

### *Definition of Key Terms*

Advanced Mathematics Classes: The term “Advanced Mathematics Classes” refers to classes for which material traditionally covered in Algebra 1, Geometry, and Algebra 2 is a prerequisite.

Alternating-day or A/B block schedule: A semestered block schedule contrasts with an A/B block schedule, in which students take 8 classes at a time, each class running 80-90 minutes every other day.

Constructivism: A constructivist theory of knowledge is characterized by two basic principles: (a) learners actively construct knowledge through interaction with their surroundings and experiences, and (b) learners interpret these occurrences based on existing knowledge and their rendering of the experienced observations and actions (Noddings, 1990).

Implementation Dip: A period commonly seen in successful change initiatives, where individuals have given up old practices, but not yet mastered new and potentially more effective practices that they have adopted. During this period, student performance may go down, only to be followed by later improvements (Fullan & Miles, 1992; Busick & Inos, 1992).

IMP: The Integrated Mathematics Program (IMP) curriculum authored by Fendel, Resek, Alper, and Fraser (1997) is published by Key Curriculum Press. IMP was one of five reform-based high school mathematics curricula whose development was funded by the National Science Foundation. The IMP curriculum is built around complex, open-ended problems. It emphasizes in-depth understanding of mathematical concepts and techniques. IMP promotes students’ active role in the classroom, working

together in teams, talking with each other about mathematics, and making oral and written presentations about challenging problems.

NCTM Standards: Originally, the National Council of Teachers of Mathematics published three *Standards* documents. Only the first of these, the Curriculum and Evaluation Standards for School Mathematics (NCTM, 1989) was available at the time Fendel, Resek, Alper, and Fraser began developing IMP. Unless otherwise specified, this is the document referred to by the term NCTM *Standards*. (Note: the other *Standards* documents (NCTM, 1991, 1993) are compatible with the Curriculum and Evaluation Standards and with the general vision of IMP. So are the Principles and Standards for School Mathematics (NCTM, 2000), recently published to update the original *Standards* documents.)

Quasi-Experiment: A research design in which treatment and comparison groups are formed by some means other than random assignment (Krathwohl, 1993).

Retention Interval: The gap in time between when a student studied mathematics content, and when the student was tested on knowledge of that content.

Semestered or 4x4 Block Schedule: Under a “semestered block schedule,” also called a “4x4 block schedule,” high school students take four classes at a time, and each class lasts one semester. In general, such classes run about 80-90 minutes a day.

Situated Cognition: A “situated cognition” theory of knowledge is characterized by the principle that the activity in which knowledge is developed and deployed is not separable from learning and cognition. Rather, it is an integral part of what is learned (Brown, Collins, & Duguid, 1989).