

interview

Focus on
Integrated
Mathematics

From time to time, ELC's Mathlink will present conversations with teachers, authors, and administrators in Interview. The conversations will cover notable events, research, and activities of interest to mathematics teachers. If you would like to participate in an interview, jot down your name and your proposed topic on the Suggestion Box form on page 15.

THE INTERNATIONAL BACCALAUREATE PROGRAM



Barbara Crucs

Barbara Crucs is a mathematics teacher and coordinator of the International Baccalaureate (IB) Program at Firestone High School in the Akron Public Schools in Akron, Ohio, where she has taught for the last 13 years. Crucs has been a Core-Plus field-test teacher since 1993 and is a presenter at *Contemporary*

Mathematics in Context teacher-training workshops. She is currently field-testing Course 4, Part B. Crucs answered some questions about the International Baccalaureate program and about how the *Contemporary Mathematics in Context* curriculum fits in with the IB program.

ML: What is the International Baccalaureate program?

Crucs: It came out of the International Schools Program in the 1960s as a way for students to prepare for exams, regardless of their country of origin. It combined the best of all programs from around the world. Currently, it is the most rigorous secondary curriculum available, and its graduates can go on to any university in the world. In IB, the students are engaged in two years of college-level work.

My school requires all IB students to attempt the IB diploma rather than select individual courses. Students must take six courses: three at Higher Level (courses offered in depth, much like the European approach) and three at Standard Level (courses offered in breadth, like the U.S. system). Additionally, students must complete a

two-year Theory of Knowledge Course, 150 CAS (Creativity-Action-Service) hours, and write a 4000-word essay based on independent research.

ML: Who can take the IB courses and tests?

Crucs: Only schools accepted into the IB program can offer the courses and tests, and only students accepted into the IB program can take them. There is a rigorous application process culminating in a two-day, on-site visit in which IB representatives evaluate students, teachers, school facilities, school-board support, and parent support. Teachers are required to be trained, and their student assessment is monitored by IB officials. The students are also assessed by an outside agency at the end of each course.

ML: How are students selected for the program?

Crucs: Students are selected for most IB programs based on scores of 80 percent or higher on a standardized test, such as the Iowa Test of Basic Skills; a grade point average of 3.0 or higher; foreign-language background; teacher recommendations; a writing sample; and completion of algebra by the end of eighth grade. Self-discipline and self-motivation are the most important prerequisites to success in the IB program.

ML: What mathematics courses do IB students take?

Crucs: You would have to take a look at the whole IB mathematics course of study. Two different programs, Math Methods and Math Studies, are offered at Standard Level; and there is also a Higher Level course (for engineering and physics majors) and an Advanced Mathematics Standard Level course (for students intending to major in mathematics). Firestone offers both Math Methods and Math Studies.

Math Studies requires completion of a project in which students use mathematics techniques to define a problem and search for ways to solve it. The syllabus includes Functions, Computation, Data Analysis, Structure (Sets and Logic), Business Techniques (Sequences and Finance, Linear Programming), and Geometry and Trigonometry (Vectors, Matrices, 3-D, Trigonometry). The students sit for two papers, or tests, in May. In the papers, they are required to draw from all areas of their learning, show clear reasoning, explanation, and/or logical argument. We believe Core-Plus is an especially good preparation for Math Studies. The Math Methods syllabus includes Number, Algebra

and Coordinate Geometry, Geometry and Trigonometry, Functions and Calculus, Vectors and Matrices, and Probability and Statistics. Additionally, candidates are expected to cover one of two optional topics: either Analytical Geometry and Further Calculus (conic sections and further calculus) or Further Probability and Statistics (discrete random variables and continuous random variables). These students also take two tests in May.

In the program, students receive a more detailed breakdown of the topics they must know for the examinations. This is our first year testing seniors in the program at our school, so we will be closely monitoring their performance.

ML: Where does *Contemporary Mathematics in Context* fit into an IB student's plan?

Crucs: During their pre-IB years (freshman, sophomore—and eighth grade, when we can implement it), students take the Core-Plus courses. Once the students enter the IB program in their junior year, they begin the IB course work. Some of this can be supplemented and implemented with Core-Plus materials as well, but it is no longer the Core-Plus curriculum. The IB students take their tests at the end of the course during their senior year.

ML: Do IB students also take the SAT and ACT?

Crucs: Yes, those scores are required of all students who are applying to the different universities.

ML: What are your Core-Plus teachers doing to help students prepare to enter the IB program?

Crucs: We are experimenting with a Core-Plus class that is entirely pre-IB. The intent is to help these students move faster through the materials so that they can benefit from more of the excellent units available in the Core-Plus materials. We would like to put Core-Plus in eighth grade as a pre-IB class for the same reason.

ML: How can teachers find out more about the International Baccalaureate program?

Crucs: They may call or write the IBNA (IB–North American) office:
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 International Baccalaureate, North America and
 the Caribbean
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(Works cited, continued from page 9)

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