



VISION

Passionate and confident problem-solvers with the drive to excel

MISSION

Every Pasirian is given opportunities to excel

AIMS AND FRAMEWORK OF MATHEMATICS

Mathematics education aims to enable students to:

- (1) acquire the necessary mathematical concepts and skills for everyday life, and for continuous learning in mathematics and related disciplines.
- (2) develop the necessary process skills for the acquisition and application of mathematical concepts and skills.
- (3) develop the mathematical thinking and problem solving skills and apply these skills to formulate and solve problems.
- (4) recognise and use connections among mathematical ideas, and between mathematics and other disciplines.
- (5) develop positive attitudes towards mathematics.
- (6) make effective use of a variety of mathematical tools (including information and communication technology tools) in the learning and application of mathematics.
- (7) produce imaginative and creative work arising from mathematical ideas.
- (8) develop the abilities to reason logically, communicate mathematically, and learn cooperatively and independently.

The framework of the mathematics curriculum summarises the essence of mathematics teaching and learning in schools. The learning of mathematics at all levels involves more than the basic acquisition of concepts and skills. It also crucially involves an understanding of the underlying mathematical thinking, the general strategies of problem solving and positive attitudes to and appreciation of mathematics as an important and powerful tool in everyday life.

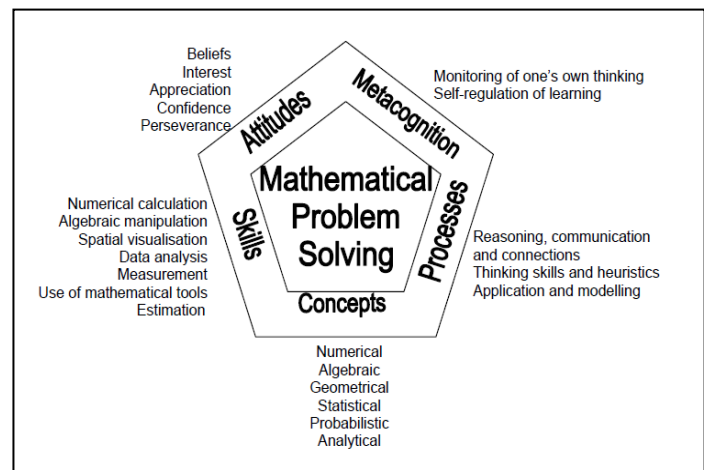


Fig 1 Mathematics Framework

The framework (Fig 1) shows the underlying principles of an effective mathematics programme that is applicable to all levels, from the primary to A-levels. It sets the direction for the teaching, learning, and assessment of mathematics. Mathematical problem solving is central to mathematics learning. It involves the acquisition and application of mathematics concepts and skills in a wide range of situations, including non-routine, open-ended and real-world problems.

The development of mathematical problem solving ability is dependent on five inter-related components, namely, *Concepts, Skills, Processes, Attitudes* and *Metacognition*.

Mathematical concepts cover numerical, algebraic, geometrical, statistical, probabilistic, and analytical concepts. Students should develop and explore the mathematics ideas in depth, and see that mathematics is an integrated whole, not merely isolated piece of knowledge. They should be given a variety of learning experiences to help them develop a deep understanding of mathematical concepts, and to make sense of various mathematical ideas, as well as their connections and applications, in order to participate actively in learning mathematics and to become more confident in exploring and applying mathematics. The use of manipulatives (concrete materials), practical work, and use of technological aids should be part of the learning experiences of the students.

Mathematical skills include procedural skills for numerical calculation, algebraic manipulation, spatial visualisation, data analysis, measurement, use of mathematical tools, and estimation. The development of skill proficiencies in students is essential in the learning and application of mathematics. Although students should become competent in the various mathematical skills, over-emphasising procedural skills without understanding the underlying mathematical principles should be avoided. Skill proficiencies include the ability to use technology confidently, where appropriate, for exploration and problem solving. It is important also to incorporate the use of thinking skills and heuristics in the process of developing skill proficiencies.

Mathematical processes refer to the knowledge skills (or process skills) involved in the process of acquiring and applying mathematical knowledge. This includes reasoning, communication and connections, thinking skills and heuristics, and application and modelling. Reasoning, communication and connections Mathematical reasoning refers to the ability to analyse mathematical situations and construct logical arguments. It is a habit of mind that can be developed through the applications of mathematics in different contexts. Communication refers to the ability to use mathematical language to express mathematical ideas and arguments precisely, concisely and logically. It helps students develop their own understanding of mathematics and sharpen their mathematical thinking. Connections refer to the ability to see and make linkages among mathematical ideas, between mathematics and other subjects, and between mathematics and everyday life. This helps students make sense of what they learn in mathematics. Mathematical reasoning, communication and connections should pervade all levels of mathematics learning, from the primary to A-levels.

