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## Analysis of the Problems in Science Education and Recommendations for Resolution

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*Commission on Precollege Education in Mathematics, Science, and Technology*

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## Recommendations

The following recommendations were proposed by Dr. Howe to address the above science teachers supply/demand problem (Howe & Gerlovich, 1983).

1. Schools should hire only certified teachers with approval to teach mathematics and science in grades 7-12.
2. Temporary teaching approvals should be eliminated.
3. Certification standards should be enforced.
4. Elementary teachers should be prepared to teach mathematics and science appropriate to those grade levels.
5. Inservice programs should be initiated to upgrade teachers.
6. Scholarships and/or loan incentives should be made available to encourage qualified students to enter science and mathematics teaching.
7. Areas identified as having critical shortages of teachers (i.e. mathematics and science) should be given special salary considerations.
8. Representative advisory committees should be established to avert future crises in mathematics and science teaching.
9. Local school districts should require at least two years of mathematics and two years of science (life and physical sciences, including technology and computer applications) during grades 9-12.

## Analysis of the Problems in Science Education and Recommendations for Resolution

*George Burnet*  
*Commission on Precollege Education in*  
*Mathematics, Science, and Technology*

### The Problem

The quality of precollege mathematics and science education in our schools and the implications for all sectors of American society have been articulated in the Commission on Precollege Education in Mathematics, Science, and Technology's report, *Today's Problems, Tomorrow's Crises* (1982) and in numerous other reports, articles, publications and public fora. Since July 1982 the Commission has been collecting information and suggested solutions from a broad base of institutions, organizations, and expert observers.

## Recommendations

The charge to the Commission is to develop a national action plan to remedy the discouraging state of the teaching of science and mathematics in our schools. The plan is to assist our precollege educational system to meet the following equally important goals:

1. To continue to develop and to broaden the pool of students who are well prepared and highly motivated for advanced careers in mathematics, science and engineering.
2. To widen the range of high quality educational offerings in mathematics, science and technology at all grade levels, so that more students would be prepared for, and thus, have greater options to choose among technically oriented careers and professions.
3. To increase the general mathematics, science and technology literacy of all citizens for life, work and full participation in the society of the future.

## Governor's Task Force Report on High Technology in Iowa: Results and Applications to the Crisis in Science Education

*David H. Swanson: Chair  
Iowa High Technology Commission*

### The Problem

Governor Robert Ray, on May 18, 1982, directed a High Technology Task Force to examine the feasibility of the development of high technology industries in Iowa. This task force after 5½ months of study, made its report to the governor. The report found that 75 percent of the new U.S. manufacturing jobs created during the past 25 years were in seven basic industry groups. These industries were generally described as high technology. The report also concluded that in the future manufacturing employment increases were most likely to occur in high technology industries.

Considered major among the locational factors of high technology industries were characteristics which focused upon advanced research and industries which produce a high value product, proximity to major scientific research and technological universities, good vocational/technical schools, available air transportation and a supportive environment for scientists. The attractiveness of centers of excellence in research was perceived as a major attraction for most companies utilizing advanced technologies.

### Recommendations

The High Technology Task Force recommended:

1. That research and development efforts in high technologies be concentrated in biotechnology, microelectronics, productivity enhancement/process controls, and energy alternatives.