REPUBLIC OF TRINIDAD AND TOBAGO

MINISTRY OF EDUCATION

PRIMARY SCHOOL CURRICULUM

CURRICULUM GUIDES

MATHEMATICS

INFANT 1 – STANDARD 5

Curriculum Planning and Development Division
2013

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Foreword of the Minister of Education

The Ministry of Education sees that education is the key to preparing our country to have a knowledge-driven economy that can be competitive in the region and across the world. It is fundamental to the development of Trinidad and Tobago. We are committed to making human development the central focus of education through the creation of mechanisms for skills-building, life-long learning and institutional strengthening.

Additionally, in this world in which innovation is essential, fostering creativity and higher-order thinking skills in our citizens is an imperative. We recognise too that Literacy and Numeracy are core skills which need to be developed, since these constitute the main areas on which the performance in education of our country is measured.

Within my tenure as Minister of Education, sixteen priority areas have been identified for significant change in the educational landscape of our nation. Our primary sector has been an area of concern, with many of our students not attaining the knowledge and skills necessary for secondary education nor for functioning as young citizens of our nation. The priority areas targeted for intervention at the primary level are: Curriculum Reform, Literacy and Numeracy, Integration of ICTs

in Education, a Continuous Assessment Programme and Improving Infrastructure in Schools. Also significant are the movement of the SEA examination, teacher training and other measures geared toward improving academic performance. All these initiatives work together to bring our primary sector to a quality that will support the requirements for a world-class education for each of our children. Within this context, the primary curriculum has been rewritten in order to prepare our children for successful living in the 21st century. The principles underlying this project were:

- The belief that curriculum reform must address the needs of 21st century development and the labour market needs of the society, as well as build the foundation for responsible citizenship and ensure the optimisation of multiple talents, including the arts and sports.
- The creation of a learning system that accommodates all types of learners, not limited to the academically gifted.
- The strengthening and enhancement of the cognitive, social and psycho-motor skills learnt at the primary level for a seamless transition to the secondary level.

The new primary curriculum has been carefully designed and developed in accordance with international best practice and in accordance with these requirements. This curriculum will meet the needs of our country's development through the achievement of the full potential of each child.

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The National Curriculum Framework

INTRODUCTION

This curriculum framework is intended to outline the nature and purpose of the curriculum as well as the parameters for consistent curriculum implementation throughout primary education in Trinidad and Tobago. The document sets out the principles that govern and guide teaching and learning. The term `curriculum' is used in this document to describe the sum total of the planned experiences which occur within that environment, and which were designed to foster children's learning and development. These include activities, and events, with either direct or indirect impact upon the child.

A clear understanding of the nature, role and function of the national curriculum for Trinidad and Tobago is a critical part of the whole positive transformation of education to provide a seamless pathway for all students through the system of teaching and learning. This framework provides the basis for the new primary integrated curriculum, which includes specification of subject-areas selected to maximize twenty-first century learning in a student-centred innovative education system in Trinidad and Tobago. The components which are fundamental to transformation of primary education at this point in time form the underlying concepts which guided the development of the curriculum and give direction to teaching and learning. They are of particular importance to the development of our students and of our

nation because they establish common understandings about teaching and learning. These understandings inform how all schools are expected to focus on the achievement of the goals laid out by the Ministry of Education for a future-oriented inclusive education for all. For Trinidad and Tobago, the National Curriculum Framework becomes the basis for all education and curriculum decision-making, including the design, development and implementation strategies for a new system of teaching and learning covering those critical seven years of education. The statement of outcomes for students are a key part of this education framework and forms the basis for all subsequent decisions about teaching and learning, content, pedagogy and assessment. These must work towards fulfilling the vision for successful students and future citizens of our nation.

In order to establish common ground and ensure that the curriculum can be implemented as designed, a set of foundational principles needs to be established. This National Curriculum Framework establishes a consistent foundation for learning that is undergirded by the vision, mission and the five value outcomes for all children as detailed by the Ministry of Education. Given that this is the agency with ultimate responsibility for the education, care and well-being of every learner in the country, the National Curriculum Framework and the curriculum

that devolves from it essentially provide the basis for all teaching and learning activity.

Part of that foundation is the recognition that a curriculum is both product and process, and that any new curriculum materials needs to reflect those notions in the design. Furthermore all curriculum design, development and implementation must be guided by the existing vision, mission and five value outcomes for education in the country. Finally, the foundation must ensure that all curriculum activity, including implementation at the classroom level, functions within the guiding principles of education established by the Ministry of Education. It must also be stated that the guiding principles of the Ministry of Education were developed after extensive stakeholder dialogue and sound analysis of the current societal and national requirements.

For an effective and relevant twenty-first century process of teaching and learning, these guiding principles are an indicator that the Ministry of Education seeks to place education in Trinidad and Tobago alongside, if not ahead of international best practices. The Ministry of Education has established an *Education Sector Strategic Plan 2011-2015* to achieve the goals of quality, innovative, challenging, flexible education for all, and has begun an investment in human and material resources to achieve this outcome in a purposeful and timely fashion.

BACKGROUND

In order to effectively administer the formal education sector, and ensure that every child has the best opportunity to learn, the Ministry of Education provides direction and guidance based upon sound educational theory and practices together with a considerations from extensive stakeholder consultations. In 2011 the Ministry of Education conducted two national consultations on the primary education curriculum, along with 7 district consultations and one in Tobago. Information received from these stakeholder consultations informed the direction and decisions of the Ministry of Education to better meet the requirements of education at the primary level. Alongside this, a detailed, critical examination of current practice, both within and outside the country was conducted to identify elements that contribute to a quality education.

A detailed and comprehensive plan to revise and update all components of the teaching learning system to new internationally accepted standards emerged. Part of this transformation involved reviewing and assessing current curriculum documentation and practices. A professional review and assessment of the previous curriculum documents was completed, and recommendations were presented to guide the development of the new curriculum framework. A new standard for teaching and learning, which is evident in international best practice, shows that at lower grade level, children learn best when presented with knowledge, skills and values that are integrated and thematically organized. The integration of subject matter and skills or cross-subject connections is an important feature of the design, development, and implementation of the new curriculum.

Integration does not mean that the subject areas disappear. In fact, the subject areas have become pillars and supports for innovative and transformative learning experiences covering these critical seven years of formal education. This new twenty-first century curriculum for Trinidad and Tobago provides every opportunity for the child to learn, master new important skills, and develop character and values that are critical to their role as productive, caring and responsible citizens, locally, regionally and internationally. This new integrated, innovative, flexible curriculum provides learners with a journey of inquiry and discovery. This integrated thematic curriculum will place Trinidad and Tobago`s education system on par with international leaders in the education arena.

DEFINITION

The term 'curriculum' has several meanings, depending on the context and the perspective of curriculum theory that is applied to the definition. Most theories concur that there are four fundamental components within definitions of curriculum:

- Curriculum as the transmission of a body of knowledge.
- Curriculum as product - defined by the ends or achievements expected.
- Curriculum as process.
- Curriculum as praxis

There is little advantage to debating the differences embedded in these views of curriculum. It is however very useful to agree on a basic perspective that guides the process of developing an effective education system that has a well-designed and developed curriculum. It is useful, for example, to see the new curriculum as part of a clearly delineated guide for all learning which is planned and organized by the education system, whether it is carried out in groups, individually, within or outside the school.

By suggesting that a curriculum provides a detailed learning plan and guide, we are also stating that the curriculum specifies precisely what outcomes we anticipate that all learners will achieve as well as how they will achieve those outcomes. The new curriculum articulates a series of sequenced general learning outcomes which are elaborated through subject outcome statements. Abundant guidance is provided in planning units of work, individual teaching learning activities and includes samples of activities developed to ensure that a measure of fidelity in the implementation of the curriculum is maintained. In this respect, the Ministry of Education has established a body of learning outcomes which collectively define the vision of what knowledge, skills and dispositions a twenty-first century learner at the Primary level in Trinidad and Tobago should possess. These outcomes are the key guiding principles underpinning the new infant and primary curriculum and thus underpin the whole education system, ultimately guiding what happens in schools and classrooms.

FOUNDATION OF THE NATIONAL CURRICULUM

Vision

The Ministry is leading a quality education system that responds to the diverse needs and requirements of 21st century learners, promotes inclusivity, seamlessness, equity and equality and contributes to human capital and sustainable development.

Table 1: Vision of the Ministry of Education

Effective curriculum requires a very clear direction. In Trinidad and Tobago the Ministry of Education has articulated it`s view of education which establishes the mandate for education. In the establishment of policy and principles for education on a national level all decisions are informed by the vision and mission for the system. All curriculum development, from the design of a new set of learning guides to implementation at the classroom level is therefore guided by the principles and policies of the Ministry of Education.

The regulatory and guiding principles for education provide the overarching national framework for education. The Ministry of Education, *Education Sector Strategic Plan: 2011-2015,* and other policy documents, establish the design framework for all components of the new curriculum. Principal among these are the vision, mission and the five (5) value outcomes established at the national level for all students, which further guides the formulation of the desired

and intended learning experiences for the classroom in the curriculum guide.

In Trinidad and Tobago, the current focus is on the design and development of primary curriculum, which, as noted above is governed by the principles established in this Curriculum Framework.

One of the key elements of this foundation is the Vision for learning which clearly articulates the commitment of the Ministry to meet the needs of learners. A forward-looking perspective on what all schools should be facilitating in terms of student achievement is guided by the national curriculum. There is equal clarity regarding a twenty-first century education system functioning to provide the highest standard of education.

Devolving from the Vision, in the Mission statement, the Ministry of Education establishes the mechanism for the realization of the Vision

Mission

To educate and develop children who are able to fulfill their full potential; healthy and growing normally; academically balanced; well-adjusted socially and culturally; and emotionally mature and happy.

Government of Trinidad and Tobago, Ministry of Education, Education Sector Strategic Plan: 2011-2015

Table 2: Mission of the Ministry of Education

and of what the end product of the anticipated learning experiences will be. The curriculum has elaborated on the stated outcomes for all children with further outcomes both at a general level and more specifically for all subject areas.

The principles by which the Ministry administers the education system to effectively and efficiently achieve the vision, mission and outcomes have been clearly articulated. These guiding principles are essential statements that must govern curriculum design and development, teaching and learning, and the administration of schools if the goals of education are to be achieved. The critical area of focus is on student learning and fidelity to the curriculum which seeks to transform classroom practices to the benefit of each child.

The guiding principles, listed below, are important components in the new curriculum. The principles informed the curriculum design and development process; they will guide teaching and learning at the implementation phase of the curriculum. As we evaluate the curriculum, they will provide reference points to ensure that the desired attributes of education that are important for the nation are being achieved. The new curriculum materials are not static products, but will remain a flexible roadmap designed to effect high quality, relevant learning for all young people well into the future.

Principle	Elaboration
Student Centred	The student is at the centre of everything we do.
Engaged Communities	We engage parents and families as the heart of students' lives and we support and acknowledge them as the primary guides and decision-makers for students. We engage members of local, regional and global communities as active contributors to student learning
Inclusive	We expect all students will learn in a welcoming environment regardless of place, culture, or learning needs.
Proactive	We plan for a desired future, preventing problems instead of reacting to them.
Shared Responsibility	We acknowledge that education is everybody's business and therefore expect teachers, the school and education leaders to collaborate with other government and community organizations to foster student learning
Innovative	We explore new learning opportunities through research, innovation and professional development to ensure continuous improvement of student learning.
Flexible	We enable meaningful and relevant learning through a range of opportunities appropriate to each student's development stage.
	We ensure that every student will have the benefit of high-quality learning opportunities.

Principle	Elaboration
Equitable	
Accountable	We explain to the citizens of Trinidad and Tobago the outcomes of our students and our use of funding.
Transformative Leadership	We believe that people with vision and passion can achieve great things. We therefore empower and inspire out staff and stakeholders to create positive and lasting changes in the education system.
Quality	We are committed to meeting our won quality standards that are driven by the requirements of our customers. Each of us takes charge to ensure that these standards are implemented in our individual areas of authority.
Teacher Empowerment	We create the environment for excellence in teaching practice that improves the learning of all students, deepens educators content knowledge, provides them with research-based instructional strategies to assist students in meeting rigorous academic standards, and prepares them to use various types of classroom assessments appropriately.

Table 3: Guiding Principles of the Ministry of Education

THE NEW PRIMARY CURRICULUM

The new Primary curriculum envisages preparing our children with the knowledge, skills and dispositions to optimize their own development and ultimately to constitute a caring, respectful and socially conscious citizenry which will competently lead our country onto the world stage. The Curriculum focuses on nine (9) subject areas: Mathematics, English Language Arts, Science, Social Studies, Visual and Performing Arts, Physical Education, Agricultural Science, Spanish and Values, Character and Citizenship Education. Health and Family Life Education outcomes are distributed and supported by all subjects.

By crafting a new national primary curriculum and addressing the learning needs of all young people through a new approach to teaching and learning, Trinidad and Tobago has established a strong foundation for the desired educational outcomes for our students. The Vision and Mission of the Ministry of Education which seeks to recognize, value and nurture individual abilities and talents requires an integrated, appropriate and relevant twenty-first century set of learning experiences at the heart of the curriculum. This overarching vision and mission remain central to all curriculum design, development and implementation initiatives, and will guide pre-service and in-service

teacher education and training activities that are an essential part of the whole education development, innovation and transformation process.

The world is rapidly changing and knowledge, skills, and values are being demanded of citizens, even while the education struggles to catch up with yesterday's requirements. In the vision, mission and principles statements it is very clear that the Ministry of Education wants to develop an education for the twenty-first century, charting the way for education and the nation to keep pace and move to the front of the international arena. Following on this understanding, the new curriculum has been developed as a flexible tool that focuses on the development of twenty first century skills in learners. The curriculum itself, while providing abundant and detailed guidance to teachers, can be adapted and shaped to individual contexts. Curriculum adaptation is an essential aspect of curriculum implementation that is required to meet the rapidly changing and diverse needs of all learners, so enabling teaching and learning to continue to be relevant and current.

The new primary curriculum is characterised by the following:

- An integrated, thematic approach to teaching and learning in which learning from different subjects is skilfully melded into thematic units and learning/lesson plans. There is a focus on core content, building critical skills and cultivating desirable dispositions in students, rather than rote learning of content and regurgitation on paper and pencil tests. This facilitates for a smooth transition from ECCE into Infants and makes for a pleasurable learning experience for the child, and more effective delivery and retention of content.

- Literacy and Numeracy, significant foundational areas, are built in in all subject areas
- Continuous Assessment is promoted with conscious attention to Assessment for Learning which uses a wide range of classroom assessments to provide feedback and improve student performance
- Differentiated Instruction is supported to enable teachers to use a variety of teaching methods and cater to the learning needs of a range of students
- Infusion and use of Information and Communication Technologies, an indispensable twenty-first competence for students, is built in to all areas
- Focused teaching of Visual and Performing Arts and Physical Education ensures that all children's talents and sensibilities are awakened and developed.
- The introduction of foreign language awareness in a Spanish programme which follows a Foreign Language Exploratory model is present. This focuses largely on oral Spanish, its attendant cultures and exploration of other language experiences in the child's immediate environment.
- A focus on Values, Character and Citizenship is a vital component towards building a strong, tolerant and conscientious citizenry.

As noted, the designed learning experiences outlined in the new curriculum are student-centred, inclusive and capable of guiding implementation of a high quality, engaging, innovative teaching and learning process that satisfies the learning needs of all twenty-first century young citizens of Trinidad and Tobago, the Caribbean region and the globally interdependent and connected world.

A significant part of the mandate required that the curriculum capture current, relevant, interesting and fun teaching and learning experiences. The general and specific outcomes focus on the development of concepts, skills and dispositions in students, including higher-order skills suitably targeted to the developmental level of our young learners. While the design of the new curriculum is new to our education system, it is grounded in sound educational theory and principles. Inherent in the subject matter are carefully considered concepts, skill sand dispositions which are relevant to the development of students and the needs of our society as espoused by our many stakeholders and educators.

The seven years of the primary experience have been broken down into three key levels each of which has a broad area of focus as to the general outcomes desired for the child at that level and are specified as a general level of student achievement.

Organizational Structure of the Achievement Levels		
Level	Title	Grades
Achievement Level One	Love of Learning	Infant One Infant Two
Achievement Level Two	Inquiry and Discovery	Standard One Standard Two Standard Three
Achievement Level Three	Taking Flight	Standard Four Standard Five

Table 4: Levels of the Primary system

The titles of each of the designated levels clearly denote the overarching goal for student learning at each stage. The subject specific outcomes for the various year levels evolve from these. The learning experiences throughout the three levels have been designed to articulate a smooth journey of growth, development, and learning, culminating in a well-rounded, independent learner, ready to embrace secondary education. There are a total of twenty six themes designed to organize all learning experiences through the three achievement levels. The curriculum begins in the Infant year levels with a very strong integrated, thematic approach to learning, and progressively introduces subject areas as discrete organizers of that learning by

Standards Four and Five. While the higher primary year levels have more subject area learning they are not without thematic organization. At those levels, the themes become broader, more complex and challenging, while the nine core subject areas emerge in prominence. This design decision was made to facilitate a smooth and seamless transition from primary into secondary education.

The targeted achievements for all students at the end of each of these three levels are succinctly summarized in Table 5. These attributes are the foundation for all learning interactions in and out of the classroom.

Table 5: Learning Level Achievements

Level 1: Love of Learning *Infants 1- Infant 2*	Level 2: Enquiry & Discovery *Standard 1- Standard 3*	Level 3: Taking Flight *Standard 4- Standard 5*
At the end of this level, students will:	At the end of this level, students will:	At the end of this level, students will:
Be able to communicate needs, ideas, and emotions.	Be able to engage in reflection before communicating needs, ideas and emotions.	Apply healthy interpersonal communication skills to enhance learning, and general interaction.
Make choices to solve simple, personal problems.	To develop thoughtful solutions to problems that occur in interaction with others.	Demonstrate some capacity to pose, as well as solve problems.
Engage learning imaginatively.	Produce imaginative responses to learning problems.	Demonstrate both sequential and connective thinking when encountering problems.
Work with others co-operatively.	Create new meanings through teamwork and collaboration.	Exhibit some leadership qualities in both learning and social contexts.

Level 1: Love of Learning *Infants 1- Infant 2*	Level 2: Enquiry & Discovery *Standard 1- Standard 3*	Level 3: Taking Flight *Standard 4- Standard 5*
At the end of this level, students will:	At the end of this level, students will:	At the end of this level, students will:
Begin to consider the importance of diet, exercise and hygiene.	Practise healthy lifestyle habits	Demonstrate sufficient knowledge of the human body to make healthy lifestyle choices consistently.
Demonstrate basic courtesy in relationship to others.	Observe positive social norms and behaviours.	Achieve a well-rounded sense of self and how to contribute productively to a group.
Recognise that working and playing safely protects everyone.	Demonstrate the ability to temper personal behaviour, in order to contribute to a safe environment for all.	Demonstrate some ability to foresee potentially unsafe behaviours in self and others.
Demonstrate joy in learning.	Demonstrate curiosity and a sense of adventure in conducting simple investigations.	Exhibit the satisfaction that accrues from engagement in learning.
Show sufficient self-confidence to engage in learning and social activities	Through growing self-esteem and initiative, begin to develop their own voice and demonstrate a sense of empowerment	Display self-reliance when working independently.
Behave respectfully toward the environment under supervision.	Understand that individual actions contribute to the environmental health of both local and national communities.	Recognise the symbiotic relationship between self and environment and acknowledge in behaviour that every action has a consequence.
Gather information	Gather, organise and present information	Process information.
Use technologies under supervision.	Explore technology purposefully and safely.	Find and employ technology for particular ends.
Understand the concept of past, present and future.	Explore the past and make connections with the present.	Imagine the future.
Demonstrate fair and equitable play habits.	Understand that social interaction requires giving as well as taking.	Become actively involved in issues involving social justice.

Clearly, students will experience a curriculum that engages and challenges them in a variety of ways that are particularly relevant to their social, political, and economic growth and development in the information age of the twenty-first century. This primary curriculum seeks to expose and fulfill the potential of each child and to affirm the unique identity and character of the citizenry of Trinidad and Tobago.

COMPONENTS OF THE PRIMARY CURRICULUM

The new primary curriculum comprises three documents that are intended to provide necessary information and support to our public.

Curriculum Guides in 9 subject areas are provided. These specify what is to be learnt by students in an ordered, developmentally appropriate sequence in the form of learning outcomes. Learning outcomes are further categorized as related to the acquisition of Content, or the development of Skills or Dispositions. Further guidance is provided in an Elaboration statement to specify the breadth and depth of what is to be taught and assessed, so that there is a standardized approach to teaching and assessment across the country.

For Teachers' use, a **Teacher's Guide** has been developed. This document provides an overview of the pedagogical practices embraced by the new curriculum, summary descriptions of the themes selected as the vehicle for the teaching and learning material as well as the 5 considerations that are infused throughout the curriculum- Literacy, Numeracy, Assessment for Learning, Differentiated Instruction and Infusion of Information and Communication Technologies (ICTs).

For further support of teachers, an **Instructional Toolkit** has been developed. Within this document, detailed plans of work, samples of activities and rubrics for implementation by teachers are provided. Thematic Unit plans which bring to outcomes from several subjects as well as Learning or Lesson Plans, together with sample activities and rubrics are provided. Learning plans that suggest interesting methods for teachers to address core subject-specifics concepts and skills are also included. At the initial stages of implementation of this curriculum that seeks to transform teaching and learning, abundant samples are provided for teachers. These may be implemented directly or may serve as guides for teachers' development of their own thematic units and lessons. As implementation takes place, opportunities will be provided for teachers to provide their own creative and original approaches to these themes and topics within the toolkit.

TIMETABLE

Within the framework of the new primary curriculum, there are some important notions about the new primary timetable which ought to be specified. These are that:

- 9 subject areas are represented (Mathematics, English Language Arts, Science, Social Studies, Visual and Performing Arts; Physical Education, Agricultural Science, Values, Character and Citizenship Education and Spanish). HFLE and ICT are infused throughout the subjects.
- 50% of the time is dedicated to ELA and Mathematics, which include Literacy and Numeracy components and are considered to be priority at the lower primary. The other 50 % of the time is to be dedicated to the other 7 subjects. The curriculum documents reflect that balance, so that as outcomes specified

for each year level are covered, the balance of time for subjects is maintained.

- A combination of Thematic Units which combine several subject areas and subject specific core skills are to be taught (as in the Instructional Toolkit). Core skills may be done in preparation for a theme, during a theme or following a theme.
- The timetable is flexible and will be detailed on a weekly basis as teacher's plan for the week is developed. The teacher selects which core skill lessons and which thematic lessons are to be taught each week and presents this in the weekly forecast and evaluation plan.
- In any given week, core skills for any or all subject areas may be taught. One possible illustration of what this may look like is given below:

MON	TUE	WED	THURS	FRI
THEME	CORE SKILLS (MATH)	CORE SKILLS (SOCIAL STUDIES)	THEME	THEME
	THEME	THEME		
			CORE SKILLS (SPANISH)	CORE SKILLS (AGRI.SCI)
CORE SKILLS (SOCIAL STUDIES)	THEME	THEME	THEME	THEME
CORE SKILLS (VAPA)		CORE SKILLS (ELA)	CORE SKILLS (PHYS. ED)	

Table 6: Sample Timetable

Subject Rationale

What Is Mathematics About?

"Mathematics is an activity concerned with logical thinking, spotting patterns, posing premises and investigating their implications and consequences. It also involves the study of properties of numbers and shapes, the relationship between numbers, inductive and deductive thinking and the formulation of generalizations. Mathematics is a creation of the human mind and therefore becomes primarily a way of thinking thus facilitating problem solving." (Mathematics Curriculum, 1999)

Mathematics is the exploration and use of patterns and relationships in quantities, space and time. Statistics is the exploration and use of patterns and relationships in data. These two disciplines are related but offer different ways of thinking and of solving problems. Both equip students with effective means for investigating, interpreting, explaining and making sense of the world in which they live.

Mathematicians use symbols, graphs and diagrams to help them find and communicate patterns and relationships, and they create models to represent both real-life and hypothetical situations. These situations are drawn from a wide range of social, cultural, scientific, technological, health, environmental and economic contexts.

Why Study Mathematics?

By studying Mathematics, students develop the ability to think creatively, critically and strategically. They learn to structure and to organize, to process and communicate information and to enjoy intellectual challenge. In addition, students learn to create models and predict outcomes, to conjecture, to justify and verify, and to seek patterns and generalizations. They learn

to both estimate and calculate with precision, and understand when both are appropriate. Mathematics has a broad range of practical applications in everyday life, in other learning areas, and in the workplace.

How Is Mathematics Structured?

"Mathematics content is sequential in nature. There is a hierarchy of concepts and skills on which each major area of Mathematics can be built. The proper ordering of mathematical content for all learners is critical to mathematical achievement." (Mathematics Curriculum, 1999)

The Mathematics component of the new Primary Curriculum is in response to the realities of a 21st century global society. The guiding principles of the Mathematics curriculum content are derived from the National Council of Teachers of Mathematics standards that will allow our students to explore, discover, analyze and apply Mathematics, to model and solve real world problems (NCTM.org). The NCTM standards of problem solving, reasoning, communication, representation and connections, also play an integral role in how content is delivered. Core competencies are developed within the strands of Number, Statistics, Measurement and Geometry.

Through an integrated approach, the new Primary Mathematics Curriculum aims to reduce "Math anxiety" and Primary to Secondary transition issues by:

- The development of core mathematical concepts and skills by the restructuring of learning activities to enable students to see connections with other subjects and their daily lives.

- The development of appropriate dispositions that would facilitate life-long learning and higher order thinking skills.

- A pedagogical approach that uses a variety of student-centred teaching techniques and strategies, such that improvement in student motivation and performance will increase in the medium and long terms.

- An Assessment Framework that focuses on assessment for learning, continuous assessment, as well as summative evaluation.

According to *Adding It Up: Helping Children Learn Mathematics* (2001), instructional programs must address the development of Mathematical Proficiency by focusing on the following five interwoven strands or components:

- Conceptual understanding: comprehension of mathematical concepts, operations and relations.
- Procedural fluency: skill in carrying out procedures flexibly, accurately, efficiently and appropriately.
- Strategic competence: ability to formulate, represent and solve mathematical problems.
- Adaptive reasoning: capacity for logical thought, reflection, explanation and justification.
- Productive disposition: habitual inclination to see Mathematics as sensible, useful and worthwhile, coupled with a belief in diligence and one's own efficacy.

It is essential that the forgoing issues are seriously considered and effectively addressed so as to create literate and numerate individuals capable of functioning in a global society.

Primary School Curriculum

Mathematics

Infant 1

MATHEMATICS: INFANT 1				
CONTENT	**SKILLS**	**DISPOSITIONS**	**OUTCOMES**	**ELABORATIONS**
Students will:				
NUMBER				
Pre-Number 1.1.1. Develop pre-number skills.	1.2.1. Classify objects into groups and subgroups using different criteria. 1.2.2. Use one-to-one correspondence to match objects in sets to determine more than, less than or equal to. 1.2.3. Rote count to 20 in ascending and descending order.	1.3.1. Display interest while exploring pre-number activities.	1. Develop pre-number skills (classification and matching). 2. Count sequentially to 20.	• Sort objects according to different criteria (e.g. colour, size, shape, texture and name) using one or two attributes. [1.1.1, 1.2.1, 1.3.1] • Explain reasons for classification (student's criteria). [1.1.1, 1.2.1, 1.3.1] • Match objects (concrete and pictorial) in two groups and three groups using one-to-one correspondence, and use appropriate vocabulary to compare groups e.g. more than, less than, as many as, most, least. [1.1.1, 1.2.2, 1.3.1] • Count to 20 in ascending order (starting at one and zero), and count from 20 in descending order. [1.1.1, 1.2.3, 1.3.1] • Count using the 'counting on' and 'counting

MATHEMATICS: INFANT 1				
CONTENT	**SKILLS**	**DISPOSITIONS**	**OUTCOMES**	**ELABORATIONS**
Students will:				
				back' strategies starting from a given number. [1.1.1, 1.2.3,1.3.1]
Number Concepts 1.1.2. Develop number sense 1 to 10.	1.2.4. Count objects to demonstrate one-to-one correspondence (up to 10). 1.2.5. Recognize that the number of objects remains the same when objects are rearranged. 1.2.6. Connect number names and numerals to quantities up to 10. 1.2.7. Sequence number	1.3.2. Display interest while exploring number. 1.3.3. Develop confidence in counting. 1.3.4. Show collaboration while doing activities.	3. Understand the concept of numbers 1-10. 4. Understand the position of objects. 5. Demonstrate estimation skills using 5 as a benchmark. 6. Demonstrate an understanding of the value of coins and bills (1¢, 5¢,	• Count objects to demonstrate one-to-one correspondence (up to 10). [1.1.2, 1.2.4, 1.3.2, 1.3.3] • Explain that the last count, when counting a set of objects, identifies how many objects are in the set. [1.1.2, 1.2.4, 1.3.3] • Count objects to establish that a number is one more than the preceding number. [1.1.2, 1.2.4, 1.3.2] • Count objects in different arrangements to demonstrate conservation of number. [1.1.2, 1.2.5, 1.3.3] • Match the number names and numerals to

MATHEMATICS: INFANT 1				
CONTENT	**SKILLS**	**DISPOSITIONS**	**OUTCOMES**	**ELABORATIONS**
Students will:				
	names and numerals.		10¢, $1, $5, $10).	the quantities they represent up to 10 (concrete and pictorial). [1.1.2, 1.2.6, 1.3.4]
	1.2.8. Read and write number names and numerals.			• Sequence number names and numerals. [1.1.2, 1.2.7, 1.3.2]
				• Read and write number names and numerals. [1.1.2, 1.2.8, 1.3.2]
	1.2.9. Use comparison vocabulary to compare the number of objects in two sets (less than 10).			• Match objects in two groups, and use appropriate vocabulary to compare the number of objects e.g. 5 is more than 3. [1.1.2, 1.2.9,1.3.4]
	1.2.10. Compare groups of objects and order numbers.			• Compare groups of objects, and order numbers to 10. [1.1.2, 1.2.10,1.3.2]
	1.2.11. Use 5 as a reference in forming numbers from 6 to 10 e.g. 'seven is two more			• Use 5 as a reference or benchmark in the formation of numbers from 6 to 10 e.g. 'seven is two more than five'. [1.1.2, 1.2.11, 1.3.2]

• Order objects and use appropriate language |

MATHEMATICS: INFANT 1				
CONTENT	**SKILLS**	**DISPOSITIONS**	**OUTCOMES**	**ELABORATIONS**
Students will:				
	than five'. 1.2.12. Use the language of ordinal numbers (first, second, third and last). 1.2.13. Demonstrate skills in estimation of the number of objects in a set, using 5 as a benchmark and verify by counting. 1.2.14. Explore the value of coins and bills (1¢, 5¢, 10¢, $1, $5, $10) and their equivalence.			to describe position (first, second, third and last). [1.1.2, 1.2.12, 1.3.4] • Estimate a given quantity using 5 as a benchmark and verify by counting. [1.1.2, 1.2.13, 1.3.4] • Explore the value of coins and bills (1¢, 5¢, 10¢, $1, $5, $10) e.g. 10 cents is worth more than 5 cents (use the idea of purchase of items priced at 5 cents or 1 cent, and how many can be bought). [1.1.2, 1.2.14, 1.3.2] • Use the language of money in role-playing situations involving the exchange of goods for money (exact value of the coins and bills). [1.1.2, 1.2.14, 1.3.4] • State the equivalence of coins and bills up to 10 cents and 10 dollars. [1.1.2, 1.2.14, 1.3.2]

MATHEMATICS: INFANT 1				
CONTENT	**SKILLS**	**DISPOSITIONS**	**OUTCOMES**	**ELABORATIONS**
Students will:				
Number Patterns 1.1.3. Explore number patterns.	1.2.15. Recognize the arrangement of dots/objects in standard spatial arrangements of numbers up to 5 (subitize). 1.2.16. Explore patterns using repetitions of 2-3 elements (name as 'number' pattern e.g. 'two' pattern).	1.3.5. Show perseverance in finding solutions to problems that involve patterns.	7. Recognize and explore number patterns up to 10.	• Look at an arrangement of dots/objects in standard spatial arrangements, and identify the number represented up to 5. [1.1.3, 1.2.15, 1.3.5] • Distinguish between repeating patterns and non-repeating patterns in a given set by identifying errors or the part that repeats. [1.1.3, 1.2.16, 1.3.5] • Describe a given repeating pattern containing two to three elements in its core. [1.1.3, 1.2.16, 1.3.5] • Determine the pattern rule, and extend the repeating pattern using concrete materials, pictorial representation or symbols. [1.1.3, 1.2.16, 1.3.5] • Name a given repeating pattern with two to three elements in its core. [1.1.3, 1.2.16,

MATHEMATICS: INFANT 1				
CONTENT	**SKILLS**	**DISPOSITIONS**	**OUTCOMES**	**ELABORATIONS**
Students will:				
				1.3.5] • Create number patterns using repetition of elements. [1.1.3, 1.2.16, 1.3.5]
Addition 1.1.4. Solve real-life problems involving addition (concrete and pictorial modes only, no symbol).	1.2.17. Solve one-step real-life addition problems presented orally or pictorially (using concrete materials, whole number and money).	1.3.6. Develop confidence in computation involving addition. 1.3.7. Show perseverance in finding solutions to problems involving addition.	8. Demonstrate a conceptual understanding of addition (concrete and pictorial modes only).	• Solve one-step real-life addition problems presented orally or pictorially (using concrete materials, whole numbers and money); using 2 sets of objects (Joining Structures – change, result unknown; Part-Part-Whole Structures (whole unknown) – combine, total set unknown) with a sum less than or equal to 10; and using a variety of problem solving strategies such as, use a model, act it out, look for a pattern and draw a picture. [1.1.4, 1.2.17, 1.3.7] • Combine two groups of objects to model addition (count the amount in each group and the sum). [1.1.4, 1.2.17, 1.3.6]

