MACCLESFIELD PRIMARY SCHOOL

MATHEMATICS POLICY

2022

MACCLESFIELD PRIMARY SCHOOL

Mission:

Our unique setting at Macclesfield Primary School aims to develop a community hub, which provides a quality, inquiry-based education. This allows everyone to reach their full and unique potential within a caring and joyful environment, celebrating cultural diversity and sustainable practices.

Our communal goals are:

To cultivate a desire of learning in children and provide them with the skills they need to be knowledgeable, adaptable, empathetic and resilient in a rapidly changing world.

To educate students to be mindful of other perspectives, to take personal action towards shared guardianship of planet Earth and to have a positive influence on our global community and create a more peaceful world.

Vision:

Macclesfield aims to create an inspiring teaching and learning community, where we nurture curiosity and bestow a life-long love of learning.

MATHEMATICS PHILOSOPHY

At Macclesfield Primary School we believe that students learn best when provided with rich, meaningful and contextual inquiry learning experiences that support mathematics as integral to their everyday lives. This learning is developed through real world investigations that are carefully selected to ensure that explicit teaching and learning is embedded in authentic, differentiated maths tasks. We believe that students learn best through engaging hands-on, real life problem solving, using the development of increasingly sophisticated skills, language and understanding of number and algebra, measurement and geometry, and statistics and probability concepts. We believe that students engage in mathematics at Macclesfield Primary to develop the ability to apply numeracy skills to all aspects of their lives.

OVERVIEW

The power of mathematics for describing and analysing the world around us is such that it has become a highly effective tool for solving problems. It is also recognised that students can appreciate the intrinsic fascination of mathematics and explore the world through its unique perceptions where they enjoy and are enthusiastic when exploring and learning about mathematics.

In the IB Primary Years Programme (PYP), mathematics is also viewed as a vehicle to support inquiry, providing a global language through which we make sense of the world around us. It is intended that students become competent users of the language of mathematics, and can begin to use it as a way of thinking, so it connects to everyday life in a way that is relevant to each child.

Learners can make connections, apply their learning, and transfer their conceptual understanding to new situations if the learning experiences enable learners to develop mathematics within rich meaningful and enjoyable contexts. This progressive conceptual development, together with an enjoyment of the process, provides the foundation for lifelong learning.

MATHEMATICS

Wherever possible, mathematics should be taught through the relevant, realistic context of the units of inquiry. The direct teaching of mathematics in a unit of inquiry may not always be feasible but, where appropriate, prior learning or follow-up activities may be useful to help students make connections between the different aspects of the curriculum. Students also need opportunities to identify and reflect on "big ideas" within and between the different strands of mathematics, the program of inquiry and other subject areas.
Links to the transdisciplinary themes should be made explicitly, whether or not the mathematics is being taught within the program of inquiry. A developing understanding of these links will contribute to the students' understanding of mathematics in the world. The role of inquiry in mathematics is important, regardless of whether it is being taught inside or outside the program of inquiry. Students should, through rich collaborative maths tasks, be given opportunities to understand and develop their own set of efficient strategies that can be applied to multiple areas and concepts of mathematics.

(Making the PYP Happen, 2009)

The Victorian Curriculum in Mathematics aims to ensure that students:

- develop useful mathematical and numeracy skills for everyday life, work and as active and critical citizens in a technological world
- see connections and apply mathematical concepts, skills and processes to pose and solve problems in mathematics and in other disciplines and contexts
- acquire specialist knowledge and skills in mathematics that provide for further study in the discipline
- appreciate mathematics as a discipline – its history, ideas, problems and applications, aesthetics and philosophy.

The Victorian Curriculum: Mathematics
The Mathematics curriculum is organised around the interaction of three **content strands** and four **proficiency strands**. The **content strands** are *Number and Algebra*, *Measurement and Geometry* and *Statistics and Probability*. The **proficiency strands** are *Understanding, Fluency, Problem Solving* and *Reasoning*.

The **content strands** describe what is to be taught and learnt. Number, measurement and geometry, statistics and probability are common aspects of most people's mathematical experience in everyday personal, study and work situations. Equally important are the essential roles that algebra, functions and relations, logic, mathematical structure and working mathematically play in people's understanding of the natural and human worlds, and the interaction between them.

The Mathematics curriculum focuses on developing increasingly sophisticated **proficiency** and refined mathematical understanding; fluency, reasoning, modelling and problem-solving. These capabilities enable students to respond to familiar and unfamiliar situations by employing mathematics to make informed decisions and solve problems efficiently.

