How can parents and teachers encourage their schools to raise standards for mathematics achievement for all students without creating a ceiling for those who are mathematically gifted? Developing Math Talent: A Guide for Educating Gifted and Advanced Learners in Math, by Susan Assouline and Ann Lupkowski-Shoplik, addresses vital questions about appropriate differentiation for gifted students in the current standards-driven educational environment. The authors target both educators and parents as interactive advocates for the needs of mathematically talented students who learn more quickly than their peers and understand mathematical concepts at a deeper and more advanced level. While focusing on the development of mathematical talent, the book also addresses general issues surrounding curriculum delivery and reform, including specific subtopics such as ability grouping, social/emotional development, and twice exceptional-students, as well as the impact of their recommendations on the whole child.

This book’s acknowledged purpose is to promote informed advocacy among both parents and educators. To this end, the authors draw on their own extensive knowledge base to present well-defined insights, reflections, and suggestions. Both Assouline and Lupkowski-Shoplik began their professional careers as postdoctoral students at the Center for Talented Youth at Johns Hopkins University, working on programs for mathematically talented youth, under the mentorship of Dr. Julian Stanley. Stanley, who wrote the “Foreword” for this book, credits the authors with expanding the focus of the Study of Mathematically Precocious Youth (SMPY) from seventh- and eighth-grade students to include those much younger, even kindergartners. In addition to the legacy of their early work with Stanley, the authors also acknowledge their experiences with parents, educators, and students at the Connie Belin & Jacqueline N. Blank International Center for Gifted Education and Talent Development at the University of Iowa and the Carnegie Mellon Institute for Talented Elementary and Secondary Students.

The book’s format is straightforward and comprehensive, with ample resources, tables, and figures that expand the narrative and make it more accessible to the reader. Each chapter begins with a list of key points that compose the conceptual framework for the content that follows. The structure of the book also provides a logical pattern of emphases, shifting from information for parents to resources for teachers. The authors clearly intend to convey the message that information particular to either group is still pertinent to both stakeholders in each student’s progress.

After a readable chapter on common myths about mathematically talented students, the book plunges into its main focus, informed advocacy. Using the model of Colangelo and Dettman (1982; see also Colangelo, 2003), the book explores the range of interactions between parents and educators, from Type I, Cooperation, in which both parents and teachers discuss common concerns about the child, through three additional types, Conflict, Interference, and Natural Development, which fall short according to the actions of the stakeholders. A detailed case study of one parent’s struggle to attain appropriate instruction for her child renders the theoretical information concrete and easily comprehended, as does a table of common roadblocks with suggestions for effective responses by parents to the resistance they may encounter in trying to advocate for their children. Detailed strategies for effective advocacy on behalf of the child round out this chapter, which the authors state is the raison d’être (p. xix) for the entire book.

Advocacy based on a strong knowledge base permeates the rest of the volume. Straightforward explanations of assessment and diagnostic testing clarify confusion that might result from the alphabet soup of testing and the jargon that frequently surrounds identification procedures in schools. The narrative includes clear descriptions of the content and scoring of individually administered general ability tests, such as the Woodcock-Johnson III Tests of Cognitive Abilities, and group-administered tests, such as the Otis-Lennon School Ability Test. Math-specific tests, such as the Test of Mathematical Ability for Gifted Students, are also explained with the benefits and drawbacks of each. Once more a table provides a clear outline of individual
tests, what they cover and how they are scored, so that
the reader can begin to make sense of psychometrics as
it is applied to gifted students. The authors expand on
this knowledge base by providing their own model
(Directive Testing \rightarrow\) Prescriptive Instruction Model),
which elaborates on the use of testing to delineate
appropriate learning experiences for students. This
model necessarily involves the teachers, reinforcing
once more the partnership of parents and teachers in
determining and meeting the needs of gifted students.