MATHEMATICS: INFANT 1				
CONTENT	**SKILLS**	**DISPOSITIONS**	**OUTCOMES**	**ELABORATIONS**
Students will:				
				• Solve problems involving addition using concrete and pictorial representations in vertical and horizontal arrangements. [1.1.4, 1.2.17, 1.3.7] • Record addition using pictorial representations/drawings, numerals and/or words e.g. 3 add 2 equal 5. [1.1.4, 1.2.17, 1.3.6] • Describe what happens to a group after addition is performed. [1.1.4, 1.2.17, 1.3.6] • Create number stories using appropriate vocabulary (including the language of money). [1.1.4, 1.2.17, 1.3.7]
Subtraction 1.1.5. Solve real-life problems involving subtraction	1.2.18. Solve one-step real-life subtraction problems	1.3.8. Develop confidence in computation involving	9. Develop a conceptual understanding of subtraction	• Solve one-step real-life subtraction problems (Separating Structures – change unknown, result unknown or deducting) presented orally or pictorially (using concrete

MATHEMATICS: INFANT 1				
CONTENT	**SKILLS**	**DISPOSITIONS**	**OUTCOMES**	**ELABORATIONS**
Students will:				
(concrete and pictorial modes only, no symbol).	presented orally or pictorially (using concrete materials, whole numbers and money).	subtraction. 1.3.9. Show perseverance in finding solutions to problems involving subtraction.	(concrete and pictorial modes only).	materials, whole number and money) with a minuend less than 10; and using a variety of problem solving strategies such as, use a model, act it out, look for a pattern and draw a picture. [1.1.5, 1.2.18, 1.3.9] • Take away from a group of objects to model subtraction (count the starting amount, count out a set, count how many are left). [1.1.5, 1.2.18, 1.3.8] • Solve problems involving subtraction using concrete and pictorial representations in vertical and horizontal arrangements. [1.1.5, 1.2.18, 1.3.9] • Record subtraction using pictorial representations/drawings, numerals and/or words e.g. 5 take away 2 equals 3. [1.1.5, 1.2.18, 1.3.8] • Describe what happens to a group after subtraction is performed. [1.1.5, 1.2.18,

MATHEMATICS: INFANT 1				
CONTENT	**SKILLS**	**DISPOSITIONS**	**OUTCOMES**	**ELABORATIONS**
Students will:				
				1.3.8] • Create number stories using appropriate vocabulary (including the language of money). [1.1.5, 1.2.18, 1.3.9]
Mental Mathematics 1.1.6. Develop strategies to solve problems mentally.	1.2.19. Investigate connections between addition facts and corresponding subtraction facts. 1.2.20. Associate add-one and subtract-one facts to forward (number after) and backward (number before) counting. 1.2.21. Use the 'Make	1.3.10. Develop confidence in the use of Mental Mathematics strategies.	10. Develop strategies to solve problems mentally.	• Investigate connections between addition facts (with sum less than or equal to 10) and the corresponding subtraction facts (minuend less than or equal to 10). [1.1.6, 1.2.19, 1.3.10] • Solve problems using mental strategies such as: o Addition and subtraction facts o Add-one and subtract-one as it relates to forward and backward counting o 'Make Five' (think addition). [1.1.6, 1.2.20,1.2.21, 1.3.10]

MATHEMATICS: INFANT 1				
CONTENT	**SKILLS**	**DISPOSITIONS**	**OUTCOMES**	**ELABORATIONS**
Students will:				
	Five' (think addition) strategy to solve problems.			
Language 1.1.7. Develop appropriate vocabulary associated with number.	1.2.22. Use appropriate vocabulary associated with number, orally and in writing.	1.3.11. Communicate with confidence using language related to number. 1.3.12. Demonstrate an appreciation for others by listening to their point of view.	11. Communicate effectively using vocabulary associated with number.	• Use appropriate language associated with number, such as: same, equal, as many as, more than, less than, one to ten (1 to 10), join, altogether, add, take away, left, remove, remain, guess, before, after, between, repeating unit, first, second, third, last, buy, sell, spend, how much?, coins, dollars, some, few, many, more, most, least, number and count. [1.1.7, 1.2.22, 1.3.11, 1.3.12]
GEOMETRY				
Solids and Plane Shapes 2.1.1. Demonstrate familiarity with	2.2.1. Identify solids (using informal		1. Describe solids and plane shapes	• Identify solids (using informal names for cuboid, cube, sphere, cylinder, and cone)

MATHEMATICS: INFANT 1				
CONTENT	**SKILLS**	**DISPOSITIONS**	**OUTCOMES**	**ELABORATIONS**
Students will:				
solids and plane shapes. 2.1.2. Distinguish between solids (3-D shapes) and plane shapes (2-D shapes).	names) and plane shapes (using formal names) in the surroundings. 2.2.2. Describe solids and plane shapes using appropriate vocabulary related to geometric attributes (colour, size, shape, position). 2.2.3. Classify solids and plane shapes according to one or more common attributes including students' own criteria. 2.2.4. Compare: ○ two solids	2.3.1. Display curiosity in the exploration of solids and plane shapes. 2.3.2. Show enjoyment as they manipulate the solids and plane shapes. 2.3.3. Demonstrate creativity when constructing models.	based on their properties. 2. Construct models of objects using solids and/or plane shapes.	and plane shapes (squares, triangles, rectangles and circles) using formal names in the surroundings. [2.1.1, 2.2.1, 2.3.1] • Match solids and plane shapes with familiar objects in the surroundings. [2.1.1, 2.2.1, 2.3.1] • Match word names to solids and plane shapes. [2.1.2, 2.2.1, 2.3.1] • Describe solids and plane shapes using appropriate vocabulary related to geometric attributes (size, shape, position) e.g. big, small, flat, round, thick, thin, pointed. [2.1.2, 2.2.2, 2.3.1] • Classify solids (e.g. colour, size, shape, function) and plane shapes (e.g. size, shape), according to one or more common attributes including students' own criteria and explain reasons for classification. [2.1.2, 2.2.3, 2.3.1, 2.3.2]

MATHEMATICS: INFANT 1				
CONTENT	**SKILLS**	**DISPOSITIONS**	**OUTCOMES**	**ELABORATIONS**
Students will:				

	o two plane shapes.
	
	2.2.5. Build models with solids and plane shapes and describe structures using appropriate language.
				• Compare:
				  o Two solids
				  o Two plane shapes
				  by stating similarities and differences (size, shape, position). [2.1.2, 2.2.4, 2.3.1]
				
				• Select from a given set of solids or plane shapes:
				  o Solids or plane shapes that are the same
				  o Solids or plane shapes that are alike/similar
				  o Solids or plane shapes that are different and explain reason(s) for selection. [2.1.2, 2.2.4, 2.3.1, 2.3.2]
				
				• Build models using solids and plane shapes and describe compositions/structures. [2.1.1, 2.2.5, 2.3.3]

Geometrical Patterns 2.1.3. Explore patterns using solids and plane	2.2.6. Explore patterns using repetitions of	2.3.4. Demonstrate creativity in the	3. Recognize and explore repeating	• Distinguish between repeating and non-repeating patterns in a given set involving

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MATHEMATICS: INFANT 1				
CONTENT	**SKILLS**	**DISPOSITIONS**	**OUTCOMES**	**ELABORATIONS**
Students will:				
shapes.	2-3 elements (name as 'number' pattern e.g. 'two' pattern). 2.2.7. Create patterns using solids or plane shapes (repeating – 2 to 3 elements).	creation of patterns.	patterns using solids and plane shapes.	solids or plane shapes by identifying errors or the part that repeats. [2.1.3, 2.2.6] • Copy a given pattern and describe the pattern. [2.1.3, 2.2.6] • Identify the pattern rule in repeating patterns. [2.1.3, 2.2.6] • Use a pattern rule to extend repeating patterns. [2.1.3, 2.2.6, 2.3.4] • Create repeating patterns using solids or plane shapes. [2.1.3, 2.2.7, 2.3.4] • Describe a repeating pattern as a 'number' pattern, e.g. $O, \square, O, \square, O, \square$ is a 'two' pattern; $\square, O, \Delta, \square, O, \Delta, , \square, O, \Delta$ is a 'three' pattern. [2.1.3, 2.2.6]
Language				• Use appropriate language associated with

MATHEMATICS: INFANT 1				
CONTENT	**SKILLS**	**DISPOSITIONS**	**OUTCOMES**	**ELABORATIONS**
Students will:				
2.1.4. Develop appropriate vocabulary associated with geometry.	2.2.8. Use appropriate vocabulary associated with geometry, orally and in writing.	2.3.5. Communicate with confidence using language related to geometry. 2.3.6. Demonstrate an appreciation for others.	4. Communicate effectively using vocabulary associated with geometry.	geometry, such as: ball, can, box, block, cone, flat, not flat, round, size, tall, short, thin, thick, broad, big, small, narrow, wide, on top of, next to, over, between, underneath, above, under, up, down, on, beside, in, shape, pointed, behind, in front of, near, far, below, same, square, circle, rectangle, triangle, bottom, pattern, repeat, inside, outside, in the middle, high/higher, low/lower, here, there, far from and close to. [2.1.4, 2.2.8, 2.3.5, 2.3.6]
MEASUREMENT				
Linear 3.1.1. Develop the concept of linear measures.	3.2.1. Investigate the lengths of objects. 3.2.2. Use comparison vocabulary to compare two objects (direct comparison) in	3.3.1. Build confidence in measuring.	1. Develop the concept of linear measure. 2. Communicate effectively using vocabulary associated with	• Explore concrete materials, and describe them using the language associated with length (e.g. long/short, thin/fat, wide/narrow) so as to develop the concept of length. [3.1.1, 3.2.1, 3.3.1] • Compare the lengths of two objects using direct comparison (placing side by side and aligning one end), and explain reasoning

MATHEMATICS: INFANT 1				
CONTENT	**SKILLS**	**DISPOSITIONS**	**OUTCOMES**	**ELABORATIONS**
Students will:				
	relation to length.		linear measures.	using appropriate vocabulary e.g. longer/shorter. [3.1.1, 3.2.2, 3.3.1] • Describe length as the measure of an object from one end to the next. [3.1.1, 3.2.1, 3.3.1] • Describe the distance of objects using appropriate vocabulary. [3.1.1, 3.2.2]
Mass/Weight 3.1.2. Develop the concept of mass/weight.	3.2.3. Investigate the mass/weight of objects. 3.2.4. Use comparison vocabulary (heavier, lighter) to compare two objects (direct comparison) in relation to mass/weight by hefting, pushing	3.3.2. Display curiosity in measuring.	3. Develop the concept of mass/weight. 4. Communicate effectively using vocabulary associated with mass/weight.	• Explore and describe objects using the language associated with mass/weight (e.g. heavy/ light) so as to develop the concept of mass/weight. [3.1.2, 3.2.3, 3.3.2] • Compare the mass/weight of two objects (including small heavy objects and big light objects) by hefting, pushing and pulling, and explain reasoning using appropriate vocabulary e.g. heavier/lighter. [3.1.2, 3.2.4, 3.3.2]

		MATHEMATICS: INFANT 1		
CONTENT	**SKILLS**	**DISPOSITIONS**	**OUTCOMES**	**ELABORATIONS**
Students will:				
	and pulling.			• Describe mass/weight as how heavy/light an object is. [3.1.2, 3.2.4, 3.3.2]
Time 3.1.3. Develop the concept of time.	3.2.5. Describe different times of the day and related activities. 3.2.6. Sequence activities according to time of occurrence and duration of events.	3.3.3. Be reflective when measuring time.	5. Develop the concept of time. 6. Communicate effectively using vocabulary associated with time.	• Describe times of the day (e.g., night-time, daytime, lunchtime) and related activities (e.g. eating breakfast, going to sleep) using appropriate vocabulary. [3.1.3, 3.2.5, 3.3.3] • Sequence activities according to time of occurrence. [3.1.3, 3.2.6, 3.3.3] • Describe events/activities that take a long time or a short time. [3.1.3, 3.2.6, 3.3.3]
Language 3.1.4. Develop appropriate vocabulary associated with measurement.	3.2.7. Use appropriate vocabulary associated with measurement, orally and in writing.	3.3.4. Communicate with confidence using language related to measurement.	7. Communicate effectively using vocabulary associated with measurement.	• Use appropriate language associated with measurement, such as: short/shorter, long/longer, tall/taller, as long as, wide/narrow, thin/fat, deep/shallow, high/low, near/far, length, mass/weight, heavy/heavier, light/lighter, easy/hard to

MATHEMATICS: INFANT 1				
CONTENT	**SKILLS**	**DISPOSITIONS**	**OUTCOMES**	**ELABORATIONS**
Students will:				
				push, easy/hard to pull, time, morning, afternoon, midday, evening, day, night, early/earlier, late/later and short time/long time. [3.1.4, 3.2.7, 3.3.4]
STATISTICS				
Object Charts and Picture Charts 4.1.1. Collect, display and analyse data to solve real-world problems. 4.1.2. Make decisions based on data.	4.2.1. Classify objects into groups and sub-groups using different criteria. 4.2.2. Collect and classify data about self and others to make decisions. 4.2.3. Construct and interpret object and picture charts based on real-life problems or	4.3.1. Display mathematical reasoning (logical thinking) when interpreting data. 4.3.2. Develop an appreciation for others when interpreting data. 4.3.3. Appreciate the	1. Demonstrate the ability to collect, classify, organize, represent and interpret data. 2. Use analysed data to make decisions and solve problems.	OBJECT CHARTS • Collect and classify data about objects (e.g. colour of lunch bags), self (e.g. short hair, long hair) and others to make decisions. [4.1.1, 4.2.1, 4.3.1] • Organize objects into rows so as to compare different subgroups (teacher guidance may be necessary e.g. in the identification of a starting line or baseline). [4.1.1, 4.2.3] • Compare groups by counting and using one-to-one correspondence. [4.1.2, 4.2.3, 4.3.1]

MATHEMATICS: INFANT 1				
CONTENT	**SKILLS**	**DISPOSITIONS**	**OUTCOMES**	**ELABORATIONS**
Students will:				
	situations. 4.2.4. Make informed decisions based on data analysed.	value of collaboration in decision-making.		• Interpret and analyse the constructed object chart (and ones presented by the teacher, with and without grid) so as to make decisions about a real-life situation or problem. [4.1.2, 4.2.3, 4.3.1] • Participate in decision-making to solve problems. [4.1.2, 4.2.4, 4.3.2, 4.3.3] • Communicate findings using appropriate vocabulary. [4.3.3] • Explain the importance of the appropriate arrangement of objects for easy comparison. [4.1.1, 4.2.3] PICTURE CHARTS • Construct picture charts by replacing an object in an object chart with an appropriate picture, or by sorting and arranging pictures (as would have been done for object charts). [4.1.1, 4.2.1, 4.2.3]

MATHEMATICS: INFANT 1				
CONTENT	**SKILLS**	**DISPOSITIONS**	**OUTCOMES**	**ELABORATIONS**
Students will:				
				• Construct picture charts (without and with grid) based on real-life problems or situations using vertical and horizontal arrangements. [4.1.1, 4.2.3] • Explain reasons for using a grid. [4.1.1, 4.2.3] • Interpret picture charts based on a real-life problem or situation so as to make informed decisions. [4.1.2, 4.2.3, 4.3.1] • Participate in decision-making to solve problems. [4.1.2, 4.2.4, 4.3.2, 4.3.3] • Communicate findings using appropriate vocabulary. [4.3.3] • Explain how the pictures were arranged for easy comparison. [4.1.1, 4.2.3] (Depending on the experiences of students, teachers may decide to start with the

MATHEMATICS: INFANT 1				
CONTENT	**SKILLS**	**DISPOSITIONS**	**OUTCOMES**	**ELABORATIONS**
Students will:				
				interpretation of presented charts, which can then be used to identify the characteristics of charts. Charts can then be appropriately constructed. Charts can also be transformed from one form to another, and this idea can be used to initiate interpretation of the same data using different representations.)
Language 4.1.3. Develop appropriate vocabulary associated with statistics.	4.2.5. Use appropriate vocabulary associated with statistics, orally and in writing.	4.3.4. Communicate with confidence using language related to statistics.	3. Communicate effectively using vocabulary associated with statistics.	• Use appropriate language associated with statistics, such as: sort, groups, object chart, picture chart, same, more/more than, less/less than, fewer, many, altogether, grid, across and down. [4.1.3, 4.2.5, 4.3.4]

Primary School Curriculum

Mathematics

Infant 2

MATHEMATICS: INFANT 2				
CONTENT	**SKILLS**	**DISPOSITIONS**	**OUTCOMES**	**ELABORATIONS**
Students will:				
NUMBER				
Number Concepts 1.1.1. Develop number sense from 0 to 20 and appropriate vocabulary.	1.2.1 Count to or from 100 in ascending and descending order (rote count). 1.2.2 Count objects to demonstrate one-to-one correspondence (up to 20). 1.2.3 Recognize that the number of objects remains the same when objects are rearranged. 1.2.4 Connect number names and	1.3.1 Develop confidence in counting. 1.3.2 Strive for accuracy in counting.	1. Count sequentially up to 100. 2. Understand the concept of numbers 0-20. 3. Understand the position of objects. 4. Demonstrate estimation skills using 10 as a benchmark. 5. Demonstrate an understanding of the value of coins	• Count forward (counting on) and backward (counting back) by ones to or from 100 from any given number. (A One Hundred Chart can be used). [1.1.1, 1.2.1, 1.3.1, 1.3.2] • Skip count in 2s (starting at zero and one) and 5s (starting at zero) to or from 20 in ascending and descending order. [1.1.1, 1.2.1, 1.3.1, 1.3.2] • Count objects to demonstrate one-to-one correspondence (up to 20). [1.1.1, 1.2.2, 1.3.2] • Explain that the last count, when counting a set of objects, identifies how many objects are in the set. [1.1.1, 1.2.2, 1.3.1, 1.3.2]

MATHEMATICS: INFANT 2				
CONTENT	**SKILLS**	**DISPOSITIONS**	**OUTCOMES**	**ELABORATIONS**
Students will:				
	numerals to quantities up to 20.		and bills up to 25¢ and up to $20.	• Count objects to establish that a number is one more than the preceding number. [1.1.1, 1.2.2, 1.3.1, 1.3.2]
	1.2.5 Sequence number names and numerals.			• Count objects in different arrangements to demonstrate conservation of number. [1.1.1, 1.2.3, 1.3.1, 1.3.2]
	1.2.6 Read and write number names and numerals.			• Match the number names and numerals to the quantities they represent up to 20 (concrete and pictorial). [1.1.1, 1.2.4, 1.3.2]
	1.2.7 Use comparison vocabulary to compare the number of objects in two sets (less than 20).			• Count to 20 in ascending order (starting at one and zero) and count from 20 in descending order. [1.1.1, 1.2.5, 1.3.1]
				• Sequence number names and numerals. [1.1.1, 1.2.5, 1.3.2]
	1.2.8 Compare groups of objects and order numbers.			• Explain the meaning of zero (none, no one, empty, nothing) after solving related subtraction problems e.g. There are 5 birds
	1.2.9 Use 10 as a			on a tree. They all flew away. How many

MATHEMATICS: INFANT 2				
CONTENT	**SKILLS**	**DISPOSITIONS**	**OUTCOMES**	**ELABORATIONS**
Students will:				
	reference in forming numbers from 11 to 20 e.g. 'seventeen is seven more than ten'. 1.2.10 Use the language of ordinal numbers up to tenth. 1.2.11 Demonstrate skills in estimation of the number of objects in a set, using 10 as a benchmark and verify by counting. 1.2.12 Explore the value of coins			are left? [1.1.1, 1.2.2,1.3.2] • Read and write number names and numerals. [1.1.1, 1.2.6, 1.3.2] • Identify the number before, the number after, and the number between, using a number line. [1.1.1, 1.2.5, 1.3.2] • Insert missing numbers on a number line. [1.1.1, 1.2.5, 1.3.2] • Match objects in two groups and use appropriate vocabulary to compare the number of objects e.g. 15 is more than 13. [1.1.1, 1.2.7, 1.3.2] • Compare groups of objects and order numbers to 20. [1.1.1, 1.2.8, 1.3.2] • Use 10 as a reference or benchmark in the formation of numbers from 11 to 20 e.g. 'seventeen is seven more than ten'. [1.1.1,

MATHEMATICS: INFANT 2				
CONTENT	**SKILLS**	**DISPOSITIONS**	**OUTCOMES**	**ELABORATIONS**
Students will:				
	and bills (up to 25¢, up to $20) and their equivalence.			1.2.9, 1.3.2] • Order objects and use appropriate language to describe its position up to tenth. [1.1.1, 1.2.10, 1.3.2] • Estimate a given quantity using 10 as a benchmark and verify by counting. [1.1.1, 1.2.11, 1.3.2] • Explore the value of coins and bills (up to 25¢, up to $20) e.g. 25 cents is worth more than 5 cents (use the idea of purchasing items priced at 5 cents and how many can be bought). [1.1.1, 1.2.12, 1.3.2] • Use the language of money in role playing situations involving the exchange of goods for money (exact value of the coins and bills, one item and receive change). [1.1.1, 1.2.12, 1.3.2] • State the equivalence of coins and bills up to 25 cents and 20 dollars. [1.1.1, 1.2.12,

MATHEMATICS: INFANT 2				
CONTENT	**SKILLS**	**DISPOSITIONS**	**OUTCOMES**	**ELABORATIONS**
Students will:				
				1.3.2]
Number Patterns and Number Relationships 1.1.2. Explore algebraic thinking (number patterns and number relationships).	1.2.13 Recognize the arrangement of dots / objects in standard spatial arrangements of numbers up to 10 (subitize). 1.2.14 Explore patterns using repetitions of 2 to 4 elements (name as 'number' pattern e.g. 'two' pattern). 1.2.15 Use balance	1.3.3 Be explorative when examining patterns. 1.3.4 Take risks in solving problems.	6. Recognize and explore number patterns up to 20. 7. Understand the concept of equality. 8. Use the concept of equality to solve problems in addition and subtraction.	NUMBER PATTERNS • Look at an arrangement of dots/objects in standard spatial arrangements and identify the number represented up to 10. [1.1.2, 1.2.13, 1.3.3] • Distinguish between repeating patterns and non-repeating patterns in a given set by identifying errors or the part that repeats. [1.1.2, 1.2.14, 1.3.3, 1.3.4] • Describe a given repeating pattern containing two to four elements in its core. [1.1.2, 1.2.14, 1.3.3] • Determine the pattern rule, and extend the

MATHEMATICS: INFANT 2				
CONTENT	**SKILLS**	**DISPOSITIONS**	**OUTCOMES**	**ELABORATIONS**
Students will:				
	activities to demonstrate equality and inequality. 1.2.16 Count objects in sets to demonstrate equality and inequality of sets. 1.2.17 Use the language and symbols associated with the concept of equality. 1.2.18 Solve problems involving addition and subtraction, using balance activities and the			repeating pattern using concrete materials, pictorial representation or symbols. [1.1.2, 1.2.14, 1.3.4] • Name a repeating pattern containing two to four elements in its core (name as 'number' pattern e.g. 'two' pattern). [1.1.2, 1.2.14, 1.3.3] • Identify the missing element(s) in a given repeating pattern. [1.1.2, 1.2.14, 1.3.4] • Create number patterns using repetition of elements. [1.1.2, 1.2.14, 1.3.4] NUMBER RELATIONSHIPS • Construct two equal sets using the same objects (same shape and mass/weight), and demonstrate their equality of number using a balance scale and counting. [1.1.2, 1.2.15, 1.2.16, 1.3.4]

MATHEMATICS: INFANT 2

CONTENT	SKILLS	DISPOSITIONS	OUTCOMES	ELABORATIONS
Students will:				
	concept of equality.			• Construct two unequal sets using the same objects (same shape and mass/weight), and demonstrate their inequality of number using a balance scale and counting. [1.1.2, 1.2.15, 1.2.16, 1.3.4] • Explain the procedure used to determine if two given sets of objects are equal or unequal in number e.g. use of the balance scale and counting. [1.1.2, 1.2.15, 1.2.17, 1.3.4] • Use the language of equality to describe the relationship between two sets e.g. they have the same number of objects, they are equal in number. [1.1.2, 1.2.15, 1.2.16, 1.2.17, 1.3.4] • Match sets of objects that are equal (pictorial) and explain reasoning. [1.1.2, 1.2.16, 1.2.17, 1.3.4] • Draw sets to show equal and unequal amounts and record the number of items.

MATHEMATICS: INFANT 2				
CONTENT	**SKILLS**	**DISPOSITIONS**	**OUTCOMES**	**ELABORATIONS**
Students will:				
				[1.1.2, 1.2.16, 1.2.17, 1.3.4] • Use the symbol to record equalities. [1.1.2, 1.2.17] • Explore the equality of sets involving addition and subtraction, using objects of the same size and mass/weight but different colours, and the balance scale, e.g. 2 red balls and 3 green balls are placed on one pan and students determine the amount of blue balls to place on the other side to show equality (verify by counting). [1.1.2, 1.2.18, 1.3.4] • Represent equality of sets in pictorial and symbolic form using the equal sign (=) to mean 'the same as' or 'is equal to' e.g. 000 and 00 is the same as or equals 00000; 000 and 00 = 00000, $3 + 2 = 5$; or 000000 take away 00 = 0000; $6 - 2 = 4$.

MATHEMATICS: INFANT 2				
CONTENT	**SKILLS**	**DISPOSITIONS**	**OUTCOMES**	**ELABORATIONS**
Students will:				
				[1.1.2, 1.2.18, 1.3.4]
Addition 1.1.3. Solve real-life problems involving addition (concrete, pictorial and symbolic modes).	1.2.19 Solve one-step real-life addition problems presented orally, pictorially and symbolically (using concrete materials, whole number and money). 1.2.20 Solve problems presented in horizontal and vertical arrangements 1.2.21 Associate addition to	1.3.5 Display confidence when solving problems related to addition.	9. Demonstrate a conceptual understanding of addition. 10. Solve problems involving addition presented in different formats.	• Solve one-step real-life addition problems presented orally, pictorially or symbolically (using concrete materials, whole number and money), involving 2 addends (Joining Structures – change, result unknown; Part-Part-Whole Structures (whole unknown) - combine, total set unknown), and 3 addends with a sum less than or equal to 20, using a variety of problem solving strategies such as, use a model, act it out, draw a picture and look for a pattern. [1.1.3, 1.2.19, 1.3.5] • Solve problems involving addition represented in vertical and horizontal arrangements. [1.1.3, 1.2.20, 1.3.5] • Record addition pictorially and symbolically using number sentences

MATHEMATICS: INFANT 2				
CONTENT	**SKILLS**	**DISPOSITIONS**	**OUTCOMES**	**ELABORATIONS**
Students will:				
	forward counting and use the count on strategy to solve problems.			(words and symbols) e.g. 13 plus 2 is 15; 13 add 2 is equal to 15; 13 add 2 equals 15; 13 + 2 = 15. [1.1.3, 1.2.19, 1.3.5] • Describe what happens to a group after addition to. [1.1.3, 1.2.19, 1.2.20, 1.3.5] • Use the number line to solve addition problems. [1.1.3, 1.2.19, 1.2.20, 1.3.5] • Use the count on strategy to solve addition problems. [1.1.3, 1.2.21, 1.3.5] • Create number stories involving addition using appropriate vocabulary (including the language of money). [1.1.3, 1.2.19, 1.3.5]
Subtraction				
	1.2.22 Solve one-step	1.3.6 Display	11. Demonstrate a	• Solve one-step real-life subtraction

MATHEMATICS: INFANT 2				
CONTENT	**SKILLS**	**DISPOSITIONS**	**OUTCOMES**	**ELABORATIONS**
Students will:				
1.1.4. Solve real-life problems involving subtraction (concrete, pictorial and symbolic modes).	real-life subtraction problems presented orally, pictorially and symbolically (using concrete materials, whole number and money).	confidence when solving subtraction problems.	conceptual understanding of subtraction. 12. Solve problems involving subtraction presented in different formats.	problems (Separating Structures – change unknown, result unknown or deducting; Part-Part-Whole structures (part unknown) - combine, subset unknown) presented orally, pictorially or symbolically (using concrete materials, whole number and money) with minuend less than or equal to 20, and using a variety of problem solving strategies such as, use a model, act it out, draw a picture and look for a pattern. [1.1.4, 1.2.22, 1.3.6]
	1.2.23 Solve problems presented in horizontal and vertical arrangements.			• Solve problems involving subtraction represented in vertical and horizontal arrangements. [1.1.4, 1.2.23, 1.3.6]
	1.2.24 Associate subtraction to backward counting, and use the count back strategy and the count on strategy			• Record subtraction pictorially and symbolically using number sentences (words and symbols) e.g. 15 take away 2 equals 13, 15 – 2 = 13. [1.1.4, 1.2.22, 1.3.6] • Describe what happens to a group after

MATHEMATICS: INFANT 2				
CONTENT	**SKILLS**	**DISPOSITIONS**	**OUTCOMES**	**ELABORATIONS**
Students will:				
	to solve problems.			subtraction from. [1.1.4, 1.2.22, 1.2.23, 1.3.6] • Use the number line to solve subtraction problems. [1.1.4, 1.2.22, 1.2.23, 1.3.6] • Use the count back and count on strategies to solve subtraction problems. [1.1.4, 1.2.24, 1.3.6] • Create number stories involving subtraction using appropriate vocabulary (including the language of money). [1.1.4, 1.2.22, 1.3.6]
Mental Mathematics 1.1.5. Develop strategies to solve problems mentally.	1.2.25 Identify addition facts with sum less than or equal to 20.	1.3.7 Display confidence when solving problems mentally.	13. Develop strategies to solve problems mentally.	• Explore addition facts with sums less than or equal to 20. [1.1.5, 1.2.25, 1.3.7] • Explore subtraction facts, minuends less

MATHEMATICS: INFANT 2				
CONTENT	**SKILLS**	**DISPOSITIONS**	**OUTCOMES**	**ELABORATIONS**
Students will:				
	1.2.26 Identify subtraction facts, minuend less than or equal to 20. 1.2.27 Investigate connections between addition facts and the corresponding subtraction facts. 1.2.28 Associate addition and subtraction to forward and backward counting. 1.2.29 Associate add-one (one more than) and subtract-one (one			than or equal to 20. [1.1.5, 1.2.26, 1.3.7] • Investigate connections between addition facts (with sum less than or equal to 20) and the corresponding subtraction facts (minuend less than or equal to 20). [1.1.5, 1.2.27, 1.3.7] • Associate addition and subtraction to forward and backward counting. [1.1.5, 1.2.28, 1.3.7] • Solve problems using mental strategies such as: o Addition and subtraction facts o Add-one and subtract-one as it relates to forward and backward counting o Add-zero and subtract-zero facts o Count on / count back o 'Make Ten' (think addition) [1.1.5, 1.2.29, 1.2.30, 1.2.31, 1.2.32, 1.3.7]

MATHEMATICS: INFANT 2				
CONTENT	**SKILLS**	**DISPOSITIONS**	**OUTCOMES**	**ELABORATIONS**
Students will:				
	less than) facts to forward (number after) and backward (number before) counting. 1.2.30 Use the add-zero and subtract-zero facts. 1.2.31 Use the count on and count back strategies to solve problems. 1.2.32 Use the 'Make Ten' (think addition) strategy to solve problems.			
Language				

MATHEMATICS: INFANT 2				
CONTENT	**SKILLS**	**DISPOSITIONS**	**OUTCOMES**	**ELABORATIONS**
Students will:				
1.1.6. Develop appropriate vocabulary associated with number.	1.2.33 Use appropriate vocabulary associated with number, orally and in writing.	1.3.8 Communicate with confidence using language related to number. 1.3.9 Demonstrate an appreciation for others by listening to their point of view.	14. Communicate effectively using vocabulary associated with number.	• Use appropriate language associated with number, such as: altogether, unequal, zero to twenty (0 to 20), none, dollars, cents, buy, sell, pay, price, change, too much/too little, cost, value, core, repeating pattern, first to tenth, sign, beginning, end, position, '=' equals or is the same as, forward and backward. [1.1.6, 1.2.33, 1.3.8, 1.3.9]
GEOMETRY				
Solids and Plane Shapes 2.1.1. Develop an understanding of classification of solids and plane shapes.	2.2.1 Describe solids and plane shapes using appropriate vocabulary related to geometric	2.3.1 Demonstrate critical thinking when classifying solids and plane shapes.	1. Develop an understanding of the properties of solids and plane shapes.	• Describe solids and plane shapes using appropriate vocabulary (e.g. big, small, flat, round, thick, thin, pointed) related to geometric attributes (e.g. size, shape, position and ability to roll, stack or stand).

