Course Descriptions for Math 336/7.

The B.C. mathematics curriculum is woven from four "strands": (1) geometry, (2) number, (3) statistics and probability, and (4) algebra. Only the first three appear explicitly in Math 336, whose emphasis on exploration and discovery precludes excessive formalism — though algebraic notation is used wherever it comes naturally. All four strands occur in Math 337, though not necessarily in the given order.

Math 336: Mathematics by Inquiry.
  (1) Quadrature by dissection; adding two squares. Computing square roots; applying Pythagoras. Areas of regular polygons; making a trig table. Similarity and scale; solving trig problems.
  (2) Periodic decimals; irrationality. Graphing natural growth; fractional powers; making a log table. Growth and decay problems. Annuities and mortgages.
  (3) Systematic counting. Finite probability problems. Pascal's Triangle and binomial probabilities. Plotting and using an approximate normal curve.

This is probably not the place to attempt a full explanation of these items. Appearances to the contrary, they are carefully arranged to form coherent pathways of guided exploration within each strand. The most important feature of this arrangement is its avoidance of "black boxes".

Math 337: Mathematics for School.
  (1) The anatomy of triangles; Heron's formula. Pyramids, cones, spheres: volumes and surfaces. Trig functions and identities.
  (2) Factoring integers and polynomials. Rational (and irrational) numbers and functions. Exponentials and logarithms for various bases.
  (3) Odds, games, and expectations. Mean and variance. Samples, polls, and large numbers.
  (4) Linear equations in 2 and 3 unknowns. Quadratic and cubic equations. Algebraic curves, especially conic sections.

This list probably looks even more disjointed than that of Math 336. Some of that is inevitable: the curriculum does in fact encompass topics which — in spite of all their cross-connections — must at one point be addressed separately. Heron's formula, for instance, happens to be in the Grade 10 curriculum. Although it is beyond the understanding of the average student, a teacher might well wish to know just where and how it fits into the scheme of things. More importantly, its derivation occasions a review of several standard ingredients of elementary geometry: bisectors, inscribed circles, angles in a circular segment, and — above all — proportions. If desired, a brute force derivation can also be included in a lesson on polynomial factorization.

For the sake of coherence, certain curriculum topics (networks, vectors, transformations, tesselations) were omitted from the list. None of these is treated extensively in Grades 8 – 10, and most of them can probably be touched upon in the implementation of the course. For instance, vectors can play a prominent role in the chapter on trig identities. Indeed every effort should be made to demystify all items mentioned in the glossary of the provincial curriculum guide (known as the "Integrated Resource Package 1996").