

# 5. Mathematical Teaching in Girl's High Schools.

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The revised outlined program provides for the number of lesson hours per week for mathematical teaching in middle schools.

Summing up the salient features of the present program of mathematical instruction and the effects it has produced, we may take note of the following points.

1. The appreciation of synthesis.

It has been in consideration of this principle that, instead of putting down the names of Arithmetic, Algebra, Geometry, Trigonometry and so on, only concrete items of these subjects are mentioned in this program. It is stated in the precautionary notes attached to the new program that the idea of function should be made the centre of synthetic practices.

2. Only major items have been shown in the program.

Arrangements in this connection have been calculated to remove pressure likely to be brought by any over-specified curriculum upon actual instruction as well as to prevent teaching formula from being standardized. With details of the teaching program left for compilation to the discretion of instructors and editors of text-books, the new outlined program, when proper use is made of it, is believed to accomplish much in the development of mathematical teaching in the country.

3. Practicability has been stressed.

Among other things indicative of the attention called to the selection of teaching materials such as would be most pertinent to actual requirements, the following three points may be pointed out in the new teaching plan.

(a) Instruction in algebra is made to center around equations and most of those difficult problems relating to mere formalities have been deleted.

(b) The introduction of numerical trigonometry has been expedied.

(c) Special regard has been paid to the fostering of functional ideas in children resulting in considerable increase in graphic materials.

4. Attention has been brought to the degrees of the development of pupils' capacities. A striking indication hereof will be seen in the insertion of Geometrical Figures in the geometrical stuff in the new program, which is chiefly to be dealt with through intuitional practices.

5. MATHEMATICAL TEACHING IN GIRL'S HIGH SCHOOLS.

In 1920 the week hours for mathematical teaching in girls' high schools were revised. With the selection of teaching materials

left to the study of actual educators, the only step taken by the authorities concerned on the occasion was the enforcement of an official examination of text-books in an attempt to effect a control of the contents of school books. In view of these circumstances, the Mathematical Association of Japan for Secondary Education submitted for discussion a draft program of mathematical teaching in girls' high schools to the general meeting held in 1921. During the decade following, increasing need for a revision of the teaching plan was felt in order to keep the female education in line with general development in the country. In 1931, the Mathematical Association evolved following prolonged deliberations a draft revised system dividing the mathematical curriculum in girls' high schools into the regular and the complementary studies, which subsequently secured the adherence of most of the girls' schools in the country.

To sum up, the mathematical teaching in the higher ordinary education for females in the country has made a rapid progress during the past two decades. It is a notable feature of the mathematical education that, despite the distinct standards existing between the middle schools and the girls' high schools in the country in other courses of secondary education, the latter chiefly being aimed at the acquisition of matters necessary for domestic life, instruction in mathematics is leading the male and the female towards an indiscriminate field of education.

## 6. MATHEMATICAL TEACHING IN TECHNICAL SCHOOLS.

In the field of mathematical education, the initiative for setting forth a coordinated system has been taken by the Mathematical Association of Japan for Secondary Education, under whose auspices various researches and inquiries have already been initiated during the past few years.

The contents of mathematical instruction in technological schools are practically the same as in middle schools. During the first, second and third years, algebra, plane geometry and trigonometrical functions of acute angles are taught: in the fourth year, solid geometry and trigonometrical functions of general angles are introduced: and in the fifth year, rudiments of advanced mathematics are brought in among the following lines:

Analytical Geometry: straight lines, conic sections.

Differential Calculus: limits, differential coefficients, maxima and minima, differentiation of transcendental functions, applications of differentiation.

Integral Calculus: indefinite integrals, definite integrals, differential equations.