MATHEMATICS: INFANT 2				
CONTENT	**SKILLS**	**DISPOSITIONS**	**OUTCOMES**	**ELABORATIONS**
Students will:				
2.1.2. Demonstrate familiarity with pictorial representations of solids/plane shapes. 2.1.3. Solve problems involving solids and plane shapes.	attributes (e.g. size, shape, position). 2.2.2 Classify solids and plane shapes, and give reasons for classification. 2.2.3 Compare solids and plane shapes. 2.2.4 Identify solids using formal names. 2.2.5 Construct models using solids and plane shapes, and describe composition of model. 2.2.6 Recognize and	2.3.2 Show creativity in constructing models and solving problems.	2. Construct simple models using solids and plane shapes. 3. Recognize solids/plane shapes from pictorial representations. 4. Solve problems involving solids or plane shapes.	[2.1.1, 2.2.1, 2.3.1] • Classify solids and plane shapes (e.g. size, shape), according to one or more common attributes including student's criteria, and explain reasons for classification (e.g. colour, size, shape, function). [2.1.1, 2.2.2, 2.3.1] • Compare solids and plane shapes by stating similarities and differences. [2.1.1, 2.2.3, 2.3.1] • Select from a given set of solids or plane shapes: o solids or plane shapes that are the same; o solids or plane shapes that are alike/similar; o solids or plane shapes that are different; and explain reason(s) for selection. [2.1.1, 2.2.2, 2.2.3, 2.3.1]

MATHEMATICS: INFANT 2				
CONTENT	**SKILLS**	**DISPOSITIONS**	**OUTCOMES**	**ELABORATIONS**
Students will:				
	name solids and plane shapes in pictorial representations. 2.2.7 Solve problems involving solids and plane shapes.			• Use the formal names of solids: cube, cuboid, cylinder, cone and sphere. [2.1.1, 2.2.4] • Build models using solids and plane shapes, and describe compositions/structures. [2.1.1, 2.2.5, 2.3.2] • Identify different plane shapes in pictures. [2.1.2, 2.2.6, 2.3.1] • Match solids to their pictorial representations. [2.1.2, 2.2.6, 2.3.1] • Name solids represented in pictures. [2.1.2, 2.2.6, 2.3.1] • Colour solids with particular attributes e.g. those that can roll. [2.1.1, 2.1.2, 2.2.1, 2.2.2, 2.2.3, 2.2.6, 2.3.1] • Solve problems involving solids and plane

MATHEMATICS: INFANT 2				
CONTENT	**SKILLS**	**DISPOSITIONS**	**OUTCOMES**	**ELABORATIONS**
Students will:				
				shapes e.g. How many different shapes can you make using 6 blocks? [2.1.3, 2.2.7, 2.3.2]
Geometrical Patterns 2.1.4. Explore patterns using solids and plane shapes.	2.2.8 Explore patterns using repetitions of 2-4 elements (name as 'number' pattern e.g. 'two' pattern). 2.2.9 Create patterns using solids or plane shapes (repeating 2 to 4 elements and growing or increasing	2.3.3 Demonstrate creativity in the creation of patterns.	5. Explore patterns using solids or plane shapes.	• Distinguish between repeating and non-repeating patterns in a given set involving solids or plane shapes by identifying errors and the part that repeats. [2.1.4, 2.2.8] • Describe the pattern and identify the pattern rule in repeating pattern. [2.1.4, 2.2.8] • Use pattern rule to extend repeating patterns. [2.1.4, 2.2.8, 2.2.9, 2.3.3] • Create repeating patterns using solids or plane shapes (concrete and pictorial). [2.1.4, 2.2.9, 2.3.3]

MATHEMATICS: INFANT 2				
CONTENT	**SKILLS**	**DISPOSITIONS**	**OUTCOMES**	**ELABORATIONS**
Students will:				
	patterns).			• Describe a repeating pattern as a 'number' pattern, e.g. *O, □, O, □, O, □* is a 'two' pattern; *□, O, Δ, □, O, Δ, , □, O, Δ* is a 'three' pattern. [2.1.4, 2.2.8, 2.2.9] • Describe growing/increasing patterns, and identify the pattern rule. [2.1.4, 2.2.8, 2.2.9] • Use the pattern rule to extend the growing/increasing pattern. [2.1.4, 2.2.8, 2.2.9, 2.3.3] • Create growing/increasing patterns using solids or plane shapes (concrete and pictorial). [2.1.4, 2.2.8, 2.2.9, 2.3.3]
Language 2.1.5. Develop appropriate vocabulary	2.2.10 Use appropriate vocabulary associated with	2.3.4 Communicate with confidence using language	6. Communicate effectively using vocabulary	• Use appropriate language associated with geometry, such as: roll, stack, stand, pack, cube, cuboid, sphere, cone, cylinder,

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MATHEMATICS: INFANT 2				
CONTENT	**SKILLS**	**DISPOSITIONS**	**OUTCOMES**	**ELABORATIONS**
Students will:				
associated with geometry.	geometry, orally and in writing.	related to geometry. 2.3.5 Demonstrate an appreciation for others.	associated with geometry.	same/identical, different, alike, similar, moving in a straight line/curved line, left, right, growing pattern, solid and plane shape. [2.1.5, 2.2.10, 2.3.4, 2.3.5]
MEASUREMENT				
Linear 3.1.1 Demonstrate familiarity with comparison of the lengths of objects using appropriate vocabulary. 3.1.2 Understand that linear measures can be quantified.	3.2.1. Use comparison vocabulary to compare objects (direct comparison) in relation to length. 3.2.2. Measure lengths and distances using arbitrary/non-standard units.	3.3.1. Enjoy ordering activities. 3.3.2. Take pride in measuring accurately.	1. Develop an understanding of the comparison of measures (length) using appropriate vocabulary. 2. Understand that linear measures can be quantified.	• Compare and order the lengths of three or more objects using direct comparison, and explain reasoning using appropriate vocabulary e.g. longer/shorter. [3.1.1, 3.2.1, 3.3.1] • Create repeating patterns using objects of various lengths. [3.1.1, 3.2.1, 3.2.3, 3.3.1] • Measure lengths and distances using multiple copies of non-standard units (by placing the same sized units end-to-end

MATHEMATICS: INFANT 2				
CONTENT	**SKILLS**	**DISPOSITIONS**	**OUTCOMES**	**ELABORATIONS**
Students will:				
	3.2.3. Order objects and distances according to length.			without leaving gaps, without overlapping and arranged in a straight line). [3.1.2, 3.2.2, 3.3.2] • Count the number of units used and record lengths. [3.1.2, 3.2.2, 3.2.3, 3.3.2] • Compare and order objects and distances according to length, and explain reasoning using appropriate vocabulary. [3.1.1, 3.1.2, 3.2.1, 3.2.2, 3.2.3, 3.3.1, 3.3.2]
Mass/Weight 3.1.3 Demonstrate familiarity with the comparison of the mass/weight of objects using appropriate vocabulary.	3.2.4. Compare objects according to mass/weight using an equal arm balance and appropriate vocabulary.	3.3.3. Demonstrate confidence when measuring.	3. Develop an understanding of the comparison of measures (mass/weight) using appropriate vocabulary.	• Compare the masses/weights of objects by using an equal arm balance (including small heavy objects and light big objects). [3.1.3, 3.2.4, 3.3.3] • Discuss observations of the equal arm balance when objects are placed in the pans. [3.1.3, 3.2.4, 3.3.3]

MATHEMATICS: INFANT 2				
CONTENT	**SKILLS**	**DISPOSITIONS**	**OUTCOMES**	**ELABORATIONS**
Students will:				
				• Use pictorial representations of equal arm balances to determine which object is heavy or light. [3.1.3, 3.2.4, 3.3.3]

Time
 	
3.1.4 Develop an understanding of time.
	3.2.5. Use appropriate vocabulary when describing activities or events associated with time.
	
	3.2.6. Sequence activities or events according to time of occurrence.
	
	3.2.7. Interpret calendars.
	
	3.2.8. Measure the duration of
		3.3.4. Demonstrate confidence when sequencing activities.	4. Associate events with specific time periods.
			
			5. Understand that time can be quantified.
			
			6. Develop an understanding of the comparison of measures (time) using appropriate vocabulary.
				• Sequence activities according to:
				  o time of occurrence;
				  o chronological order e.g. daily schedule, preparing to come to school. [3.1.4, 3.2.5, 3.2.6, 3.3.4]
				
				• Answer questions based on the information presented on calendars such as:
				  o name and sequence the days of the week and the months of the year;
				  o identify the days, months, dates and number of days in each month on calendars; and
				  o distinguish between weekends and school days. [3.1.4, 3.2.6, 3.2.7, 3.3.4]
				
				• Measure the passage of time it takes for various activities to occur, or duration of

MATHEMATICS: INFANT 2				
CONTENT	**SKILLS**	**DISPOSITIONS**	**OUTCOMES**	**ELABORATIONS**
Students will:				
	activities using non-standard units. 3.2.9. Compare and order the duration of activities.			activities (using a repeated non-standard unit), and record measure (e.g. the number of times you can clap your hand while a child does an activity). [3.1.4, 3.2.8, 3.3.4] • Compare the time taken for activities or events to occur, or the duration of activities (starting at the same time), and order the duration of activities, and explain reasoning using appropriate vocabulary. [3.1.4, 3.2.9, 3.3.4]
Language 3.1.5 Develop appropriate vocabulary associated with measurement.	3.2.10. Use appropriate vocabulary associated with measurement, orally and in writing.	3.3.5. Communicate with confidence using language related to measurement.	7. Communicate effectively using vocabulary associated with measurement.	• Use appropriate language associated with measurement, such as: before, after, morning, night, lunchtime, bedtime, today, yesterday, tomorrow, past, present, future, soon, a long time, a short time, long/longer, short/shorter, same time as, more, less, days of the week, weekend, months of the year, year, in the past, calendar, date, birthdate, now, then,

MATHEMATICS: INFANT 2				
CONTENT	**SKILLS**	**DISPOSITIONS**	**OUTCOMES**	**ELABORATIONS**
Students will:				
				season, heavy/heavier, light/lighter, as heavy as, weigh, tallest, longest, shortest, as long/tall as and hand-span. [3.1.5, 3.2.10, 3.3.5]
STATISTICS				
Picture Charts and Pictographs 4.1.1. Collect, display and analyse data to solve real-world problems. 4.1.2. Demonstrate an understanding about the features of graphs. 4.1.3. Make decisions based on data.	4.2.1. Collect and classify data to make decisions based on a real-life situation or problem. 4.2.2. Identify features of picture charts and pictographs (e.g. using one picture to represent one person,	4.3.1. Develop mathematical reasoning (logical thinking) when interpreting data. 4.3.2. Develop an appreciation for others when interpreting data.	1. Demonstrate the ability to collect, classify, organize, represent and interpret data. 2. Demonstrate an understanding about the features of charts/graphs. 3. Use analysed data to make sound decisions and	PICTURE CHARTS • Collect and classify data to make decisions based on a real-life situation or problem. [4.1.1, 4.2.1, 4.3.1] • Classify pictures into groups and sub-groups using different criteria. [4.1.1, 4.2.1, 4.3.1] • Construct picture charts (with and without grid, vertical and horizontal arrangements) based on information collected and after

MATHEMATICS: INFANT 2				
CONTENT	**SKILLS**	**DISPOSITIONS**	**OUTCOMES**	**ELABORATIONS**
Students will:				
	baseline/start line, labels (of sets) on baseline, same-sized symbols/pictures, equal spacing and title). 4.2.3. Construct picture charts and pictographs (with and without grid, vertical and horizontal arrangements) based on real-life problems or situations. 4.2.4. Interpret picture charts and pictographs based on a real-life problem or	4.3.3. Appreciate the value of collaboration in decision-making. 4.3.4. Appreciate the value of using data in decision-making.	solve problems.	reviewing the features of picture charts. [4.1.2, 4.2.2, 4.2.3] • Interpret and analyse the data so as to make decisions about real-life situations or problems. [4.1.3, 4.2.4, 4.3.1, 4.3.2] • Participate in decision-making to solve problems. [4.1.3, 4.2.5, 4.3.3] • Communicate findings using appropriate vocabulary. [4.1.3, 4.2.5, 4.2.6, 4.3.4] PICTOGRAPHS • Explain the similarities and differences between a picture chart and a pictograph after replacing pictures on a picture chart with an appropriate symbol. [4.1.2, 4.2.2] • Construct pictographs (with and without grid, vertical and horizontal arrangements) after collecting information based on

MATHEMATICS: INFANT 2				
CONTENT	**SKILLS**	**DISPOSITIONS**	**OUTCOMES**	**ELABORATIONS**
Students will:				
	situation. 4.2.5. Make informed decisions based on data analysed. 4.2.6. Communicate findings and decisions using appropriate vocabulary.			problem situations. [4.1.2, 4.2.3] • Interpret and analyse the data so as to make decisions about real-life situations or problems. [4.1.3, 4.2.4, 4.2.5, 4.2.6, 4.3.4] • Participate in decision-making to solve problems. [4.1.3, 4.2.5, 4.3.3] • Communicate findings using appropriate vocabulary. [4.1.3, 4.2.5, 4.2.6, 4.3.4] (Depending on the experiences of students, teachers may decide to start with the interpretation of presented graphs, which can then be used to identify the characteristics of graphs. Graphs can then be appropriately constructed. Graphs can also be transformed from one form to another, and this idea can be used to initiate interpretation of the same data using different representations).

MATHEMATICS: INFANT 2				
CONTENT	**SKILLS**	**DISPOSITIONS**	**OUTCOMES**	**ELABORATIONS**
Students will:				
Language 4.1.4. Develop appropriate vocabulary associated with statistics.	4.2.7. Use appropriate vocabulary associated with statistics, orally and in writing.	4.3.5. Communicate with confidence using language related to statistics.	4. Communicate effectively using vocabulary associated with statistics.	• Use appropriate language associated with statistics, such as: pictograph, most, least, more than, less than, same/equal to and altogether. [4.1.4, 4.2.7, 4.3.5]

Primary School Curriculum

Mathematics

Standard 1

MATHEMATICS: STANDARD 1				
CONTENT	**SKILLS**	**DISPOSITIONS**	**OUTCOMES**	**ELABORATIONS**
Students will:				
NUMBER				
Number Concepts 1.1.1 Develop number sense (up to 100) and appropriate vocabulary. 1.1.2 Develop an understanding of different types of numbers. 1.1.3 Develop an understanding of our currency and the value of coins and bills.	1.2.1. Count within 1 000 in ascending and descending order (rote count). 1.2.2. Skip count in ascending and descending order within a specified amount. 1.2.3. Count objects to demonstrate one-to-one correspondence (up to 100). 1.2.4. Recognize that the number of	1.3.1 Strive for accuracy in counting. 1.3.2 Appreciate the use of numbers in real life.	1. Count sequentially within 1 000. 2. Demonstrate an understanding of numbers to 100. 3. Understand the position of objects. 4. Demonstrate estimation skills using 20 as a benchmark. 5. Demonstrate an understanding	• Count forward (count on) and backward (count back) by ones within 1 000 from any given number.[1.1.1, 1.2.1, 1.3.1] • Skip count in ascending and descending order using various ways (such as, in 100s to or from 1 000; in 2s, 5s and 10s starting at zero, up to 100; in 2s starting at one; in 3s starting at zero and up to 30; off the decade by tens e.g. 43, 53, 63…) [1.1.1, 1.2.1, 1.2.2, 1.3.1] • Count objects to demonstrate one-to-one correspondence (up to 100). [1.1.1, 1.2.3, 1.3.1] • Explain that the last count, when counting a set of objects, identifies how many objects are in the set. [1.1.1,

MATHEMATICS: STANDARD 1				
CONTENT	**SKILLS**	**DISPOSITIONS**	**OUTCOMES**	**ELABORATIONS**
Students will:				
	objects remains the same when objects are rearranged. 1.2.5. Connect number names and numerals to quantities up to 100. 1.2.6. Sequence number names and numerals. 1.2.7. Read and write number names and numerals to 100. 1.2.8. Describe the order or relative position of objects using		of our currency and the value of coins and bills.	1.2.3, 1.3.1] • Count sequentially forward and backward to establish that a number is one more than or one less than the preceding number, starting at any number. [1.1.1, 1.2.3, 1.3.1] • Count objects in different arrangements to demonstrate conservation of number. [1.1.1, 1.2.4, 1.3.1] • Match the number names and numerals to the quantities (concrete and pictorial) they represent up to 100. [1.1.1, 1.2.5, 1.2.7, 1.3.1] • Sequence number names and numerals. [1.1.1, 1.2.5, 1.2.6, 1.2.7, 1.3.1] • Identify the number before, the number after, and the number between, using a

MATHEMATICS: STANDARD 1				
CONTENT	**SKILLS**	**DISPOSITIONS**	**OUTCOMES**	**ELABORATIONS**
Students will:				
	ordinal numbers up to 20. 1.2.9. Estimate the number of objects in a set using 20 as the benchmark and verify by counting. 1.2.10. Differentiate between odd and even numbers. 1.2.11. Explore the value of coins and bills/notes (up to $100) and their equivalence (practical situations). 1.2.12. Use money notation for			hundred chart. [1.1.1, 1.2.6, 1.3.1] • Insert missing numbers on a number line, number chart and number sequence. [1.1.1, 1.2.6, 1.3.1] • Read and write number names and numerals to 100. [1.1.1, 1.2.5, 1.2.6, 1.2.7, 1.3.1] • Order objects, pictures and events, and use appropriate language to describe positions up to twentieth. [1.1.1, 1.2.8, 1.3.2] • Estimate a given quantity using 20 as a benchmark, and verify by counting. [1.1.1, 1.2.9, 1.3.2] • Classify numbers as odd and even using concrete materials (e.g. counters) or pictorial representations, paired in two rows or groups of two. [1.1.2, 1.2.10,

MATHEMATICS: STANDARD 1				
CONTENT	**SKILLS**	**DISPOSITIONS**	**OUTCOMES**	**ELABORATIONS**
Students will:				
	dollars and cents.			1.3.1] • Identify even and odd numbers in a given sequence, such as in a hundred chart, and explain reason(s) for selections. [1.1.2, 1.2.10, 1.3.1] • Explore the value of coins and bills up to $100 e.g. $25 is worth more than $5 (use the idea of purchasing items priced at $5 and how many can be bought). [1.1.1, 1.1.3, 1.2.11, 1.2.12, 1.3.2] • State the equivalence of coins (only) up to 100 cents, and bills (only) up to 100 dollars using practical activities. [1.1.1, 1.1.3, 1.2.11, 1.2.12, 1.3.2] • State that 100 cents is equivalent to one dollar. [1.1.1, 1.1.3, 1.2.11] • Shade coins and bills in pictorial representations to show equivalence.

MATHEMATICS: STANDARD 1				
CONTENT	**SKILLS**	**DISPOSITIONS**	**OUTCOMES**	**ELABORATIONS**
Students will:				
				[1.1.3, 1.2.11, 1.2.12] • Write specified amounts of money using the notation for dollars and cents e.g. $4 and 5c. [1.1.3, 1.2.11, 1.2.12]

MATHEMATICS: STANDARD 1				
CONTENT	**SKILLS**	**DISPOSITIONS**	**OUTCOMES**	**ELABORATIONS**
Students will:				
Place Value and Rounding 1.1.4 Develop an understanding of place value up to 99 (concretely, pictorially and symbolically). 1.1.5 Develop an understanding of rounding to tens.	1.2.13. Explore the place value of numbers to 99. 1.2.14. Compare and order numerals up to 99. 1.2.15. Round to tens.	1.3.3 Be explorative when examining relationships in numbers. 1.3.4 Strive for accuracy in performing tasks.	6. Demonstrate an understanding of place value and value. 7. Develop an understanding of rounding to tens.	• Count a specified number of objects, and use them to form groups of 10s and 1s. [1.1.4, 1.2.13, 1.3.3, 1.3.4] • Describe a specified number in various ways using language associated with place value e.g. 45 as four 10s and five 1s, forty and five, 45 ones. [1.1.4, 1.2.13, 1.3.3, 1.3.4] • Show, using various manipulatives (e.g. base ten materials, place value mats) that a given numeral consists of a certain number of 'tens' and 'ones' and record as such, e.g. 45 = 4 tens and 5 ones. [1.1.4, 1.2.13, 1.3.3, 1.3.4] • Record the amounts shown in pictorial

Table within elaborations:

Tens	Ones
4	5

MATHEMATICS: STANDARD 1				
CONTENT	**SKILLS**	**DISPOSITIONS**	**OUTCOMES**	**ELABORATIONS**
Students will:				
				representations of base ten materials both in terms of place value and as a numeral. [1.1.4, 1.2.13, 1.3.3, 1.3.4]
				• Write the numeral to match objects grouped in tens and ones (concretely and pictorially). [1.1.4, 1.2.13, 1.3.3, 1.3.4]
				• Explain and show the equivalence of one ten and ten ones. [1.1.4, 1.2.13, 1.3.3, 1.3.4]
				• Explain the importance of grouping in tens. [1.1.4, 1.2.13, 1.3.3]
				• Write numbers using the expanded notation form. [1.1.4, 1.2.13, 1.3.3, 1.3.4]
				• Convert expanded notation into numerals. [1.1.4, 1.2.13, 1.3.3, 1.3.4]
				• Explain and write the place value and

MATHEMATICS: STANDARD 1				
CONTENT	**SKILLS**	**DISPOSITIONS**	**OUTCOMES**	**ELABORATIONS**
Students will:				
				value represented by each digit in a numeral. [1.1.4, 1.2.13, 1.3.3, 1.3.4] • Use comparison vocabulary to compare the number of objects in groups. [1.1.4, 1.2.14, 1.3.3, 1.3.4] • Compare and order numerals up to 99 (in ascending and descending order). [1.1.4, 1.2.14, 1.3.3, 1.3.4] • Round numbers to the nearest "ten" (using a number line). [1.1.5, 1.2.15, 1.3.3, 1.3.4]
Number Patterns 1.1.6 Explore algebraic thinking (number patterns and number relationships).	1.2.16. Explore patterns using repetitions of 3-5 elements (name as 'number' pattern e.g. 'three'	1.3.5 Be explorative when examining patterns and	8. Recognize and explore number patterns up to 100 (using appropriate resources such	• Distinguish between repeating patterns and non-repeating patterns in a given set by identifying errors or the part that repeats. [1.1.6, 1.2.16, 1.3.5] • Describe a given repeating pattern

MATHEMATICS: STANDARD 1				
CONTENT	**SKILLS**	**DISPOSITIONS**	**OUTCOMES**	**ELABORATIONS**
Students will:				
	pattern or using a letter code e.g. ABCABC). 1.2.17. Explore increasing and decreasing patterns up to 100. 1.2.18. Develop number patterns involving addition and subtraction facts, add zero or subtract zero, the commutative property for addition, the associative property for addition, add two or subtract	relationships. 1.3.6 Take risks in solving problems.	as base ten materials, counters, number lines and hundred charts).	containing three to five elements in its core (using manipulatives, pictures/drawings, sounds and actions). [1.1.6, 1.2.16, 1.3.5] • Determine the pattern rule, and extend the repeating pattern using concrete materials, pictorial representation or symbols. [1.1.6, 1.2.16, 1.3.5] • Name a repeating pattern containing three to five elements in its core (name as 'number' pattern e.g. 'three' pattern or using a letter code e.g. ABCABC). [1.1.6, 1.2.16, 1.3.5] • Identify and describe patterns when counting forward or backward by ones, twos, fives, or tens (using a number line and chart). [1.1.6, 1.2.16, 1.2.17, 1.3.5] • Describe and extend simple number patterns that increase or decrease e.g. 1, 2, 3, 4, …; 15, 14, 13, 12, …;

MATHEMATICS: STANDARD 1				
CONTENT	**SKILLS**	**DISPOSITIONS**	**OUTCOMES**	**ELABORATIONS**
Students will:				
	two, double facts, ten facts, and odd and even numbers.			2, 4, 6, 8, …; 5,10,15, 20….; 90,80,70,60…, using the pattern rule (to 100). [1.1.6, 1.2.16, 1.2.17, 1.2.18, 1.3.5, 1.3.6] • Recognize when an error occurs in a pattern, and explain what is wrong. [1.1.6, 1.2.16, 1.2.17, 1.2.18, 1.3.5, 1.3.6] • Create repeating, increasing and decreasing number patterns (using pictures, diagrams, words or symbols), and explain the pattern rule. [1.1.6, 1.2.16, 1.2.17, 1.2.18, 1.3.5, 1.3.6] • Insert the missing elements in given patterns (concrete, pictorial or symbolic), and explain the reasoning. [1.1.6, 1.2.16, 1.2.17, 1.2.18, 1.3.5, 1.3.6] • Relate addition and subtraction facts for numbers to 20 (concretely, pictorially

MATHEMATICS: STANDARD 1				
CONTENT	**SKILLS**	**DISPOSITIONS**	**OUTCOMES**	**ELABORATIONS**
Students will:				

				and symbolically), and describe patterns e.g. $6 + 3 = 9$, so $9 - 3 = 6$, and $9 - 6 = 3$. [1.1.6, 1.2.18, 1.3.5, 1.3.6]
				
				• Explore, describe and record patterns related to the basic addition and subtraction facts (up to 99), and explain generalizations e.g.
				$6 + 3 = 9$ is related to $16+3=19$;
				$5-2=3$ is related to $50-20=30$.
				[1.1.6, 1.2.18, 1.3.5, 1.3.6]
				
				• Explain why addition and subtraction are inverse (opposite) operations. [1.1.6, 1.2.18, 1.3.6]
				
				• Describe and record the patterns for addition and subtraction facts for individual numbers.
				E.g. $0 + 4 = 4$ $5 - 0 = 5$
				    $1 + 3 = 4$ $5 - 1 = 4$
				    $2 + 2 = 4$ $5 - 2 = 3$
				    $3 + 1 = 4$ $5 - 3 = 2$ etc.
				    $4 + 0 = 4$.

MATHEMATICS: STANDARD 1				
CONTENT	**SKILLS**	**DISPOSITIONS**	**OUTCOMES**	**ELABORATIONS**
Students will:				
				[1.1.6, 1.2.18, 1.3.5, 1.3.6]

• Recall basic addition and subtraction facts from memory (up to 10). [1.1.6, 1.2.18, 1.3.5]

• Explore, describe and record patterns related to add zero/subtract zero, the commutative property for addition, the associative property for addition, add two/subtract two, double facts, ten facts, odd and even numbers, and explain generalizations about number relationships e.g. adding zero does not change the number, as in $8 + 0 = 8$; the order in which numbers are added does not affect the sum (commutative and associative laws). [1.1.6, 1.2.18, 1.3.5, 1.3.6]

• Describe and record patterns created by adding combinations of odd and even numbers e.g. odd + odd = even, odd + |

MATHEMATICS: STANDARD 1				
CONTENT	**SKILLS**	**DISPOSITIONS**	**OUTCOMES**	**ELABORATIONS**
Students will:				
				even = odd. [1.1.6, 1.2.18, 1.3.5, 1.3.6]
Number Relationships 1.1.7 Explore algebraic thinking (number patterns and number relationships).	1.2.19. Use balance activities to demonstrate equality and inequality. 1.2.20. Count objects in sets to demonstrate equality and inequality of sets. 1.2.21. Use the language and symbols associated with equality and	1.3.7 Collaborate while doing activities. 1.3.8 Take risks in solving problems.	9. Demonstrate an understanding of equality and inequality. 10. Represent equality and inequality using manipulatives and pictures. 11. Use the concept of equality to solve problems involving addition and	• Construct two equal sets using the same objects (same shape and mass/weight), and demonstrate their equality of number using a balance scale and counting. [1.1.7, 1.2.19, 1.2.20, 1.3.7] • Construct two unequal sets using the same objects, same shape and mass/weight, and demonstrate their inequality of number using a balance scale and counting. [1.1.7, 1.2.19, 1.2.20, 1.3.7] • Explain the procedure used to determine if two given sets of objects are equal or unequal in number. E.g. use of the balance scale and counting.

MATHEMATICS: STANDARD 1

CONTENT	SKILLS	DISPOSITIONS	OUTCOMES	ELABORATIONS
Students will:				
	inequality.		subtraction.	[1.1.7, 1.2.19, 1.2.20, 1.2.21, 1.3.7]
	1.2.22. Solve problems involving addition and subtraction using balance activities and counting.		12. Explore equality involving addition and subtraction using equivalent number relationships.	• Match sets of objects that are equal (pictorial), and explain reasoning. [1.1.7, 1.2.20, 1.2.21]
				• Draw sets to show equal and unequal amounts and record the number of items. [1.1.7, 1.2.20, 1.2.21]
	1.2.23. Determine whether a given number sentence is true or false.			• Use the language of equality and inequality to describe the relationship between two sets e.g. they are unequal, they have the same number of objects, they are equal in number and they balance. [1.1.7, 1.2.19, 1.2.20, 1.2.21, 1.3.7]
	1.2.24. Use the equal sign to record equivalent number relationships e.g. 6+4=7+3.			
				• Explain the meaning of equality and inequality by using manipulatives and drawings. [1.1.7, 1.2.19, 1.2.20, 1.2.21, 1.3.7]
	1.2.25. Use the unequal sign to record number			• Use the equal symbol (=) or the not

MATHEMATICS: STANDARD 1				
CONTENT	**SKILLS**	**DISPOSITIONS**	**OUTCOMES**	**ELABORATIONS**
Students will:				
	relationships that are not equivalent e.g. 3+2≠1+6.			equal symbol (≠) to record equalities and inequalities. [1.1.7, 1.2.21] • Explore the equality of sets involving addition and subtraction, using objects of the same size and mass/weight but different colours, and the balance scale. e.g. 2 red balls and 3 green balls are placed on one pan and students determine the number of blue balls to place on the other side to show equality (verify by counting). [1.1.7, 1.2.22, 1.3.7, 1.3.8] • Represent equality of sets involving addition and subtraction in pictorial and symbolic form using the equal sign (=) to mean 'is the same as' or 'equal to' e.g. 000 and 00 is the same as or equals 00000; 000 and 00 = 00000, 3 + 2 = 5, or 000000 take away 00 = 0000 (cross out two circles from the group of six);

MATHEMATICS: STANDARD 1				
CONTENT	**SKILLS**	**DISPOSITIONS**	**OUTCOMES**	**ELABORATIONS**
Students will:				
				$6 - 2 = 4$ (a variety of problems can be explored involving subtraction, e.g. start with 6 objects on one pan and 4 on the other). [1.1.7, 1.2.22, 1.3.7, 1.3.8] • Determine whether a given number sentence is true or false using a balance scale (use objects of the same size and mass/weight but different colours on the balance scale; verify by counting), and counting objects e.g. $5 + 4 = 9$ (Is $5 + 4$ equal to 9?); $5 + 4 = 8$ (true or false). [1.1.7, 1.2.23, 1.3.7, 1.3.8] • Explore the equality of sets (use objects of the same size and mass/weight but different colours on the balance scale; verify by counting) using equivalent number relationships involving addition and subtraction, and record using the equal or unequal sign e.g. Is $6 + 4$ equal to $7 + 3$?; Is $7 - 2$ equal to $8 - 4$? (Start with 7 and

MATHEMATICS: STANDARD 1				
CONTENT	**SKILLS**	**DISPOSITIONS**	**OUTCOMES**	**ELABORATIONS**
Students will:				
				8 objects in the pans). [1.1.7, 1.2.24, 1.2.25, 1.3.7, 1.3.8] • Determine whether two sides of a given number sentence are equal (=) or not equal (≠) using a scale balance and counting e.g. Is 5+8=9+5 true or false? Explain your reasoning. [1.1.7, 1.2.23, 1.2.24, 1.2.25, 1.3.7, 1.3.8]
Addition and Subtraction 1.1.8 Solve real-life problems (concrete, pictorial and symbolic modes) involving addition and subtraction.	1.2.26. Solve one-step and two-step real-life problems involving addition and subtraction presented orally, pictorially or symbolically	1.3.9 Exhibit perseverance in solving problems. 1.3.10 Display confidence when solving problems related to	13. Solve problems involving addition and subtraction presented in different formats.	• Solve one-step and two-step real-life problems involving addition and subtraction presented orally, pictorially and symbolically (using concrete materials, whole number and money), and using a variety of problem solving strategies such as, use a model, act it out, draw a picture, look for a pattern, work backwards, and guess and check.

