

SECTION II

MATH/SCIENCE UPDATE

Mathematics

The task of meeting the expectations for acquiring mathematics skills equally well for all students is challenging for teachers. With this issue in mind, the District organized several "Mathematics Institutes" last summer where teachers had an opportunity to reflect on their own understanding of mathematics while exploring a variety of teaching strategies including ways of planning daily lessons to effectively engage all students. Over fifty faculty members attended and all of them indicated that the time spent was invaluable in terms of helping them determine how to more effectively deliver math instruction to students of all mathematical abilities.

In addition to these initiatives, throughout the year District staff has addressed faculties and conducted workshops at District schools addressing the issue of creating effective mathematics environments. The need to demonstrate good classroom management is especially important in classrooms using differentiated instruction. The ability to actively engage students while making efficient use of instructional time is another critical component. Research advises that additional behaviors are of equal importance when teaching mathematics. Demonstrating acceptance of students' divergent ideas, while challenging them to think deeply about the problems they are solving, helps students develop confidence in their abilities to do math. Posing interesting questions that stimulate student curiosity and encourage students to rely on themselves is also crucial. Using interdisciplinary connections helps students connect the language of math while projecting a positive attitude about math and about their own ability to "do" math and be successful in the area is of critical importance.

Science

For the past two years district science teachers have worked during the summer to create science curriculum guides. Previously, with only a list of District Outcomes, individual classroom teachers would refer to the Massachusetts Science Frameworks to assist them in planning science daily lessons. The goal of the Science Focus

Group was to provide a consistent and coherent science curriculum for the Wachusett Regional School District that would begin to provide a systematic way to 'uncover' important science concepts throughout the various school communities. Instead of teaching topics that frequently involve the memorization of isolated facts, the science curriculum guides link topics together in order to define the concepts and "big ideas" of a unit of study. For example, instead of merely identifying the stages of an amphibian's life cycle, students are involved in experiments and activities that focus on the human impact to the environment and how this affects a species' survival and interdependence. Each guide has the Essential Questions and Essential Understandings that students should ask and acquire as a result of their study. In addition, there are benchmark assessments provided that enable teachers to determine the level of understanding that students have achieved.

The Middle School Science Focus Group continued to meet to share curriculum ideas and discuss ways to differentiate curriculum based on student interest, ability, and learning profile. Teachers are sharing pre-assessment ideas as well as projects to extend and enrich student understanding. At the last meeting in April, many teachers indicated that they would be interested in creating grade level maps of critical concepts with suggestions for how to teach those 'big ideas.' Currently teachers refer to the Massachusetts Science Frameworks and create their own scope and sequence of learning activities. Last summer, two novice teachers, one who was named Massachusetts New Science Teacher of the Year, collaborated and found that by sharing and documenting ideas, their students experienced more engaging curricula. We will continue to work to articulate the curriculum so that the successful ideas and methodologies teachers can use are made available to colleagues across the District. Many elementary teachers have indicated how appreciative they are to have curriculum guides that provide selections of activities and help them make better instructional decisions in science. Middle school science teachers are seeing the benefit of this as well.

