MATH CURRICULUM AT FRIENDS SCHOOL HAVERFORD

When you walk into a math class at FSH you will see students actively engaged and working on a variety of topics. They may be using spinners or dice as they play games to master their arithmetic facts, or to determine the most likely outcome for several rolls of the dice. In another classroom students may be measuring the water displacement of various objects in a graduated cylinder and recording their data. The students in the class you visit could be graphing the data they collected the previous day on the number of eyelets on the shoes of their classmates, while in still another classroom, students may be drawing a 2-dimensional rendering of a 3-dimensional 'building' they designed with cubes. Elsewhere in the school students might be measuring their arm spans and height and determining which is longer for most of their classmates. And still elsewhere, students may be drawing flips, slides and rotations of a picture with pattern blocks. Other students may be reading a story or writing in their math journals about why multiplication is like or unlike division, or how to solve a long multiplication problem.

This is probably very different from the math class you remember when you were in school. In fact, it may not be apparent at first glance that it is a math class. It could be mistaken for science, art or even language arts!

Mathematics at FSH in the 21st century is all about making sense, about thinking, and about students having the power to understand and to do mathematics. Students are using the mathematics they learn in a problem-solving atmosphere. They are working together to discuss mathematics and to find connections between the mathematics they are learning and other concepts in mathematics, as well as in other disciplines. Students work in small groups, listen to each other and explore multiple ways to solve problems and to express their results. Students pose questions, plan experiments, and use a variety of materials to make sense of the mathematics they are doing. They apply their knowledge and understanding to master new concepts and skills.

Throughout the grades, students are using math facts, learning mathematical operations and exploring more efficient ways to compute. In this active and engaging environment most students memorize their math facts as they use them to solve problems and play games.. They are expected to know their addition and subtraction facts by recall by the end of grade three and their multiplication and division facts by the end of grade four. Students who have not memorized these facts by the appropriate time will be given additional opportunities to practice at school and at home.

At the core of the mathematics program in Kindergarten through grades five at FSH is Math Trailblazers. It was developed by the University of Illinois in Chicago and is published by Kendall Hunt Publishers. This program was adopted by FSH in September of 2005. The 6th grade program, Connected Math, was adopted in 2003. Both programs are based on the Standards of the National Council of Teachers of Mathematics and are endorsed by the National Science Foundation.

All curriculum at FSH is based on a constructivist and developmental approach to learning. Math Trailblazers and any other materials we use for mathematics instruction are also constructivist and developmental in nature. Students are expected to make sense of the work they are doing and may approach a problem in ways that differ from others in the classroom. Some students may draw pictures, others may use manipulative materials, some students can get information from a table, others prefer a graph. Students are exposed to a variety of methods and are encouraged to practice and then use the ones that make the most sense to them at the time.

Our curriculum and the Math Trailblazers program assumes that:

Math is best learned through solving real-world problems.
All students deserve a rich and challenging curriculum.
Students learn best using a balanced and practical approach: skill practice; labs; investigations.
They learn by working independently and in collaborative groups; by reading, writing, talking, drawing, and using concrete materials.

Concepts and skills are developed through:

Meaning	Concept development.
Invention	Creating invented algorithms
Efficiency	Seeing patterns and developing more efficient algorithms
Power	Applying known information to a new situation

Please visit the Kendall Hunt website: www.kendall.hunt.com for a further description of the program and for sample activities from various grade levels. There is also a helpful section, "Just for Families" you may wish to explore.

Please contact Doris Gluck, Math Coordinator, if you have any questions. (610 642 2334 ext 152 or dgluck@friendshaverford.org)