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SAMPLE MATERIAL

Description of Power Mathematics

Longfellow Middle School, Virginia

Topic: National Math Panel: Critical Foundations for Algebra
Practice: Mastery Framework

Longfellow Middle School provides a course for students who are struggling with mathematics. Students take this course along with their regular mathematics course to obtain the additional support that will help them be successful. The handout describes the components and materials used in the course along with the instructional techniques, classroom environment, and management strategies that teachers use to work with struggling students.

Power Mathematics

Power Mathematics courses provide students with foundational concepts and skills to support success with current mathematics explorations and to enhance experiences in future mathematics studies.

Role of Larson Learning

The computer software Larson Learning Pre-Algebra is a delivery system for interactive, customized mathematics instruction. Students individually work through modules, receiving on-going feedback, to demonstrate mastery of pre-algebra skills and problem solving strategies. Each teacher utilizes the management system to determine student curriculum, level of mastery, and to monitor student achievement.

The students are expected to work with the Larson Learning Pre-Algebra program at a minimum of 3 forty- five minute sessions each week.

Role of Instructional Units

Instructional Units have been provided to support student learning. The unit topics have been chosen to be aligned with the FCPS Mathematics Curriculum Maps (see section 2). The units include Standards of Learning correlations, assessments, lesson plans, practice worksheets, prompts for reflection, and additional follow activities.

Role of Roads to Reasoning

This supplemental resource is designed to help students develop thinking skills through problem solving. The book contains six different types of problems, with ten examples of each type. Each section begins with a teaching session that guides students through a problem similar to the other problems in the section. These activities can be used as warm ups, closers, or think breaks.

Other Supports

Power Mathematics teachers are encouraged to support students in their mathematics class preparation. The students should feel a connection between their mathematics class and their mathematics elective. Taking a small amount of time to go over homework is acceptable, though the students should not treat this class like a study hall. Also, taking time to review for quizzes and tests is appropriate use of power mathematics time. Dialogue between the power mathematics and general mathematics teacher is essential to meeting the needs of these students.

Assessment and Grading

Students receive a letter grade for this class. Those grades should be determined by their demonstration of mathematics content in power mathematics. Grades may be a combination of Larson Learning assessment results and result from the assessments in the instruction units. Pre Test results should not be used as grades. Classroom participation may comprise 10% of a student's power mathematics grade.

Classroom Environment

Students enrolled in this class often have a poor attitude towards mathematics and little mathematics confidence. The power mathematics classroom should be a safe place for students to ask for help. Students should be encouraged to be reflective of their mathematics strengths and weaknesses and use assessment results to mark their progress. Students need to be actively involved in their learning, having opportunities to talk about mathematics, write about mathematics, and play with mathematical concepts. The over arching message to students must be **"YOU CAN DO MATH!"**

Meeting the Needs of the Struggling Mathematics Student

Instructional Strategies:

- Provide the student with an overview of the lesson before beginning the lesson.
- Provide experiences that build on and connect to the student's understanding and experiences.
- Avoid isolated concepts and skills.
- Introduce new concepts and skills concretely at first, allowing the student ample time to build concepts using concrete materials with representational models.
- Provide the student with real-life referents, such as time, money, and measurement, whenever possible.
- Model procedures in several ways.
- Provide several short, guided practice sessions rather than one long session.
- Make expected learning outcomes attractive by increasing feedback, recognizing growth, rewarding indications of thinking, and giving incentives to complete work successfully.
- Give assignments that are appropriate in length, reading level, and concept development level. Recognize that a struggling student expends energy simply beginning an assignment and staying on task.
- Supply students with concrete examples and samples of expected work.
- Take time to play math games.
- Celebrate all successes!

Management Strategies:

- Establish daily routines and maintain them.
- Provide built-in opportunities for movement.
- Provide organizational helps such as file folders, notebooks, or trays for storing work.
- Maintain high expectations for performance.
- Schedule frequent, short conferences with the student to check for understanding.
- Set realistic and mutually agreed upon expectations for neatness.
- Recognize and give credit for the student's oral participation in class.
- Help students make connections to their regular mathematics classrooms