marking targets within a time limit. Although his score was slightly higher on the structured array, the difference is not statistically significant. He worked slowly on both tasks and used an inefficient search strategy throughout the random array. He worked more efficiently when information was presented in organized rows but his speed increased only slightly. Visual scanning tasks appear to be somewhat more difficult for him when he must engage executive control processes and organize the visual information while working with it. Overall, Nick shows slower processing speed for primarily visual information that he must match, copy, discriminate, or organize.

WISC®-IV Summary

When all four domains are included to produce a global cognitive ability score, Nick earns a low average FSIQ score of 87 (19th percentile), which captures his cognitive deficits related to nonverbal, sequential reasoning, working memory, and processing speed but under-represents his stronger verbal abilities. There is a statistically significant difference between his VCI and PSI scores (at the .05 level), and a difference of that size occurred in about 15% of the standardization sample. For these reasons, the FSIQ should be used with caution when considering his diverse cognitive abilities.

NEPSY®-II

Nick was administered subtests from the NEPSY-II that were selected because of their focus on the visual-perceptual processes that appear to be linked with developing math skills and to provide additional information on memory and learning.

Memory for Designs

Memory for Designs was administered for both immediate and delayed recall for visual-spatial and visual detail information as well as visual working memory. Nick was shown a picture of a grid with several designs for a few seconds. He then selected the designs he recalled from a set of cards and placed the cards in a grid in the same location as previously shown. He had difficulty learning both the location and the details of visual, abstract information when it was presented with a short exposure time; his scores all fall within the Borderline range and place him in the bottom 25% of children his age.
After a 20-minute delay, he was asked to recall the designs and locations again and his scores dropped to the Below Expected level. The delayed scores measure long-term storage and retrieval and indicate that he has difficulty, as previously observed on the WISC®-IV, in encoding visual-spatial information into short-term memory and even more trouble retrieving that type of information from long-term memory. In summary, when exposure time is brief and he is unable to use his stronger verbal skills because of the abstract nature of the stimuli, he has notable problems with rote memorization for both the detail and location of visual information in two-dimensional space. He also shows a high rate of forgetting those details and location over time because new learning is fragile and decays quickly.

**Design Copying, Picture Puzzles, and Geometric Puzzles**

Nick also was administered the Design Copying, Picture Puzzles, and Geometric Puzzles subtests, which measure specific aspects of visual processing. He demonstrated age appropriate abilities related to the analysis and comparison of geometric figures (Geometric Puzzles) and the identification of salient visual details in a picture (Picture Puzzles), but Borderline performance on a task requiring the integration and coordination of spatial-relational information in order to copy two-dimensional shapes using paper and pencil (Design Copying). His lower score on Design Copying also may be indicative of his problems maintaining accurate visual images in working memory in that he has trouble representing design features, resulting in distorted drawings. In general, Nick appears to have problems processing, manipulating, and learning visual-spatial information, especially when it is abstract (has little context) and processing time is limited.

**PAL™-II Diagnostic Assessment for Math**

Five subtests from the PAL™-II Math assessment were administered to better understand the nature of Nick’s math-related processing problems and to identify how best to intervene to improve learning outcomes. His assessment included measures of low-level as well as high-level procedural skills for executive monitoring, working memory, and reasoning with numbers, and basic concepts such as part-whole relationships. Nick’s scores are below average (at the 16th percentile or lower) on all five subtests.

**Part-Whole Relationships**

On the Part-Whole Relationships subtest, Nick had specific difficulty demonstrating how part-whole relationships apply to telling time, in which wholes are divided into parts using multiple scales.
Finding the Bug

Finding the Bug is a subtest that measures an executive function required for self-monitoring and self-correcting one’s own calculations; the child is asked to look at a set of problems and identify which one has a calculation error. Nick’s low score was affected by fatigue in that he worked tediously through each problem to find, rather than immediately recognize, math fact or procedural errors. In fact, he became frustrated to the point of being overwhelmed by the task and requested that he be able to discontinue.

Quantitative Working Memory

Nick did poorly on the Quantitative Working Memory subtest. He had trouble storing orally presented numbers in working memory and then performing basic mathematical operations on them. Although he was able to recall without difficulty the original number, he was not able to mentally perform multi-step operations. In addition to mental math computation, the task demands for visual imagery and sustained attention (an executive function) were especially problematic for Nick.

Spatial Working Memory

He also did poorly on the Spatial Working Memory subtest, which is a measure of working memory functioning related to storing the location and quantity of visual-spatial information and operating on it. Nick was shown pictures of dominoes and asked questions requiring recall of the number of dots and their placement and then was asked to draw an accurate reproduction of the original domino patterns.
Nick demonstrates many cognitive strengths, especially in verbal fluid reasoning, lexical and semantic knowledge, and oral expression. However, his educational history consistently indicates the presence of a Specific Learning Disability in mathematical reasoning and calculation.

He was able to encode and retrieve from short-term memory the correct location of specified sets of dots within time limits. His difficulty came in reproducing the pictured array using correct spatial organization. For example, he would draw the correct number of three dots but he drew the diagonal pattern going the wrong direction.

