

CHAPTER 2 AIMS AND OBJECTIVES

2.1 Aims of the Secondary School Mathematics Education

The secondary school mathematics curriculum continues the development of the learning of mathematics in the primary school. To enable students to cope confidently with the mathematics needed in their future studies, workplaces or daily life in a technological and information-rich society, the curriculum aims at developing students:

- ◆ the ability to conceptualize, inquire, reason and communicate mathematically, and to use mathematics to formulate and solve problems in daily life as well as in mathematical contexts;
- ◆ the ability to manipulate numbers, symbols and other mathematical objects;
- ◆ the number sense, symbol sense, spatial sense and a sense of measurement as well as the capability in appreciating structures and patterns;
- ◆ a positive attitude towards mathematics and the capability in appreciating the aesthetic nature and cultural aspect of mathematics.

2.2. Objectives of the Secondary School Mathematics Education

2. 2. 1. Knowledge Domain

To induce children to understand and grasp the knowledge of the following:

- ✧ the directed numbers and the real number system;
- ✧ the algebraic symbols to describe relations among quantities and number patterns;
- ✧ the equations, inequalities, identities, formulas and functions;
- ✧ the measures for simple 2-D and 3-D figures;
- ✧ the intuitive, deductive and analytic approach to study geometric figures;
- ✧ the trigonometric ratios and functions;
- ✧ the statistical methods and statistical measures;
- ✧ the simple ideas of probability and laws of probability.

2. 2. 2. Skill Domain

To develop the following skills and capabilities in:

- ✧ basic computations in real numbers and symbols and an ability to judge reasonableness of results;
- ✧ using the mathematical language to communicate ideas;
- ✧ reasoning mathematically, i.e. they should conjecture, test and build arguments about the validity of a proposition;
- ✧ applying mathematical knowledge to solve a variety of problems;
- ✧ handling data and generating information;
- ✧ number sense and spatial sense;
- ✧ using modern technology appropriately to learn and do mathematics;
- ✧ learning mathematics independently and collaboratively for the whole life.

2. 2. 3. Attitude Domain

To foster the attitudes to:

- ✧ be interested in learning mathematics;
- ✧ be confident in their abilities to do mathematics;
- ✧ willingly apply mathematical knowledge;
- ✧ appreciate that mathematics is a dynamic field with its roots in many cultures;
- ✧ appreciate the precise and aesthetic aspect of mathematics;
- ✧ appreciate the role of mathematics in human affairs;
- ✧ be willing to persist in solving problems;
- ✧ be willing to work cooperatively with people and to value the contribution of others.