The mathematics curriculum includes content descriptions at each year level on a learning continuum. These describe the knowledge, concepts, skills and processes that teachers are expected to teach and students are expected to learn.

The *Victorian Curriculum Levels* support teachers to use assessment, *for*, *as* and *of* learning. It is also used as a tool to inform teaching practice and programming.

For learning

Assessment using the Mathematics Levels enables teachers to determine a student's current level and the gap between where the student is and where they need to be – the desired goal. The detail of the Levels supports the teacher to be able to clearly articulate the required learning and to be more intentional and explicit in their planning, teaching, feedback and assessment. This helps teachers to differentiate and close the gap for students who are behind the expected year level.

As learning

Teachers can use the student's numeracy Levels to develop assessment criteria and marking rubrics to share with students, along with examples of evidence of progression. Students can also use the Levels or assessment/marking rubrics to set their own learning goals and monitor their progress through the levels.

Of learning

One of the primary purposes of the Mathematics Levels is for teachers to use sets of student evidence to make judgements on student mathematical development against the levels and in so doing measure a student's achievement against year level standards.

Agreed Practices at MACCLESFIELD PRIMARY SCHOOL

Role of inquiry in mathematics

Inquiry includes identifying and clarifying issues, and gathering, organising, interpreting and transforming information. It encompasses the processes of creatively, imaginatively and inquisitively thinking about possibilities, analysing, synthesising and evaluating proposed solutions; and explaining and justifying decisions. The skills of inquiry can be used to clarify meaning, draw appropriate comparisons and make considered decisions.

How children learn mathematics

It is important that learners acquire mathematical understanding by constructing their own meaning through ever-increasing levels of abstraction, starting with exploring their own personal experiences, understandings and knowledge. Additionally, it is fundamental to the philosophy of the PYP that, since it is to be used in real-life situations, mathematics needs to be taught in relevant, realistic contexts, rather than by attempting to impart a fixed body of knowledge directly to students.
(PYP Maths scope and sequence February 2009)

The staff at Macclesfield Primary School agree that through an inquiry approach to teaching and learning, students are best able to construct meaning through relevant hands-on and mathematical experiences that will engage their learning. This depth of understanding allows for the transfer of learned concepts and skills to broader contexts.

Macclesfield Instructional Maths Model

The Written Curriculum

Teachers plan mathematics using the Victorian Curriculum, including the Victorian Curriculum Mathematics Scope and Sequence, the IB PYP Mathematics Scope and Sequence, and the Macclesfield P S Scope and Sequence and rich assessment tasks to inform our weekly planning.

When and how will Mathematics be explicitly taught?

The Department of Education guidelines state that every student must be provided with a *minimum* of 200 minutes per week of explicitly embedded mathematical instruction. However, at Macclesfield we aim for *300 minutes as a minimum*.

Assessment of Mathematics

Mathematics assessment is conducted using the Achievement Standards in the Victorian Curriculum, and is also assessed through formative and summative assessment tasks in Stand-alone units and in the Units of Inquiry which align to our Assessment Policy and Assessment Schedule

Mathematics Support

Mathematics support is organised both in and out of the classroom. Classroom teachers ensure that learning opportunities cater for the range of abilities, interests and needs in their classes. Within any classroom there is a range of abilities and mathematics instruction is differentiated accordingly.

For those students who require intensive mathematics support an Individual Learning Plan is developed which outlines specific differentiated needs and these are reviewed every term.

Parents are informed and encouraged to help students develop numeracy skills at home through various school based information sessions, programs and activities. These include:

- Parent/Teacher interviews
- Incidental Parent/Teacher meetings
- Learning Support information sessions and meetings
- Individual Learning Plans and student individual personal goals
- Student Led conferences
- Student Progress Journals
- Student Learning Expo Evening
- Parent Information Night
- Class and school newsletter information
- Tips and suggestion on ways to support students mathematical understanding authentically at home
- PYP information evenings and new initiative evenings
- Maths Family Night

Teachers facilitate parent involvement through parent meetings, newsletters, notes home, information sessions, Facebook, school website and app, in addition to regular face-to-face communication. Parents are encouraged to become active in the classroom and school community.

SUPPORTING PROGRAMS FOR MATHEMATICS

A variety of guiding curriculum documents are used in order to plan for mathematics within the classes and year levels. Documents consulted include:

- International Baccalaureate PYP scope and sequence
- The Victorian Curriculum
- Maths300
- reSolve
- Mathematics Teaching Toolkit/Curriculum Companion
- Maths at home Booklet and Resource Kit
- Differentiated Classroom-Tomlinson
- Assessment Schedule and data
- Kath Murdoch
- Kath Short Inquiry model
- NZ maths
- Nrich Maths
- Mathematical picture story books
- Engaging Maths: 25 Favourite Lessons
- Open Ended Maths and Challenging Maths - P.Sullivan
- And more.