MATHEMATICS: STANDARD 1				
CONTENT	**SKILLS**	**DISPOSITIONS**	**OUTCOMES**	**ELABORATIONS**
Students will:				
	(using concrete materials – such as base ten manipulatives, whole number and money). 1.2.27. Perform addition up to 3 addends within 99 (vertical and horizontal arrangements, no algorithm). 1.2.28. Perform subtraction within 99 (vertical and horizontal arrangements, no algorithm). 1.2.29. Explain or	addition and subtraction.		[1.1.8, 1.2.26, 1.3.9, 1.3.10] • Solve problems involving addition (Joining Structures – change, result unknown; Part-Part-Whole structures (whole unknown) - combine, total set unknown; Separating Structures – change unknown, start/initial unknown), and subtraction (Joining Structures – change unknown, start/initial unknown; Separating Structures - change, result unknown (or deducting) and change unknown; Part-Part-Whole structures (part unknown) - combine, subset unknown; Compare Structures - compare, difference unknown), using concrete, pictorial and symbolic representations in vertical and horizontal arrangements(up to 99, no algorithm). [1.1.8, 1.2.26, 1.2.27, 1.2.28, 1.3.9, 1.3.10] • Use the language of money in role playing situations involving the

MATHEMATICS: STANDARD 1				
CONTENT	**SKILLS**	**DISPOSITIONS**	**OUTCOMES**	**ELABORATIONS**
Students will:				
	demonstrate how an answer was obtained when solving problems. 1.2.30. Record solutions to problems using a variety of formats and appropriate notation (e.g. $5 + $6+ $8 = $19). 1.2.31. Create number stories.			exchange of goods for money (one item, more than one item, without and with change, limited to dollars only or cents only). [1.1.8, 1.2.26, 1.2.27, 1.2.28, 1.3.9, 1.3.10] • Describe what happens to a group after addition to or subtraction from. [1.1.8, 1.2.26, 1.2.27, 1.2.28, 1.3.10] • Check answers to addition and subtraction problems by using the reverse operation. [1.1.8, 1.2.26, 1.2.27, 1.2.28, 1.3.10] • Explain or demonstrate how an answer was obtained when solving problems. [1.1.8, 1.2.26, 1.2.27, 1.2.28, 1.2.29, 1.3.10] • Record solutions to problems using drawings, numerals, symbols and together with the related number sentences. [1.1.8, 1.2.26, 1.2.27, 1.2.28,

MATHEMATICS: STANDARD 1				
CONTENT	**SKILLS**	**DISPOSITIONS**	**OUTCOMES**	**ELABORATIONS**
Students will:				
				1.2.30, 1.3.10] • Create and solve number stories using appropriate vocabulary (including the language of money). [1.1.8, 1.2.31, 1.3.10]
Multiplication and Division 1.1.9 Solve real-world problems involving repeated addition (multiplication) and repeated subtraction (division).	1.2.32. Solve problems involving repeated addition (concept of multiplication, no symbol, up to 10 addends). 1.2.33. Solve problems involving sharing and grouping	1.3.11 Display confidence when solving problems related to multiplication and division. 1.3.12 Take risks in solving problems.	14. Demonstrate a conceptual understanding of multiplication and division.	• Solve problems involving repeated addition by forming equal groups of 2s, 3s, 5s and 10s up to 20 (concrete and pictorial, no symbol for multiplication, with and without arrays). [1.1.9, 1.2.32, 1.3.11, 1.3.12] • Solve problems involving sharing and grouping, using equal groups of 2s, 3s, 5s and 10s up to 20 (concrete and pictorial, no symbol for division, with and without arrays). [1.1.9, 1.2.33,

MATHEMATICS: STANDARD 1

CONTENT	SKILLS	DISPOSITIONS	OUTCOMES	ELABORATIONS
Students will:				
	(concept of division, no symbol). 1.2.34. Explain or demonstrate how answers were obtained when solving problems. 1.2.35. Record solutions to problems using a variety of formats. 1.2.36. Create number stories.			1.3.11, 1.3.12] • Use counting of objects, skip counting, repeated subtraction and the number line to determine solutions. [1.1.9, 1.2.32, 1.2.33, 1.3.11, 1.3.12] • Explain or demonstrate how answers were obtained when solving problems. [1.1.9, 1.2.34, 1.3.11] • Record solutions to problems using drawings, numerals, symbol, (no symbol for multiplication and division) and words together with the related number sentences. [1.1.9, 1.2.32, 1.2.33, 1.2.35, 1.3.11] • Create and solve number stories using appropriate vocabulary (including the language of money). [1.1.9, 1.2.36, 1.3.11]

MATHEMATICS: STANDARD 1				
CONTENT	**SKILLS**	**DISPOSITIONS**	**OUTCOMES**	**ELABORATIONS**
Students will:				

Mental Mathematics
 	
1.1.10 Develop strategies to solve problems mentally.
	1.2.37. Use a variety of mental math strategies and recording strategies to solve problems involving addition and subtraction.	1.3.13 Develop an appreciation for the need for accuracy and efficiency in computation.
		
		1.3.14 Take risks in solving problems.
			15. Develop mental math strategies.	• Explore, describe and use a range of mental strategies and recording strategies for addition and subtraction, including:
				  o The commutative property for addition
				  o The associative property for addition
				  o Add-two/subtract-two
				  o Double facts
				  o Ten facts (combining numbers that add to 10 e.g. $6 + 8 + 2$; group 8 and 2 first)
				  o Related addition and subtraction facts, e.g. $15 + 3 = 18$, so $18 - 15 = 3$; $5 - 2 = 3$, so $50 - 20$ is 30
				  o Thinking of addition e.g. make ten
				  o The jump strategy, e.g. $53 + 25$; $53 + 20 = 73$, $73 + 5 = 78$
				  o The split strategy e.g. $43 + 52 = 40$

MATHEMATICS: STANDARD 1				
CONTENT	**SKILLS**	**DISPOSITIONS**	**OUTCOMES**	**ELABORATIONS**
Students will:				
				$+ 50 + 3 + 2$ o Bridging to tens strategy e.g. 18 + 6; 18 and 2 is 20 and add 4 more o Counting on and back o Skip counting. [1.1.10, 1.2.37, 1.3.13, 1.3.14]
Language 1.1.11 Develop appropriate vocabulary associated with number.	1.2.38. Use appropriate vocabulary associated with number, orally and in writing.	1.3.15 Communicate with confidence using language related to numbers. 1.3.16 Demonstrate an appreciation for others by listening to their point of	16. Communicate effectively using vocabulary associated with numbers.	• Use appropriate language associated with number, such as: fewer than, ones/units, tens, place value, digit, value, total, sum, word names and numerals to one hundred, difference, order, round, estimate, plus, minus, count forward, count backward, odd, even, first to twentieth (1st to 20th), equivalent, repeat, equal groups, share, solve problem, answer, compare, leftover, remainder, addition, subtraction, symbol, combine, separate, sequence, balance, '$\neq$' read as 'is not equal to' or 'is not the same as'.

MATHEMATICS: STANDARD 1				
CONTENT	**SKILLS**	**DISPOSITIONS**	**OUTCOMES**	**ELABORATIONS**
Students will:				
		view.		[1.1.11, 1.2.38, 1.3.15, 1.3.16]
GEOMETRY				
Solids and Plane Shapes 2.1.1 Develop spatial sense in relation to solids and plane shapes. 2.1.2 Recognize spatial relationships. 2.1.3 Solve problems involving solids and plane shapes.	2.2.1. Classify, describe, compare and name solids and give reasons for classification (cube, cuboid, cylinder, cone, sphere and pyramid – with a focus on naming the different types of pyramids). 2.2.2. Describe and compare solids and plane shapes in concrete and	2.3.1 Display curiosity while exploring the properties of solids and plane shapes. 2.3.2 Develop confidence in their spatial understanding.	1. Develop an understanding of the properties of solids and plane shapes. 2. Solve problems involving solids and plane shapes.	• Classify solids according to one or more common attributes (e.g. colour, size, shape, function) including students' own criteria and explain reasons for classification. [2.1.1, 2.2.1, 2.3.1] • Sort solids into appropriate groups to represent same, similar or alike and different, stating reasons for classification. [2.1.1, 2.2.1, 2.3.1] • Identify and name different types of pyramids. [2.1.1, 2.2.1, 2.3.1] • Describe and compare solids and plane shapes using appropriate vocabulary

MATHEMATICS: STANDARD 1

CONTENT	SKILLS	DISPOSITIONS	OUTCOMES	ELABORATIONS
Students will:				
	pictorial forms using formal language.			related to geometric attributes (concrete and pictorial). [2.1.2, 2.2.2, 2.3.1, 2.3.2]
	2.2.3. Identify plane shapes as faces of solids in the environment and in an assortment of solids.			• Identify plane shapes as faces of solids in the environment and in an assortment of solids. [2.1.2, 2.2.3, 2.3.1, 2.3.2]
				• Match cut-outs of plane shapes to faces of solids. [2.1.2, 2.2.3, 2.3.1, 2.3.2]
	2.2.4. Use plane shapes to create solids and state the relationship between solids and plane shapes.			• Trace the faces of solids and name the shapes drawn. [2.1.2, 2.2.3, 2.3.1, 2.3.2]
				• Construct solids using cut outs of plane shapes. [2.1.2, 2.1.3, 2.2.4, 2.3.1, 2.3.2]
	2.2.5. Identify solids and plane shapes in different orientations (concrete and pictorial) and via			• Predict the solid that can be formed given an assortment of plane shapes (pictorial). [2.1.2, 2.1.3, 2.2.4, 2.3.1, 2.3.2]
				• State the relationship between solids and plane shapes. [2.1.2, 2.1.3, 2.2.4,

MATHEMATICS: STANDARD 1				
CONTENT	**SKILLS**	**DISPOSITIONS**	**OUTCOMES**	**ELABORATIONS**
Students will:				
	the sense of touch. 2.2.6. Construct plane shapes and compare and describe their sides and corners and deduce the relationship between the number of sides and corners of plane shapes (not limited to triangles, squares and rectangles). 2.2.7. Solve problems involving solids and plane shapes.			2.3.1, 2.3.2] • Name solids and plane shapes in different orientations (concrete and pictorial) and explain the effects of orientation. [2.1.2, 2.2.5, 2.3.1, 2.3.2] • Name solids and plane shapes via the sense of touch only. [2.1.2, 2.2.5, 2.3.1, 2.3.2] • Construct plane shapes (using geo-strips, geo-boards and geo-paper) of varying types and sizes (not limited to triangles, squares and rectangles). [2.1.2, 2.1.3, 2.2.6, 2.3.1, 2.3.2] • Compare the sides and corners of plane shapes (not limited to triangles, squares and rectangles). [2.1.2, 2.2.6, 2.3.1, 2.3.2] • Describe the sides and corners of the constructed plane shapes. [2.1.2, 2.2.6,

MATHEMATICS: STANDARD 1				
CONTENT	**SKILLS**	**DISPOSITIONS**	**OUTCOMES**	**ELABORATIONS**
Students will:				
				2.3.1, 2.3.2] • State the relationship between the number of sides and number of corners of the constructed plane shapes. [2.1.2, 2.2.6, 2.3.1, 2.3.2] • Solve problems involving solids and plane shapes. [2.1.3, 2.2.7, 2.3.1, 2.3.2]
Geometrical Patterns 2.1.4 Explore patterns using solids and plane shapes.	2.2.8. Recognize and complete patterns using solids or plane shapes (repeating – 3 to 5 elements, growing or increasing and decreasing	2.3.3 Be explorative when examining patterns. 2.3.4 Demonstrate inventiveness in the creation of	3. Explore patterns using plane shapes and solids.	• Distinguish between repeating and non-repeating patterns in a given set involving solids or plane shapes by identifying the part that repeats or errors. [2.1.4, 2.2.8, 2.3.3] • Describe a given repeating pattern containing three to five elements in its core (using manipulatives, pictures/drawings) e.g. My pattern is

MATHEMATICS: STANDARD 1				
CONTENT	**SKILLS**	**DISPOSITIONS**	**OUTCOMES**	**ELABORATIONS**
Students will:				
	patterns).	patterns.		made using circles. The colours repeat – green, red, yellow, green, red, yellow, green, red, yellow. [2.1.4, 2.2.8, 2.3.3]
	2.2.9. Create patterns using solids or plane shapes (repeating, growing or increasing and decreasing patterns).			• Determine the pattern rule and extend the repeating pattern using concrete materials or pictorial representations. [2.1.4, 2.2.8, 2.2.9, 2.3.3, 2.3.4]
				• Name a repeating pattern containing three to five elements in its core (name as 'number' pattern e.g. 'three' pattern or using a letter code e.g. ABCABC).[2.1.4, 2.2.8, 2.3.3]
				• Describe growing/increasing or decreasing patterns and extend the pattern using the pattern rule. [2.1.4, 2.2.8, 2.3.3]
				• Create repeating, increasing and decreasing patterns using solids or plane shapes (concrete and pictorial) and explain the pattern rule. [2.1.4,

MATHEMATICS: STANDARD 1				
CONTENT	**SKILLS**	**DISPOSITIONS**	**OUTCOMES**	**ELABORATIONS**
Students will:				
				2.2.9, 2.3.4] • Insert the missing elements in given patterns (concrete or pictorial) and explain reasoning. [2.1.4, 2.2.8, 2.3.3]
Language 2.1.5 Develop appropriate vocabulary associated with geometry.	2.2.10. Use appropriate vocabulary associated with geometry, orally and in writing.	2.3.5 Communicate with confidence using language related to geometry. 2.3.6 Demonstrate an appreciation for others.	4. Communicate effectively using vocabulary associated with geometry.	• Use appropriate language associated with geometry, such as: surface, face, curved, flat, pointed, cube, cuboid, sphere, cone, cylinder, pyramid, horizontal, vertical, side, corner, straight line, curved line, increasing and decreasing. [2.1.5, 2.2.10, 2.3.5, 2.3.6] •
MEASUREMENT				
Linear 3.1.1. Understand that length can be	3.2.1. Measure, record, compare and	3.3.1. Display a sense of competence	1. Develop an understanding	• Measure lengths and distances using multiple copies of large and small non-

MATHEMATICS: STANDARD 1				
CONTENT	**SKILLS**	**DISPOSITIONS**	**OUTCOMES**	**ELABORATIONS**
Students will:				
quantified. 3.1.2. Demonstrate familiarity with comparison of length using appropriate vocabulary. 3.1.3. Apply measurement techniques to quantify length. 3.1.4. Solve problems involving length.	order length, using non-standard units. 3.2.2. Estimate length using non-standard units and verify results. 3.2.3. Perform tasks demonstrating the conservation of length. 3.2.4. Solve practical problems involving length.	in selecting units when measuring. 3.3.2. Take pride in measuring accurately.	that measures of length can be quantified. 2. Develop an understanding of the comparison of measures of length using appropriate vocabulary. 3. Demonstrate an understanding of measurement techniques. 4. Solve problems involving length.	standard units (by placing the same sized units end-to-end without leaving gaps, without overlapping and arranged in a straight line) and using a single copy of a unit (unit iteration). [3.1.1, 3.1.3, 3.2.1, 3.3.1, 3.3.2] • Count and record the number of units used to measure lengths. [3.1.1, 3.1.3, 3.2.1, 3.3.2] • Compare and order objects and distances according to length and explain reasoning using appropriate vocabulary (ascending and descending order). [3.1.2, 3.2.1, 3.3.1] • Explore activities to explain that the size of the unit used in measuring relates to the number of units used. [3.1.1, 3.1.3, 3.2.4, 3.3.1] • Explain why one non-standard unit may be a better choice for measuring than

MATHEMATICS: STANDARD 1				
CONTENT	**SKILLS**	**DISPOSITIONS**	**OUTCOMES**	**ELABORATIONS**
Students will:				
				the other. [3.1.1, 3.2.4, 3.3.1] • Compare and order the lengths of objects and lines in different orientations) in pictorial representations. [3.1.2, 3.2.1, 3.3.2] • Estimate lengths of objects and verify lengths by measuring. [3.1.3, 3.2.2, 3.3.1] • Explore activities associated with conservation of length. [3.1.3, 3.2.3, 3.3.1] • Solve practical problems involving length. [3.1.4, 3.2.4, 3.3.2]
Mass/Weight 3.1.5. Understand that mass/weight can be	3.2.5. Measure, record, compare and order	3.3.3. Appreciate measures in	5. Develop an understanding that	• Measure the mass/weight of objects using non-standard units (e.g. marbles, blocks) and an equal arm balance.

MATHEMATICS: STANDARD 1				
CONTENT	**SKILLS**	**DISPOSITIONS**	**OUTCOMES**	**ELABORATIONS**
Students will:				
quantified. 3.1.6. Demonstrate familiarity with comparison of mass/weight using appropriate vocabulary. 3.1.7. Apply measurement techniques to quantify mass/weight. 3.1.8. Solve problems involving mass/weight.	mass/weight, using non-standard units. 3.2.6. Solve practical problems involving mass/weight.	everyday use. 3.3.4. Demonstrate confidence when measuring.	mass/weight can be quantified. 6. Develop an understanding of the comparison of measures of mass/weight using appropriate vocabulary. 7. Demonstrate an understanding of measurement techniques. 8. Solve problems involving mass/weight.	[3.1.5, 3.2.5, 3.3.3, 3.3.4] • Count and record the number of units used to measure the mass/weight of objects. [3.1.5, 3.2.5, 3.3.4] • Compare and order the objects according to mass/weight and explain reasons using appropriate vocabulary (ascending and descending order). [3.1.6, 3.2.5, 3.3.4] • Explore activities to explain that the size of the unit used in measuring relates to the number of units used. [3.1.7, 3.2.6, 3.3.3] • Explain why one non-standard unit may be a better choice for measuring than the other. [3.1.7, 3.2.6, 3.3.3] • Solve practical problems involving

MATHEMATICS: STANDARD 1				
CONTENT	**SKILLS**	**DISPOSITIONS**	**OUTCOMES**	**ELABORATIONS**
Students will:				
				mass/weight. [3.1.8, 3.2.6, 3.3.4]
Time 3.1.9. Understand that time can be quantified. 3.1.10. Demonstrate familiarity with comparison of time using appropriate vocabulary. 3.1.11. Apply measurement techniques to quantify time. 3.1.12. Solve problems involving time.	3.2.7. Measure, record, compare and order duration of activities (time) using non-standard and standard units. 3.2.8. Identify the features of the analog clock and the function of its parts. 3.2.9. Measure the duration of events in minutes and seconds. 3.2.10. Compare the	3.3.5. Demonstrate confidence in justifying their responses. 3.3.6. Demonstrate confidence when measuring time.	9. Develop an understanding that time can be quantified. 10. Develop an understanding of the comparison of time using appropriate vocabulary. 11. Demonstrate an understanding of measurement	• Measure the passage of time it takes for various activities to occur or duration of activities (using a repeated non-standard unit) and record the number of units used to measure). [3.1.9, 3.2.7, 3.3.6] • Compare and order the duration of activities (related to the use of non-standard units) and explain reasoning using appropriate vocabulary. [3.1.10, 3.2.7, 3.3.5] • Explore activities to explain that the size of the unit used in measuring relates to the number of units used. [3.1.11, 3.2.11, 3.3.5] • Explain why one non-standard unit may be a better choice for measuring than

MATHEMATICS: STANDARD 1				
CONTENT	**SKILLS**	**DISPOSITIONS**	**OUTCOMES**	**ELABORATIONS**
Students will:				
	duration of events using minutes and seconds and order.		techniques.	the other. [3.1.11, 3.2.11, 3.3.5]
	3.2.11. Solve practical problems involving time (including the interpretation of calendars).		12. Solve problems involving time.	• Explain the need for and the importance of a standard unit of measure for time. [3.1.9, 3.2.11, 3.3.5] • State units of measure of time that they are familiar with e.g. minutes, hours and the instrument used to measure (clock). [3.1.9, 3.2.7, 3.2.8, 3.3.5] • Identify the features of the analog clock and the function of the hands (second, minute and hour). [3.1.9, 3.2.8, 3.3.5] • Explain the meaning of the movement of the hands on a clock (seconds and minutes). [3.1.9, 3.2.8, 3.3.5] • Measure the duration of events in minutes and seconds using a clock with a second hand and a minute hand.

MATHEMATICS: STANDARD 1				
CONTENT	**SKILLS**	**DISPOSITIONS**	**OUTCOMES**	**ELABORATIONS**
Students will:				
				[3.1.9, 3.1.11, 3.2.9, 3.3.6] • Count and record the number of seconds or minutes taken for the duration of events/activities. [3.1.9, 3.1.11, 3.2.9, 3.3.6] • Compare and order the activities according to time taken and explain reasons using appropriate vocabulary. [3.1.10, 3.2.10, 3.3.5] • State/name activities/events which occur in seconds and minutes (up to 5 minutes). [3.1.12, 3.2.11, 3.3.5] • Solve practical problems involving time (including the interpretation of calendars). [3.1.12, 3.2.11, 3.3.5]
Capacity				

MATHEMATICS: STANDARD 1				
CONTENT	**SKILLS**	**DISPOSITIONS**	**OUTCOMES**	**ELABORATIONS**
Students will:				
3.1.13. Develop the concept of capacity. 3.1.14. Demonstrate familiarity with comparison of objects using appropriate vocabulary. 3.1.15. Understand that measures can be quantified. 3.1.16. Apply measurement techniques to quantify capacity. 3.1.17. Demonstrate an understanding of conservation of	3.2.12. Investigate objects according to their capacity. 3.2.13. Classify objects into groups of given criteria associated with capacity. 3.2.14. Use comparison vocabulary to compare the capacity of two objects (direct comparison). 3.2.15. Measure, record, compare and order capacity using non-	3.3.7. Display a sense of competence in selecting units when measuring capacity. 3.3.8. Demonstrate confidence when measuring.	13. Demonstrate an understanding of capacity. 14. Develop an understanding of the comparison of measures of capacity using appropriate vocabulary. 15. Develop an understanding that capacity can be quantified. 16. Demonstrate appropriate	• Sort objects into "can put things into" (containers) and "cannot put things into" and explain reasons. [3.1.13, 3.2.12, 3.2.13] • Explore containers by filling and emptying and describe using the language associated with capacity (e.g. empty/full, nearly full) so as to develop the concept of capacity. [3.1.13, 3.2.12, 3.2.13] • Compare the capacity of two containers by filling and emptying (using materials such as water and sand) into each other (or by filling and emptying into a larger container and marking each level) and give reasons using appropriate language. [3.1.14, 3.2.14] • Describe capacity as the measure of the amount a container can hold. [3.1.13,

MATHEMATICS: STANDARD 1				
CONTENT	**SKILLS**	**DISPOSITIONS**	**OUTCOMES**	**ELABORATIONS**
Students will:				
capacity. 3.1.18. Solve problems involving capacity.	standard units. 3.2.16. Perform tasks demonstrating the conservation capacity. 3.2.17. Solve practical problems involving capacity.		techniques when measuring. 17. Demonstrate an understanding of conservation of capacity. 18. Solve problems involving capacity.	3.2.12, 3.2.13] • Measure the capacity of containers using non-standard units (by filling the container with non-standard units such as cubes or by counting the number of times a smaller container was filled and emptied into the container to be measured). [3.1.15, 3.2.15, 3.3.7, 3.3.8] • Count and record the number of units used to measure the capacity of containers. [3.1.15, 3.1.16, 3.2.15, 3.3.8] • Compare and order containers according to capacity and explain reasons using appropriate vocabulary (ascending and descending order). [3.1.14, 3.2.15, 3.3.7, 3.3.8] • Explore activities to explain that the size of the unit used in measuring capacity relates to the number of units

MATHEMATICS: STANDARD 1				
CONTENT	**SKILLS**	**DISPOSITIONS**	**OUTCOMES**	**ELABORATIONS**
Students will:				
				used. [3.1.18, 3.2.17, 3.3.7] • Explain why one non-standard unit may be a better choice for measuring capacity than the other (e.g. a cup may be better than a spoon when measuring the capacity of a bucket; cubes may be better than cones when measuring capacity as they pack and stack better and leave no gaps). [3.1.18, 3.2.17, 3.3.7] • Explore activities associated with conservation of capacity. [3.1.17, 3.2.16] • Solve practical problems involving capacity. [3.1.18, 3.2.17, 3.3.7, 3.3.8]
Language 3.1.19. Develop appropriate	3.2.18. Use appropriate vocabulary	3.3.9.Communicate with confidence	19. Communicate effectively	• Use appropriate language associated with measurement, such as: fast/slow,

MATHEMATICS: STANDARD 1				
CONTENT	**SKILLS**	**DISPOSITIONS**	**OUTCOMES**	**ELABORATIONS**
Students will:				
vocabulary associated with measurement**.**	associated with measurement, orally and in writing.	using language related to measurement.	using vocabulary associated with measurement.	faster/slower, fastest/slowest, quickly/slowly, minute, second, longer/shorter time, clock, long hand, short hand, second hand, capacity, full, empty, holds more/less/same or as much as, container, nearly full, capacity, liquid, straight, slant, length, width, height, depth, heavier/heaviest, lighter/lightest, weight/mass, measure, order and compare. [3.1.19, 3.2.18, 3.3.9]
STATISTICS				
Tally Charts and Pictographs 4.1.1. Use statistical techniques to investigate real-life problems. 4.1.2. Demonstrate the ability to organize	4.2.1. Collect data (using observation and frequency counts) and classify data through investigation of a	4.3.1. Demonstrate awareness that numerical data could be communicated visually.	1. Demonstrate the ability to collect, classify, organize, represent and interpret data.	• Collect and classify data to make decisions based on a real-life situation or problem. [4.1.1, 4.2.1, 4.3.3] • Construct tally charts (including the frequency column) with guidance from the teacher, noting features. [4.1.2,

MATHEMATICS: STANDARD 1				
CONTENT	**SKILLS**	**DISPOSITIONS**	**OUTCOMES**	**ELABORATIONS**
Students will:				
and represent data. 4.1.3. Demonstrate an understanding of the features of graphs and charts. 4.1.4. Make decisions based on interpretation of data.	problem/question based on a real-life situation. 4.2.2. Identify features of tally charts and pictographs (e.g. using one stroke/tally mark or picture to represent one person, grouping of strokes/tally marks in fives, baseline/start line, labels (of sets) on baseline, same-sized symbols/pictures, equal spacing and title). 4.2.3. Construct tally charts and	4.3.2. Demonstrate creativity and enjoyment in representing data. 4.3.3. Collaborate in teams to find solutions to problems. 4.3.4. Show the usefulness of data analysis to problem solving situations.	2. Demonstrate an understanding about the features of charts/graphs. 3. Use analysed data to make sound decisions and solve problems.	4.1.3, 4.2.2, 4.2.3, 4.3.3] • Construct pictographs (with and without grid, vertical and horizontal arrangements) based on information collected and after reviewing the features of pictographs. [4.1.2, 4.1.3, 4.2.2, 4.2.3, 4.3.1, 4.3.2, 4.3.3] • Interpret and analyse the data so as to make decisions about a real-life situation or problem. [4.1.4, 4.2.4, 4.2.5, 4.3.3, 4.3.4] • Participate in decision-making to solve problems. [4.1.4, 4.2.5, 4.2.6, 4.3.3, 4.3.4] • Communicate findings and justify decisions made using appropriate vocabulary (orally or in writing). [4.1.4, 4.2.5, 4.2.6, 4.3.3, 4.3.4]

MATHEMATICS: STANDARD 1				
CONTENT	**SKILLS**	**DISPOSITIONS**	**OUTCOMES**	**ELABORATIONS**
Students will:				
	pictographs using appropriate symbolic representations. 4.2.4. Interpret data from tally charts and pictographs based on a real-life problem or situation. 4.2.5. Make informed decisions based on data analysed. 4.2.6. Justify decisions made using data collected in writing and/or oral presentations.			

MATHEMATICS: STANDARD 1				
CONTENT	**SKILLS**	**DISPOSITIONS**	**OUTCOMES**	**ELABORATIONS**
Students will:				
Language 4.1.5. Develop appropriate vocabulary associated with statistics.	4.2.7. Use appropriate vocabulary associated with statistics, orally and in writing.	4.3.5. Communicate with confidence using language related to statistics.	4. Communicate effectively using vocabulary associated with statistics.	• Use appropriate language associated with statistics, such as: horizontal, vertical, same size, same space, tally, most frequent, classify, label, title, information and data. [4.1.5, 4.2.7, 4.3.5]

Primary School Curriculum

Mathematics

Standard 2

MATHEMATICS: STANDARD 2				
CONTENT	**SKILLS**	**DISPOSITIONS**	**OUTCOMES**	**ELABORATIONS**
Students will:				
NUMBER				
Number Concepts 1.1.1. Develop number sense up to 1 000 with appropriate vocabulary. 1.1.2. Develop an understanding of our currency and the value of coins and bills.	1.2.1. Count within 1 000 in ascending and descending order (rote count). 1.2.2. Skip count in ascending and descending order within a specified amount. 1.2.3. Count objects in a set up to 1 000. 1.2.4. Connect number names and numerals to quantities up to 1 000.	1.3.1. Demonstrate curiosity while understanding number concepts.	1. Count sequentially within 1 000. 2. Demonstrate an understanding of numbers to 1 000. 3. Understand the position of objects. 4. Demonstrate estimation skills using 50 as a benchmark. 5. Demonstrate an understanding of money	• Count forward (count on) and backward (count back) by ones within 1 000 from any given number. [1.1.1, 1.2.1] • Skip count in ascending and descending order using various ways (such as, in 100s to or from 1 000; in 10s, 25s and 50s starting at zero, up to 200; in 2s starting at one; in 3s starting at zero and up to 30; on and off the decade by tens and hundreds e.g. 43, 53, 63…; 340, 350, 360…; 43, 53, 63... ; 174, 274, 374…. [1.1.1, 1.2.2, 1.3.1] • Count the number of objects in a set up to 1 000 using one-to-one correspondence together with skip counting (up to 1 000 and using materials such as base ten

MATHEMATICS: STANDARD 2				
CONTENT	**SKILLS**	**DISPOSITIONS**	**OUTCOMES**	**ELABORATIONS**
Students will:				
	1.2.5. Sequence number names and numerals. 1.2.6. Read and write number names and numerals to 1 000. 1.2.7. Describe the order or relative position of objects using ordinal numbers up to 100. 1.2.8. Estimate the number of objects in a set using 50 as the benchmark and verify by counting. 1.2.9. Develop an		notations (dollars only and cents only) and the value of coins and bills.	manipulatives). [1.1.1, 1.2.3, 1.3.1] • Match the number names and numerals to the quantities they represent up to 1 000 (concrete and pictorial representations of base ten materials). [1.1.1, 1.2.4, 1.3.1] • Sequence number names and numerals to 1 000. [1.1.1, 1.2.5, 1.3.1] • Insert missing numbers on a number line, number chart and number sequence. [1.1.1, 1.2.5, 1.3.1] • Read and write number names and numerals to 1 000. [1.1.1, 1.2.6, 1.3.1] • Use pictorial representations and appropriate language to describe position up to hundredth. [1.1.1, 1.2.7, 1.3.1]

MATHEMATICS: STANDARD 2				
CONTENT	**SKILLS**	**DISPOSITIONS**	**OUTCOMES**	**ELABORATIONS**
Students will:				
	understanding of money notation (dollars only, cents only) and the value of money.			• Estimate a given quantity of items using 50 as a benchmark (using 'mental grouping') and verify by counting. [1.1.1, 1.2.8, 1.3.1] • Use money notation to record amounts of money, dollars only and cents only (e.g. $7, 25c), used in money transactions. [1.1.2, 1.2.9]
Place Value and Rounding 1.1.3. Develop an understanding of place value up to 999 (concretely, pictorially and symbolically). 1.1.4. Develop an understanding of the comparison of numbers.	1.2.10. Explore the place value of numbers to 999 (hundreds, tens and ones) including expanded notation. 1.2.11. Compare and order numerals	1.3.2. Collaborate while doing activities.	6. Demonstrate an understanding of place value and value up to 999. 7. Compare and order numerals up to 1 000 with reference to place value.	• Count a specified number of objects and use them to form groups of 100s, 10s and 1s. [1.1.3, 1.2.10, 1.3.2] • Describe a specified number in various ways using language associated with place value e.g. 245 as two 100s, four 10s and five 1s; two hundred and forty-five; 245 ones; 24 tens and 5 ones. [1.1.3, 1.1.4, 1.2.10, 1.2.11]

MATHEMATICS: STANDARD 2				
CONTENT	**SKILLS**	**DISPOSITIONS**	**OUTCOMES**	**ELABORATIONS**
Students will:				
1.1.5. Develop an understanding of rounding to tens and hundreds and rounding to the nearest dollar.	up to 1 000. 1.2.12. Round numbers to the nearest ten or hundred. 1.2.13. Round to the nearest dollar (e.g. $5 and 35c is close to $5).		8. Develop an understanding of rounding to tens and hundreds and rounding to the nearest dollar.	• Show, using various manipulatives (e.g. base ten materials, place value mats) that a given numeral consists of a certain number of 'hundreds', 'tens' and 'ones', and record as such, e.g. 245=2 hundreds and 4 tens and 5 ones. <table><tr><td>Hundreds</td><td>Tens</td><td>Ones</td></tr><tr><td>2</td><td>4</td><td>5</td></tr></table> [1.1.3, 1.2.10, 1.3.2] • Record the amounts shown in pictorial representations of base ten materials both in terms of place value and as a numeral. [1.1.3, 1.2.10, 1.3.2] • Write the numeral to match objects grouped in hundreds, tens and ones (concretely and pictorially). [1.1.3, 1.2.10, 1.3.2] • Explain and show the equivalence of 1 ten and 10 ones, 10 tens and 1 hundred, 100 ones and 1 hundred.

MATHEMATICS: STANDARD 2				
CONTENT	**SKILLS**	**DISPOSITIONS**	**OUTCOMES**	**ELABORATIONS**
Students will:				
				[1.1.3, 1.2.10, 1.3.2] • Explain the importance of grouping in tens and hundreds. [1.1.3, 1.2.10,1.3.2] • Write numbers using expanded notation (up to 999). [1.1.3, 1.2.10, 1.3.2] • Convert expanded notation into numerals. [1.1.3, 1.2.10, 1.3.2] • Explain and write the place value and value represented by each digit in a numeral up to three-digit numbers. [1.1.3, 1.2.10, 1.3.2] • Write the largest and smallest number given any three digits. [1.1.3, 1.1.4, 1.2.10, 1.2.11, 1.3.2] • Compare and order numerals up to 1 000 (in ascending and descending

MATHEMATICS: STANDARD 2				
CONTENT	**SKILLS**	**DISPOSITIONS**	**OUTCOMES**	**ELABORATIONS**
Students will:				
				order). [1.1.3, 1.1.4, 1.2.10, 1.2.11, 1.3.2] • Use the symbols for more than (>) and less than (<) to show the relationship between two numbers. [1.1.4, 1.2.11, 1.3.2] • Round numbers to the nearest 'ten' or 'hundred' (using a number line and the rule). [1.1.5, 1.2.12, 1.3.2] • Round to the nearest dollar (e.g. $5 and 35c is close to $5). [1.1.5, 1.2.13, 1.3.2]
Number Patterns 1.1.6. Develop algebraic thinking (number patterns and number	1.2.14. Explore increasing and decreasing patterns up to	1.3.3. Be explorative when examining patterns and relationships.	9. Recognize and explore number patterns up to 1 000 (using appropriate	• Describe number patterns on a number line and hundred chart. e.g. add 10: 13, 23, 33, 43… [1.1.6, 1.2.14, 1.3.3] • Describe and extend simple number

MATHEMATICS: STANDARD 2				
CONTENT	**SKILLS**	**DISPOSITIONS**	**OUTCOMES**	**ELABORATIONS**
Students will:				
relationships).	1 000. 1.2.15. Develop number patterns involving addition, subtraction, multiplication, division, commutative property for addition and multiplication, the associative property for addition and multiplication, add-two/subtract-two, double facts, near double facts, compatible numbers within		resources such as base ten materials, counters, number lines and hundred charts).	patterns that increase or decrease e.g. 1,2,3,4…; 15,14,13,12 …; 2,4,6,8 …; 5,10,15,20…; 90,80,70,60.…using the pattern rule (to 1 000). [1.1.6, 1.2.14, 1.3.3] • Recognize when an error occurs in a pattern and explain what is wrong. [1.1.6, 1.2.14, 1.3.3] • Insert the missing elements in a given pattern and explain the reasoning. [1.1.6, 1.2.14, 1.3.3] • Create increasing and decreasing number patterns and explain the pattern rule. [1.1.6, 1.2.14, 1.2.15, 1.2.16, 1.3.3] • Explore, describe and record patterns related to the addition and subtraction facts (up to 999) and explain generalizations e.g. $6 + 3 = 9$ is related to $600+300=900$; $5-2=3$ is related to

MATHEMATICS: STANDARD 2				
CONTENT	**SKILLS**	**DISPOSITIONS**	**OUTCOMES**	**ELABORATIONS**
Students will:				

	ten, addends which differ by 2 and the zero property.
	