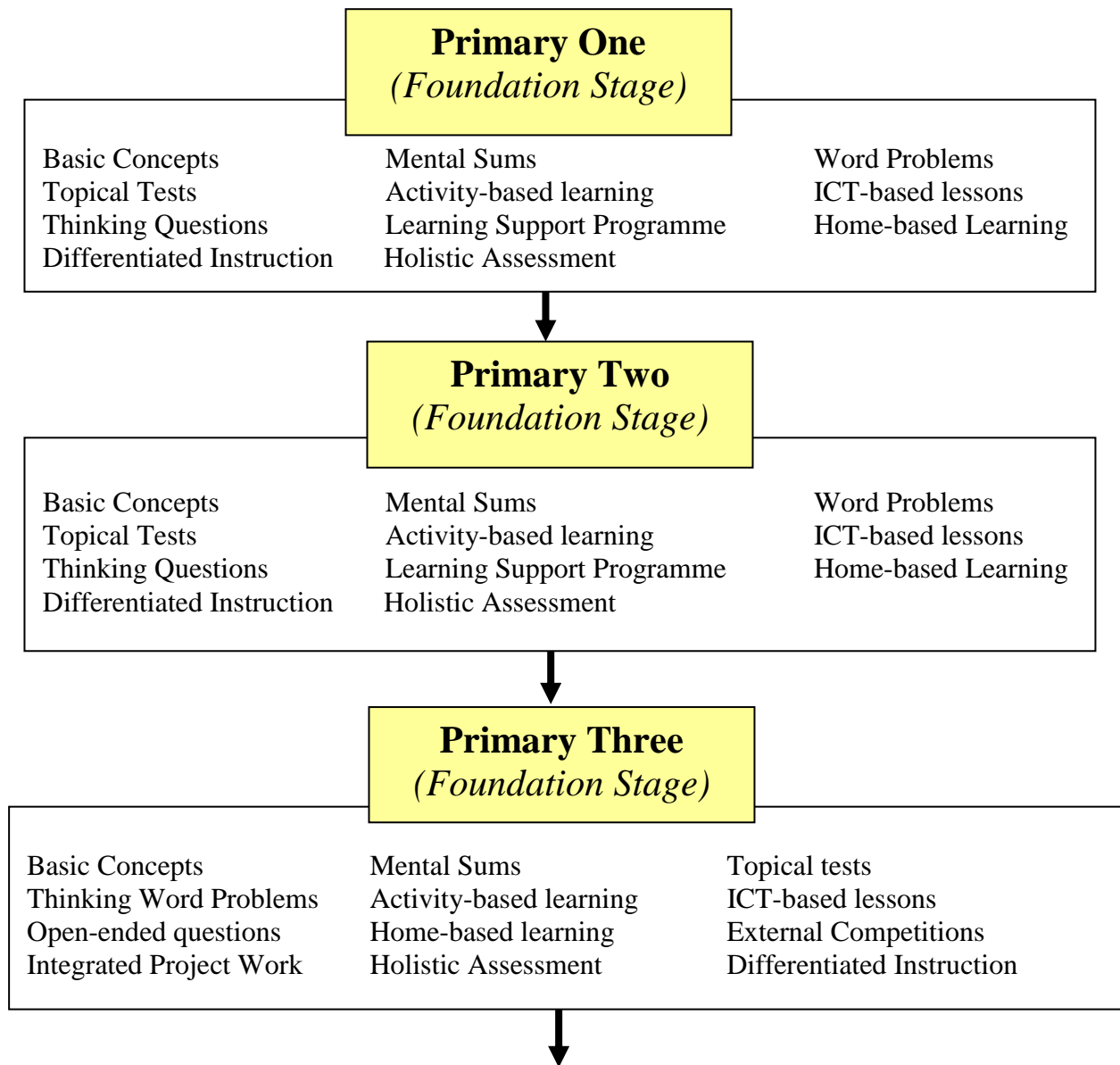
Attitudes refer to the affective aspects of mathematics learning such as:

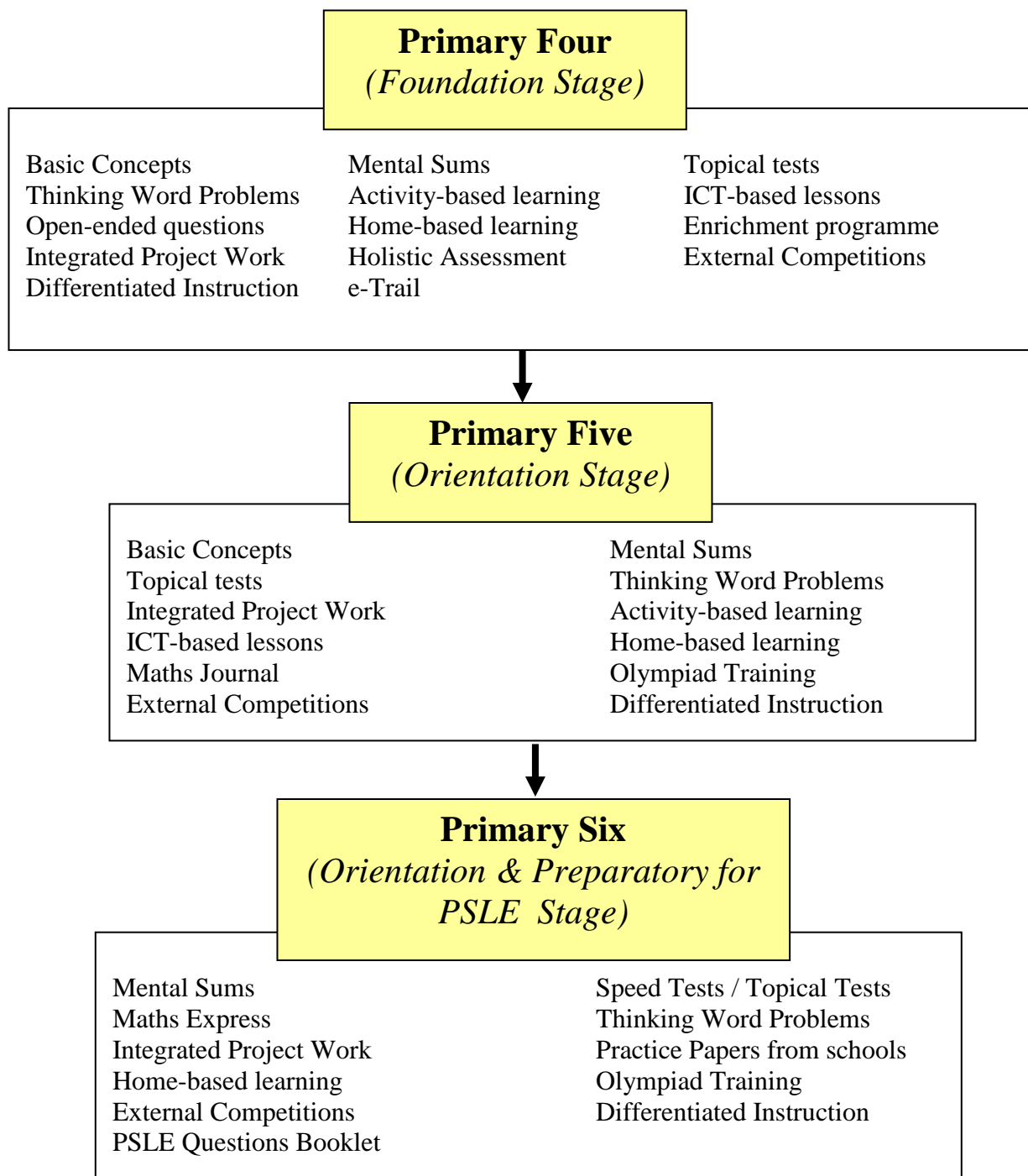
- Beliefs about mathematics and its usefulness
- Interest and enjoyment in learning mathematics
- Appreciation of the beauty and power of mathematics
- Confidence in using mathematics
- Perseverance in solving a problem

Students’ attitudes towards mathematics are shaped by their learning experiences. Making the learning of mathematics fun, meaningful and relevant goes a long way to inculcating positive attitudes towards the subject. Care and attention should be given to the design of the learning activities, to build confidence in and develop appreciation for the subject.

Metacognition, or “thinking about thinking”, refers to the awareness of, and the ability to control one's thinking processes, in particular the selection and use of problem-solving strategies. It includes monitoring of one's own thinking, and self-regulation of learning. The provision of metacognitive experience is necessary to help students develop their problem solving abilities.

SCHOOL-BASED PROGRAMMES





FOR INFORMATION ON SYLLABUS

To find out more about the current Primary Mathematics Syllabus, visit

<http://www.moe.gov.sg/education/syllabuses/sciences/files/maths-primary-2013.pdf>

Kindly note that P1 to P6 will be using Maths Syllabus 2013. Check out in MOE website.