Mathematics Vertical Team Overview

- Increased participation by all students in higher-level mathematics
- Elimination of redundancies in the mathematics curriculum
- Improved communication between schools in feeder unit within schools
- Broader understanding of the curriculum as a whole and each individual’s role within it
- Better preparation of students in specific subject matter for subsequent work
- Greater opportunities for all students in post-secondary education

Curriculum Issues

- Focus on process and reasoning, not just right answer
- Demonstrating specific problems to generalizations about a concept
- Use of open-ended problems
- Use of technology
- Justify answers, to communicate mathematically

The Purpose of a Vertical Team

- Facilitate the exchange of information among individuals who share a common purpose but who operate on different levels and who hold very different organizational perspectives.
- Create a culture that connects people and functions so the common purpose of helping students learn and succeed may be accomplished.
- Establish linkages and connections that create seamless education for students
- Establish a process through which individuals from different levels in the school organization can relate to each other in a safe and meaningful manner in order to explore and work toward a new educational future.
- Build relationships and find creative ways to continually improve.

Source: Tansel Pope
UC Berekley
These proposes place an emphasis on standards of teaching that:

- Understand and respond to individual students’ interest, strengths, experiences, and needs.
- Select and adapt curriculum from many sources.
- Focus on student understanding and use knowledge, ideas, and inquiry process.
- Continuously assess student understanding.
- Increase student responsibility for learning.
- Support a classroom community with cooperation, shared responsibility, and respect.
- Work cooperatively with other teachers.

**The Benefits of a Vertical Team**

- Establishes curriculum, instruction, and assessment goals based upon the standards and expectations of the Advanced Placement Program, a nationally recognized program of educational excellence.
- Provides greater access to educational opportunities for a broad number of students willing and able to accept the challenge of completing college level work while in high school.
- Incorporates innovation instructional strategies that develop higher level analytical and communication skills as well as place greater responsibility on the student for his or her academic progress.
- Fosters the development of an educational community committed to improving students’ performance through the creation of a continuum of learning between classes and across grade levels.
- Empowers a teacher to realize and sustain meaningful curricular reform that ultimately leads to empowering students to become independent learners.
• Promotes greater enthusiasm for teaching and learning through a shared sense of community and stimulating challenging, coordinating, and relevant curriculum.

**Mathematics Vertical Team Membership**

Efforts to create an inclusive, seamless mathematics curriculum in grades six through twelve must consist of representatives from both the high school and from the middle schools that feed into the high school. Ultimately faculty from elementary feeder schools and from local colleges and universities may be included, but not at the beginning.

Within each individual school, the following should be included:

• At least one teacher of each mathematics course offered by each of the schools represented by the team.
• At least one teacher who has some degree of expertise related to the use of technology in mathematics education.
• Administrative and/or counselors from each of the schools represented.
• A facilitator to guide the actions of the team. The facilitator should have a broad view of the 6-12 mathematics curriculum with experience at both levels and an awareness of the relevant issues at both levels.

**Secure Administrative Commitment**

Creating a cohesive and productive Vertical Team and facilitating its development of a clearly articulated, vertically aligned, and well implemented skills continuum requires a great deal of time and effort on the part of the team members. The more support that both central office and building administrators demonstrate, the more Vertical Team members will understand that their efforts are not an additional assignment but rather a coordinated and comprehensive attempt at district wide reform.

Administrators can demonstrate their commitment to their Vertical Team by:
Developing school policies that encourage student participation in advanced math courses.

Creating time for Vertical Teams to meet before, during, and after school.

Coordinating meetings involving educators from several different campuses.

Providing central meeting rooms, supplies, resources, and technical support.

Providing substitute teachers for planning days.

Offering teachers a stipend to work before or after school, on weekends, or during the summer.

Supporting ongoing professional development where Vertical Team members have a chance to meet with colleagues from other schools and discuss the standards and expectations of their math programs, shared strategies for motivating and supporting students, exploring innovative classroom teaching techniques.