	1.2.16. Use pattern recognition to solve problems.
				500-200=300. [1.1.6, 1.2.14, 1.2.15, 1.2.16, 1.3.3]
				
				• Explain why addition and subtraction are inverse (opposite) operations. [1.1.6, 1.2.15, 1.2.16, 1.3.3]
				
				• Explore, describe and record the patterns for multiplication and division facts (up to 5 times table and the 10 times table with a focus on the patterns related to the 2, 5 and 10 times table).
				  E.g. 1 x 2 = 2 2 ÷ 2 = 1
				      2 x 2 = 4 4 ÷ 2 = 2 etc.
				  [1.1.6, 1.2.14, 1.2.15, 1.2.16, 1.3.3]
				
				• Explain why multiplication and division are inverse (opposite) operations. [1.1.6, 1.2.15, 1.2.16, 1.3.3]
				
				• Recall basic addition and subtraction facts, and multiplication and division

MATHEMATICS: STANDARD 2				
CONTENT	**SKILLS**	**DISPOSITIONS**	**OUTCOMES**	**ELABORATIONS**
Students will:				
				facts, from memory. [1.1.6, 1.2.15, 1.3.2] • Explore, describe and record patterns related to the commutative property for addition and multiplication, the associative property for addition and multiplication, add-two/subtract-two, double facts, near double facts, compatible numbers within ten, addends which differ by 2 and the zero property, and explain generalizations about number relationships e.g. the order in which numbers are added does not affect the sum (commutative and associative laws). [1.1.6, 1.2.14, 1.2.15, 1.2.16, 1.3.3] • Solve problems involving the use of patterns. [1.1.6, 1.2.14, 1.2.15, 1.2.16, 1.3.3]

MATHEMATICS: STANDARD 2				
CONTENT	**SKILLS**	**DISPOSITIONS**	**OUTCOMES**	**ELABORATIONS**
Students will:				
Number Relationships 1.1.7. Explore algebraic thinking (number patterns and number relationships). 1.1.8. Make sense of addition and subtraction sentences involving one unknown (initial, change or result).	1.2.17. Count objects in sets to demonstrate equality and inequality of sets. 1.2.18. Determine whether a given number sentence is true or false. 1.2.19. Use the equal sign to record equivalent number relationships e.g. 6+4=7+3. 1.2.20. Use the unequal	1.3.4. Collaborate while doing activities. 1.3.5. Exhibit perseverance in solving problems.	10. Represent equality and inequality using manipulatives, pictures and symbols and using equivalent relationships. 11. Use the concept of equality to solve problems involving addition and subtraction with one	• Determine whether two sides of a given number sentence are equal (=) or not equal (≠) using manipulatives, drawings and counting e.g. Is 3+4= 9 true or false? Is 5+8=9+5 true or false? Is 5x4 = 20, true or false? Is 5x2 = 6x2? and explain reasoning using appropriate vocabulary. [1.1.7, 1.2.17, 1.2.18, 1.2.19, 1.2.20, 1.3.4] • Insert the = or ≠ symbols in number sentences e.g. 3x4 □ 4x5. [1.1.7, 1.2.19, 1.2.20, 1.3.4] • Create equal sets of objects on a balance by removing from one side or adding to one side after starting with unequal sets and record the solutions by writing the two number sentences

MATHEMATICS: STANDARD 2				
CONTENT	**SKILLS**	**DISPOSITIONS**	**OUTCOMES**	**ELABORATIONS**
Students will:				
	sign to record number relationships that are not equivalent e.g. 3+2≠1+6. 1.2.21. Solve problems involving addition and subtraction number sentences with one unknown (initial, change or result).		unknown.	using a box frame to represent the unknown. e.g. Starting with 5 and 7 objects on the balance, pupils will add 2 to 5 or subtract 2 from 7 to form equal sets : $5+\square=7$ and $5=7-\square$; $5+2=7$ and $5=7-2$. [1.1.7, 1.1.8, 1.2.21, 1.3.5] • Explain and model how to solve problems involving one unknown number in addition and subtraction sentences without using the balance (e.g. by counting on or back mentally or using the number line, by drawing and counting, by guess and check, by recalling facts, by using counters). [1.1.7, 1.1.8, 1.2.21, 1.3.5] • Solve problems involving addition and subtraction sentences involving one unknown number (initial, change or result) and where the given sum or difference is on either the left or right side of the equal symbol using a

MATHEMATICS: STANDARD 2				
CONTENT	**SKILLS**	**DISPOSITIONS**	**OUTCOMES**	**ELABORATIONS**
Students will:				
				variety of strategies. [1.1.7, 1.1.8, 1.2.21, 1.3.5]
Addition and Subtraction 1.1.9. Develop an understanding of the algorithms for addition and subtraction. 1.1.10. Solve real-life problems (concrete, pictorial and symbolic modes, including money) involving addition and	1.2.22. Develop the algorithms for addition and subtraction. 1.2.23. Perform addition (up to 3 addends) and subtraction using the algorithms (up to 999). 1.2.24. Solve one-step and two-step real-life addition and subtraction	1.3.6. Appreciate the use of algorithms in solving problems involving the operations. 1.3.7. Develop confidence in solving problems involving addition and subtraction. 1.3.8. Exhibit	12. Demonstrate an understanding of the algorithms for addition and subtraction. 13. Solve a variety of word problems from real-life, using problem solving strategies and mental	• Explore the development of, and describe the procedures used in, adding and subtracting numbers using base ten manipulatives (including the place value mat). [1.1.9, 1.2.22, 1.3.6] • Perform addition and subtraction using the algorithms. [1.1.10, 1.2.23, 1.3.7] • Solve one-step and two-step real-life addition and subtraction problems (including bills up to $100.00, dollars only, and cents only, with and without change) using a variety of problem solving strategies such as: use a model, act it out, draw a picture, look

MATHEMATICS: STANDARD 2				
CONTENT	**SKILLS**	**DISPOSITIONS**	**OUTCOMES**	**ELABORATIONS**
Students will:				
subtraction. 1.1.11. Develop estimation skills. 1.1.12. Demonstrate an understanding of the relationship between addition and subtraction. 1.1.13. Create number stories.	problems. 1.2.25. Solve different types of addition and subtraction problems. 1.2.26. Use estimation skills to check solutions to problems. 1.2.27. Determine the reasonableness of answers by using estimation. 1.2.28. Use the inverse operations to check answers. 1.2.29. Record solutions to problems using a variety	perseverance in solving problems.	strategies. 14. Demonstrate an understanding of estimation skills. 15. Use the relationship between addition and subtraction to check answers. 16. Create number stories using appropriate language.	for a pattern, guess and check, work backwards, logical reasoning, make a table or chart and make an organized list. [1.1.10, 1.2.24, 1.2.25, 1.3.7, 1.3.8] • Solve different types of **addition** problems (as for Std. 1 and compare structures (larger unknown) – compare, compared quantity unknown and referent unknown) and **subtraction** problems (as for Std. 1 and compare structures (smaller unknown) -compare, compared quantity unknown and referent unknown; and measurement structures (difference unknown) - equalize meaning) within 999 (using the algorithm). [1.1.10, 1.2.25, 1.3.6, 1.3.7, 1.3.8] • Create number sentences with one unknown to aid in solving real-life problems. [1.1.10, 1.2.24, 1.2.25,

MATHEMATICS: STANDARD 2				
CONTENT	**SKILLS**	**DISPOSITIONS**	**OUTCOMES**	**ELABORATIONS**
Students will:				
	of formats. 1.2.30. Explain or demonstrate how an answer was obtained when solving problems. 1.2.31. Create number stories involving addition and subtraction and using appropriate vocabulary.			1.3.7, 1.3.8] • Use estimation skills to check solutions to problems. [1.1.11, 1.2.26, 1.3.7] • Explain the reasonableness of answers by using estimation. [1.1.11, 1.2.27, 1.3.7] • Check answers to addition and subtraction problems, by using the reverse operation or another strategy. [1.1.12, 1.2.28, 1.3.7] • Record solutions to problems using drawings, numerals, symbols and words. [1.1.10, 1.2.29, 1.3.7] • Explain or demonstrate how an answer was obtained when solving problems. [1.2.30, 1.3.7]

MATHEMATICS: STANDARD 2				
CONTENT	**SKILLS**	**DISPOSITIONS**	**OUTCOMES**	**ELABORATIONS**
Students will:				
				• Create number stories using appropriate vocabulary (including the language of money). [1.1.13, 1.2.31, 1.3.7]
Multiplication and Division 1.1.14. Solve one-step real-life multiplication and division problems presented orally, pictorially or symbolically (using concrete materials, whole number and money). 1.1.15. Develop an understanding	1.2.32. Solve one-step, real-life problems involving repeated addition. 1.2.33. Recognize multiplication as repeated addition and recognize the multiplication symbol. 1.2.34. Multiply a one	1.3.9. Strive for accuracy in computation involving the operations.	17. Demonstrate a conceptual understanding of multiplication and division. 18. Solve problem involving multiplication and division. 19. Demonstrate an understanding of the	• Solve one-step, real-life problems involving repeated addition by forming equal groups of objects (concrete and pictorial, with and without arrays) and explain solution process using concrete materials, drawings, words, numerals and symbols. *E.g. A farmer plants three rows of tomato plants. In each row there are four plants. How many tomato plants are there altogether? Three rows of four (three groups of four),* 4+4+4=12, 4x3=12. [1.1.14, 1.1.15, 1.2.32, 1.2.33, 1.3.9] • Solve problems involving the

MATHEMATICS: STANDARD 2				
CONTENT	**SKILLS**	**DISPOSITIONS**	**OUTCOMES**	**ELABORATIONS**
Students will:				
of multiplication and division. 1.1.16. Solve computational problems involving multiplication and division. 1.1.17. Demonstrate an understanding of the relationship between multiplication and division. 1.1.18. Develop estimation skills.	digit number by a one digit number using multipliers up to 5. 1.2.35. Build multiplication tables. 1.2.36. Solve one-step, real-life problems involving sharing and grouping. 1.2.37. Recognize division as sharing and grouping and recognize the division symbol.		relationship between multiplication and division. 20. Use estimation skills to determine reasonableness of answers.	multiplication of a one digit number by a one digit number, using a variety of problem solving strategies such as: use a model, act it out, draw a picture, look for a pattern, guess and check, work backwards, logical reasoning, make a table or chart and make an organized list and explain solution process. [1.1.14, 1.1.15, 1.1.16, 1.2.34, 1.3.9] • Build multiplication tables by using concrete materials and drawings.[1.1.15, 1.2.35, 1.3.9] • Solve one-step, real-life problems involving sharing and grouping (concrete and pictorial, with and without arrays) and explain solution process using concrete materials, drawings, words, numerals and symbols. *E.g. Eight sweets are shared between two friends. How many does each get? 8 sweets shared equally*

MATHEMATICS: STANDARD 2				
CONTENT	**SKILLS**	**DISPOSITIONS**	**OUTCOMES**	**ELABORATIONS**
Students will:				
	1.2.38. Divide a one digit number by a one digit number (without remainder). 1.2.39. Build division tables. 1.2.40. Investigate the relationship between multiplication and division. 1.2.41. Use estimation skills to check solutions to problems. 1.2.42. Determine the reasonableness of answers by			*between 2 persons = 8÷ 2 = 4. I have 12 mangoes and each child is to be given four, how many children will receive mangoes? 12 mangoes grouped in 4s= 12÷4=3.* [1.1.14, 1.1.15, 1.2.36, 1.2.37, 1.3.9] • Solve problems involving the division of a one digit number by a one digit number using a variety of problem solving strategies such as: use a model, act it out, draw a picture, look for a pattern, guess and check, work backwards, logical reasoning, make a table or chart and make an organized list and explain solution process. [1.1.14, 1.1.15, 1.1.16, 1.2.36, 1.2.37, 1.2.38, 1.3.9] • Build division tables by using concrete materials and drawings. [1.1.15, 1.2.39, 1.3.9] • Explore the relationship between

MATHEMATICS: STANDARD 2

CONTENT	SKILLS	DISPOSITIONS	OUTCOMES	ELABORATIONS
Students will:				
	using estimation.			multiplication and division and explain findings using concrete materials, drawings, words, numerals and symbols e.g. *00000* *00000* *00000* *3 groups of 5 is 15 5x3=15* *15 shared among 3 is 5 15÷3=5* [1.1.17, 1.2.40, 1.3.9] • Use estimation skills to check solutions to problems. [1.1.18, 1.2.41, 1.3.9] • Explain the reasonableness of answers by using estimation. [1.1.18, 1.2.41, 1.2.42, 1.3.9]
Mental Mathematics 1.1.19. Develop strategies to	1.2.43. Investigate and use a variety of	1.3.10. Develop an appreciation	21. Demonstrate skills and	• Explore, describe and use a range of mental strategies and recording

MATHEMATICS: STANDARD 2				
CONTENT	SKILLS	DISPOSITIONS	OUTCOMES	ELABORATIONS
Students will:				
solve problems mentally.	mental math strategies and recording strategies to solve problems involving the four operations.	for the need for accuracy and efficiency in computation.	competencies in mental strategies in problem solving.	strategies for solving problems, including: o The commutative property for addition and multiplication o The associative property for addition and multiplication o Add-two/subtract-two o Double facts o Near double facts o Addends which differ by 2 (e.g. 5+7= 6x2) o Compatible numbers within ten o Related addition and subtraction facts e.g. 15 + 3 = 18, so 18 − 15 = 3; 5 − 2 = 3, so 50 − 20 is 30, so 500-200 is 300 o Related multiplication and division facts (up to 5 times table and the 10 times table) o Count on and back, skip counting o The compensation strategy e.g. 84+18 is 84 add 20 subtract 2. [1.1.19, 1.2.43, 1.3.10]

MATHEMATICS: STANDARD 2				
CONTENT	**SKILLS**	**DISPOSITIONS**	**OUTCOMES**	**ELABORATIONS**
Students will:				
				• Select appropriate mental strategies for solving problems and justify their selection. [1.1.19, 1.2.43, 1.3.10] • Explain verbally, in writing or through modelling the mental process used to arrive at an answer. [1.1.19, 1.2.43, 1.3.10] • Examine various mental strategies employed by others to determine which was best suited for solving problems. [1.1.19, 1.2.43, 1.3.10]
Fractions 1.1.20. Develop an understanding of fractions using area models. 1.1.21. Become aware of the names	1.2.44. Identify wholes and parts of wholes. 1.2.45. Differentiate between equal and unequal	1.3.11. Be explorative when examining relationships in numbers.	22. Develop conceptual understanding of fractions and its related vocabulary.	• Differentiate between wholes and parts. [1.1.20, 1.2.44, 1.3.11] • Differentiate between equal and unequal parts of a whole. [1.1.20, 1.2.45, 1.3.11] • Explore and describe relationships

MATHEMATICS: STANDARD 2				
CONTENT	**SKILLS**	**DISPOSITIONS**	**OUTCOMES**	**ELABORATIONS**
Students will:				
associated with fractions to tenths using area models. 1.1.22. Demonstrate an understanding of equivalent fractions.	parts of the whole. 1.2.46. Explore the relationship among concrete (area model), pictorial and symbolic representations of fractions up to tenths. 1.2.47. Compare and order fractions by direct comparison. 1.2.48. Explore equivalent forms of fractions with denominators up to ten.		23. Compare and order fractions. 24. Understand equivalent fractions.	between wholes and parts (equal and unequal) by: - Dividing whole shapes into parts (using activities such as folding and cutting) - Assembling whole using parts - Matching parts to their respective wholes - Matching parts to determine if they are the same - Stating the number of equal parts that a whole has been divided into - Counting the number of parts that make up the whole and the number shaded - Colouring pictorial representations of fractions. [1.1.20, 1.2.46, 1.3.11] • Name and record fractions using words and symbols. [1.1.21, 1.2.46, 1.3.11] • Connect word/number names to

MATHEMATICS: STANDARD 2				
CONTENT	**SKILLS**	**DISPOSITIONS**	**OUTCOMES**	**ELABORATIONS**
Students will:				

	1.2.49. Compare and order fractions using the concept of equivalence.			models and symbolic representations. [1.1.21, 1.2.46, 1.3.11]
				
				• State the uses of fractions in everyday situations. [1.1.20, 1.1.21, 1.2.46, 1.3.11]
				
				• Compare and order fractions by:
				  o Matching/overlaying different fractional parts related to a common whole and explain reasons (ascending and descending order) using unit fractions and non-unit fractions
				  o Using a benchmark (e.g. more than or less than one half). [1.1.20, 1.2.47, 1.3.11]
				
				• Explore the equivalent relationships between fractions by matching different fractional parts related to a common whole and describing the relationship. [1.1.22, 1.2.48, 1.3.11]

MATHEMATICS: STANDARD 2				
CONTENT	**SKILLS**	**DISPOSITIONS**	**OUTCOMES**	**ELABORATIONS**
Students will:				
				• Record equivalent relationships using the equal symbol (and non-equivalent relationships using the not equal to symbol). [1.1.22, 1.2.48, 1.3.11] • Compare and order fractions using equivalent relationships. [1.1.22, 1.2.49, 1.3.11]

MATHEMATICS: STANDARD 2				
CONTENT	**SKILLS**	**DISPOSITIONS**	**OUTCOMES**	**ELABORATIONS**
Students will:				
Language 1.1.23. Develop appropriate vocabulary associated with number.	1.2.50. Use appropriate vocabulary associated with number, orally and in writing.	1.3.12. Communicate with confidence using language related to number. 1.3.13. Demonstrate an appreciation for others by listening to their point of view.	25. Communicate effectively using vocabulary associated with number.	• Use appropriate language associated with number, such as: word names and numerals to one thousand, first to one hundredth (1st to 100th), hundreds, trade, regroup, equal groups, repeated addition, multiply by, share, group, shared equally, grouped in, divide, verify, whole, part, equal, unequal, fraction, half ($\frac{1}{2}$), quarter ($\frac{1}{4}$), fifth ($\frac{1}{5}$), tenth ($\frac{1}{10}$), approximate, increase, decrease, bill, ascending, descending, expanded notation and equivalent. [1.1.23, 1.2.50, 1.3.12, 1.3.13]
GEOMETRY				
Solids and Plane Shapes				

MATHEMATICS: STANDARD 2				
CONTENT	**SKILLS**	**DISPOSITIONS**	**OUTCOMES**	**ELABORATIONS**
Students will:				
2.1.1 Develop spatial sense in relation to solids and plane shapes. 2.1.2 Recognize spatial relationships. 2.1.3 Solve problems involving solids and plane shapes.	2.2.1. Classify, describe, compare and name solids and give reasons for classification (cube, cuboid, cylinder, pyramid, cone, sphere and triangular-based prism – with a focus on the triangular-based prism). 2.2.2. Identify and name the triangular-based prism concretely and in pictorial representations (in different orientations).	2.3.1 Display curiosity while exploring the properties of solids. 2.3.2 Display collaboration while working in groups.	1. Develop an understanding of the properties of solids and plane shapes. 2. Solve problems involving solids and plane shapes.	• Classify solids according to one or more common attributes (e.g. colour, size, shape, function) including students' own criteria and explain reasons for classification. [2.1.1, 2.2.1, 2.3.1] • Sort solids into appropriate groups to represent same, similar or alike and different, stating reasons for classification. [2.1.1, 2.2.1, 2.3.1, 2.3.2] • Describe and compare the triangular-based prism with other solids using appropriate vocabulary related to geometric attributes (concrete and pictorial). [2.1.1, 2.1.2, 2.2.1, 2.2.2, 2.3.1, 2.3.2] • Identify and name the triangular-based prism concretely and in pictorial representations (in different

MATHEMATICS: STANDARD 2				
CONTENT	**SKILLS**	**DISPOSITIONS**	**OUTCOMES**	**ELABORATIONS**
Students will:				

	2.2.3. Identify the plane shapes or faces of the triangular-based prism and create triangular-based prisms and other solids using plane shapes.			orientations). [2.1.2, 2.2.2, 2.3.1]
				
				• Identify the plane shapes or faces of the triangular-based prism by:
				   o Matching cut-outs of plane shapes to faces
				   o Tracing the faces of solids and naming the shapes drawn. [2.1.2, 2.2.3, 2.3.1, 2.3.2]

	2.2.4. Explore the properties of solids in terms of faces, edges and vertices and compare and classify solids according to their properties related to faces, edges and vertices (cube, cuboid, cylinder, pyramid, cone and triangular-			• Construct solids, including the triangular-based prism using cut-outs of plane shapes. [2.1.2, 2.2.3, 2.3.1, 2.3.2] • Predict the solid that can be formed given an assortment of plane shapes (concrete and pictorial). [2.1.3, 2.2.3, 2.3.1, 2.3.2] • Describe the properties of solids in relation to number and types of faces,

MATHEMATICS: STANDARD 2				
CONTENT	**SKILLS**	**DISPOSITIONS**	**OUTCOMES**	**ELABORATIONS**
Students will:				
	based prism). 2.2.5. Name plane shapes and solids used to create compound shapes (pictorial representation) and name solids and plane shapes from verbal or written descriptions. 2.2.6. Create and draw plane shapes of varying sizes and in different orientations. 2.2.7. Solve problems involving solids and plane shapes.			edges and vertices. [2.1.2, 2.2.4, 2.3.1] • Compare and classify solids according to the properties related to faces, edges and vertices. [2.1.2, 2.2.4, 2.3.1] • Name solids and plane shapes used to create compound shapes (pictorial representation). [2.1.2, 2.2.5, 2.3.1, 2.3.2] • Name solids and plane shapes from verbal or written descriptions (e.g. People say I am flat and made of straight lines. You can find 6 of me on a cube. What am I?). [2.1.3, 2.2.5, 2.3.1] • Create and draw plane shapes of varying sizes and in different orientations. [2.1.3, 2.2.6, 2.3.1, 2.3.2] • Solve problems involving solids and

MATHEMATICS: STANDARD 2				
CONTENT	**SKILLS**	**DISPOSITIONS**	**OUTCOMES**	**ELABORATIONS**
Students will:				
				plane shapes. [2.1.3, 2.2.7, 2.3.2]
Geometrical Patterns 2.1.4 Explore patterns using solids and plane shapes.	2.2.8. Explore and create patterns using solids or plane shapes.	2.3.3 Demonstrate their use of imagination while creating patterns.	3. Explore patterns using solids and plane shapes.	• Describe a given pattern (repeating, increasing or decreasing), determine the pattern rule and extend the pattern using concrete materials or pictorial representation. [2.1.4, 2.2.8, 2.3.3] • Insert the missing elements in given patterns (concrete or pictorial) and explain the reasoning. [2.1.4, 2.2.8, 2.3.3] • Create repeating, increasing and decreasing patterns using solids or plane shapes (concrete and pictorial)) and explain the pattern rule. [2.1.4, 2.2.8, 2.3.3]
Language				

MATHEMATICS: STANDARD 2				
CONTENT	**SKILLS**	**DISPOSITIONS**	**OUTCOMES**	**ELABORATIONS**
Students will:				
2.1.5 Develop appropriate vocabulary associated with geometry.	2.2.9. Use appropriate vocabulary associated with geometry, orally and in writing.	2.3.4 Communicate with confidence using language related to geometry. 2.3.5 Demonstrate an appreciation for others.	4. Communicate effectively using vocabulary associated with geometry.	• Use appropriate language associated with geometry, such as: face, edge, straight, curved, vertex, cube, cuboid, cone, cylinder, pyramid, triangular-based prism, base and prism. [2.1.5, 2.2.9, 2.3.4, 2.3.5]
MEASUREMENT				
Linear 3.1.1. Understand that measures can be quantified. 3.1.2. Distinguish between standard and non-standard units of measure	3.2.1. Use non-standard units for measuring length. 3.2.2. Explain the need for and the importance of a	3.3.1. Demonstrate confidence in one's abilities to estimate and measure.	1. Develop an understanding that measures can be quantified using non-standard and standard	• Determine the length of objects using non-standard units. [3.1.1, 3.2.1, 3.3.1] • Explain the need for and the importance of a standard unit of measure for length and related sub-units. [3.1.2, 3.2.2, 3.3.1]

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MATHEMATICS: STANDARD 2				
CONTENT	**SKILLS**	**DISPOSITIONS**	**OUTCOMES**	**ELABORATIONS**
Students will:				
(for length). 3.1.3. Apply measurement techniques to quantify measures. 3.1.4. Understand the relationship between units of measure. 3.1.5. Solve problems involving measures.	standard unit of measure for length and related sub-units. 3.2.3. Use the standard units for measuring length. 3.2.4. Measure, record, compare and order measurements using multiple and sub-units of length. 3.2.5. Approximate lengths to the nearest metre and centimetre.		units. 2. Distinguish between standard and non-standard units of measure for length. 3. Demonstrate appropriate techniques when measuring (such as use of instrument, estimation, approximation). 4. Develop an understanding of the relationship between units	• Demonstrate the appropriate use of the measuring instrument for length (ruler). [3.1.3, 3.2.3, 3.3.1] • Measure lengths and distances using standard units (metre, ½ and ¼ metre and centimetre) and record as metres only, centimetres only or metres and centimetres. [3.1.3, 3.2.4, 3.3.1] • Compare and order the lengths of objects and lines in different orientations and distances and explain reasoning using appropriate vocabulary (ascending and descending order, concrete or pictorial representations). [3.1.3, 3.2.4, 3.3.1] • Approximate the length of objects to the nearest metre or centimetre. [3.1.3, 3.2.5, 3.3.1] • Select the appropriate unit of measure when measuring objects of varying

MATHEMATICS: STANDARD 2				
CONTENT	**SKILLS**	**DISPOSITIONS**	**OUTCOMES**	**ELABORATIONS**
Students will:				
	3.2.6. Explain the suitability of the unit as it relates to the length to be measured. 3.2.7. Draw lines of various lengths. 3.2.8. Estimate lengths in metres and verify results. 3.2.9. Determine reasonableness of estimates. 3.2.10. State the relationship between the metre and the centimetre.		of measures. 5. Solve problems involving measures.	lengths and explain the suitability of the unit. [3.1.4, 3.2.6, 3.3.1] • Draw lines of various lengths. [3.1.3, 3.2.7, 3.3.1] • Estimate lengths of objects in metres and verify lengths by measuring. [3.1.3, 3.2.8, 3.3.1] • Explain the reasonableness of estimations. [3.1.3, 3.2.9, 3.3.1] • State the relationship between the metre and the centimetre. [3.1.4, 3.2.10, 3.3.1] • Convert metres to centimetres. [3.1.4, 3.2.11, 3.3.1] • Solve problems in real-life involving length. [3.1.5, 3.2.12, 3.3.1]

MATHEMATICS: STANDARD 2				
CONTENT	**SKILLS**	**DISPOSITIONS**	**OUTCOMES**	**ELABORATIONS**
Students will:				
	3.2.11. Convert metres to centimetres. 3.2.12. Solve problems in real-life situations involving length.			
Mass/Weight 3.1.6. Understand that measures can be quantified. 3.1.7. Distinguish between standard and non-standard units of measure for mass/weight. 3.1.8. Apply measurement techniques to	3.2.13. Use non-standard units for measuring mass/weight. 3.2.14. Explain the need for and the importance of a standard unit of measure for mass/weight and its related	3.3.2. Display a sense of inventiveness in selecting units when measuring.	6. Develop an understanding that measures can be quantified using standard units (kg). 7. Distinguish between standard and non-standard units of	• Determine the mass/weight of objects using non-standard units. [3.1.6, 3.1.7, 3.2.13, 3.3.2] • Explain the need for and the importance of a standard unit of measure for mass/weight. [3.1.6, 3.1.7, 3.2.14, 3.3.2] • Demonstrate the appropriate use of the measuring instrument (such as bathroom scale, equal arm balance). [3.1.7, 3.1.8, 3.1.9, 3.2.15, 3.2.16,

MATHEMATICS: STANDARD 2				
CONTENT	**SKILLS**	**DISPOSITIONS**	**OUTCOMES**	**ELABORATIONS**
Students will:				
quantify measures.

