

1. Record Nr.	UNINA9910960487303321
Titolo	High school mathematics at work : essays and examples for the education of all students // Mathematical Sciences Education Board
Pubbl/distr/stampa	Washington D.C., : National Academy Press, 1998
ISBN	0-309-17473-2 0-309-52133-5 0-585-02012-4
Edizione	[1st ed.]
Descrizione fisica	1 online resource (192 p.)
Disciplina	510/.71/273
Soggetti	Mathematics - Study and teaching (Secondary) - United States
Lingua di pubblicazione	Inglese
Formato	Materiale a stampa
Livello bibliografico	Monografia
Note generali	Description based upon print version of record.
Nota di bibliografia	Includes bibliographical references and index.
Nota di contenuto	<p> ""Front Matter""; ""FOREWORD: MATHEMATICS FOR A MODERN AGE""; ""ACKNOWLEDGMENTS""; ""TABLE OF CONTENTS""; ""INTRODUCTION""; ""OVERVIEW""; ""1 MATHEMATICS AS A GATEWAY TO STUDENT SUCCESS""; ""2 MARKET LAUNCH""; ""3 INTEGRATING VOCATIONAL AND ACADEMIC EDUCATION""; ""4 THE IMPORTANCE OF WORKPLACE AND EVERYDAY MATHEMATICS""; ""5 WORKING WITH ALGEBRA""; ""PART TWO THE ROLES OF STANDARDS AND ASSESSMENTS""; ""OVERVIEW""; ""6 SCIENCE AND MATHEMATICS EDUCATION: FINDING COMMON GROUND""; ""7 SCANS AND MATHEMATICSa€? SUPPORTING THE TRANSITION FROM SCHOOLS TO CAREERS""; ""8 THINKING ABOUT THE SAT"" </p> <p> ""9 EXTENDED RESPONSE TASKS IN INTERNATIONAL CONTEXTS""""PART THREE CURRICULAR CONSIDERATIONS""; ""OVERVIEW""; ""10 FITTING TASKS TO CURRICULUM""; ""11 MATHEMATICS AS A WAY OF THINKING ABOUT THINGS""; ""12 PREPARING STUDENTS FOR POSTSECONDARY EDUCATION""; ""PART FOUR IMPLICATIONS FOR TEACHING AND TEACHER EDUCATION""; ""OVERVIEW""; ""13 PEDAGOGICAL IMPLICATIONS FOR PROBLEM-CENTERED TEACHING""; ""14 THE ROLE OF COMPLEX MATHEMATICAL TASKS IN TEACHER EDUCATION""; ""15 ASSESSMENT CONVERSATIONS AS A TOOL FOR REFORM""; ""PART FIVE EPILOGUE""; ""EPILOGUE""; ""A SOURCES OF PROBLEMS AND TASKS"" ""B TASK FORCE MEMBERS""""INDEX"" </p>

Traditionally, vocational mathematics and precollege mathematics have been separate in schools. But the technological world in which today's students will work and live calls for increasing connection between mathematics and its applications. Workplace-based mathematics may be good mathematics for everyone. High School Mathematics at Work illuminates the interplay between technical and academic mathematics. This collection of thought-provoking essays-by mathematicians, educators, and other experts-is enhanced with illustrative tasks from workplace and everyday contexts that suggest ways to strengthen high school mathematical education. This important book addresses how to make mathematical education of all students meaningful-how to meet the practical needs of students entering the work force after high school as well as the needs of students going on to postsecondary education. The short readable essays frame basic issues, provide background, and suggest alternatives to the traditional separation between technical and academic mathematics. They are accompanied by intriguing multipart problems that illustrate how deep mathematics functions in everyday settings-from analysis of ambulance response times to energy utilization, from buying a used car to "rounding off" to simplify problems. The book addresses the role of standards in mathematics education, discussing issues such as finding common ground between science and mathematics education standards, improving the articulation from school to work, and comparing SAT results across settings. Experts discuss how to develop curricula so that students learn to solve problems they are likely to encounter in life-while also providing them with approaches to unfamiliar problems. The book also addresses how teachers can help prepare students for postsecondary education. For teacher education the book explores the changing nature of pedagogy and new approaches to teacher development. What kind of teaching will allow mathematics to be a guide rather than a gatekeeper to many career paths? Essays discuss pedagogical implication in problem-centered teaching, the role of complex mathematical tasks in teacher education, and the idea of making open-ended tasks-and the student work they elicit-central to professional discourse. High School Mathematics at Work presents thoughtful views from experts. It identifies rich possibilities for teaching mathematics and preparing students for the technological challenges of the future. This book will inform and inspire teachers, teacher educators, curriculum developers, and others involved in improving mathematics education and the capabilities of tomorrow's work force.