ASSESSMENT & REPORTING

Macclesfield Primary School assessment and reporting is planned in accordance with guidelines set by DET (Department of Education and Training) and the IB (International Baccalaureate) and is reported upon twice a year. Macclesfield implements a range of formative and summative assessment to determine the development of students which is recorded and accessed in a central database; Compass and the STAFF Google Drive

This information is available to parents/carers in more detail in the Macclesfield Assessment Policy.

PROFESSIONAL DEVELOPMENT

The Principal, PYP Coordinator, Mathematics Coordinator and Team determine the whole school Professional Development needs in the area of mathematics considering the AIP, cluster, school, year level, specialist and individual initiatives and directions.

The Principal, PYP Coordinator and Mathematics coordinator are responsible for disseminating the information to staff and the school community regarding current research and best practices in mathematics learning.

The PYP Coordinator/Mathematics Coordinator will organise staff meetings and professional development time for teaching staff to share how they are facilitating the learning and support of Mathematics as part of the Programme of Inquiry (POI) and stand-alone subjects.

The Principal, PYP Coordinator and Mathematics coordinator are responsible for sharing and making available professional learning and other resources for teaching staff. Staff are expected to attend professional learning sessions endorsed by the IB as well as those that support mathematics learning. The PYP Coordinator and the Mathematics Coordinator will provide in-house support as well as arrange for in-school workshops.
The PYP Coordinator and Mathematics Coordinator teacher attends relevant staff professional development, teaching staff planning meetings and reflection days and has access to professional development.

Macclesfield are involved in the DET Primary Maths Specialist initiative for two years beginning in 2021. This involves 20 days of highly researched professional learning for two staff members in the area of mathematics teaching, learning and coaching. This professional learning will be utilised to coach and train teachers to improve the teaching and learning outcomes (of teachers and students) at Macclesfield Primary School.

RESOURCES

The Mathematics Team will continually update the resources to meet the needs of all students and cultures represented in the school. Classroom teachers and students assist with providing recommendations.

Resources are initially considered based on:

- best and most up to date, researched teaching practices
- requests by teaching staff and students
- whole school focus and professional development needs
- recommendations of book suppliers
- information from educational authorities

ROLES AND RESPONSIBILITIES

The development, implementation and revision of the mathematics policy should, where possible, be a whole staff process and involve collaboration between the PYP Coordinator, Mathematics Coordinator, Classroom teachers, Specialist and other teaching staff.

The PYP Coordinator will be responsible for initiating the process of implementation and reviews by way of recommendations and a draft document with proposals to submit to the staff, teaching and learning committee and School Council.

Teachers will work collaboratively with the PYP Coordinator to develop and access resources needed for Units of Inquiry in the PYP, student's research and Mathematics support.

The Mathematics document will be approved by the School Council and will be communicated to the school community.

COMMUNICATION TO STAFF AND SCHOOL COMMUNITY

The PYP Coordinator and Mathematics Coordinator are responsible for communicating the Mathematics Policy and additional supporting documents to teaching staff, students, parents/carers and school community.

The PYP Coordinator and/or Mathematics Coordinator will provide and explain the Macclesfield Mathematics Policy to new teachers as part of their induction process.

It is the responsibility of the PYP Coordinator to ensure that staff are kept informed of the IB programme standards and practices in relation to mathematics teaching and learning and that the Mathematics Policy reflects a commitment to these standards and practices.

MATHEMATICS POLICY REVIEW

The Principal, in collaboration with the PYP Coordinator, the Mathematics coordinator and School Council will identify necessary changes bi-annually in-line with the implementation of the AIP.

The Mathematics Policy will be reviewed in 2024 involving the Principal, PYP Coordinator, Mathematics Coordinator, Teaching and Learning sub-committee, School Council team, Classroom teachers, Specialist teachers, mathematics support staff and other support teaching staff. It will be ratified by the Governing School Council.

As a result the school action plan will be updated based on what has been achieved and areas for further development documented.

NAME	POSITION	DATE	SIGNATURE
Andrew Bagnall	Principal		
Emma Nielsen	School Council President		
Marissa Cashmore	Maths Coordinator		
Andrea Goodey	PYP Coordinator		

Essential Agreement attached