3.1.9. Understand the relationship between units of measure.

3.1.10. Demonstrate an understanding of conservation of mass/weight.

3.1.11. Solve problems in real-life situations involving measures. | sub-units.

3.2.15. Use the standard units for measuring mass/weight.

3.2.16. Measure, record, compare and order measurements using multiple units and sub-units for mass/weight.

3.2.17. Approximate mass/weight to the nearest kilogram, ½ kilogram or ¼ kilogram.

3.2.18. Explain the | | measure for mass/weight.

8. Demonstrate appropriate techniques when measuring (such as use of instrument, approximation).

9. Develop an understanding of the relationship between units of measures.

10. Demonstrate an understanding of conservation of mass/weight.

11. Solve problems | 3.3.2]

• Measure the mass/weight of objects using the standard unit (kilograms, ½ and ¼ kilogram and multiple units of kg) and approximate the measure to the nearest kilogram, ½ kilogram or ¼ kilogram). [3.1.6, 3.1.8, 3.1.9, 3.2.15, 3.2.16, 3.2.17, 3.3.2]

• Compare and order the objects according to mass/weight and explain reasons using appropriate vocabulary (ascending and descending order). [3.1.6, 3.1.8, 3.2.16, 3.3.2]

• Explain the suitability of the unit as it relates to the mass/weight to be measured. [3.1.9, 3.2.18, 3.3.2]

• Explore activities associated with conservation of mass/weight and state findings/generalizations. [3.1.10, |

MATHEMATICS: STANDARD 2

CONTENT	SKILLS	DISPOSITIONS	OUTCOMES	ELABORATIONS
Students will:				
	suitability of the unit as it relates to the mass/weight to be measured. 3.2.19. Perform tasks demonstrating the conservation of mass/weight. 3.2.20. Solve problems involving mass/weight.		involving mass/weight.	3.2.19, 3.3.2] • Solve problems involving mass/weight. [3.1.11, 3.2.20, 3.3.2]
Time 3.1.12. Understand that measures can be quantified. 3.1.13. Apply measurement techniques to	3.2.21. Describe the features of analog and digital clocks. 3.2.22. Tell and record time on digital	3.3.3. Demonstrate confidence in one's abilities to tell the time and solve problems involving time.	12. Develop an understanding that measures can be quantified using standard units.	• Describe the features of the analog clock and digital clocks and the function of the parts. [3.1.12, 3.2.21] • Explain the meaning of the movement of the hands on an analog clock (hour, minutes and seconds). [3.1.12, 3.1.13,

MATHEMATICS: STANDARD 2				
CONTENT	**SKILLS**	**DISPOSITIONS**	**OUTCOMES**	**ELABORATIONS**
Students will:				
quantify measures for time. 3.1.14. Understand the relationship between units of measure. 3.1.15. Demonstrate an understanding that events or activities occur at specific time periods. 3.1.16. Solve problems in real-life situations involving measure.	and analog clocks to the hour, half past the hour, quarter past and quarter to the hour. 3.2.23. Match occurrences with time shown on clocks. 3.2.24. Measure the duration of activities. 3.2.25. Compare and order activities/events according to time taken.		13. Demonstrate appropriate techniques when measuring. 14. Develop an understanding of the relationship between the units of measure. 15. Demonstrate an understanding that events/activities occur at specific time periods. 16. Solve problems involving time.	3.2.21] • Tell time on digital and analog clocks to the hour, half past the hour, quarter past the hour and quarter to the hour. [3.1.13, 3.2.22, 3.3.3] • Record and read times, shown on both analog and digital clocks, using the appropriate format (time is read in three ways: eight fifteen, fifteen minutes past eight and quarter past eight). [3.1.13, 3.2.22, 3.3.3] • Compare the related times on the analog and digital clock. [3.1.13, 3.2.22, 3.3.3] • Match times displayed on analog and digital clocks. [3.1.13, 3.2.22, 3.3.3] • Name some occurrences or events that match with time shown on clocks (e.g. school begins at 8:30). [3.1.15, 3.2.23,

MATHEMATICS: STANDARD 2				
CONTENT	**SKILLS**	**DISPOSITIONS**	**OUTCOMES**	**ELABORATIONS**
Students will:				
	3.2.26. Relate seconds to minutes, minutes to hours, hours to days, days to weeks, days/weeks to months, and months to years.			3.3.3] • Measure the duration of events in hours, quarter of an hour and half of an hour using analog and digital clocks. [3.1.13, 3.2.24, 3.3.3] • Compare and order activities/events according to time taken and explain reasons using appropriate vocabulary. [3.1.13, 3.2.25, 3.3.3]
	3.2.27. Identifying personal referents for: Minutes, Hours, Days, Weeks, Months, Years by exploring activities related to different time periods.			• Distinguish between activities that can/cannot be completed in seconds, minutes, hours, months and years. [3.1.15, 3.2.25, 3.3.3] • Relate seconds to minutes, minutes to hours, hours to days, days to weeks, days/weeks to months, and months to years and use the relationships to solve problems. [3.1.14, 3.2.26, 3.3.3]
	3.2.28. Solve and complete practical tasks			• State/name personal activities/events

MATHEMATICS: STANDARD 2				
CONTENT	**SKILLS**	**DISPOSITIONS**	**OUTCOMES**	**ELABORATIONS**
Students will:				
	and problems involving time.			associated with specific time periods – minutes, hours, days, weeks, months, years (e.g. Last year I was 6 years old; I take half an hour to reach to school). [3.1.15, 3.2.27, 3.3.3] • Solve practical problems involving time (e.g. determine if a specified number of days are more/less than a week; determine the previous and upcoming month, interpretation of calendars). [3.1.16, 3.2.28, 3.3.3]
Capacity 3.1.17. Understand that measures can be quantified. 3.1.18. Distinguish between standard and non-standard units of measure	3.2.29. Use non-standard units for measuring capacity. 3.2.30. Explain the need for and the importance of a standard unit of	3.3.4. Appreciate measures in everyday use.	17. Develop an understanding that measures can be quantified using standard units (litres). 18. Distinguish	• Determine the capacity of containers using non-standard units. [3.1.17, 3.2.29, 3.3.4] • Explain the need for and the importance of a standard unit of measure for capacity. [3.1.18, 3.2.30, 3.3.4]

MATHEMATICS: STANDARD 2				
CONTENT	**SKILLS**	**DISPOSITIONS**	**OUTCOMES**	**ELABORATIONS**
Students will:				
for capacity. 3.1.19. Apply measurement techniques to quantify measures. 3.1.20. Solve problems in real-life situations involving measures.	measure for capacity. 3.2.31. Use the standard units (litres) for measuring the capacity of containers. 3.2.32. Measure, record, compare and order measurements using multiple units. 3.2.33. Solve problems in real-life situations involving measures.		between standard and non-standard units of measure for capacity. 19. Apply measurement techniques to quantify measures. 20. Solve problems involving capacity.	• Measure the capacity of containers using the standard unit (litre) and record measure. [3.1.19, 3.2.31, 3.3.4] • Compare and order the containers according to capacity and explain reasons using appropriate vocabulary (ascending and descending order). [3.1.19, 3.2.32, 3.3.4] • Solve problems in real-life situations involving capacity. [3.1.20, 3.2.33, 3.3.4]
Area				

MATHEMATICS: STANDARD 2				
CONTENT	**SKILLS**	**DISPOSITIONS**	**OUTCOMES**	**ELABORATIONS**
Students will:				
3.1.21. Develop the concept of area. 3.1.22. Demonstrate familiarity with comparison of objects using appropriate vocabulary. 3.1.23. Understand that measures can be quantified. 3.1.24. Apply measurement techniques to quantify measures. 3.1.25. Solve problems involving	3.2.34. Touch, colour and cover surfaces to develop the concept of area. 3.2.35. Compare and order the area of surfaces using direct comparison. 3.2.36. Measure, record, compare and order area of surfaces using non-standard units. 3.2.37. Investigate which plane shapes are appropriate for	3.3.5. Demonstrate confidence in one's abilities to measure and compare.	21. Demonstrate an understanding of area. 22. Develop an understanding of the comparison of measures. 23. Develop an understanding that measures can be quantified using non-standard units of measure for area. 24. Demonstrate appropriate techniques	• Explore flat surfaces by touching, colouring, covering and describing using the language associated with area (so as to develop the concept of area). [3.1.21, 3.2.34] • Compare and order the area of two or more surfaces (by matching or placing one on the other) and explain reasons using appropriate language. [3.1.22, 3.2.35, 3.3.5] • Describe area as the measure of the amount of surface. [3.1.21, 3.2.34] • Measure the area of surfaces using non-standard units (by placing the same sized units e.g. cut-outs of shapes, end-to-end without leaving gaps and without overlapping). [3.1.23, 3.2.36, 3.3.5]

MATHEMATICS: STANDARD 2				
CONTENT	**SKILLS**	**DISPOSITIONS**	**OUTCOMES**	**ELABORATIONS**
Students will:				
measures.	measuring area. 3.2.38. Calculate the area of shapes by counting squares. 3.2.39. Solve problems involving area.		when measuring. 25. Solve problem involving measures.	• Count and record the number of units used to measure the area of surfaces. [3.1.23, 3.2.36, 3.3.5] • Compare and order surfaces according to area and explain reasons using appropriate vocabulary (ascending and descending order). [3.1.22, 3.2.36, 3.3.5] • Investigate which plane shapes are appropriate for measuring area through tessellation activities and explain findings. [3.1.25, 3.2.37] • Calculate the area of shapes by counting squares (of different sizes). [3.1.24, 3.1.25, 3.2.38, 3.3.5] • Solve problems involving area. [3.1.25, 3.2.39]
Language				

MATHEMATICS: STANDARD 2				
CONTENT	**SKILLS**	**DISPOSITIONS**	**OUTCOMES**	**ELABORATIONS**
Students will:				
3.1.26. Develop appropriate vocabulary associated with measurement.	3.2.40. Use appropriate vocabulary associated with measurement, orally and in writing.	3.3.6. Communicate with confidence using language related to measurement.	26. Communicate effectively using vocabulary associated with measurement.	• Use appropriate language associated with measurement, such as: metre (m), centimetre (cm), estimate, approximate, round, square centimetre, kilogram (kg), gram (g), hour, half past, quarter to, quarter past, verify, area, surface, convert/change, litre, digital clock, analog clock, calendar, non-standard unit, standard unit and o'clock. [3.1.26, 3.2.40, 3.3.6]
STATISTICS				
Tally Charts and Block Graphs 4.1.1. Use statistical techniques to investigate real-life problems. 4.1.2. Demonstrate the	4.2.1. Formulate a problem situation. 4.2.2. Collect data (using observation and	4.3.1. Demonstrate awareness that numerical data can be communicated	1. Demonstrate the ability to formulate a problem. 2. Demonstrate the	TALLY CHARTS • Formulate a problem to be investigated e.g. A school plans to purchase equipment for various sports. What type of equipment should be

MATHEMATICS: STANDARD 2				
CONTENT	**SKILLS**	**DISPOSITIONS**	**OUTCOMES**	**ELABORATIONS**
Students will:				
ability to collect, classify, organize and represent data. 4.1.3. Demonstrate an understanding about the features of graphs and charts. 4.1.4. Make decisions based on analysis or interpretation of data. 4.1.5. Demonstrate the ability to present findings orally or in writing. 4.1.6. Demonstrate an	frequency counts) and classify data through investigation of a problem/question based on a real-life situation. 4.2.3. Identify features of tally charts and block graphs (e.g. using one stroke/tally mark, grouping of strokes/tally marks in fives, baseline/start line, labels (of sets) on axis, equal spacing, title, scale factors). 4.2.4. Choose an appropriate scale	visually. 4.3.2. Show the usefulness of data analysis to problem solving situations.	ability to collect, classify, organize, represent and interpret data. 3. Demonstrate an understanding about the features of graphs and charts. 4. Use analysed data to make sound decisions and solve problems. 5. Demonstrate the ability to present findings orally or in	purchased? What amount of material should be purchased? [4.1.1, 4.2.1] • Collect and classify data to make decisions based on a real life situation or problem. [4.1.2, 4.2.2] • Identify the features of tally charts. [4.1.3, 4.2.3, 4.3.1] • State the advantages of recording data using tally marks. [4.1.3, 4.2.3, 4.3.1] • Construct, interpret and make decisions based on information on tally charts (including the frequency column). [4.1.2, 4.1.4, 4.2.5, 4.2.6, 4.2.7, 4.3.2] BLOCK GRAPHS • Determine the features of block graphs either though transformation of a

MATHEMATICS: STANDARD 2				
CONTENT	**SKILLS**	**DISPOSITIONS**	**OUTCOMES**	**ELABORATIONS**
Students will:				
understanding of the methods used to address the problem.	factor in the construction of the block graph. 4.2.5. Construct tally charts and block graphs using appropriate symbolic representations. 4.2.6. Interpret data from tally charts and block graphs based on a real-life problem or situation. 4.2.7. Make informed decisions based on data analysed. 4.2.8. Justify decisions made using data		writing. 6. Demonstrate an understanding of the methods used to address the problem.	pictograph to a block graph or by identifying features from presented (and interpreted) block graphs. [4.1.3, 4.2.3, 4.3.1] • Use the frequency counts from tally charts to determine the appropriate scale factor to be used in the construction of block graphs and justify choice of scale factor. [4.1.2, 4.2.4] • Calculate the amounts to be represented on the block graph using the scale factor. [4.1.2, 4.2.4] • Construct block graphs (vertical or horizontal arrangements) on grid paper based on information collected and using different scale factors (scale factor 1: 1, 2, 5 and 10). [4.1.2, 4.2.5, 4.3.1] • Label axes and name the graph. [4.1.2,

MATHEMATICS: STANDARD 2				
CONTENT	**SKILLS**	**DISPOSITIONS**	**OUTCOMES**	**ELABORATIONS**
Students will:				
	collected in writing and/or oral presentations.			4.1.3, 4.2.5, 4.3.1] • Interpret and analyse the data so as to make decisions about a real-life situation or problem. [4.1.4, 4.2.6, 4.2.7, 4.3.2] • Participate in decision-making to solve problems. [4.1.4, 4.2.7, 4.3.2] • Communicate findings and justify decisions made using appropriate vocabulary (orally or in writing). [4.1.5, 4.2.8, 4.3.2] • Describe the method used to solve the problem or address the situation. [4.1.6, 4.2.8, 4.3.2] (Depending on the experiences of students, teachers may decide to start with the interpretation of presented graphs, which can then be used to identify the characteristics of graphs.

MATHEMATICS: STANDARD 2				
CONTENT	**SKILLS**	**DISPOSITIONS**	**OUTCOMES**	**ELABORATIONS**
Students will:				
				Graphs can then be appropriately constructed. Graphs can also be transformed from one form to another and this idea can be used to initiate interpretation of the same data using different representations).
Language 4.1.7. Develop appropriate vocabulary associated with statistics.	4.2.9. Use appropriate vocabulary associated with statistics, orally and in writing.	4.3.3. Communicate with confidence using language related to statistics.	7. Communicate effectively using vocabulary associated with statistics.	• Use appropriate language associated with statistics, such as: block graph, blocks, title, scale, and key, most frequent, axis and survey. [4.1.7, 4.2.9, 4.3.3]

Primary School Curriculum

Mathematics

Standard 3

MATHEMATICS: STANDARD 3				
CONTENT	**SKILLS**	**DISPOSITIONS**	**OUTCOMES**	**ELABORATIONS**
Students will:				
NUMBER				
Number Concepts 1.1.1. Understand the concept of numbers up to 10 000.	1.2.1 Count in sequence within 10 000 in ascending and descending order. 1.2.2 Skip count in ascending and descending order within a specified amount. 1.2.3 Count objects in a set up to 10 000. 1.2.4 Connect number names and	1.3.1 Display a sense of confidence as they explore number concepts.	1. Count sequentially within 10 000. 2. Demonstrate an understanding of numbers to 10 000. 3. Demonstrate estimation skills using 100 as a benchmark.	• Count forward (count on) and backward (count back) by ones within 10 000 from any given number. [1.1.1, 1.2.1, 1.3.1] • Skip count in ascending and descending order using various ways (such as, in 100s to or from 2 000 starting at zero or 2 000; by thousands 1 340, 2 340, 3 340, starting at a specified number). [1.1.1, 1.2.2, 1.3.1] • Count the number of objects in a set using one-to-one correspondence together with skip counting, using base ten materials. [1.1.1, 1.2.2, 1.2.3, 1.3.1] • Match the number names and numerals to the quantities they represent up to 10

MATHEMATICS: STANDARD 3				
CONTENT	**SKILLS**	**DISPOSITIONS**	**OUTCOMES**	**ELABORATIONS**
Students will:				
	numerals to quantities up to 10 000. 1.2.5 Sequence number names and numerals. 1.2.6 Read and write number names and numerals to 10 000. 1.2.7 Estimate the number of objects in a set using 100 as the benchmark and verify by counting.			000. [1.1.1, 1.2.4, 1.3.1] • Sequence number names and numerals to 10 000. [1.1.1, 1.2.5, 1.3.1] • Insert missing numbers in a number sequence. [1.1.1, 1.2.5, 1.3.1] • Read and write number names and numerals to 10 000. [1.1.1, 1.2.6, 1.3.1] • Estimate a given quantity of items using 100 as a benchmark (using 'mental grouping') and verify by counting. [1.1.1, 1.2.7, 1.3.1]
Place Value and Rounding				

MATHEMATICS: STANDARD 3				
CONTENT	**SKILLS**	**DISPOSITIONS**	**OUTCOMES**	**ELABORATIONS**
Students will:				
1.1.2. Develop an understanding of place value to 9 999 (concretely, pictorially and symbolically). 1.1.3. Develop an understanding of the comparison of numbers. 1.1.4. Develop an understanding of rounding to tens, hundreds and thousands.	1.2.8 Explore the place value of numbers to 9 999 including expanded notation. 1.2.9 Compare and order numerals up to 10 000. 1.2.10 Round numbers to the nearest tens, hundreds and thousands.	1.3.2 Be explorative when examining relationships in numbers.	4. Demonstrate an understanding of place value to 9 999. 5. Compare and order numerals up to 10 000 with reference to place value. 6. Develop an understanding of rounding to tens, hundreds and thousands.	• Show, using various manipulatives (e.g. base ten materials, place value mats) that a given numeral consists of a certain number of thousands, 'hundreds' 'tens' and 'ones' and record as such, e.g. 1 245 = 1 thousand, 2 hundreds, 4 tens and 5 ones. [1.1.2, 1.2.8, 1.3.2] • Describe a specified number in various ways using language associated with place value e.g. 6 245 as six 1 000s, two 100s, four 10s and five 1s; six thousands, two hundred, forty and five; 6 245 ones; 624 tens and 5 ones etc., and explain with reasons. [1.1.2, 1.2.8, 1.3.2] • Write numbers using the expanded notation form. [1.1.2, 1.2.8, 1.3.2] • Convert expanded notation into

MATHEMATICS: STANDARD 3				
CONTENT	**SKILLS**	**DISPOSITIONS**	**OUTCOMES**	**ELABORATIONS**
Students will:				
				numerals. [1.1.2, 1.2.8, 1.3.2]
				• Explain and write the place value and value represented by each digit in a numeral up to four-digit numbers. [1.1.2, 1.2.8, 1.3.2]
				• Write the largest and smallest number given any four digits. [1.1.3, 1.2.8, 1.2.9, 1.3.2]
				• Use the symbols for more than (>) and less than (<) to show the relationship between two numbers. [1.1.3, 1.2.9, 1.3.2]
				• Compare and order numerals up to 9 999 (in ascending and descending order). [1.1.3, 1.2.9, 1.3.2]
				• Round numbers to the nearest tens, hundreds or thousands. [1.1.4, 1.2.10,

MATHEMATICS: STANDARD 3				
CONTENT	**SKILLS**	**DISPOSITIONS**	**OUTCOMES**	**ELABORATIONS**
Students will:				
				1.3.2]

Number Patterns
 	
1.1.5. Develop algebraic thinking (number patterns and number relationships).
	1.2.11 Explore number patterns involving the four operations using whole numbers.
	
	1.2.12 Explore patterns involving fractions.
	
	1.2.13 Create number patterns.
		1.3.3　Be explorative when examining patterns.	7. Demonstrate an understanding of patterns using whole numbers and involving the four operations.
			
			8. Explore patterns involving fractions.
			
			9. Create number patterns.
				• Describe and extend whole number patterns involving the four operations e.g. 1, 6, 11, 16… and patterns involving fractions, by using the pattern rule. [1.1.5, 1.2.11, 1.2.12, 1.3.3]
				
				• Explore, describe and record patterns for:
				  o Multiplication and division facts up to the 10 times table (using concrete materials, pictorial representations, symbols, hundred chart)
				  o Compatible numbers within 1 000. [1.1.5, 1.2.11, 1.3.3]
				
				• Recognize when an error occurs in a pattern and explain what is wrong.

MATHEMATICS: STANDARD 3				
CONTENT	**SKILLS**	**DISPOSITIONS**	**OUTCOMES**	**ELABORATIONS**
Students will:				
				[1.1.5, 1.2.11, 1.2.12, 1.3.3] • Insert missing elements in number patterns and explain reasoning. [1.1.5, 1.2.11, 1.2.12, 1.3.3] • Create number patterns and state the pattern rule. [1.1.5, 1.2.13, 1.3.3]
Number Relationships 1.1.6. Explore algebraic thinking (number patterns and number relationships). 1.1.7. Make sense of addition, subtraction, multiplication and division	1.2.14 Calculate the unknown in number sentences involving addition, subtraction, multiplication and division of whole numbers and involving	1.3.4 Show perseverance in finding solutions to problems.	10. Explore number relationships involving the four operation using number sentences with one unknown.	• Solve problems involving number sentences with one unknown number (represented by a symbol) e.g. $42 \div \square = 7$; the idea of the inverse operation can be used: $7 \times ? = 42$, and explain reasoning. [1.1.6, 1.1.7, 1.2.14, 1.3.4] • Solve number sentences when the unknown is on the left or right side of the equal symbol. [1.1.6, 1.1.7,

MATHEMATICS: STANDARD 3				
CONTENT	**SKILLS**	**DISPOSITIONS**	**OUTCOMES**	**ELABORATIONS**
Students will:				
number sentences involving one unknown.	one unknown.			1.2.14, 1.3.4]
Whole Number (Operations): Addition and Subtraction 1.1.8. Solve real-life problems (concrete, pictorial and symbolic modes, including money) involving addition and subtraction. 1.1.9. Develop estimation skills.	1.2.15 Solve problems involving addition (up to 4 digit numbers with sum less than 10 000) and up to 4 addends and subtraction (with minuend up to 4 digits). 1.2.16 Determine the reasonableness	1.3.5 Appreciate the use of algorithms in solving problems involving the operations (addition and subtraction).	11. Demonstrate an understanding of the algorithm for addition and subtraction. 12. Solve a variety of word problems using problem solving strategies including mental	ADDITION AND SUBTRACTION • Solve one-step and multi-step addition and subtraction problems involving whole numbers and money (including bills, best buy, profit and loss, using dollars only and cents only) by: o Using a variety of problem solving strategies, such as: use a model, act it out, draw a picture, look for a pattern, guess and check, work backwards, logical reasoning, make a table or chart, make an organized list and try a simpler

MATHEMATICS: STANDARD 3				
CONTENT	**SKILLS**	**DISPOSITIONS**	**OUTCOMES**	**ELABORATIONS**
Students will:				
1.1.10. Demonstrate an understanding of the relationship between addition and subtraction. 1.1.11. Create number stories.	of answers by using estimation. 1.2.17 Use the inverse operation to check answers. 1.2.18 Explain or demonstrate how an answer was obtained when solving problems. 1.2.19 Create number stories involving addition and subtraction and using appropriate vocabulary.		strategies. 13. Demonstrate an understanding of estimation skills. 14. Use the relationship between addition and subtraction to check answers. 15. Create number stories using appropriate language.	form of the problem o Using the algorithm o Using mathematical games o Creating number sentences with one unknown o Using estimation skills to check solutions to problems o Using the reverse operation to check answers o Recording solutions to problems using drawings, numerals, symbols and words. [1.1.8, 1.1.9, 1.1.10, 1.2.15, 1.2.16, 1.2.17, 1.3.5] • Explain or demonstrate how an answer was obtained when solving problems. [1.1.8, 1.2.18, 1.3.5] • Create number stories involving addition and subtraction using appropriate language. [1.1.11, 1.2.19, 1.3.5]

MATHEMATICS: STANDARD 3				
CONTENT	**SKILLS**	**DISPOSITIONS**	**OUTCOMES**	**ELABORATIONS**
Students will:				
Whole Number (Operations): Multiplication and Division 1.1.12. Develop and apply procedures to multiply and divide whole numbers to solve problems. 1.1.13. Solve real-life problems (concrete, pictorial and symbolic modes, including money) involving multiplication	1.2.20 Develop and use the algorithm for multiplication and division of whole numbers. 1.2.21 Solve real-life problems involving multiplication (up to 2 digit by 2 digit numbers) and division (up to 4 digit divided by 1 digit). 1.2.22 Determine the reasonableness of answers by	1.3.6 Appreciate the use of algorithms in solving problems involving the operations (multiplication and division).	16. Develop and apply procedures to multiply and divide whole numbers to solve problems. 17. Solve a variety of word problems using problem solving strategies including mental strategies. 18. Demonstrate an understanding	MULTIPLICATION AND DIVISION • Model the multiplication of whole numbers, concretely or pictorially (using an area model/arrays) and record the process (using drawings, numerals, symbols and words and the distributive property). [1.1.12, 1.2.20, 1.3.6] • Explain through the use of words and diagrams the procedures involving multiplication using whole numbers. [1.1.12, 1.2.20, 1.3.6] • Generalize and apply rules (algorithms) for multiplication involving whole numbers. [1.1.12, 1.2.20, 1.3.6] • Model division of whole numbers concretely or pictorially and explain and record the process. [1.1.12, 1.2.20,

MATHEMATICS: STANDARD 3				
CONTENT	**SKILLS**	**DISPOSITIONS**	**OUTCOMES**	**ELABORATIONS**
Students will:				
and division. 1.1.14. Develop estimation skills. 1.1.15. Demonstrate an understanding of the relationship between multiplication and division. 1.1.16. Create number stories.	using estimation. 1.2.23 Use the inverse operation to check answers. 1.2.24 Explain or demonstrate how an answer was obtained when solving problems. 1.2.25 Create number stories involving multiplication and division and using appropriate vocabulary.		of estimation skill. 19. Use the relationship between multiplication and division to check answers. 20. Create number stories using appropriate language.	1.3.6] • Explain through the use of words and diagrams division involving whole numbers. [1.1.12, 1.2.20, 1.3.6] • Generalize and apply rules (algorithms) for division involving whole numbers. [1.1.12, 1.2.20, 1.3.6] • Solve one-step and multi-step multiplication and division problems (including problems involving the unitary method) involving whole numbers and money (including bills, best buy, profit and loss, rate (weekly, hourly, daily, monthly, yearly and by the minute - using dollars only and cents only) by: o Using a variety of problem solving strategies, such as: use a model, act it out, draw a picture, look for a pattern, guess and check, work backwards, logical reasoning,

MATHEMATICS: STANDARD 3				
CONTENT	**SKILLS**	**DISPOSITIONS**	**OUTCOMES**	**ELABORATIONS**
Students will:				
				make a table or chart, make an organized list and try a simpler form of the problem o Using the algorithm o Using mathematical games o Creating number sentences with one unknown o Using estimation skills to check solutions to problems o Using the reverse operation to check answers o Recording solutions to problems using drawings, numerals, symbols and words. [1.1.13, 1.1.14, 1.1.15, 1.2.21, 1.2.22, 1.2.23, 1.3.6] • Explain or demonstrate how an answer was obtained when solving problems. [1.1.13, 1.2.21, 1.2.24, 1.3.6] • Explain why a remainder is obtained for some division problems e.g. $18 \div 4 = 4$ remainder 2. [1.1.13, 1.2.21,

MATHEMATICS: STANDARD 3				
CONTENT	**SKILLS**	**DISPOSITIONS**	**OUTCOMES**	**ELABORATIONS**
Students will:				
				1.2.24, 1.3.6] • Interpret the remainder in relation to the context of the word problem. [1.1.13, 1.2.21, 1.2.24, 1.3.6] • Create number stories involving multiplication and division and using appropriate language. [1.1.16, 1.2.25, 1.3.6]

Mental Mathematics
 	
 1.1.17. Develop strategies to solve problems mentally.
	1.2.26 Investigate and use a variety of mental math strategies to solve problems involving the four operations.	1.3.7 Develop confidence in using a variety of mental strategies to solve problems.	21. Demonstrate skills in mental strategies.	• Explore, describe and use a range of mental strategies for solving problems, including:
				    o Compatible numbers within 1 000
				    o Multiplication and related division facts up to 10 times tables
				    o Decomposition method
				    o Equal addend method
				    o Using place value concepts e.g. $4 \times 20 = 4 \times 2$ tens $= 8$ tens $= 80$

MATHEMATICS: STANDARD 3				
CONTENT	**SKILLS**	**DISPOSITIONS**	**OUTCOMES**	**ELABORATIONS**
Students will:				
				o Factoring e.g. $4 \times 20 = 4 \times 2 \times 10$ $= 8 \times 10 = 80$ o Multiplying the tens and then the units. [1.1.17, 1.2.26, 1.3.7] • Solve problems using mental math strategies and explain the mental process used to arrive at an answer. [1.1.17, 1.2.26, 1.3.7]
Fractions 1.1.18. Extend the concept of fractions to include multiple representations, equivalence, ordering and simple computation.	1.2.27 Explore fractions using area, linear and set models. 1.2.28 Recognize and generate equivalent fractions using a variety of models.	1.3.8 Develop confidence in working independently in using a variety of strategies to solve problems involving fractions.	22. Develop an understanding of fractions by using concrete, pictorial and symbolic representations 23. Demonstrate an understanding of proper and improper	• Represent fractions using area, linear and set models. [1.1.18, 1.2.27, 1.3.8] • Name and record fraction using words and symbols. [1.1.18, 1.2.27, 1.3.8] • Connect word/number names to models and symbolic representations. [1.1.18, 1.2.27, 1.3.8] • Explore the equivalent relationships

MATHEMATICS: STANDARD 3				
CONTENT	**SKILLS**	**DISPOSITIONS**	**OUTCOMES**	**ELABORATIONS**
Students will:				
	1.2.29 Use the algorithm for finding equivalent fractions. 1.2.30 Compare and order proper fractions with unlike denominators using equivalent forms. 1.2.31 Distinguish between proper, improper and mixed number and convert from one form to another. 1.2.32 Add and subtract proper		fractions and mixed numbers. 24. Solve problems involving the addition and subtraction of fractions.	between fractions by matching/overlaying different fractional parts related to a common whole and describing the relationship. [1.1.18, 1.2.28, 1.3.8] • Record equivalent relationships using the equal symbol (and non-equivalent relationships using the not equal to symbol) e.g. $\frac{1}{2} = \frac{2}{4} = \frac{4}{8}$. [1.1.18, 1.2.28, 1.3.8] • Describe the pattern observed in equivalent relationships and state the pattern rule. [1.1.18, 1.2.29, 1.3.8] • Create equivalent fractions using the rule. [1.1.18, 1.2.29, 1.3.8] • Reduce a fraction to its lowest equivalent form. [1.1.18, 1.2.29, 1.3.8]

MATHEMATICS: STANDARD 3				
CONTENT	**SKILLS**	**DISPOSITIONS**	**OUTCOMES**	**ELABORATIONS**
Students will:				
	fractions with same denominators.			• Compare and order fractions using equivalent relationships and by positioning a given set of fractions with like and unlike denominators on a number line and explain reasons. [1.1.18, 1.2.30, 1.3.8] • Explain the meanings of the terms numerator and denominator. [1.1.18, 1.2.31, 1.3.8] • Differentiate between proper fractions, improper fractions and mixed numbers. [1.1.18, 1.2.31, 1.3.8] • Explore and explain, using models, the equivalent relationship of fractions that represent more than one and one e.g. 5 quarters = one whole and a quarter; $\frac{5}{4}$ = 1 and $\frac{1}{4}$ = 1 $\frac{1}{4}$; 2 halves = $\frac{2}{2}$ = 1. [1.1.18, 1.2.31, 1.3.8] • Describe the pattern observed in the

MATHEMATICS: STANDARD 3				
CONTENT	**SKILLS**	**DISPOSITIONS**	**OUTCOMES**	**ELABORATIONS**
Students will:				
				relationship between improper and mixed number. [1.1.18, 1.2.31, 1.3.8]
				• Express improper fractions as mixed numbers. [1.1.18, 1.2.31, 1.3.8]
				• Express mixed numbers as improper fractions. [1.1.18, 1.2.31, 1.3.8]
				• Place a given set of fractions, including mixed numbers and improper fractions, on a number line and explain strategies used to determine position. [1.1.18, 1.2.31, 1.3.8]
				• Model addition and subtraction of fractions involving the same denominator using concrete and pictorial representations, record symbolically and explain pattern observed. [1.1.18, 1.2.32, 1.3.8]
				• Develop and use the algorithm for

MATHEMATICS: STANDARD 3				
CONTENT	**SKILLS**	**DISPOSITIONS**	**OUTCOMES**	**ELABORATIONS**
Students will:				
				solving problems involving the addition and subtraction of fractions involving the same denominator (including solving problems mentally). [1.1.18, 1.2.32, 1.3.8]
Language 1.1.19. Develop appropriate vocabulary associated with number.	1.2.33 Use appropriate vocabulary in oral and written communication.	1.3.9 Communicate with confidence using language related to number. 1.3.10 Demonstrate an appreciation for others by listening to their point of	25. Communicate effectively using vocabulary associated with number.	• Use appropriate language associated with number, such as: numbers up to ten thousand, expanded notation, thousands, halves ($\frac{1}{2}$) to tenths ($\frac{1}{10}$), proper fraction, improper fraction, mixed number, convert, equivalent, numerator, denominator, profit, loss, vocabulary associated with rate such as weekly, hourly, daily, monthly, yearly and by the minute, extend and rule. [1.1.19, 1.2.33, 1.3.9, 1.3.10]

<table>
<tr><th colspan="5">MATHEMATICS: STANDARD 3</th></tr>
<tr><th>CONTENT</th><th>SKILLS</th><th>DISPOSITIONS</th><th>OUTCOMES</th><th>ELABORATIONS</th></tr>
<tr><td colspan="5">Students will:</td></tr>
<tr><td></td><td></td><td>view.</td><td></td><td></td></tr>
<tr><td colspan="5">GEOMETRY</td></tr>
<tr>
<td>Solids

2.1.1 Develop spatial sense through explorations in relation to solids.

2.1.2 Investigate properties of solids through exploration activities, building of frames and drawing.

2.1.3 Solve problems involving solids.</td>
<td>2.2.1 Compare and classify solids according to their properties (cube, cuboid, cylinder, pyramid, cone and triangular-based prism) and give reasons for classification.

2.2.2 Differentiate between regular and irregular solids.

2.2.3 Construct frames of solids and draw/sketch</td>
<td>2.3.1 Demonstrate creativity while exploring solids.

2.3.2 Display perseverance in solving problems.</td>
<td>1. Describe, name and compare the properties of solids including pyramids, prisms, cylinders, cones and spheres and represent them in frames and drawings.

