

RECOMMENDATION No. 31

concerning

**INTRODUCTION TO MATHEMATICS
IN PRIMARY SCHOOLS
(up to the age of 11 or 12 years)
(1950)**

The International Conference on Public Education,

Convened at Geneva by the United Nations Educational, Scientific and Cultural Organization and the International Bureau of Education and being assembled on the sixth of July for its thirteenth session adopts on the thirteenth of July, nineteen hundred and fifty, the following recommendation:

The Conference,

Considering that on the one hand, an introduction to mathematics is one of the essential and universal aspects of training in objective and accurate judgment,

That, on the other hand, the lively activity and the checking of results especially called for by an introduction to mathematics have an intellectual and moral influence which should benefit the study of other subjects,

That a great deal of relevant psychological and educational research is available for use in connection with the teaching of mathematics — one of the most difficult subjects,

Submits to the Ministries of Education in the various countries the following recommendation:

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1) That the introduction to mathematics be adapted step by step to the mental processes peculiar to each stage of a child's intellectual development and make full use of all his powers;

2) That even in the nursery-infant school, a child be given opportunity, through his own activities, to discover the elementary relationships (that the part is contained by the whole, order, similarity, etc.) of number and space;

3) That a child be enabled to discover for himself, through suitable activities, the meaning of the arithmetical rules and processes to which is he introduced in the first primary classes, and by the same means to find the answers to those questions which his spontaneous interests provoke him to ask;

4) That, closely linked with a child's growing knowledge of number, a series of graded activities be arranged to introduce some of the simple spatial forms, their relationships and their measurement, in such a way as to show clearly the relation between arithmetic and geometry;

5) That special care be taken in all the activities which introduce mathematical operations, to secure a thorough grasp of qualitative and logical relationships, because upon these depend a child's subsequent understanding of the logical structure and numerical data involved in all his problems;

6) That in the classes which follow, problems involving new ideas (such as time, speed, etc.) be given after further experience calling in each case for the same kind of practical activity and for the realisation of logical concepts;

7) That the exercise of a child's imagination through his practical activities be accompanied by a steadily increasing demand that he check his results, so that his conquest of each new system of operations or relationships marks a step forward in the accuracy of his reasoning;

8) That particular attention be paid to a child's verbal expression of the correct vocabulary corresponding to each step learnt;

9) That exercises for developing the skills of arithmetical computation, especially as regards mental arithmetic, be employed only after a child has learnt the meaning of the operations through play and experiment, and has understood the circumstances in which those skills are required;

10) That methods involving group activities be used to sustain and increase the children's interest, and to give them opportunity for discussing their problems and checking their results;

11) That by all means at their disposal, including psychological tests, teachers endeavour systematically to discover where and why their pupils fail, and take steps to overcome the causes of failure in each individual case;

12) That mathematics be associated as closely as possible with other subjects, and that exercises and problems be taken from everyday life and related to the child's environment, and involve only numbers of reasonable size;

13) That primary teacher training establishments be invited to endorse the principles set out above and to encourage their students to put them into practice.