Because mathematical ability manifests itself
early, the book includes a comprehensive chapter on
talent searches for elementary students, replete with
explanations of entrance criteria and testing proto-
cols. These programs are vital resources for parents
seeking to meet the needs of their children outside of
the normal school curriculum and as the children
progress through the K-12 environment. Knowledge
of these programs is critical for teachers also striving
to address their highly able students’ talents. A com-
petent summary of research-based findings on ele-
mental talent centers provides a strong base for the
credibility of these programs.

With persuasive and authoritative style, Assouline
and Lupkowski-Shoplik urge teachers to acquire a
thorough knowledge of mathematics curriculum and
National Council of Teachers of Mathematics stan-
dards. The standard curriculum option of offering
algebra in eighth grade to gifted students is refuted,
bolstering the work of researchers who challenge the
assumptions of traditional mathematics curriculum
policies (Spielhagen, 2005). The authors also recom-
 mend that teachers combine curriculum acceleration
with enrichment experiences to create the maximum
impact for their students. Although Assouline is one
of the coauthors of The Templeton National Report
on Acceleration (Colangelo, Assouline, & Gross,
2004), no mention is made of that important sum-
mary of how and why schools resist acceleration,
likely because the publication and production of both
volumes were occurring simultaneously.

Teachers will particularly appreciate the chapters
on programming, curricula, and materials that they
can use in their classrooms to bolster their students’
progress. The summary of programs for mathemati-
cally talented students is detailed and well refer-
enced, providing tables that contain external program
opportunities as well as internal program modifica-
tions that teachers can make themselves. Moreover,
the curriculum resources in this book are clear in their
focus and readily usable for both acceleration and
enrichment purposes. In fact, the chapter on curricula
and materials could easily stand alone as a handbook
designed reference for classroom teachers.

This book’s equally compelling chapter on teaching
mathematically talented students grapples with the
essential role played by competent and conscientious
teachers in academic development. The authors vigor-
ously take on sensitive issues, such as the lack of math-
ematical expertise among elementary school teachers
and the time crunch that defines instruction in the early
grades. They further accent the importance of the
opportunities gained or lost in the middle grades, as
well as the attitudes of unprepared teachers toward the
challenge of mathematically talented youngsters.
Citing the findings of Csikszentmihalyi, Rathunde, and
Whalen (1993), this book also credits teachers with
providing environments in which young adolescents
either become engaged with mathematical exploration
or simply give up. Strong content knowledge, innova-
tive pedagogical expertise, and positive attitudes
toward talent development are critical factors in the
development of mathematical talent among students.
The authors of this book make no apology for this rig-
orous recipe for success.

Case studies bring to life the reality of living with
and teaching mathematically talented youngsters.
Vivid descriptions of five students illustrate the con-
cepts developed throughout the book and the paths
each child and his or her parents followed to acquire
appropriate learning experiences in math. From
Christopher, who learned about negative numbers at
age 3 using a calculator on his own, to Elizabeth,
whose parents didn’t want her to be different from her
age mates but also wanted her to be intellectually
engaged, the case studies allow the reader to apply
the theoretical knowledge that has been presented
in the rest of the book. The authors guide the reader
through the varied measures taken by parents and
teachers to address the needs of these five students. The
reader does take note of the fact that four of the five
case studies are boys. Girls are referenced in other
parts of the book, but specific emphasis on develop-
ment of female mathematical talent is not a major
focus of this book.

Developing Math Talent: A Guide for Educating
Gifted and Advanced Learners in Math, by Susan
Assouline and Ann Lupkowski-Shoplik, is readable, com-
pelling, and convincing. The authors provide pragmatic
and concrete suggestions for identifying mathematically
talented students, as well as tools for instructional planning and programming suggestions. They enhance their already comprehensive text with appendices that include a detailed list of resources, a well-defined glossary, and a set of challenging mathematics problems from the 1998-1999 Mathematical Olympiad. In so many ways, this book has it all. It is a reference book that offers valuable information for educators and parents alike, while providing research-based information that is useful for curriculum developers and policy analysts exploring mathematics curriculum reform. This book is an important addition to the library of anyone seeking to advocate knowledgeably for mathematically talented students.

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References


