Introduction to the *Destination Math* Courseware

Philosophy and Purpose

Mastering Skills and Concepts: Course I is part of the Riverdeep *Destination Math*™ product suite. *Destination Math* courses span grades K–12 and can be accessed directly from the Internet, allowing students to study mathematical concepts anytime, anywhere.

Destination Math products offer comprehensive mathematical curricula, designed with the following principles:

- The focus is on learning and teaching.
- The focus is on the student rather than the teacher.
- The focus is on learning through problem solving and discovery.
- The student is always in control of the learning.

The presentation of the mathematics within each course takes full advantage of the dynamic and interactive capabilities of the Web. Animation, speech, and sound effects invite students to participate in an intrinsically motivational environment. As students progress through each course, they learn important mathematical skills and concepts.

Destination Math products include the word "mastering" in their titles. The focus is on the importance of mastering the underlying skills and concepts of the topics presented and of mastering the ability to apply the learned skills and concepts to solve meaningful problems. For students at any level of education, learning the "how to" of mathematics and the "why" of doing mathematics are both important.

The design of each *Destination Math* course reflects a careful balance between skills and concepts and their applications. In most cases, a context that contains an important mathematical concept is introduced and is followed by the teaching of a related skill.

Mathematical Content

The *Destination Math* product suite spans grades K–12. The available *Destination Math* courses are:

Course Name	Grade Level
Mastering Skills and Concepts: Course I	K–1
Mastering Skills and Concepts: Course II	2–3
Mastering Skills and Concepts: Course III	4–6
Mastering Skills and Concepts: Course IV	6–8
Mastering Skills and Concepts: Course V	6–8
Mastering Algebra I: Course I	9–12
Mastering Algebra I: Course II	9–12

Mastering Skills and Concepts Course I (MSC I) introduces children in kindergarten and grade 1 to basic math concepts. It covers number sense, addition and subtraction, geometry and measurement, and patterns.

Mastering Skills and Concepts: Course II (MSC II) is designed for grades 2 and 3. It builds upon the concepts introduced in *MSC I* and covers number sense, operations with numbers, geometry and measurement, and algebraic thinking.

Mastering Skills and Concepts: Course III (MSC III) includes numbers and number sense, operations with numbers, fractions, decimals, geometry, and data analysis and probability. Each topic is presented within a motivational context that demonstrates how mathematical issues arise out of real-life situations.

Mastering Skills and Concepts: Course IV (MSC IV) includes arithmetic topics traditionally taught at the middle school level: fractions, decimals, integers, and percents.

Mastering Skills and Concepts: Course V (MSC V) expands the curriculum of the previous course and includes the study of ratio and proportion, elementary algebra, basic geometry, and introductions to both statistics and probability. The inclusion of the latter two topics reflects recommendations in the Standards[1] document published by the National Council of Teachers of Mathematics (NCTM). A basic knowledge of these two topics is deemed to be important for all students, not just those who intend to go on to higher education.

Mastering Algebra I: Course I (MA I) explores the language of algebra, linear functions and equations, systems of linear equations, and linear inequalities in one and two variables.

1 *Curriculum and Evaluation Standards for School Mathematics.* (1989) Reston, V.A.: National Council of Teachers of Mathematics.

Mastering Algebra I: Course II (MA II) investigates real numbers, powers and polynomials, quadratic functions and equations, algebraic expressions and functions, and graphical displays of data.

Mastering Skills and Concepts: Courses IV and V are geared primarily toward students in middle and junior high school grades, but can be useful for older students who are not yet ready for a formal study of algebra and geometry. *Mastering Algebra* courses are appropriate for students enrolled in a formal algebra course.

There is a clear need for these Destination Math courses. Data from major tests, such as the Third International Mathematical and Science Study (TIMSS), reveal a sharp decline in mathematical proficiency as U.S. students progress through the grades. Although students in the fourth grade appear to be doing reasonably well in mathematics, the performance of students at both the eighth and twelfth grade levels falls dismally below that of students in most other countries. In a review of the data, the report authors state that, "Our curriculum, textbooks, and teaching are all 'a mile wide and an inch deep.' This preoccupation with breadth rather than depth, with quantity rather than quality, probably affects how well U.S. students perform in relation to their counterparts in other countries."[2] Thus, reform of the mathematics curriculum and how we teach it to our students requires significant changes in current educational materials and practices. With this in mind, the courses developed by Riverdeep provide new ways to engage students in learning mathematics and to enhance the dialogue between teacher and student.

2 Schmidt, William H., McKnight, Curtis C., and Raizen, Senta A. (1989) "A splintered vision: An investigation of U.S. science and mathematics education, executive summary." In *A Splintered Vision.* Third International Mathematics and Science Study (TIMSS), Vol. 1. Norwell, Ma: Kluwer Academic Publishers. http://ustimss.msu.edu.