2. Solve problems involving solids.</td>
<td>• Examine and describe the properties of regular and irregular solids. [2.1.1, 2.1.2, 2.2.1, 2.3.1]

• Compare and classify solids according to one or more common attributes including students' own criteria and explain reasons for classification. [2.1.1, 2.1.2, 2.2.1, 2.3.1]

• Differentiate between regular and irregular solids. [2.1.1, 2.1.2, 2.2.2, 2.3.1]

• Build and describe frames of solids (cubes, cuboids, pyramids, triangular-based prism) focusing on the properties of the solids constructed</td>
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MATHEMATICS: STANDARD 3				
CONTENT	**SKILLS**	**DISPOSITIONS**	**OUTCOMES**	**ELABORATIONS**
Students will:				
	solids to explore the properties of solids in terms of faces, edges and vertices. 2.2.4 Solve problems involving solids.			(e.g. edges, vertices). [2.1.1, 2.1.2, 2.2.3, 2.3.1] • Draw or sketch solids and label to show faces, edges and vertices. [2.1.1, 2.1.2, 2.2.3, 2.3.1] • Solve problems involving solids. [2.1.3, 2.2.4, 2.3.2]
Plane Shapes 2.1.4 Develop spatial sense through explorations in relation to plane shapes. 2.1.5 Investigate properties of plane shapes. 2.1.6 Solve problems	2.2.5 Compare and classify plane shapes according to their properties. 2.2.6 Differentiate between regular and irregular polygons (triangles, quadrilaterals,	2.3.3 Display confidence in exploring plane shapes.	3. Demonstrate an understanding of the properties of plane shapes. 4. Solve problems involving plane shapes.	• Examine and describe the properties of regular and irregular polygons. [2.1.4, 2.1.5, 2.2.5, 2.3.3] • Compare and classify polygons according to one or more common attributes including students' own criteria and explain reasons for classification. [2.1.4, 2.1.5, 2.2.5, 2.3.3]

MATHEMATICS: STANDARD 3				
CONTENT	**SKILLS**	**DISPOSITIONS**	**OUTCOMES**	**ELABORATIONS**
Students will:				
involving plane shapes.	pentagons, hexagons, octagons). 2.2.7 Explore the effects of orientation change on plane shapes. 2.2.8 Solve problems involving plane shapes.			• Differentiate between regular and irregular polygons (triangles, quadrilaterals, pentagons, hexagons, octagons). [2.1.4, 2.1.5, 2.2.6, 2.3.3] • Investigate the effects of changing the orientation of a shape by first measuring the shape and then changing its orientation and then measuring again. [2.1.4, 2.1.5, 2.2.7, 2.3.3] • Solve problems involving plane shapes. [2.1.6, 2.2.8, 2.3.3]
Symmetry 2.1.7 Develop an understanding of line symmetry. 2.1.8 Solve problems involving line	2.2.9 Classify shapes into those that are symmetrical and those that are not. 2.2.10 Determine the	2.3.4 Display curiosity while investigating lines of symmetry.	5. Demonstrate an understanding of the concept of line symmetry.	• Determine whether or not plane shapes are symmetrical by folding and superimposing (and/or by using a Mira). [2.1.7, 2.2.9, 2.3.4] • Investigate plane shapes, letters and

MATHEMATICS: STANDARD 3				
CONTENT	**SKILLS**	**DISPOSITIONS**	**OUTCOMES**	**ELABORATIONS**
Students will:				
symmetry.	number of lines of symmetry in plane shapes – regular, irregular and curved, and in numerals and letters. 2.2.11 Create symmetrical shapes. 2.2.12 Solve problems involving line symmetry.		6. Solve problems involving line symmetry.	numerals to determine whether or not they are symmetrical and to determine the number of lines of symmetry. [2.1.7, 2.2.10, 2.3.4] • Create symmetrical shapes. [2.1.8, 2.2.11, 2.3.4] • Complete a symmetrical shape given half of the shape and a line of symmetry. [2.1.8, 2.2.11, 2.3.4] • Solve problems involving line symmetry. [2.1.8, 2.2.12, 2.3.4]
Language 2.1.9 Develop appropriate vocabulary associated with geometry.	2.2.13 Use appropriate vocabulary in oral and written communication.	2.3.5 Communicate with confidence using language related to	7. Communicate effectively using vocabulary associated with geometry.	• Use appropriate language associated with geometry, such as: regular, irregular, polygon, quadrilateral, pentagon, hexagon, octagon, line symmetry and frame. [2.1.9, 2.2.13,

MATHEMATICS: STANDARD 3				
CONTENT	**SKILLS**	**DISPOSITIONS**	**OUTCOMES**	**ELABORATIONS**
Students will:				
		geometry. 2.3.6 Demonstrate an appreciation for others by listening to their point of view.		2.3.5, 2.3.6]
MEASUREMENT				
Linear 3.1.1 Develop measurement sense and apply appropriate techniques when measuring, making comparisons and estimates.	3.2.1. Explain the suitability of the unit as it relates to the length to be measured. 3.2.2. Convert units and sub-units of measures of	3.3.1. Appreciate the functional role of the linear measures in their everyday lives. 3.3.2. Demonstrate confidence in their abilities to	1. Apply measurement principles, including using an instrument, estimation and approximation to solve a wide variety of practical	• Explain the need for and the importance of a larger or longer standard unit of measure for length. [3.1.1, 3.2.1, 3.3.1] • State the relationship between the kilometre and the metre. [3.1.3, 3.2.2, 3.3.1] • Convert kilometres to metres and vice

MATHEMATICS: STANDARD 3				
CONTENT	**SKILLS**	**DISPOSITIONS**	**OUTCOMES**	**ELABORATIONS**
Students will:				
3.1.2 Understand that measures can be quantified using standard units (kilometres, metres and centimetres). 3.1.3 Understand the relationship between units of measure (km and m; m and cm) 3.1.4 Develop concept of perimeter using regular and irregular shapes. 3.1.5 Solve problems involving measures.	length. 3.2.3. Approximate lengths to the nearest metre and distances to the nearest kilometre. 3.2.4. Estimate lengths in centimetres and metres and verify results and determine reasonableness of estimates. 3.2.5. Solve computational problems and real-life problem involving length. 3.2.6. Differentiate	estimate and measure and in solving problems related to linear measure.	problems. 2. Develop a conceptual understanding of perimeter. 3. Solve problem involving linear measure.	versa. [3.1.3, 3.2.2, 3.3.1, 3.3.2] • Convert metres to centimetres and vice versa. [3.1.3, 3.2.2, 3.3.1, 3.3.2] • Select and use the most appropriate standard unit for measuring various lengths/distances. [3.1.1, 3.1.2, 3.2.1, 3.3.1, 3.3.2] • Approximate distances to the nearest kilometre or metre. [3.1.1, 3.2.3, 3.3.1] • Estimate lengths in centimetres and metres and verify lengths by measuring. [3.1.1, 3.1.2, 3.2.4, 3.3.1, 3.3.2] • Explain the reasonableness of estimations. [3.1.1, 3.2.4, 3.3.2] • Solve computational problems involving the metre and the centimetre

MATHEMATICS: STANDARD 3				
CONTENT	**SKILLS**	**DISPOSITIONS**	**OUTCOMES**	**ELABORATIONS**
Students will:				
	between area and perimeter. 3.2.7. Measure and calculate the perimeter of regular and irregular shapes and compare and order. 3.2.8. Solve problems involving perimeter.			by using the relationship between them. [3.1.3, 3.1.5, 3.2.5, 3.3.2] • Solve real-life problems involving length, number and money. [3.1.5, 3.2.5, 3.3.2] • Investigate the distance around shapes to determine the perimeter of shapes. [3.1.4, 3.2.6, 3.3.1] • Explain the difference between area and perimeter. [3.1.4, 3.2.6, 3.3.1] • Measure the perimeter of shapes using standard units. [3.1.4, 3.2.7, 3.3.1] • Count and record the number of units used to measure the perimeter of a shape. [3.1.4, 3.2.7, 3.3.1] • Compare and order the perimeter of two or more shapes and explain reasons

MATHEMATICS: STANDARD 3				
CONTENT	**SKILLS**	**DISPOSITIONS**	**OUTCOMES**	**ELABORATIONS**
Students will:				
				using appropriate language. [3.1.4, 3.2.7, 3.3.1] • Calculate the perimeter of regular and irregular plane shapes. [3.1.5, 3.2.8, 3.3.2] • Solve problems involving perimeter. [3.1.5, 3.2.8, 3.3.2]
Mass/Weight 3.1.6 Develop measurement sense and apply appropriate techniques when measuring, making comparisons and estimates. 3.1.7 Understand that	3.2.9. Identify grams as a standard unit for measuring mass/weight and measure mass/weight of objects in grams. 3.2.10. Compare, measure and estimate	3.3.3. Demonstrate the need for accuracy and precision with respect to measure. 3.3.4. Develop a sense of inventiveness and collaboration in	4. Demonstrate appropriate techniques when measuring, estimating, and quantifying mass/weight. 5. Solve problems involving	• Recognize the need for a unit smaller than the kilogram to measure mass/weight. [3.1.6, 3.1.7, 3.2.9, 3.3.3] • Measure the mass/weight of objects in grams. [3.1.6, 3.1.7, 3.2.9, 3.3.3] • Measure and compare the masses/weights of objects in kilograms and grams using a set of scales. [3.1.6,

MATHEMATICS: STANDARD 3				
CONTENT	**SKILLS**	**DISPOSITIONS**	**OUTCOMES**	**ELABORATIONS**
Students will:				
measures can be quantified using standard units. 3.1.8 Understand the relationship between units of measure (kg and g). 3.1.9 Solve problems involving mass/weight.	mass/weight in kilograms and grams and determine the reasonableness of answers or estimates. 3.2.11. State the relationship between the kilogram and gram and select and use the most appropriate standard unit for measuring mass/weight. 3.2.12. Solve problems involving the measure of	solving real-life problems in relation to measures.	measures of mass/weight.	3.1.7, 3.2.9, 3.2.10, 3.3.3] • Recognize that 1 000 grams is equal to one kilogram. [3.1.8, 3.2.11, 3.3.3] • Estimate the mass/weight of objects, verify their mass/weight by measuring and determine reasonableness of estimate. [3.1.6, 3.1.7, 3.2.10, 3.3.3] • Convert units of measure (grams to kilograms, kilograms to grams). [3.1.8, 3.2.11, 3.3.3] • Interpret statements, and discuss the use of grams and kilograms, on commercial packaging. [3.1.8, 3.2.11, 3.3.3] • Solve real-life problems involving mass/weight, number and money. [3.1.9, 3.2.12, 3.3.4]

MATHEMATICS: STANDARD 3				
CONTENT	**SKILLS**	**DISPOSITIONS**	**OUTCOMES**	**ELABORATIONS**
Students will:				
	mass/weight.			
Time 3.1.10 Develop measurement sense and apply appropriate techniques when measuring using instruments. 3.1.11 Read, interpret and record calendar dates in a variety of formats. 3.1.12 Solve problems involving time.	3.2.13. Read and tell time in five minute intervals on analog and digital clocks. 3.2.14. Recognize and use a.m. and p.m. in communication of information on time. 3.2.15. Tell time using a 24 hour clock. 3.2.16. Compare the duration of	3.3.5. Appreciate the functional role of the measurement of time in their everyday lives. 3.3.6. Demonstrate confidence in ones abilities to estimate and measure time.	6. Apply measurement principles, including using an instrument, to solve a wide variety of problems. 7. Read, interpret and record calendar dates in a variety of formats.	• Tell time in five minute intervals using the digital and analog clocks. [3.1.10, 3.2.13, 3.3.5, 3.3.6] • Match times shown on digital and analog clocks and record the time. [3.1.10, 3.2.13, 3.3.5] • State the time after given intervals on analog and digital clocks. [3.1.10, 3.2.13, 3.3.5] • Read and record time using the a.m. and p.m. notation and justify the need for such records. [3.1.10, 3.2.14, 3.3.5] • Read times from a 24 hour clock and match to the analog and digital times.

MATHEMATICS: STANDARD 3				
CONTENT	**SKILLS**	**DISPOSITIONS**	**OUTCOMES**	**ELABORATIONS**
Students will:				
	various events. 3.2.17. Read, interpret and record calendar dates in a variety of formats. 3.2.18. Solve real-life problems involving the measure of time.			[3.1.10, 3.2.15, 3.3.5] • Compare the duration of a variety of events by noting the starting and ending times and calculating the difference. [3.1.10, 3.2.16, 3.3.5] • Use the calendar to identify and read dates. [3.1.11, 3.2.17, 3.3.5] • Write, read and interpret dates in a variety of formats, e.g. yyyy/mm/dd, dd/mm/yyyy, March 21, 2006, dd/mm/yy. [3.1.11, 3.2.17, 3.3.5] • Solve problems involving time. [3.1.12, 3.2.18, 3.3.6]
Capacity 3.1.13 Develop measurement	3.2.19. Explain the need for and the importance of a	3.3.7. Appreciate the functional role	8. Demonstrate appropriate techniques	• Explain the need for and the importance of a smaller standard unit

MATHEMATICS: STANDARD 3				
CONTENT	**SKILLS**	**DISPOSITIONS**	**OUTCOMES**	**ELABORATIONS**
Students will:				
sense and apply appropriate techniques when measuring, approximating, estimating and verifying capacity. 3.1.14 Understand that measures can be quantified using standard units. 3.1.15 Understand the relationship between units of measure. 3.1.16 Solve problems involving capacity.	smaller standard unit of measure for capacity. 3.2.20. Measure capacity using standard units (litres, sub-units (millilitres (ml), ½ litre and ¼ litre) and multiple units (e.g. 3 litres). 3.2.21. Estimate capacity and determine the reasonableness of the answers or estimation. 3.2.22. Establish the relationship between the litre	of the measurement of capacity in their everyday lives. 3.3.8. Demonstrate confidence in solving problems related to the measurement of capacity.	when measuring capacity. 9. Solve problems involving measures of capacity.	of measure for capacity. [3.1.13, 3.1.14, 3.2.19, 3.3.7] • Measure the capacity of containers using sub-units and multiple units of the litre and justify choice of unit. [3.1.13, 3.1.14, 3.2.20, 3.3.7] • Measure the capacity of containers using the litre and the millilitre. [3.1.13, 3.1.14, 3.2.20, 3.3.7] • Estimate the capacity of containers in litre and millilitre, verify by measuring and determine reasonableness of estimate. [3.1.14, 3.2.21, 3.3.7] • State the relationship between the litre and millilitre and convert from one to the other. [3.1.15, 3.2.22, 3.3.7] • Approximate measure of capacity to

MATHEMATICS: STANDARD 3				
CONTENT	**SKILLS**	**DISPOSITIONS**	**OUTCOMES**	**ELABORATIONS**
Students will:				
	and millilitre. 3.2.23. Approximate measures to the nearest litre. 3.2.24. Solve real-life problems involving the measure of capacity.			the nearest litre. [3.1.14, 3.2.23, 3.3.7] • Solve problems involving capacity, number and money. [3.1.16, 3.2.24, 3.3.8]
Area 3.1.17 Understand that measures can be quantified using standard units. 3.1.18 Develop measurement sense and apply appropriate	3.2.25. Explain the need for and the importance of a standard unit of measure for area. 3.2.26. Select and use the most	3.3.9. Appreciate measures in everyday use. 3.3.10. Display a sense of inventiveness in selecting standard units	10. Demonstrate an understanding of measures of area. 11. Solve problems involving	• Explain the need for and the importance of a standard unit of measure for area. [3.1.17, 3.2.25, 3.3.9] • Measure area using standard units (cm^2, m^2) and record measure. [3.1.17, 3.2.26, 3.3.9, 3.3.10]

MATHEMATICS: STANDARD 3				
CONTENT	**SKILLS**	**DISPOSITIONS**	**OUTCOMES**	**ELABORATIONS**
Students will:				
techniques when measuring, making comparisons, approximating and estimating. 3.1.19 Demonstrate an understanding about the conservation of area. 3.1.20 Solve problems involving area.	appropriate standard unit for measuring area (square centimetre - cm^2, square metre - m^2) for small and large surfaces. 3.2.27. Develop skills in the comparison of area and approximation of area to the nearest square metre (m^2) and square centimetre (cm^2). 3.2.28. Calculate area of plane shapes	when measuring area. 3.3.11. Demonstrate confidence in their abilities to calculate and compare area.	measures of area.	• Compare and order area of surfaces and explain reasoning using appropriate vocabulary. [3.1.18, 3.2.27, 3.3.11] • Approximate the area of surfaces to the nearest square metre or square centimetre. [3.1.18, 3.2.27, 3.3.10] • Select the appropriate unit of measure when measuring surfaces of varying sizes and explain the suitability of the unit. [3.1.18, 3.2.26, 3.3.10] • Calculate area of shapes drawn on a cm^2 grid. [3.1.20, 3.2.28, 3.3.11] • Draw different shapes on grids that have the same area. [3.1.20, 3.2.28, 3.3.11] • Explore activities associated with conservation of area and state findings/generalizations. [3.1.19,

MATHEMATICS: STANDARD 3				
CONTENT	**SKILLS**	**DISPOSITIONS**	**OUTCOMES**	**ELABORATIONS**
Students will:				
	on a grid with unit squares. 3.2.29. Explore the conservation of area. 3.2.30. Solve problems involving area.			3.2.29, 3.3.11] • Solve problems involving area, number and money. [3.1.20, 3.2.30, 3.3.11]
Language 3.1.21 Develop appropriate vocabulary associated with measurement.	3.2.31. Use appropriate vocabulary in oral and written communication.	3.3.12. Communicate with confidence using language related to measurement. 3.3.13. Demonstrate an appreciation for others by listening to	12. Communicate effectively using vocabulary associated with measurement.	• Use appropriate language associated with measurement, such as: kilometre (km), perimeter, square metre/s (m^2), square centimetre/s (cm^2), millilitre (ml), distance around, calculate, reasonable answer, solve problems, approximation, width, breadth, a.m. and p.m. notation. [3.1.21, 3.2.31, 3.3.12, 3.3.13]

MATHEMATICS: STANDARD 3				
CONTENT	**SKILLS**	**DISPOSITIONS**	**OUTCOMES**	**ELABORATIONS**
Students will:				
		their point of view.		
STATISTICS				
Tally Charts and Bar Graphs 4.1.1.Use statistical techniques to investigate real-life problems. 4.1.2.Demonstrate the ability to collect, classify, organize and represent data. 4.1.3.Demonstrate an understanding about the features of graphs and	4.2.1. Formulate a problem situation. 4.2.2. Collect data (using observation and frequency counts) and classify data through investigation of a problem/question based on a real-life situation. 4.2.3. Identify characteristics of	4.3.1. Demonstrate awareness that numerical data can be communicated visually. 4.3.2. Demonstrate a willingness to predict outcomes based on the interpretation of data. 4.3.3. Display	1. Demonstrate the ability to formulate a problem, collect, organize, represent and interpret data on tally charts and bar graphs (using different scale factors) to make sound decisions and solve problems. 2. Demonstrate an	TALLY CHARTS • Formulate a problem to be investigated e.g. A school plans to purchase equipment for various sports. What type of equipment should be purchased? What amount of material should be purchased? [4.1.1, 4.2.1] • Collect and classify data to make decisions based on a real-life situation or problem. [4.1.1, 4.1.2, 4.2.2, 4.3.3] • Identify the features of tally charts.

MATHEMATICS: STANDARD 3				
CONTENT	**SKILLS**	**DISPOSITIONS**	**OUTCOMES**	**ELABORATIONS**
Students will:				
charts.

4.1.4. Make decisions based on analysis or interpretation of data.

4.1.5. Demonstrate the ability to present findings orally or in writing.

4.1.6. Demonstrate an understanding of the methods used to address the problem.

4.1.7. Make comparisons of the bar graphs with block | tally charts and bar graphs.

4.2.4. Choose an appropriate scale factor in the construction of the bar graph.

4.2.5. Construct tally charts and bar graphs using appropriate symbolic representations.

4.2.6. Interpret data from tally charts and bar graphs based on a real-life problem or situation.

4.2.7. Make informed | objectivity in collecting data so as to eliminate bias when making decisions. | understanding about the features of graphs and charts.

3. Demonstrate an understanding of the methods used to address the problem. | [4.1.3, 4.2.3, 4.3.1]

• State the advantages of recording data using tally marks. [4.1.3, 4.2.3, 4.3.1]

• Construct, interpret and make decisions based on information on tally charts. [4.1.2, 4.1.4, 4.2.6, 4.2.7, 4.3.2]

BAR GRAPHS

• Determine the features of bar graphs either through transformation of a block graph to a bar graph or by identifying features from presented (and interpreted) bar graphs. [4.1.3, 4.1.7, 4.2.3, 4.3.1]

• Use the frequency counts from tally charts to determine the appropriate scale factor to be used in the construction of bar graphs and justify choice of scale factor. [4.1.3, 4.2.4] |

MATHEMATICS: STANDARD 3				
CONTENT	**SKILLS**	**DISPOSITIONS**	**OUTCOMES**	**ELABORATIONS**
Students will:				
graphs.	decisions on data analysed. 4.2.8. Justify decisions made using data collected in writing and/or oral presentations. 4.2.9. Compare and contrast block graphs and bar graphs.			• Calculate the amounts to be represented on the bar graph using the scale factor. [4.1.3, 4.2.4] • Construct bar graphs (vertical or horizontal arrangements) on grid paper based on information collected and using different scale factors (scale factor 1: 1, 2, 5 and 10). [4.1.2, 4.1.3, 4.2.4, 4.2.5, 4.3.1] • Label axes and name the graph. [4.1.3, 4.2.3, 4.2.5] • Interpret and analyse the data so as to make decisions about a real-life situation or problem. [4.1.4, 4.2.6, 4.2.7, 4.3.1, 4.3.2] • Participate in decision-making to solve problems. [4.1.4, 4.2.7, 4.2.8, 4.3.3] • Communicate findings and justify decisions made using appropriate

MATHEMATICS: STANDARD 3				
CONTENT	**SKILLS**	**DISPOSITIONS**	**OUTCOMES**	**ELABORATIONS**
Students will:				
				vocabulary (orally or in writing). [4.1.5, 4.2.8, 4.3.3] • Describe the method used to solve the problem or address the situation. [4.1.6, 4.2.8, 4.2.9, 4.3.3] • Discuss the appropriateness of the type of graph used by comparing and contrasting it with a block graph. [4.1.7, 4.2.9, 4.3.3] (Depending on the experiences of students, teachers may decide to start with the interpretation of presented graphs, which can then be used to identify the characteristics of graphs. Graphs can then be appropriately constructed. Graphs can also be transformed from one form to another and this idea can be used to initiate interpretation of the same data using different representations).

MATHEMATICS: STANDARD 3				
CONTENT	**SKILLS**	**DISPOSITIONS**	**OUTCOMES**	**ELABORATIONS**
Students will:				
Language 4.1.8. Develop appropriate vocabulary associated with statistics.	4.2.10. Use appropriate vocabulary in oral and written communication.	4.3.4. Communicate with confidence using language related to statistics. 4.3.5. Demonstrate an appreciation for others by listening to their point of view.	4. Communicate effectively using vocabulary associated with statistics.	• Use appropriate language associated with statistics, such as: bar, most frequent and survey. [4.1.8, 4.2.10, 4.3.4, 4.3.5]

Primary School Curriculum

Mathematics

Standard 4

MATHEMATICS: STANDARD 4

CONTENT	SKILLS	DISPOSITIONS	OUTCOMES	ELABORATIONS
Students will:				
NUMBER				
Number Concepts, Place Value and Rounding 1.1.1 Understand the concept of numbers up to 1 000 000. 1.1.2 Develop an understanding of different types of numbers. 1.1.3 Develop an understanding of place value up to 1 000 000 (concretely, pictorially and symbolically). 1.1.4 Develop an understanding of	1.2.1 Represent whole numbers to 1 000 000 using multiple models and connect to numerals and number names. 1.2.2 Differentiate between (a) factors and multiples and (b) prime and composite numbers, and identify square numbers. 1.2.3 Express numbers	1.3.1 Display interest while engaging in activities related to number concepts.	1. Recognize, represent, model, compare and order numbers up to 1 000 000 with reference to place value. 2. Demonstrate an understanding of different types of numbers. 3. Develop an understanding of rounding to	NUMBER CONCEPTS • Represent numbers up to one million concretely, pictorially and symbolically, using multiple models and connect to numerals and number names. [1.1.1, 1.2.1, 1.31] • Sequence number names and numerals. [1.1.1, 1.2.1, 1.31] • Describe the use of large numbers in real-life situations e.g. population, money applications. [1.1.1, 1.2.1, 1.3.1] • Explore factors and multiples of numbers (using resources, such as: multiplication and division tables and

MATHEMATICS: STANDARD 4				
CONTENT	**SKILLS**	**DISPOSITIONS**	**OUTCOMES**	**ELABORATIONS**
Students will:				
the comparison of numbers. 1.1.5 Develop an understanding of rounding to thousands.	to one million in expanded notation. 1.2.4 Compare and order whole numbers to millions. 1.2.5 Round whole numbers to the nearest thousand.		thousands.	calculators). [1.1.2, 1.2.2, 1.3.1] • Classify numbers as prime or composite (up to 100) by determining the number of factors. [1.1.2, 1.2.2, 1.3.1] • Explain why the array model of a prime number has only one row. [1.1.2, 1.2.2, 1.3.1] • Represent composite numbers as a product of their prime factors concretely, pictorially and symbolically. [1.1.2, 1.2.2, 1.3.1] • List square numbers (up to 144). [1.1.2, 1.2.2, 1.3.1] PLACE VALUE • Represent a given numeral using diagrams or a place value chart. [1.1.3,

MATHEMATICS: STANDARD 4				
CONTENT	SKILLS	DISPOSITIONS	OUTCOMES	ELABORATIONS
Students will:				
				1.2.3, 1.3.1] • State the place value of any digit in large numbers. [1.1.3, 1.2.3, 1.3.1] • Describe the pattern of adjacent place positions moving from right to left and left to right. [1.1.3, 1.2.3, 1.2.4, 1.3.1] • Describe the meaning of each digit in a given numeral. [1.1.3, 1.2.3, 1.3.1] • Express a given numeral in expanded notation, e.g. 45 321 = (4 × 10 000) + (5 × 1 000) + (3 × 100) + (2 × 10) + (1 × 1) or 40 000 + 5 000 + 300 + 20 + 1. [1.1.3, 1.2.3, 1.3.1] • Write the numeral represented by a given expanded notation. [1.1.3, 1.2.3, 1.3.1]

MATHEMATICS: STANDARD 4				
CONTENT	**SKILLS**	**DISPOSITIONS**	**OUTCOMES**	**ELABORATIONS**
Students will:				
				• State the value of each digit in a numeral. [1.1.3, 1.2.3, 1.2.4, 1.3.1] • Apply an understanding of place value to read, write and order numbers of any size up to 1 000 000. [1.1.3, 1.1.4, 1.2.3, 1.2.4, 1.3.1] • Compare whole numbers up to million and use the symbols > or < to show the relationship between them. [1.1.4, 1.2.3, 1.2.4, 1.3.1] • Order a given set of numbers in ascending or descending order and explain the order by making references to place value. [1.1.3, 1.1.4, 1.2.3, 1.2.4, 1.3.1] • Identify the missing numbers in an ordered sequence or on a number line. [1.1.3, 1.1.4, 1.2.3, 1.2.4, 1.3.1] • Identify incorrectly placed numbers in

MATHEMATICS: STANDARD 4				
CONTENT	**SKILLS**	**DISPOSITIONS**	**OUTCOMES**	**ELABORATIONS**
Students will:				
				an ordered sequence or on a number line. [1.1.3, 1.1.4, 1.2.3, 1.2.4, 1.3.1] ROUNDING • Round whole numbers to the nearest thousand. [1.1.5, 1.2.5, 1.3.1]
Number Patterns 1.1.6 Develop algebraic thinking (number patterns and number relationships). 1.1.7 Develop an understanding of different types of numbers by exploring their patterns.	1.2.6 Explore repeating, increasing and decreasing patterns. 1.2.7 Explore patterns involving the effects of adding or subtracting zero to/from a number and multiplying or	1.3.2 Show perseverance in finding solutions to problems that involve patterns. 1.3.3 Display perseverance while exploring properties of	4. Recognize and explore number patterns up to 1 000. 5. Develop an understanding of different types of numbers by exploring their patterns.	• Describe repeating, increasing or decreasing patterns with fractions, decimals and whole numbers resulting from addition, subtraction, multiplication and division by stating the pattern rule which includes the starting point and a description of how the pattern continues. [1.1.6, 1.1.7, 1.2.6, 1.3.2] • Use a pattern rule to determine missing elements for a given pattern and to extend or predict subsequent elements

MATHEMATICS: STANDARD 4				
CONTENT	**SKILLS**	**DISPOSITIONS**	**OUTCOMES**	**ELABORATIONS**
Students will:				
1.1.8 Understand that pattern recognition can assist in solving problems.	dividing a number by one, factors and multiples of numbers, prime and composite numbers, square numbers and square roots, compatible numbers within 1 000, double and half facts, use of related facts and multiplication and related division facts up to 12 times table. 1.2.8 Use pattern recognition to solve problems.	numbers.	6. Develop an understanding that pattern recognition can aid in problem solving.	in patterns. [1.1.6, 1.1.7, 1.1.8, 1.2.6, 1.2.7, 1.3.2] • Describe (verbally or written) a given pattern and explain how each element differs from the proceeding one. E.g. one more, five less. [1.1.6, 1.1.7, 1.1.8, 1.2.6, 1.2.7, 1.3.2] • Recognize when an error occurs in a pattern and explain what is wrong. [1.1.6, 1.1.7, 1.1.8, 1.2.6, 1.2.7, 1.3.2] • Use calculators to assist in determining the pattern rule and extending patterns. [1.1.6, 1.1.7, 1.1.8, 1.2.6, 1.2.7, 1.3.2] • Create repeating, increasing and decreasing number patterns and explain the pattern rule. [1.1.6, 1.1.7, 1.1.8, 1.2.6, 1.2.7, 1.3.2, 1.3.3] • Explore, describe and record patterns related to the effects of

MATHEMATICS: STANDARD 4				
CONTENT	**SKILLS**	**DISPOSITIONS**	**OUTCOMES**	**ELABORATIONS**
Students will:				
				adding/subtracting zero to/from a number and multiplying/dividing a number by one, factors and multiples of numbers, prime and composite numbers, square numbers and square roots, compatible numbers within 1 000, double and half facts, use of related facts and multiplication and related division facts up to 12 times table and explain generalizations about number relationships. [1.1.6, 1.1.7, 1.2.7, 1.3.2, 1.3.3] • Solve problems involving the use of patterns. [1.1.6, 1.1.7, 1.1.8, 1.2.6, 1.2.7, 1.2.8, 1.3.2, 1.3.3]
Number Relationships 1.1.9 Explore algebraic thinking (number patterns and number	1.2.9 Calculate the unknown in number sentences	1.3.4 Show perseverance in finding solutions to	7. Solve problems involving number sentences with	• Calculate the missing values in number sentences with one unknown involving addition, subtraction, multiplication and division of whole numbers, by using various strategies, such as guess and

MATHEMATICS: STANDARD 4

CONTENT	SKILLS	DISPOSITIONS	OUTCOMES	ELABORATIONS
Students will:				
relationships). 1.1.10 Make sense of number sentences involving one unknown.	involving the four operations and explain procedures used.	problems.	one unknown.	check, using the inverse operation and recalling memorized facts. [1.1.9, 1.1.10, 1.2.9, 1.3.4] • Explain procedures used in solving problems. [1.1.9, 1.1.10, 1.2.9, 1.3.4]
Whole Number (Operations) 1.1.11 Create and solve problems using whole numbers involving the four operations. 1.1.12 Develop and apply mental mathematics strategies to solve problems involving whole	1.2.10 Solve problems in addition (sum less than 10 000) and subtraction (minuend less than 10 000). 1.2.11 Multiply 2, 3 and 4 digit numbers by 2 digit numbers. 1.2.12 Divide 2, 3 and 4	1.3.5 Develop confidence in working independently in using a variety of strategies to solve problems.	8. Solve problems using whole numbers involving the four operations. 9. Demonstrate an understanding of algorithms, mental strategies and estimation	FOUR OPERATIONS – ADDITION, SUBTRACTION, MULTIPLICATION AND DIVISION • Create and solve problems in addition (sum less than 10 000), subtraction (minuend less than 10 000), multiplication (two, three or four-digit numbers by two-digit numbers) and division (two, three or four digits by a two-digit number) by using appropriate written algorithm and mental strategies. [1.1.11, 1.1.12, 1.2.10, 1.2.11, 1.2.12,

MATHEMATICS: STANDARD 4				
CONTENT	**SKILLS**	**DISPOSITIONS**	**OUTCOMES**	**ELABORATIONS**
Students will:				

numbers.
 	
1.1.13 Use estimation strategies in problem solving contexts with whole numbers.
	digit numbers by 2 digit numbers (with and without remainder).
	
	1.2.13 Investigate and apply mental mathematics strategies in solving problems.
	
	1.2.14 Use estimation strategies (front-end rounding, compensation and compatible numbers) to check and justify answers in problem solving contexts and to determine the
			strategies.	1.2.13, 1.3.5]
				
				• Use different notations to indicate division e.g. $240 \div 12$, $12\overline{)240}$ [1.1.11, 1.2.12, 1.3.5]
				
				• Record remainders in division problems as fractions e.g. $25 \div 4 = 6\frac{1}{4}$. [1.1.11, 1.2.12, 1.3.5]
				
				• Explore, describe and use a range of mental strategies and recording strategies for solving problems, including:
				  o Compatible numbers within 1 000
				  o Double and half facts
				  o Use of related facts
				  o Multiplication and related division facts up to 12 times table
				  o Square numbers and square roots. [1.1.11, 1.1.12, 1.2.10, 1.2.11, 1.2.12, 1.2.13, 1.3.5]

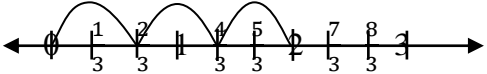| MATHEMATICS: STANDARD 4				
CONTENT	**SKILLS**	**DISPOSITIONS**	**OUTCOMES**	**ELABORATIONS**
Students will:				

	reasonableness of answers.
	
