Effective Teaching of Numeracy

Effective teachers of numeracy...

- have deep mathematical content knowledge
- know their students and the ways in which they learn
- encourage students to discuss and justify their problem solving strategies and solutions
- use questioning and inquiry as tools to help students identify underpinning mathematical concepts
- develop students' capacities as learners of numeracy
- probe and challenge children's thinking and reasoning
- sustain a mathematical focus and build on students' prior knowledge
- plan cognitively challenging experiences that build conceptual understanding
- plan for deep learning according to students' needs, syllabus requirements and curriculum expectations
- observe, listen to and provide constructive feedback to students, giving support and direction to mathematical learning
- identify areas where numeracy should be integrated and plan accordingly
- provide a rich learning environment
- use a variety of assessment data to reflect upon teaching practice and inform future programming
- keep accurate records of student achivement to report effectively to parents and carers

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A Numeracy Statement

for the Broken Bay Diocesan School System

A Numeracy Statement for the Broken Bay Diocesan School System provides guidance for principals, teachers and Catholic Schools Office personnel in the development, evaluation and revision of numeracy initiatives.

Catholic Schools Office Diocese of Broken Bay
Updated: January 2015

Defining Numeracy

Numeracy is the capacity, confidence and disposition to use mathematics to meet the demands of learning, school, home, work, community and civic life. This perspective emphasises the key role of learning the discipline of mathematics, and illustrates the way that mathematics contributes to the study of other disciplines. Numeracy is commonly identified as the bridge connecting mathematics and 'the real world'.

Numeracy: A Whole School Approach

A whole school approach supports all teachers in developing numeracy learning experiences to ensure that the learning needs of all students are met. A whole school approach to numeracy is strengthened by a common purpose, shared beliefs and understandings and collective responsibility. The development of students' numeracy skills is the responsibility of all teachers. Primary and secondary teachers need to be supported in this regard with a documented whole school approach to numeracy.

An effective whole school approach to numeracy includes...

Numeracy Across the Curriculum

- mapping numeracy demands of the curriculum with reference to the school's scope and sequence
- learning experiences planned in response to the numeracy demands of any given topic (as identified in curriculum mapping)
- planning that involves all curriculum leaders and teachers
- explicit teaching of the language and literacies of mathematics
- shared beliefs and understandings about teaching and learning

Identification and Intervention

- a range of student assessment data, including diagnostic interviews, used to identify student learning needs
- identification informed by an understanding of the *Growth Point Framework*
- appropriate intervention strategies developed in collaboration with specialist teachers in response to identified student needs
- intervention designed to be flexible and responsive to learning needs
- a case management approach to monitor student progress and ensure effectiveness of interventions

Professional Learning

- provision of opportunities for quality professional learning aligned with the school improvement plan and informed by data
- professional learning informed by professional standards, e.g. Australian Professional Standards for Teachers, AAMT Standards for Excellence in Teaching Mathematics
- the use of 'high yield strategies' such as Instructional Walks and Talks, CASLs, lesson inquiry, data walls and co-teaching, as opportunities for professional learning
- opportunities for teachers to share and reflect on their practice through the *Teacher Inquiry and Knowledge Building Cycle*

School and Classroom Organisation

- dedication of an uninterrupted focus time to the teaching of mathematics
- differentiated learning experiences that challenge and actively engage students
- systematic organisation of a range of resources
- shared understandings of important elements of the Mathematics block
- development of a quality environment that supports mathematical reasoning and risk taking

Leadership, Support and Coordination

- designation of staff to lead the development of effective numeracy practices across the school
- a leadership team actively engaged in developing pedagogical content knowledge for Mathematics
- development and monitoring of a Mathematics plan
- commitment of resources for effective numeracy teaching and learning (including digital technologies)

Parent/Caregiver and Community Engagement

- purposeful partnerships with parents/caregivers and the community, designed to promote students' numeracy development and achievement
- Parent/caregiver education on strategies to support student learning beyond the classroom

Assessment and Monitoring

- assessment aligned with teaching programs and achievement standards
- continuous school-based assessment based on multiple opportunities for students to demonstrate what they know and can do within a range of contexts
- an assessment plan that employs a variety of assessment strategies and approaches (as, of and for learning)
- assessment and data analysis processes (including external and school-based assessments) designed to ensure that students' learning needs are identified and inform planning
- constructive feedback and quality reporting that is explicit, clear, supported by evidence and aligned to curriculum expectations
- school-based targets for mathematics informed by individual, cohort and whole school data

Numeracy Across the Curriculum | Identification and Intervention | Professional Learning | School and Classroom Organisation | Leadership, Support and Coordination | Parent/Caregiver and Community Engagement | Assessment and Monitoring

An effective whole school approach to numeracy

Leadership and coordination of numeracy across the curriculum underpins the effectiveness of the whole school approach

Numeracy and the Catholic Worldview

Numeracy operates within a variety of social contexts. From a Catholic perspective, numeracy must be imbued with a vision of the innate dignity of all students, as created in the image and likeness of a loving, generous and creating God. Teachers in Catholic schools have an obligation to not only teach their students the skills and knowledge to be numerate, but to teach from a Catholic perspective. Teachers are called to challenge their students to use the skills and knowledge they have acquired to bring about social change in the world.