



Foundation Paper

Supporting Special Education Students with *Do The Math*

Do The Math, created by Marilyn Burns along with a team of *Math Solutions* Master Classroom Teachers, gives students who have fallen behind a chance to catch up and keep up. Focusing on numbers and operations—the cornerstone of elementary Math education—*Do The Math* helps students in grades 2-8 build a solid foundation in computation, number sense, and problem solving for immediate and long-term learning.

OVERVIEW OF THE *DO THE MATH* PROGRAM

Do The Math consists of 12 modules that target addition and subtraction, multiplication, division, and fractions. Each module includes a series of thirty, 30-minute step-by-step lessons. The proven instructional strategies include:

- Well organized, manageable lessons that help students build a solid foundation of understanding
- Explicit, intentional instruction based on teaching for understanding
- Multiple strategies used for developing concepts and skills
- Four-phase pedagogy built on gradual release that prepares students for individual success
- Student interaction that deepens the connections students make to the skills and strategies
- Motivating practice that provides students the opportunity to strengthen and extend their learning
- Vocabulary instruction that helps students develop an understanding about math
- Ongoing assessment that allows teachers to differentiate instruction

In *Do The Math*, lessons engage students with concepts and skills using concrete, manipulative materials, games that reinforce and provide practice, selected children’s literature that provides a context for mathematical concepts and skills, and visual representations to help students represent their thinking. The program includes processes and materials that scientifically-based research has shown to be effective in increasing academic achievement for all student populations. The gradual release pedagogy sets an expectation for student involvement and gives learners the direction and support needed to be successful. The program, which reflects *National Council of Mathematics* (NCTM) standards, teaches essential Numbers and Operations math skills that integrate with a core math curriculum.

RESEARCH FOUNDATION

The most recent National Assessment of Education Progress (NAEP) data indicates that two-thirds of students are scoring at or below basic as measured by the NAEP Mathematics test. Furthermore, the gap in performance between AYP subgroups continues and in some grade levels widens significantly. *Do The Math* is a research-based math intervention program designed to support students who are struggling with elementary arithmetic. The program was developed to address the growing national concern regarding mathematics performance as evidenced by the NAEP results.

The National Mathematics Advisory Panel’s Final Report (2008) states that to “prepare students for algebra, the curriculum must simultaneously develop conceptual understanding, computational fluency, and problem-solving skills.” With a focus on Number and Operations, the cornerstone of elementary Math education and a critical foundation of Algebra, *Do The Math* supports students in building a strong foundation in computation, number sense, and problem solving. *Do The Math* is based on these eight proven instructional strategies—scaffolded content, explicit instruction, multiple strategies, gradual release, student interaction, meaningful practice, systematic vocabulary and language development, and effective assessment and differentiation.

 *Do The Math—Arithmetic Intervention by Marilyn Burns, A Summary of the Research* provides specific information regarding the research foundation for the program. Please contact your Scholastic Account Executive to request a copy.

EXPLICIT, SCAFFOLDED INSTRUCTION

Do The Math includes processes and materials that scientifically-based research has shown to be effective in increasing academic achievement. The program, which reflects *National Council of Mathematics* (NCTM) standards, teaches essential Numbers and Operations math skills that integrate with a core math curriculum. Step-by-step lessons help students develop understanding, learn skills, see relationships, and make connections. Students develop the skills they need to compute with accuracy and efficiency, the number sense they need to reason, and the ability to apply their skills and reasoning to solve problems. Learning experiences link concepts and skills to their mathematical representations and language. A four-phase pedagogy built on gradual release prepares students for individual success.

1. Phase One—The teacher models and records the mathematical representation on the board.
2. Phase Two—The teacher models again, now eliciting responses from students, and again records on the board.
3. Phase Three—Students work in pairs to do the mathematics and then the teacher, once again, records on the board.
4. Phase Four—Students work independently, monitored and supported by the teacher.

Multiple strategies for developing concepts and skills support student learning. Lessons engage students with each concept and skill in several ways, deepening their mathematics knowledge. Manipulative materials provide students concrete experiences with abstract ideas. Games offer engaging situations where mathematical understandings and skills are reinforced. Children's literature provides a springboard for instruction. Contexts make abstract mathematical ideas accessible.

ASSESSMENT

Do the Math has a Beginning-of-Module Assessment for each of its twelve modules. Through a mix of multiple choice and open-ended questions, it yields results and information that help teachers determine which students are in need of more intense interventions. The Beginning-of-Module Assessment, administered prior to instruction, is given to students that the teacher has identified as needing instruction on that particular topic. The assessment will reveal what students know in regard to the topic content for that module. The first few questions on the assessment will inform whether the student has the prerequisite skills for that module. If not, the student will need additional support before beginning that module. Additional support may mean moving the student into another module. Each module also includes an End-of-Module Assessment with questions similar to the Beginning-of-Module Assessment so that the teacher can measure student growth.

Do the Math also includes several periodic assessments that check student progress and help teachers adjust instruction accordingly. Progress monitoring in the form of a written formative assessment occurs after every fifth lesson so teachers can quickly identify and provide immediate support. During every fifth lesson, students independently complete a written assessment which mirrors what they have been working on in the previous four lessons. Teachers then use the results to select and implement the suggestions for differentiation included in the program and make decisions about targeting instruction according to each student's needs.

Formative Assessment through daily observations is built into the program so students receive the proper attention and differentiation required to enable them to develop conceptual understanding and skills successfully. Supporting instruction boxes appear frequently to highlight opportunities for teachers to observe student understanding and provide additional support.

PROGRESS MONITORING

Do The Math provides various opportunities for teachers to collect and use data to inform and target their instruction in order to meet all of their students' diverse needs. Teachers record students' progress monitoring results on a copy of the Objectives Tracker found at the back of each module's Teacher Guide. The tracker is provided so that teachers may document students' progress at meeting each module objective by recording the date when the student consistently performed the objective with accuracy. Students complete a Beginning-of-Module Assessment as a pre-module snapshot of what they know. Upon completion of the module, administering the End-of-Module Assessment provides the teacher with documentation for mathematical growth in skill and understanding demonstrated by each student.

MOTIVATION & ENGAGEMENT

In *Do The Math* explicit instruction utilizes scaffolded content and is designed to support students' learning as they see visual models, connect those models and concepts to their mathematical representations, and while they learn appropriate mathematical and academic language. *Do The Math* lessons engage students with concepts and skills using concrete manipulative materials, games that reinforce and provide practice, selected children's literature that provides a context for mathematical concepts and skills, and visual representations to help students represent their thinking.

PROFESSIONAL DEVELOPMENT

Recognizing that teacher effectiveness is the single most important factor in student achievement, *Do The Math* provides comprehensive professional development support for teachers that is woven throughout the program.

Embedded professional development is provided in the Teacher Guide, including all the information needed for preparing to teach the lesson, step-by-step teaching instructions, and guidance for monitoring student progress. Supporting Instruction, Language Development, and Mathematical Background boxes at point-of-use provide professional information that help prevent teaching stumbling blocks. The *TeacherSpace*[™] helps organize professional materials and includes a CD-ROM with videos, reproducibles, and professional articles. The appropriate book from the *Teaching Arithmetic* series from *Math Solutions Professional Development* provides mathematical and pedagogical support.

The Scholastic Implementation Training is a half-day in-person implementation training for teachers. The objectives for this training are to understand how *Do The Math* addresses current issues in math intervention, review the program materials, and participate in a *Do The Math* model lesson. Teachers will also learn the pace of a module and practice intervention strategies, learn how to assess understanding and differentiate instruction, as well as develop a plan to implement *Do The Math*.