

IMPROVING K-12 MATHEMATICS EDUCATION

Adopted by Convention Delegates May 7, 1998

Reviewed by Board of Managers March 2009

- WHEREAS,** An understanding of mathematics opens the doors to science and technology, to employment and success in many careers, and is increasingly needed for personal financial decisions as well as participation in community and world affairs; and
- WHEREAS,** The competitiveness of California and its citizens, in the interconnected global economy and marketplace of the 21st century, will depend significantly on knowledge and understanding of mathematics, science and technology; and
- WHEREAS,** Recent national and international tests of mathematics achievement indicate that California's 4th and 8th graders rank below the national average, and U.S. 8th graders in turn rank below the international average; and
- WHEREAS,** Due to the recognized shortage of teachers qualified in mathematics, some people teach mathematics in secondary schools without a mathematics credential, and some teach mathematics in elementary schools without a strong background or competency in the subject matter; and
- WHEREAS,** Studies indicate that students' success in mathematics is influenced by the teachers' knowledge and understanding of mathematics, and by teaching ability and the quality of the mathematics in the lessons; now therefore be it
- RESOLVED,** That the California State PTA and its units, councils and districts support legislation to
- provide strong incentives for more teachers to develop greater competency in mathematics and in teaching mathematics, and to encourage people with mathematics backgrounds to obtain a teaching credential and enter the teaching profession;
 - require more knowledge of mathematics content for prospective mathematics teachers, and continuing professional development in mathematics content for all who teach K-12 mathematics;
 - provide funding for methods of improving elementary (K-6) mathematics education, including, but not limited to, the use of mathematics specialists, mentors, lead teachers, demonstration, lesson modeling, and early intervention programs;
 - require that every secondary (7-12) mathematics teacher have or be working toward a mathematics credential;

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- provide local control and flexibility for school districts and for teacher trainers in choosing pedagogical styles and organization of course material to meet or exceed state standards;
- adopt statewide goals for the professional development of mathematics teachers to be met by 2010, with periodic progress reviews; and be it further

RESOLVED, That the California State PTA and its units, councils and districts encourage an understanding of the importance of mathematics among the public at large; the broadening of mathematics education to include critical thinking and other skills important to the modern workplace; the recognition that every student in every school must have the opportunity to develop real mathematical understanding; and participation and cooperation among parents, teachers and administrators in mathematics education; and be it further

RESOLVED, That PTA encourage parents to explore simple mathematics with their very young children and to promote the study of basic mathematics (including algebra, geometry, statistics and probability) for all secondary school students, with the goal of mathematical literacy for all upon completion of school and entering the workplace.

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BACKGROUND SUMMARY

An understanding of mathematics, and the ability to use it well, is required for many disciplines and occupations. Many high school science courses have mathematics prerequisites. Numerous college majors, and even college admission, are closed to those with inadequate mathematics preparation in high school. Many occupations require significant mathematical skill and understanding. Not only scientists, engineers, bankers and accountants, but also attorneys, journalists, mechanics and electricians have a growing need for quantitative skills and reasoning.

The California State Superintendent of Public Instruction has noted that in 1900, in our manufacturing economy, 60 percent of the jobs required only unskilled labor; today that number is only 20 percent. Some fast-food restaurant chains now have mathematics tests as part of their job application process.

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As our world becomes more complex, society is faced with masses of data to digest and interpret. Sound quantitative reasoning is essential to effective decision-making. Yet among students being graduated from California’s high schools, the best available estimates indicate that only 44 percent have completed algebra I, 25 percent have completed high school geometry, and fewer still have studied mathematics beyond basic algebra and geometry.

Nationally, the opportunity to study basic mathematics and the encouragement students receive for continuing vary widely by location, by gender, and by ethnicity. This inequity in mathematics education is reflected in colleges and in the job market.

For 100 years PTA has advocated improving educational opportunities for all children. California State PTA and National PTA position statements address mathematics education and stress teacher preparation and parent support. By passing this resolution, PTA can help ensure that all our children will be well prepared to meet the challenges of the next century.