
Maryland's conversion by 1980 from the English system of measurement to the International Metric System is now firmly projected. All agencies must work together in a coordinated effort to make the metric system a natural process in our daily lives.

Metric in Maryland



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THE century-old problem is going to be resolved. The conversion of all measurement language to the international metric system of measurement in all phases of public education in Maryland by 1980 has been set as a public policy by the Maryland State Board of Education. This position was taken by Maryland as the logical course of action when interpreting the direction of Congressional legislation and the recommendation of the Department of Commerce study.

At President Nixon's request, House Bill 5749 was introduced and heard in committee in late March 1973. Nine other bills have also been introduced and it appears that some metric legislation will be enacted this year. H. B. 5749 states in part, "It is therefore declared that the policy of the United States shall be:

(1) to facilitate and encourage the substitution of metric measurement units for customary measurement units in education, trade, commerce, and all other sectors of the economy of the United States with a view to make metric units the predominant, although not exclusive, language of measurement with respect to transactions occurring after ten

years from the date the Board commences implementation of the changeover plan. . . ."

This position is quite understandable when one recognizes that 80 percent of all current world production and trade is measured in metric units and that 93 percent of the population of the world resides in metric nations. The United States is clearly an outsider. The United Kingdom is already halfway through the process of change. Governments of Australia, Canada, India, Japan, New Zealand, and the Republic of South Africa have determined to convert, are converting, or have converted to the use of the metric system.

Not only must education move forward because of potential federal legislation as well as the actions of other countries throughout the world, but also because U.S. industry has made strong moves toward the use of the metric system. Metric-engineered engines are being manufactured; industrial giants such as General Motors, IBM, Honeywell, and others are in the process of going metric;

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experimental road signs with distances listed in kilometers are installed in Ohio.

In view of such background, the Maryland State Board of Education has directed the State Superintendent of Schools "to present by September 1974 a plan and procedure for complete metrication of all phases of public school operation in Maryland by 1980." An ad hoc committee will be appointed to develop such recommendations. This committee must be widely representative to include industry, labor, education, parents, media, service groups—such as Kiwanis and Rotary—and representatives of other State governmental agencies such as Transportation. Such a representation should clearly demonstrate the mutual responsibility of those whose main responsibility is the material production for society and those whose major responsibility is people.

While commerce clearly relates to "things" and education relates to "people," it is our belief that no real forward movement will take place with "people" until commerce leads with "things." Whatever commerce presents, this will undoubtedly provide the everyday experiences required to "think metric" and to "operate metric."

The entire process of metrication presents some very real concerns for education. Some of these concerns relate to:

1. Teacher training—both in-service and preservice
2. Curriculum
3. Adult education
4. Textbooks and instructional materials
5. Cost.

Teachers

Many teachers and educational organizations have supported the adoption of the metric system for some time. Secondary science teachers and many elementary school teachers use the metric system. Mathematics teachers have knowledge of the system and may teach some portion of it. The major concern is with the vast majority who have insufficient knowledge to teach it, particu-

larly at the elementary level. There is definitely teacher support.

In the opinion of some, only 8 to 15 hours of instruction are required. At the present time, Maryland plans include the development of models for teacher training workshops to train leaders in the State. The models will be implemented during the summer of 1974. The crucial problem is the training of as many teachers as quickly as possible. A multiplier effect has, therefore, been planned whereby the State Department of Education will train two or three leaders from each of the 24 local school systems. In turn these leaders will train one or two educators in each school building in the system; the building trainers will then teach the teachers in each school. Each model will be built upon a 2½- to 3-day concentrated workshop session in which half of the time will be devoted to acquiring a knowledge of the system and the other half to providing an immersion in operating within the metric system.

Curriculum

A question frequently posed by teachers as well as by principals relates to curriculum. It is our belief that the metric system should be taught at present as a "second language." It is also our belief that the students need to be taught what they need when they need it. Each system will, therefore, need to examine its mathematics, science, and vocational education curricula to identify the necessary changes. We must not confuse the student by totally teaching the metric system while society is still operating on the English system. If State and federal legislation moves ahead co-equally and if the U.S. Department of Commerce develops a national time frame for conversion, then education can teach the system without student confusion. Our curricular concern is twofold, namely, to "think metric" and to "operate metric." It will not take young children long to think and to operate metric. It will require a longer period of time for older students and adults. Maryland's tentative proposed schedule suggests that the planning, teacher training, and cur-

riculum research should be completed by 1974. By 1979, the children in kindergarten through grade 6 will be able to use the metric system as a first measurement language and students in grades 7-8 will use the metric system exclusively. Therefore, beginning in 1980 all students K-12 will use the metric system exclusively.

It is our belief that not only will a properly developed metric curriculum take less time to teach the students than did the English system, but that it will also require fewer separate calculations for most problems. Many estimate that the metric system will require 25 percent less time to teach; the unused time can then be more effectively utilized in other priority areas of instruction. We must take care, however, that we do not lose this time savings by making the teaching process entirely too complicated.

Adult Education

The University of Maryland recently initiated a course on the metric system for the employees of NASA of the Goddard Space Flight Center. Similar courses are being initiated by other agencies while other State and community colleges will be developing courses. The problem of educating adults, however, goes far beyond a "course." The mass media probably have a greater responsibility than regular class programs. A service approach will be needed for adults—their need for practical uses. It is the intent of Maryland to work closely with the mass media to serve our mutual interest for public service.

Materials of Instruction

Science and mathematics classes now use the metric system and already have most of the required materials of instruction. However, most mathematics and science textbooks in elementary and middle school programs will need to be changed. While some textbooks already show necessary changes, within a period of five years, all such textbooks will be metric. Maryland plans to discuss these textbook needs with publishing

companies. Yet this change should probably not be as important as some may suggest.

To "think metric and operate metric," one must use many manipulative materials found in stores and in the community. One needs to start with common everyday experiences such as seeing, touching, estimating, or using the thermometer. The purchase of very many materials will not be necessary. Danger exists in the acceptance of the time-honored pressure to buy expensive teaching aids of questionable value when items which we have around us in everyday life are available. Naturally, some inexpensive materials should be considered, such as: thermometers, meter sticks or other linear measuring devices, balance scales, and a square centimeter block.

Cost

It is our belief that the major cost of the implementation of the Maryland state plan will be costs related to workshops (stipends to teachers or substitute pay for teachers). While costs for materials will be involved, this will not likely be a large sum in any one year. As textbooks change, they will be purchased according to local school system replacement schedules over a five-year period. A simple reordering of priorities in each local system could accomplish this changeover task in an even shorter time frame.

Maryland then is coming to grips with the century-old problem of conversion from the English system of measurement to the International Metric System. By facing this problem realistically and logically, the State Department of Education is developing a plan of action which will allow education to be a moving force in the changeover process. Education, however, cannot do the job alone and cannot be the sole moving force. All agencies—national, state, and local—must work together in a concerted and coordinated effort to ensure a smooth conversion. In short, Maryland must move forward jointly and deliberately if the eventual use of the metric system is to become a natural process in our daily lives. □

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