

Numeracy at BPPS

Increasingly research is showing that life and work in the 21st century is requiring higher levels of mathematics and numeracy of its citizens. Mathematics and numeracy are intrinsically connected and BOTH are needed in our ever changing, globalised and technological world.

What is the difference between Numeracy and Mathematics? Numeracy is not the same as mathematics, nor is it an alternative to mathematics. Today's students need both mathematics and numeracy.

The **main difference** between mathematics and numeracy is that **mathematics is the broad study of numbers, quantities, geometry and forms while Numeracy is the knowledge, skills, behaviours and dispositions that students need in order to use mathematics in a wide range of situations.** Thus, to be considered numerate, it is expected that people will need to know some mathematics, and be able to apply that mathematics within a real-world context.

Why this matters - With 21st-century life and workplaces requiring more critical, reflective mathematical reasoning skills and the ability to interpret and understand a broader range of data and processes, our children need better numeracy and maths skills than ever before. Being numerate involves more than mastering basic mathematics. Numeracy involves connecting the mathematics that students learn at school with the out-of-school situations that require the skills of problem solving, critical judgement, and sense-making related to applied contexts. Hence schools need to teach both numeracy and mathematics well.

At Boroondara Park PS we have a whole school approach to the development and delivery of a comprehensive Numeracy program designed to develop numeracy skills, understandings and strategies of all our students. Through our numeracy program we aim to equip students with the mathematical concepts, attitudes and strategies necessary for their school life and beyond. Through real life tasks, hand on investigations, explicit teaching and problem solving experiences, students build their numeracy skills.

The Victorian Curriculum: Mathematics provides students with essential mathematical skills and knowledge in *Number and Algebra*, *Measurement and Geometry*, and *Statistics and Probability*. It develops the numeracy capabilities that all students need in their personal, work and civic life, and provides the fundamentals on which mathematical specialties and professional applications of mathematics are built. The Victorian curriculum also highlights key proficiencies that are fundamental to the teaching of mathematics – understanding, fluency, problem solving and reasoning. Each proficiency is given equal weight within our program.

Understanding	<ul style="list-style-type: none">• Represent concepts in different ways• Describe their thinking mathematically• Connect mathematical ideas
Fluency	<ul style="list-style-type: none">• Calculate answers efficiently• Make reasonable estimates• Choose appropriate methods and approximations
Problem Solving	<ul style="list-style-type: none">• Design investigations and plan approach• Use mathematics to represent situations• Verify that answers are reasonable.
Reasoning	<ul style="list-style-type: none">• Transfer learning between contexts• Explain thinking• Make inferences about data or the likelihood of events

Each term we have a number of concepts that are taught across the three strands. If you want to know what concepts your child is learning at school the Maths planners can be found on the BPPS website under curriculum.

Numeracy learning occurs within the framework of a whole school inquiry approach. Through a Whole School Numeracy Program, mathematics lessons are taught using a consistent lesson structure that builds on a student's fluency and mental computational skills; requires them to explore, investigate, reinforce or extend

their mathematical understanding through group work or open ended investigations; and encourages a student to reflect upon & articulate their mathematical understanding. Maths tasks are open-ended and differentiated so that all children are catered for and experience success. Through this approach we aim to focus on the conceptual development alongside procedural development. I.e. our focus is not just on whether our students can calculate efficiently but rather can our they explain their thinking, make reasonable estimates, investigate a problem, connect ideas and transfer their learning?

Our daily Mathematics lessons usually follow the 'whole-part-whole' strategy. This approach includes:

- a warm up to promote mathematical vocabulary and develop fluency and reasoning through verbal discussions.
- followed by explicit teaching of concepts and understandings. Students then have opportunities to apply their knowledge to problem solving situations either individually or in collaborative groups. Throughout the lesson, students take part in focussed teaching groups, complete independent, partner or group work and are involved in roving conferences with their teacher.

Each lesson is concluded with an opportunity to reflect on learning and to share successful strategies. We use a range of teaching strategies and resources including explicit teaching of skills, written tasks, games, hands on activities, online tasks and investigations. The use of concrete materials and manipulatives allow students to connect mathematical ideas to physical objects thus leading to a deeper understanding.

All students will have a mathematics goal to guide their learning.

There is an emphasis on the use of continuous monitoring and assessment of students by our teachers. The classroom program takes into account stages of mathematical growth and reflects teachers' planning and selection of appropriate learning contexts and activities. Like with literacy, our teachers reflect on their practice through regular meetings with their Professional Learning Team colleagues and continue on-going professional development to enhance a high level of knowledge in order to best cater for all students.