

“An integrated mathematics program is a holistic mathematics curriculum that-----

- Consists of topics from a wide variety of mathematical fields and blends those topics to emphasize the connections and unity among those fields;
- Emphasizes the relationships among topics within mathematics as well as between mathematics and other disciplines;
- Each year, includes those topics at levels appropriate to students’ abilities;
- Is problem centered and application based;
- Emphasizes problem solving and mathematical reasoning;
- Provides multiple contexts for students to learn mathematics concepts;
- Provides continual reinforcement of concepts through successively expanding treatment of those concepts;
- Makes appropriate use of technology

According to Burkhardt, “Nowhere else in the world would people contemplate the idea of a year of algebra, a year of geometry, another year of algebra, and so on.” The following advantages of integrated curricula are adapted from Burkhardt’s discussion (2001):

- Integrated curricula build essential connections through active processing over an extended period that first consists of weeks as the curriculum points out fundamental links and then ultimately encompasses years as the concepts are used in solving problems across a variety of contexts.
- Integrated curricula help make mathematics more usable by making links with practical contexts that give students opportunities to use their mathematics successfully in increasingly challenging problems.
- Integrated curricula avoid long gaps in learning that result from “year-long chunks of one-flavored curriculum.”
- Integrated curricula allow a balanced curriculum with the flexibility to include newer as well as traditional topics of mathematics and to foster problem solving that spans several aspects of mathematics.
- Integrated curricula support equity because different branches of mathematics, for example, algebra and geometry, favor different learning styles, so an entire school year of one branch puts some students at a greater disadvantage than does a more balanced curriculum that includes several areas of mathematics.”