**Rapid Automatic Switching**

His lowest score is on the Rapid Automatic Switching subtest, on which he was unable to quickly name double digits alternating with high frequency words. The ability to switch between the mental sets for naming numbers and for reading words is sensitive to the executive function that works with the supervisory attention component of working memory.

This switching attention, which also requires cognitive flexibility, is necessary when performing more complex math calculations for which Nick must move from determining start point and direction to retrieving math facts to performing operations in correct sequence, all with continuous self-monitoring. This process is further affected by his slower cognitive processing speed, so that he must hold information even longer in working memory. Without adequate visual imagery, he is forced to rely heavily on his verbal abilities, which are quickly overloaded.
Nick demonstrates many cognitive strengths, especially in verbal fluid reasoning, lexical and semantic knowledge, and oral expression. However, his educational history—including his response to intervention; parent, teacher, and student interviews; classroom and testing observations; and standardized test scores—consistently indicates the presence of a Specific Learning Disability in mathematical reasoning and calculation. His specific problems, which appear to be limited to math, are:

#1: General cognitive weaknesses related to nonverbal concept formation and fluid reasoning, visual-spatial organization and imaging, abstract categorical or sequential reasoning, and deficits in working memory and processing speed.

#2: Math-related processing deficits related to rapid automatic switching, quantitative and spatial working memory, and executive functions (sustained and switching attention, multi-tasking, and self-monitoring).

#3: Math-specific skill deficits related to automaticity of number fact retrieval, understanding part-whole relationships, knowledge of algorithms that apply to more complex problem solving, and use of adaptive strategies to solve math problems.

#4: Math-specific anxiety and frustration that exacerbate problems with attention and working memory, resulting in reduced engagement, persistence, and self-confidence so that Nick is becoming more resistant to instruction. Further, his difficulty connecting what he must master in math to a real-world application may result in less intrinsic motivation to put forth the required extra effort.
Recommendations:

Nick needs direct, explicit, and systematic instruction to remediate skill deficits and missing concepts in math. The data derived from the Key Math™-3 Diagnostic Assessment can be linked to the KeyMath-3 Essential Resources intervention materials to provide targeted remediation of missing prerequisite skills. Current interventions—specifically, re-teaching of fourth-grade math skills—will have limited effectiveness without first developing the necessary foundation.

Additional instructional recommendations:

#1: Because of his working memory and processing speed deficits, Nick is easily overwhelmed when too much information is presented at one time. Instructional periods should be frequent but short (e.g., 15 minutes, two to three times daily) and should be reinforced with guided practice rather than independent homework.

#2: Nick would benefit from instructional strategies designed to enhance his mental arithmetic. Use games such as dominoes, cards, and dice to encourage mental calculation and teach him mnemonics for math algorithms (e.g., sequential steps). Learning his multiplication facts with automaticity is critical. First, instructional targets should be based on which facts he does not know automatically. Research
(Wolfe, 2001) supports teaching multiplication facts from easy-to-learn to more difficult:

a: Teach the commutative property, which reduces the number of actual facts to memorize by half

b: Start with 2x, 5x, 10x

c: Follow with facts with a rule: 0x, 1x

d: Next, teach facts with a pattern: 9x

e: Doubles can be taught as a group using a visual perfect square: 3 x 3, 4 x 4, etc.

f: There are only 15 actual facts left, which can be memorized by employing his stronger verbal abilities with activities such as Multiplication Rock (facts set to music or rhythm) and the continued use of the video games he enjoys.

g: Provide ongoing review and reinforcement with daily practice in retrieving math facts and providing oral answers (using flash cards or oral—as opposed to written—math minutes). Graphing his daily progress can provide encouragement and increase motivation.
#3: Intentional construction of a visual image of a math problem can enhance his understanding of the problem. Nick needs assistance in developing his visual imagery through several tactics: 1) the use of number lines showing both whole numbers and fractions, 2) the provision of models that illustrate how verbal information can be re-coded visually by color-coding start points, direction, and operation cues in calculation, and 3) by teaching him ways to visually organize complex information (charts, graphs, diagrams).

#4: Nick’s teachers can provide more focused instruction by listening to his solutions to a problem (both calculation and word problems) and asking questions to guide him through the problem solution process. He would benefit from metacognitive instruction aimed at developing a deeper understanding of mathematic constructs. Suggested strategies such as the imagery-based Read, Imagine, Decide, and Do (RIDD: Jackson, 2002), STAR (Gagnon & Maccini, 2001), and SQRQCQ (Barton, Heidema, & Jordan, 2002) are described in Differentiating Math Instruction: Strategies That Work for K–8 Classrooms (Bender, 2005).

#5: He may benefit from the temporary use of “recipe cards” that list the sequential steps necessary for calculation as well as explicit instruction in how and when to use various problem-solving strategies. Other instructional approaches designed for students with math difficulties can be found in Teaching Mathematics to Students with Learning Disabilities—3rd Edition (Bley & Thornton, 1989).

#6: Encourage Nick to use a calculator to check for accuracy rather than perform calculations at this point in time. Calculator use is recommended when the focus of the lesson is on effective selection and use of problem-solving strategies rather than calculation.
References


