

Mathematics Frameworks

An Introduction to the "Georgia Instructional Framework in Mathematics “

These Instructional Frameworks are designed to support teachers in the implementation of the Georgia Performance Standards (GPS). They are designed for use by schools throughout the state who may wish to utilize them as a resource to guide and inform the teaching of the standards.

The Instructional Frameworks are intended to be models for articulating desired results, assessment processes, and teaching-learning activities that can maximize student achievement relative to the Georgia Performance Standards. Educators in the State of Georgia should view these draft documents as tools for review and for professional development related to the process of implementing the Georgia Performance Standards and preparing students for any related assessments associated with them.

The Instructional Frameworks in Mathematics are organized by units. Although these units are presented in a coherent, sequential pattern, school-based staffs may elect to reorganize these sequences to accommodate available resources (e.g., texts, technology, and educational media services) and schedules. Units are presented in such a way that they form nine-week segments, allowing for quarterly benchmark assessment of student achievement. The organization of each unit is as follows:

- Overview: Each unit begins with an overview that describes the primary focus of the unit.
- Enduring Understandings and Essential Questions: Each unit presents examples of enduring understandings and essential questions instructors may

wish to use with their students to reinforce understanding.

- **Standards Addressed:** Standards addressed in each unit are listed as key standards and related standards. Key standards are those standards that represent the main focus of the unit and are the standards around which the enduring understandings and essential questions are written. Related standards include: (1) process standards, which are necessary to develop mathematical literacy; (2) standards that should be addressed as a result of the connections that exist among mathematical topics; and (3) standards that are introduced as a result of specific tasks.
- **Concepts/Skills to Maintain:** Concepts and skills to maintain are topics that should have been mastered in previous grades and are used in the unit in more complex situations than those previously encountered by students. It may be necessary to pre-assess in order to determine whether time needs to be spent on conceptual activities that help students develop a deeper understanding of these ideas.
- **Selected Terms and Symbols:** Included here are terms commonly misused or terms that are new to the grade level curriculum. A list of agreed upon definitions of terms for the middle school GPS can be found at www.intermath-uga.gatech.edu.
- **Evidence of Learning:** Included in this section is a list of competencies that should be mastered by the end of the grade and one or more culminating tasks. The competencies listed are a delineation of what students should know and be able to do based on the key standards of the unit. The culminating tasks may serve as summative assessments of the units or as teaching and learning activities. It is important, no matter how they are used, that these tasks be reviewed at the

- beginning of the planning process to insure that the unit is taught with the appropriate depth and rigor.
- Strategies for Teaching and Learning: These strategies are common to all units. They should be used throughout the curriculum to encourage the mathematical literacy of students.
 - Tasks: Each unit contains: (1) tasks; (2) discussion, suggestions, and possible solutions for each task; and (3) student work with commentary when available. The collection of tasks provided represents the depth, rigor and complexity expected of all students. This collection, however, does not represent a complete curriculum. Tasks may be used for assessment or as teaching and learning activities. In either case, it will be necessary for teachers to pre-assess students and develop learning plans that will help students be successful in completing these tasks.

In summary, educators in the State of Georgia using these Instructional Frameworks are encouraged to revisit the following principles inherent in standards based education:

- Standards are intended to be met by the end of each academic year. Although a standard may be stressed in one particular unit, it should be revisited at every appropriate opportunity throughout the school year.
- These frameworks are designed around units and learning activities. Assessments, however, are built on the standards. In effect, it is not the unit that will be tested— but the standards that will be assessed. The units themselves, therefore, represent possible instructional scenarios and interventions for meeting the standards.
- Teachers are encouraged to draw on other resources, including their textbooks, to collaboratively design

additional instructional activities. Ideally, these Instructional Frameworks are to be seen as “works in progress,” materials that will grow and develop as educators work together to understand the Georgia Performance Standards, their assessment, and instructional implications. As educators gain increasing proficiency with their students in mastering these standards, we will strive to share these success stories and integrate effective strategies and practices into future iterations of these materials. As Georgia students use the tasks included here, benchmark student work, along with both teacher and student commentary, will be collected and appended to these documents.

- Finally, we remind educators that school improvement and continuous improvement are complex processes that require consensus building, ongoing and effective professional development, peer and administrative coaching, and standards-driven accountability. Therefore, these Instructional Frameworks can serve as valuable resources—but not complete sets of resources—to support a standards-based curriculum and complement the school improvement planning process.