

National Evaluation Study of the Effects of Using *Houghton Mifflin Mathematics* on Student Math Achievement

Houghton Mifflin has contracted with EDSTAR, Inc., an independent consulting firm that designs and conducts educational evaluations, to conduct a large-scale study of student math achievement in districts using *Houghton Mifflin Mathematics*. The study employs a quasi-experimental design, comparing test results in the Houghton Mifflin districts to results in closely matched comparison districts using other mathematics programs.

The study focuses on the 2002–2003 school year and includes 30 school districts located in California, South Carolina, the Midwest (Illinois, Missouri, and Wisconsin), and the Northeast (New York and New Jersey). (Half the districts are using *Houghton Mifflin Mathematics* and half are using other math programs.) The districts vary in size and demographics, representing the diversity of student populations around the country. Approximately 500 schools with about 650 students per school are included in the study.

THE GOALS OF THE STUDY ARE TO DETERMINE:

- Whether there are differences in student math performance overall between districts using *Houghton Mifflin Mathematics* and comparison districts using other math programs.
- Whether there are different effects for various subgroups of students (such as ELL and socio-economically disadvantaged).
- Whether *Houghton Mifflin Mathematics* is more effective for teachers whose strengths are not in mathematics education.

A two-tier study has been designed in order to answer these research questions.

NATIONWIDE STUDY

The Nationwide Study will include data on all 30 districts. Because different states use different tests to measure student mathematics performance, the analysis will focus on the percentages of students scoring at or above the standard set by their state—for Houghton Mifflin districts and the control group—and statistical conclusions regarding the effect of *Houghton Mifflin Mathematics* on student achievement scores. All data for analysis will be obtained from two U.S. Department of Education sources:

- The American Institute for Research (AIR), which collects data from state assessments and converts them to statistics that can validly be compared state to state.
- The Common Core of Data (CCD), which maintains a database of information on every public school district and approximately 95,000 public schools.

DISTRICT STUDY

The District Study will include data on a subset of 8 districts—4 Houghton Mifflin user districts and their comparison districts—and will report results for each set of paired districts. The data will include the AIR and CCD data, as well as information obtained from the State Educational Agency databases and teacher surveys administered by EDSTAR. This more detailed data set will permit statistical analyses of student performance by subgroup (ELL, economically disadvantaged, etc.) and by teacher characteristics (years of teaching experience, certification status, etc.). In addition, this analysis will lay the groundwork for future longitudinal studies to measure the impact of *Houghton Mifflin Mathematics* on student math performance over time.

CONTROL GROUPS

Control groups are matched to the Houghton Mifflin districts on the following variables:

- Prior level of math achievement (the average percentage at or above the state standard)
- Size of district (number of schools)
- Percentage of students on Free/Reduced Lunch
- Demographics (percentage White, Black, Hispanic, Asian, and American Indian).

In addition, the control group will include math programs representing three different instructional approaches: balanced, computational, and conceptual.

Houghton Mifflin and Control Group Districts Considered for Nationwide Study (Final sample will include 15 HM and 15 Control Districts)

STATE	HOUGHTON MIFFLIN SCHOOL DISTRICT	CONTROL GROUP SCHOOL DISTRICT
ILLINOIS	Belvidere School District 100	McHenry School District
MISSOURI	Wentzville School District	Belton
WISCONSIN	Wausau School District	Eau Claire Area School District
NEW JERSEY	Englewood City District	Plainfield City
	Madison School District	Springfield Township
NEW YORK	New York City District 24	New York City District 15
	West Islip Union Free School District	Massapequa Union Free School District
SOUTH CAROLINA	Anderson School District 5	Greenwood School District 50
	Charleston School District	Berkeley County School District
	Greenville School District	Aiken County School District
	Lexington School District 2	Spartanburg School District
	Pickens School District	Cherokee School District
CALIFORNIA	Anaheim City Elementary	Fontano Unified
	Cupertino Union Elementary	Irvine Unified
	Hueneme Elementary	Covina Valley Unified
	Long Beach Unified	Pasadena Unified
	Modesto City	Bellflower Unified
	Norwalk-la Mirada Union	Colton Joint Unified
	Ontario-Montclair Elementary	Montebello Unified
	Palmdale Elementary	Rialto Unified
	Saddleback Valley	Temecula Valley Unified