	1.2.15 Check solutions to problems by using the inverse operations.
	
	1.2.16 Determine the approximate solution to a problem that does not require an exact answer.
				• Use estimation strategies such as:
				  o Front-end rounding (e.g. Addition: 456 + 729 is greater than 400 + 700; Subtraction: 805 – 210 is close to 800 – 200; Multiplication: the product of 13 × 25 is more than 10 × 20; Division: the quotient of 645 ÷ 15 is less than 600 ÷ 10)
				  o Compensation (e.g. 173 + 282 + 368 + 189 + 572 is close to 200 + 300 + 400 + 200 + 500 = 1 600; because 572 is rounded **down** to compensate for all the other numbers being rounded **up**)
				  o Compatible numbers (e.g. 3 248 ÷ 16; think of a basic fact that relates to the problem: 32 ÷ 16 = 2; divide: 3 200 ÷ 16 = 200; 3 248 ÷ 16 is about 200)
				to check solutions to addition, subtraction, multiplication and division problems, including those involving money, and determine reasonableness

MATHEMATICS: STANDARD 4				
CONTENT	**SKILLS**	**DISPOSITIONS**	**OUTCOMES**	**ELABORATIONS**
Students will:				
				of answers. [1.1.13, 1.2.14, 1.3.5] • Use the inverse operations to check the solutions to problems. [1.1.11, 1.2.15, 1.3.5] • Determine the approximate solution to a problem that does not require an exact answer. [1.1.11, 1.2.16, 1.3.5]
Fractions 1.1.14 Demonstrate an understanding of solving problems involving fractions and the four operations.	1.2.17 Add a fraction to a whole number. 1.2.18 Subtract a fraction from a whole number. 1.2.19 Add and subtract fractions involving same denominator and one denominator	1.3.6 Develop confidence in working independently in using a variety of strategies to solve problems involving fractions.	10. Develop and apply procedures to solve problems involving fractions and the four operations.	FRACTIONS – ADDITION AND SUBTRACTION • Model addition of a fraction to a whole number using concrete and pictorial representations and record symbolically, and explain findings. [1.1.14, 1.2.17, 1.3.6] • Model subtraction of a fraction from a whole number using concrete and pictorial representations and record

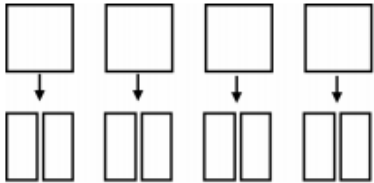| MATHEMATICS: STANDARD 4				
CONTENT	**SKILLS**	**DISPOSITIONS**	**OUTCOMES**	**ELABORATIONS**
Students will:				
	a multiple of the other. 1.2.20 Multiply fractions by whole numbers. 1.2.21 Calculate the whole given a part as a unit fraction. 1.2.22 Divide whole numbers by fractions. 1.2.23 Solve real-life problems involving fractions and using the algorithms developed.			symbolically, and explain findings. [1.1.14, 1.2.18, 1.3.6] • Develop and apply the algorithm for subtracting a fraction from a whole number to solve problems. [1.1.14, 1.2.18, 1.2.23, 1.3.6] • Model addition and subtraction of fractions involving the same denominator using concrete and pictorial representations, record symbolically and explain pattern observed. [1.1.14, 1.2.19, 1.3.6] • Develop and use the algorithm for solving problems involving the addition and subtraction of fractions involving the same denominator. [1.1.14, 1.2.19, 1.2.23, 1.3.6] • Model addition and subtraction of fractions involving one denominator a multiple of the other using concrete and

MATHEMATICS: STANDARD 4				
CONTENT	**SKILLS**	**DISPOSITIONS**	**OUTCOMES**	**ELABORATIONS**
Students will:				
				pictorial representations, record symbolically and explain pattern observed. [1.1.14, 1.2.19, 1.3.6] • Develop and use the algorithm for solving problems involving the addition and subtraction of fractions involving one denominator a multiple of the other by utilizing equivalent fractions. [1.1.14, 1.2.19, 1.2.23, 1.3.6] FRACTIONS – MULTIPLICATION • Model the multiplication of proper fractions by whole numbers concretely, pictorially and symbolically and record the process. E.g. You gave your 3 friends $\frac{2}{3}$ of a sandwich each. How many sandwiches did you give away? [1.1.14, 1.2.20, 1.3.6]

MATHEMATICS: STANDARD 4				
CONTENT	**SKILLS**	**DISPOSITIONS**	**OUTCOMES**	**ELABORATIONS**
Students will:				
				• Multiply proper fractions by whole numbers using strategies such as, repeated addition, proceeding to a rule e.g. $3 \times \frac{2}{5} = \frac{2}{5} + \frac{2}{5} + \frac{2}{5} = \frac{6}{5}$ will lead to $3 \times \frac{2}{5} = \frac{3 \times 2}{5} = \frac{6}{5}$. [1.1.14, 1.2.20, 1.3.6] • Calculate fractions of a collection or set. E.g. What is $\frac{1}{2}$ of 30? [1.1.14, 1.2.20, 1.3.6] • Calculate the whole given a part expressed as a unit fraction. [1.1.14, 1.2.21, 1.3.6] • Derive and describe patterns resulting from the multiplication of fractions by whole numbers. [1.1.14, 1.2.20, 1.2.21, 1.3.6] • Develop and use the algorithm to solve a variety of real-life problems involving multiplication of fractions. [1.1.14,

MATHEMATICS: STANDARD 4				
CONTENT	**SKILLS**	**DISPOSITIONS**	**OUTCOMES**	**ELABORATIONS**
Students will:				
				1.2.23, 1.3.6] FRACTIONS – DIVISION • Model the concept of division concretely or pictorially to develop the skill of dividing a whole number by a fraction and record the process e.g. I have 4 crackers that I want to divide into halves. How many pieces would I have? [1.1.14, 1.2.22, 1.3.6] • Derive and describe patterns resulting from the division of whole numbers by fractions. [1.1.14, 1.2.22, 1.3.6]

MATHEMATICS: STANDARD 4				
CONTENT	**SKILLS**	**DISPOSITIONS**	**OUTCOMES**	**ELABORATIONS**
Students will:				
				• Develop and use the algorithm to solve a variety of real-life problems involving division of whole numbers by fractions. [1.1.14, 1.2.22, 1.2.23, 1.3.6]
Decimals 1.1.15 Demonstrate an understanding of decimals up to hundredths. 1.1.16 Develop an understanding of the comparison of decimals. 1.1.17 Develop an understanding of rounding. 1.1.18 Develop an understanding of the algorithm for	1.2.24 Explore the place value of decimals to hundredths including expanded notation. 1.2.25 Compare and order decimals up to hundredths. 1.2.26 Round decimals to the nearest whole number	1.3.7 Display curiosity while engaging in activities related to decimals.	11. Demonstrate an understanding of decimals up to hundredths. 12. Develop an understanding of the comparison of decimals. 13. Develop an understanding of rounding to whole numbers	PLACE VALUE – TENTHS AND HUNDREDTHS • Explore concrete (base ten blocks, fraction models) and pictorial representations (number lines and fraction charts) to introduce base ten fractions (tenths). [1.1.15, 1.2.24, 1.3.7] • Extend place value chart to include decimal fractions (tenths). [1.1.15, 1.2.24, 1.3.7] • Use decimal notation as another form of writing base ten fractions (tenths). E.g. 0.1 is the same as $\frac{1}{10}$. [1.1.15,

MATHEMATICS: STANDARD 4

CONTENT	SKILLS	DISPOSITIONS	OUTCOMES	ELABORATIONS
Students will:				
addition and subtraction of decimals. 1.1.19 Solve one-step problems involving decimals. 1.1.20 Develop estimation skills.	and tenth. 1.2.27 Relate decimals to fractions and money. 1.2.28 Solve real-world problems involving the addition and subtraction of decimals to hundredths using the algorithm. 1.2.29 Use estimation skills to check solutions to problems and determine reasonableness of answer.		and tenths. 14. Develop and apply procedures to solve problems involving the addition and subtraction of decimals. 15. Develop estimation skills.	1.2.24, 1.3.7] • Represent decimals (tenths) concretely on a place value mat, pictorially and symbolically and read the amount represented. [1.1.15, 1.2.24, 1.3.7] • Match the number names (e.g. Two and five tenths) and decimal fractions (e.g. 2.5) to the quantities they represent. [1.1.15, 1.2.24, 1.3.7] • Write decimal fractions using the expanded notation form. [1.1.15, 1.2.24, 1.3.7] • Convert expanded notation to decimal fractions. [1.1.15, 1.2.24, 1.3.7] • State the place value and value of digits in decimal fractions. [1.1.15, 1.2.24, 1.3.7]

MATHEMATICS: STANDARD 4				
CONTENT	**SKILLS**	**DISPOSITIONS**	**OUTCOMES**	**ELABORATIONS**
Students will:				
				• Compare decimal fractions and use the symbols > or < or = to show the relationship between them. [1.1.16, 1.2.25, 1.3.7] • Compare and order decimal fractions in ascending and descending order. [1.1.16, 1.2.25, 1.3.7] (REPEAT THE ABOVE FOR HUNDREDTHS) • Explain that ten tenths is equivalent to one whole and that ten hundredths is equivalent to one tenth. [1.1.15, 1.2.24, 1.3.7] • Round decimal fractions to the nearest whole number or to the nearest tenth. [1.1.17, 1.2.26, 1.3.7] • Express common fractions (halves, quarters, fifths and tenths) as decimal fractions (tenths and hundredths).

MATHEMATICS: STANDARD 4				
CONTENT	**SKILLS**	**DISPOSITIONS**	**OUTCOMES**	**ELABORATIONS**
Students will:				
				[1.1.5, 1.2.27, 1.3.7] • Express decimals as common fractions. [1.1.5,1.2.27, 1.3.7] • Record money values using decimals. [1.1.5, 1.2.27, 1.3.7] ADDITION AND SUBTRACTION • Solve problems involving the addition and subtraction of decimals by using concrete and pictorial representations of base ten materials, and explain the procedure used. [1.1.18, 1.2.28, 1.3.7] • Record the procedure used for solving addition and subtraction problems involving decimals, symbolically, and explain the algorithm. [1.1.18, 1.2.28, 1.3.7]

MATHEMATICS: STANDARD 4				
CONTENT	**SKILLS**	**DISPOSITIONS**	**OUTCOMES**	**ELABORATIONS**
Students will:				
				• Explain why keeping track of place value positions is important when adding and subtracting decimals. [1.1.18, 1.2.28, 1.3.7] • Solve problems involving the addition and subtraction of decimals, including money. [1.1.18, 1.1.19, 1.2.28, 1.3.7] • Use estimation skills to check solutions to problems and determine reasonableness of answers. [1.1.20, 1.2.29, 1.3.7]
Problem Solving 1.1.21 Solve multi-step problems involving whole numbers, fractions and decimals using a variety of	1.2.30 Solve one-step and multi-step problems involving whole numbers, fractions and decimals (including	1.3.8 Develop confidence in working independently in selecting and using various mental and written	16. Solve multi-step problems involving whole numbers, fractions and decimals using algorithms,	• Solve one-step and multi-step problems involving whole numbers, fractions and decimals (including money transactions, bills, best buy, profit and loss, involving dollars and cents together –e.g. $4.50) using the four operations. [1.1.21, 1.2.30, 1.3.8]

MATHEMATICS: STANDARD 4				
CONTENT	**SKILLS**	**DISPOSITIONS**	**OUTCOMES**	**ELABORATIONS**
Students will:				
strategies.	money transactions, bills, best buy, profit and loss) using the four operations and a variety of strategies. 1.2.31 Use estimation strategies (front-end rounding, compensation and compatible numbers) to check and justify answers in problem solving contexts and to determine the reasonableness of answers. 1.2.32 Investigate and	strategies to solve problems.	mental strategies and other problem solving strategies. 17. Solve problems involving direct proportion.	• Solve routine and non-routine problems using a variety of strategies such as: use a model, act it out, draw a picture, look for a pattern, guess and check, work backwards, logical reasoning, make a table or chart, make an organized list and try a simpler form of the problem. [1.1.21, 1.2.30, 1.3.8] • Solve problems in mathematical games. [1.1.21, 1.2.30, 1.3.8] • Select and use appropriate estimation strategies to check for reasonableness of answers and use calculators to check answers/solutions. [1.1.21, 1.2.31, 1.3.8] • Investigate and apply mental mathematics strategies and skills to solve problems, such as, the use of related facts, compatible numbers within 1 000, multiplication and related division facts up to 12 times table and

MATHEMATICS: STANDARD 4

CONTENT	SKILLS	DISPOSITIONS	OUTCOMES	ELABORATIONS
Students will:				
	apply mental mathematics strategies and skills to solve problems. 1.2.33 Solve real-world problems involving direct proportion. 1.2.34 Determine the approximate solution to a problem that does not require an exact answer.			squares and square roots. [1.1.21, 1.2.32, 1.3.8] • Pose and solve problems involving direct proportions e.g. 'If the cost of 6 apples is $30, what would be the cost of 4 apples?' [1.1.21, 1.2.33, 1.3.8] • Determine the approximate solution to a problem that does not require an exact answer. [1.1.21, 1.2.34, 1.3.8]
Language 1.1.22 Develop appropriate vocabulary	1.2.35 Use appropriate vocabulary associated with	1.3.9 Communicate with confidence using language	18. Communicate effectively using	• Use appropriate language associated with number, such as: hundred, thousand, million, divisor, dividend,

MATHEMATICS: STANDARD 4				
CONTENT	**SKILLS**	**DISPOSITIONS**	**OUTCOMES**	**ELABORATIONS**
Students will:				
associated with number.	number, orally and in writing.	related to number. 1.3.10 Demonstrate an appreciation for others by listening to their point of view.	vocabulary associated with number.	quotient, multiple, factor, prime, composite, decimal, tenths, hundredths, best buy, square, square root, calculate, decimal point read as "and" e.g. 2.35 – 2 and 35 hundredths, also read as two point three five, product, reasonable answer and approximate. [1.1.22, 1.2.35, 1.3.9, 1.3.10]
GEOMETRY				
Solids and Plane Shapes 2.1.1 Develop an understanding of the properties of solids and plane shapes. 2.1.2 Solve problems involving solids	2.2.1 Draw the faces of solids and explore their properties. 2.2.2 Construct and draw regular and irregular polygons given their properties using	2.3.1 Display collaboration while working in groups.	1. Demonstrate an understanding of the properties of solids and plane shapes. 2. Solve problems involving	• Draw faces of solids and describe their properties (e.g. shape of faces, number of faces, parallel and perpendicular lines, angles – right, non-right and equal, number of sides). [2.1.1, 2.2.1, 2.3.1] • Construct and draw plane shapes given a description of its properties and

MATHEMATICS: STANDARD 4

CONTENT	SKILLS	DISPOSITIONS	OUTCOMES	ELABORATIONS
Students will:				
and plane shapes.	the principles of parallel and perpendicular lines, angles and number of sides. 2.2.3 Solve problems involving solids and plane shapes.		solids and plane shapes.	using appropriate resources including computer software. [2.1.1, 2.2.2, 2.3.1] • Solve problems involving solids and plane shapes. [2.1.2, 2.2.3, 2.3.1]
Angles 2.1.3 Explore angles in solids and plane shapes.	2.2.4 Recognize an angle as an amount of turn (whole turn, three quarter turn, half turn, and quarter turn). 2.2.5 Describe the right angle as a quarter turn.	2.3.2 Display curiosity through the exploration of angles.	3. Demonstrate an understanding of angles.	• Explore and describe turns in the environment, such as the opening and closing of doors and the movement of hands of a clock. [2.1.3, 2.2.4, 2.3.2] • Describe an amount of turn (e.g. whole turn, three quarter turn, half turn or quarter turn) using geo-strips to model the turns. [2.1.3, 2.2.4, 2.2.5, 2.3.2] • Describe an angle as a measure of turn

MATHEMATICS: STANDARD 4				
CONTENT	**SKILLS**	**DISPOSITIONS**	**OUTCOMES**	**ELABORATIONS**
Students will:				
	2.2.6 Investigate angles (right angle, angles greater than and smaller than right angles) in regular and irregular polygons and faces of solids. 2.2.7 Draw shapes with angles of various sizes.			and name the quarter turn as a right angle or the angle formed when perpendicular lines meet. [2.1.3, 2.2.5, 2.2.6, 2.3.2] • Identify angles on faces of solids or plane shapes that are right angles, greater than right angles or smaller than right angles. [2.1.3, 2.2.6, 2.3.2] • Draw shapes with angles of various sizes and describe the angles. [2.1.3, 2.2.7, 2.3.2]
Triangles 2.1.4 Explore the properties of triangles.	2.2.8 Classify triangles (same, similar or different) based on properties of sides and angles. 2.2.9 Recognize and	2.3.3 Display curiosity in the exploration of triangles.	4. Demonstrate an understanding of the different types of triangles based on properties of sides and	• Sort a given set of triangles into groups and explain the sorting rule. [2.1.4, 2.2.8, 2.3.3] • Match triangles that are the same, similar or different and explain reasoning. [2.1.4, 2.2.8, 2.3.3]

MATHEMATICS: STANDARD 4				
CONTENT	**SKILLS**	**DISPOSITIONS**	**OUTCOMES**	**ELABORATIONS**
Students will:				
	name types of triangles: scalene, right, isosceles, equilateral.		angles.	• Classify triangles based on their properties of sides and angles. [2.1.4, 2.2.8, 2.3.3] • Identify and name triangles as scalene, right angled, isosceles and equilateral. [2.1.4, 2.2.9, 2.3.3] • Compare and describe the properties of the sides and angles of the scalene, right angled, isosceles and equilateral triangles. [2.1.4, 2.2.9, 2.3.3]
Language 2.1.5 Develop appropriate vocabulary associated with geometry.	2.2.10 Use appropriate vocabulary associated with geometry, orally and in writing.	2.3.4 Communicate with confidence using language related to geometry.	5. Communicate effectively using vocabulary associated with geometry.	• Use appropriate language associated with geometry, such as: angle, turn, rotation, clockwise, anti-clockwise, point, right angle, parallel, perpendicular, scalene, isosceles, and equilateral. [2.1.5, 2.2.10, 2.3.4]
MEASUREMENT				

MATHEMATICS: STANDARD 4				
CONTENT	**SKILLS**	**DISPOSITIONS**	**OUTCOMES**	**ELABORATIONS**
Students will:				
Linear 3.1.1 Understand that measures can be quantified using standard units and their sub-parts. 3.1.2 Apply measurement techniques to quantify measures for length. 3.1.3 Solve problems involving linear measure.	3.2.1. Identify the millimetre as a unit for measuring length. 3.2.2. Measure lengths in millimetre. 3.2.3. Measure lengths using combinations of millimetres, centimetres and metres. 3.2.4. Convert linear measures expressed as mm, cm and m. 3.2.5. State the meaning of the	3.3.1. Appreciate the functional role of measurement in their everyday lives.	1. Demonstrate an understanding of the relationship between standard units and their sub-parts to solve practical problems involving linear measure. 2. Demonstrate appropriate techniques when measuring. 3. Solve problems involving linear	• Recognise the need for a unit smaller than the centimetre (cm) to measure length. [3.1.1, 3.2.1, 3.3.1] • Measure and record lengths of objects and lines using the millimetre. [3.1.1, 3.1.2, 3.2.1, 3.2.2, 3.3.1] • Measure and record lengths or distances using combinations of millimetres, centimetres and metres. [3.1.1, 3.1.2, 3.2.1, 3.2.2, 3.2.3, 3.3.1] • Convert linear measure from one form to the other (millimetres, centimetres and metres). [3.1.1, 3.2.4, 3.3.1] • Recognise the significance of the prefixes (milli, centi, kilo) in units of measurement. [3.1.1, 3.2.5, 3.3.1]

MATHEMATICS: STANDARD 4

CONTENT	SKILLS	DISPOSITIONS	OUTCOMES	ELABORATIONS
Students will:				
	prefixes used in measurement. 3.2.6. Draw plane shapes given the perimeter. 3.2.7. Solve problems involving linear measure.		measure.	• Apply decimal knowledge to record measurements e.g. 123 cm = 1.23 m. [3.1.1, 3.2.4, 3.3.1] • Construct or draw two or more rectangles for a given perimeter in a problem-solving context. [3.1.3, 3.2.6, 3.3.1] • Measure and record the perimeter of a given irregular shape, and explain the strategy used. [3.1.1, 3.1.3, 3.2.6, 3.2.7, 3.3.1] • Solve problems involving length. [3.1.1, 3.1.3, 3.2.7, 3.3.1]
Mass/Weight 3.1.4 Understand that measures can be quantified using units and sub-	3.2.8. Identify the kilogram and gram as standard units for	3.3.2. Show perseverance in solving problems	4. Demonstrate an understanding of the relationship	• Recognise the need for a unit smaller than the kilogram (gram) to measure mass/weight. [3.1.4, 3.2.8]

MATHEMATICS: STANDARD 4				
CONTENT	**SKILLS**	**DISPOSITIONS**	**OUTCOMES**	**ELABORATIONS**
Students will:				
units for mass/weight. 3.1.5 Understand the relationship between units and their sub-parts. 3.1.6 Solve problems involving mass/weight.	measuring mass/weight. 3.2.9. Measure mass/weight in kilograms and grams. 3.2.10. Convert measures of mass/weight involving grams and kilograms. 3.2.11. Solve computational and real-life problems involving grams and kilograms.	related to measurement of mass/weight.	between standard units and their sub-parts to solve problems involving mass/weight.	• Measure the mass/weight of familiar objects in grams. [3.1.4, 3.2.8, 3.2.9] • Measure and compare the masses/weights of objects in kilograms and grams using a set of scales. [3.1.4, 3.1.5, 3.2.8, 3.2.9, 3.3.2] • Recognise that 1 000 grams equal one kilogram. [3.1.4, 3.1.5, 3.2.10] • Convert kilograms to grams and vice versa. [3.1.4, 3.1.5, 3.2.10, 3.3.2] • Solve problems involving different units of mass/weight e.g., Find the total mass/weight of three items weighing 50 g, 750 g and 2.5 kg. [3.1.6, 3.2.11, 3.3.2] • Solve computational and real-life problems involving mass/weight.

MATHEMATICS: STANDARD 4				
CONTENT	**SKILLS**	**DISPOSITIONS**	**OUTCOMES**	**ELABORATIONS**
Students will:				
				[3.1.6, 3.2.10, 3.2.11, 3.3.2]
Time 3.1.7 Understand that time can be quantified. 3.1.8 Solve problems in real-life situations involving time. 3.1.9 Demonstrate an understanding of time schedules.	3.2.12. Tell time to the minute. 3.2.13. Calculate the duration of events. 3.2.14. Estimate and verify the duration of events in minutes (up to one hour), and determine reasonableness of answer. 3.2.15. Convert hours to minutes and	3.3.3. Be reflective when measuring. 3.3.4. Demonstrate confidence in their abilities to estimate and measure time.	5. Accurately read and record time to the minute and solve practical problems involving time. 6. Develop an understanding of time schedules.	• Describe time as "minutes to" or "minutes after or past" the hour and tell time to the minute. [3.1.7, 3.2.12, 3.3.3, 3.3.4] • Match times shown on standard digital clocks, 24 hour digital clocks and analog clocks to the minute, and record time. [3.1.7, 3.2.12, 3.3.4] • Calculate the duration of events using starting and finishing times (elapsed time). [3.1.7, 3.2.13, 3.3.3, 3.3.4] • Estimate the duration of an event in minutes and up to one hour, verify by measuring, and determine the reasonableness of estimates. [3.1.7,

MATHEMATICS: STANDARD 4				
CONTENT	**SKILLS**	**DISPOSITIONS**	**OUTCOMES**	**ELABORATIONS**
Students will:				
	vice versa.			3.2.14, 3.3.3, 3.3.4]
	3.2.16. Solve computational and real-life problems involving hours and minutes.			• Convert minutes to hours and vice versa. [3.1.7, 3.2.15, 3.3.3, 3.3.4]
				• Solve computational and real-life problems involving hours and minutes. [3.1.8, 3.1.9, 3.2.16, 3.2.17, 3.3.3, 3.3.4]
	3.2.17. Interpret time schedules.			• Interpret simple time schedules (e.g. the calendar). [3.1.9, 3.2.17, 3.3.3, 3.3.4]
Capacity and Volume 3.1.10 Develop the concept of volume. 3.1.11 Demonstrate	3.2.18. Investigate the space occupied by objects.	3.3.5. Demonstrate confidence in their abilities to estimate and	7. Demonstrate an understanding of the concept of volume.	• Explore the space occupied by boxes and other objects. [3.1.10, 3.2.18] • Compare the size of the space occupied by two objects visually and

MATHEMATICS: STANDARD 4				
CONTENT	**SKILLS**	**DISPOSITIONS**	**OUTCOMES**	**ELABORATIONS**
Students will:				
familiarity with comparison of the volume of objects using appropriate vocabulary. 3.1.12 Understand that volume can be quantified. 3.1.13 Apply measurement techniques to quantify volume. 3.1.14 Explore conservation of volume. 3.1.15 Distinguish between standard and non-standard units of measure	3.2.19. Use comparison vocabulary to compare two objects in relation to volume. 3.2.20. Measure volume using non-standard units. 3.2.21. Investigate to determine the most appropriate solid for measuring volume. 3.2.22. Measure, record, compare and order the volume of	measure.	8. Understand that volume can be quantified. 9. Understand conservation of volume. 10. Understand that capacity and volume are related. 11. Solve problems involving capacity and volume.	describe volume as the space occupied by objects. [3.1.11, 3.2.19, 3.3.5] • Measure the volume of boxes by filling with non-standard units of measure and counting the number of units used. [3.1.12, 3.2.20, 3.3.5] • Investigate to determine which solid is appropriate for measuring volume and explain reasons for selection (e.g. packs and stacks easily and leaves no space). [3.1.13, 3.2.21, 3.3.5] • Measure the volume of boxes by stacking and packing cubic blocks into them and counting to determine the volume. [3.1.12, 3.1.13, 3.2.22, 3.3.5] • Compare and order boxes according to their volume. [3.1.13, 3.2.22, 3.3.5] • Construct cubes and cuboids of various sizes using cubic blocks and

MATHEMATICS: STANDARD 4				
CONTENT	**SKILLS**	**DISPOSITIONS**	**OUTCOMES**	**ELABORATIONS**
Students will:				
for volume. 3.1.16 Understand that capacity and volume are related. 3.1.17 Solve problems in real-life situations involving capacity and volume.	objects using non-standard units. 3.2.23. Explore the conservation of volume. 3.2.24. Explain the need for a standard unit of measure. 3.2.25. Identify the cubic centimetre and cubic metre (cm^3 and m^3) as the standard units for measuring volume, and use the standard units to measure			calculate their volume by counting the number of cubic blocks used. [3.1.13, 3.2.22, 3.3.5] • Construct different solids using the same number of cubic blocks and confirm that the volume remains the same by counting and explaining that solids with different appearances may have the same volume. [3.1.14, 3.2.23, 3.3.5] • Explain the need for a standard unit of measure. [3.1.15, 3.2.24, 3.3.5] • Measure and record volume using the standard units of measure – cubic metre (a cubic metre can be constructed as a fun activity and used to measure the volume of large spaces) and cubic centimetre. [3.1.13, 3.1.15, 3.2.25, 3.3.5] • Estimate and verify the volume of

MATHEMATICS: STANDARD 4

CONTENT	SKILLS	DISPOSITIONS	OUTCOMES	ELABORATIONS
Students will:				
	volume.			boxes in cubic centimetres, and determine reasonableness of answer. [3.1.13, 3.1.15, 3.2.26, 3.3.5]
	3.2.26. Estimate the volume of objects and verify by counting so as to determine the reasonableness of estimate.			• Investigate the relationship between capacity and volume through filling plastic containers with cubic centimetre blocks and liquid and comparing the results, or via the displacement of liquid in a measuring cup by a cubic centimetre block. [3.1.16, 3.2.27, 3.2.28, 3.3.5]
	3.2.27. Investigate the relationship between volume and capacity.			• Explain that there is a corresponding relationship between the units that are used to measure capacity and units that are used to measure volume. (1ml=1cubic centimetre and 1000ml=1000 cubic centimetres=1 litre). [3.1.16, 3.2.28, 3.3.5]
	3.2.28. State the relationship between the units for volume and capacity.			
				• Solve problems involving volume and capacity. [3.1.17, 3.2.29, 3.3.5]
	3.2.29. Solve problems			

MATHEMATICS: STANDARD 4				
CONTENT	**SKILLS**	**DISPOSITIONS**	**OUTCOMES**	**ELABORATIONS**
Students will:				
	involving volume and capacity.			
Area 3.1.18 Apply measurement techniques to quantify measures for area. 3.1.19 Solve problems involving area.	3.2.30. Calculate the area of compound shapes. 3.2.31. Draw shapes on a grid given the area of the shapes. 3.2.32. Estimate and verify the area of a shape using square metres and centimetres, and determine the	3.3.6. Develop confidence in their abilities to use concepts in area and to estimate and measure area.	12. Demonstrate an understanding of area of regular and irregular plane shapes.	• Calculate the areas of compound shapes that may be dissected into rectangles and squares. [3.1.18, 3.2.30, 3.3.6] • Draw different shapes of a given area on grids. [3.1.18, 3.2.31, 3.3.6] • Estimate and verify the area of shapes using square metres and centimetres, and determine reasonableness of answer. [3.1.18, 3.2.32, 3.3.6] • Solve problems involving area. [3.1.19, 3.2.33, 3.3.6]

MATHEMATICS: STANDARD 4				
CONTENT	**SKILLS**	**DISPOSITIONS**	**OUTCOMES**	**ELABORATIONS**
Students will:				
	reasonableness of answer. 3.2.33. Solve problems involving area.			
Language 3.1.20 Develop appropriate vocabulary associated with measurement.	3.2.34. Use appropriate vocabulary associated with measurement, orally and in writing.	3.3.7. Communicate with confidence using language related to measurement.	13. Communicate effectively using vocabulary associated with measurement.	• Use appropriate language associated with measurement, such as: millimetre (mm), volume, cubic centimetre (cm^3) and compound shape. [3.1.20, 3.2.34, 3.3.7]
STATISTICS				
4.1.1. Develop skills in collecting, organizing, displaying, analyzing and	4.2.1. Formulate questions that can be addressed by statistical data.	4.3.1. Appreciate the role of statistics in solving	1. Design survey(s) to solve problem(s) that involves the use	• Formulate problem situations that can be addressed via statistical data. [4.1.1, 4.2.1, 4.3.1] • Collect data using surveys,

MATHEMATICS: STANDARD 4				
CONTENT	**SKILLS**	**DISPOSITIONS**	**OUTCOMES**	**ELABORATIONS**
Students will:				
communicating appropriate statistical data to solve problems. 4.1.2. Demonstrate an understanding of mode.	4.2.2. Collect data based on the investigation of a problem/question using questionnaires, experiments, data bases and other sources. 4.2.3. Classify, organize and represent data using, tally charts, frequency tables and graphs (pictographs, block graphs, bar graphs, using various scale factors). 4.2.4. Interpret data from tables,	problems. 4.3.2. Display an objective approach in collecting and analyzing data sets to eliminate bias, and ensure that fair conclusions are drawn. 4.3.3. Collaborate in teams to find solutions to problems. 4.3.4. Appreciate the use of data in making informed	of statistical data. 2. Gather, classify, organize and display data using tables, tally charts and graphs (pictographs, block graphs and bar graphs) and interpret results. 3. Describe methods and analyse results and make decisions. 4. Communicate findings and decisions made	questionnaires, experiments, data bases and other sources. [4.1.1, 4.2.2, 4.3.2, 4.3.3] • Create a table to organise collected data, e.g. using a computer program - Excel. [4.1.1, 4.2.3, 4.3.2] • Determine a suitable scale for data and record the scale in a key e.g. ☺ = 10 people. [4.1.1, 4.2.3, 4.3.2] • Represent data using tally charts, frequency tables and graphs (pictographs, block graphs, bar graphs, using various scale factors) or using simple graphing software to enter data and create a graph. [4.1.1, 4.2.3, 4.3.2, 4.3.3] • Utilize the features of graphs to ensure that they are completed appropriately (e.g. name and label the horizontal and

MATHEMATICS: STANDARD 4				
CONTENT	**SKILLS**	**DISPOSITIONS**	**OUTCOMES**	**ELABORATIONS**
Students will:				
	charts and graphs. 4.2.5. Apply findings from analysis of data to solve problems. 4.2.6. Communicate findings and decisions made using appropriate vocabulary associated with statistics. 4.2.7. Evaluate decisions made based on analysis of data represented in tables, charts and graphs. 4.2.8. Compare	choices. 4.3.5. Demonstrate pride in displaying work.	using vocabulary associated with statistics. 5. Demonstrate an understanding of mode.	vertical axes). [4.1.1, 4.2.3, 4.3.2] • Interpret the findings displayed in the tables, charts and graphs. [4.1.1, 4.2.4, 4.3.2, 4.3.4] • Use analysed data to solve problems, draw conclusions and make decisions. [4.1.1, 4.2.5, 4.3.1, 4.3.2, 4.3.3, 4.3.4] • Communicate findings and decisions by writing a report using language associated with statistics e.g. data and mode. [4.1.1, 4.2.6, 4.3.1, 4.3.2, 4.3.3, 4.3.4, 4.3.5] • Evaluate decisions made on analysis of data by groups of students via group presentations. [4.1.1, 4.2.7, 4.3.1, 4.3.2, 4.3.3, 4.3.4] • Compare the effectiveness of different representations of the same data to determine suitability of forms and for

MATHEMATICS: STANDARD 4				
CONTENT	SKILLS	DISPOSITIONS	OUTCOMES	ELABORATIONS
Students will:				
	different representations of the same data to get an understanding of the suitability of the different forms and for different audiences. 4.2.9. Determine the mode for a given data set.			different audiences. [4.1.1, 4.2.8, 4.3.2, 4.3.3, 4.3.4] • Compare the effectiveness of different methods of collecting data. [4.1.1, 4.2.8, 4.3.2, 4.3.3, 4.3.4, 4.3.5] • Determine the mode for a given set of data and explain its importance in data analysis. [4.1.2, 4.2.9, 4.3.3, 4.3.4]

Primary School Curriculum

Mathematics

Standard 5

MATHEMATICS: STANDARD 5				
CONTENT	**SKILLS**	**DISPOSITIONS**	**OUTCOMES**	**ELABORATIONS**
Students will:				
NUMBER (Include Std. 4)				
Fractions 1.1.1 Demonstrate an understanding of adding and subtracting fractions and mixed numbers, concretely, pictorially and symbolically. 1.1.2 Demonstrate an understanding of multiplying a fraction by a whole number, multiplying fractions and mixed numbers concretely, pictorially and	1.2.1 Develop and apply algorithms to add and subtract fractions and mixed numbers. 1.2.2 Solve problems involving addition and subtraction of fractions including mixed numbers. 1.2.3 Develop and apply algorithms to multiply • a fraction by a whole number • fraction by fraction	1.3.1 Display interest while engaging in activities related to number concepts. 1.3.2 Develop confidence in understanding and using mathematical procedures to solve problems.	1. Develop and apply procedures to add and subtract fractions and mixed numbers to solve problems. 2. Develop and apply procedures to multiply a fraction by a whole number and multiply fractions and mixed numbers and to solve	ADDITION AND SUBTRACTION • Model addition and subtraction of fractions and mixed numbers using concrete and pictorial representations, and record symbolically. [1.1.1, 1.2.1, 1.3.1] • Develop the algorithm for adding and subtracting fractions and mixed numbers with like or unlike denominators. [1.1.1, 1.2.1, 1.3.2] • Apply the algorithm to add and subtract fractions and mixed numbers to solve problems. [1.1.1, 1.2.1, 1.2.2, 1.3.2] • Explain the procedures for adding and subtracting fractions and mixed

MATHEMATICS: STANDARD 5				
CONTENT	**SKILLS**	**DISPOSITIONS**	**OUTCOMES**	**ELABORATIONS**
Students will:				
symbolically. 1.1.3 Demonstrate an understanding of dividing whole numbers by fractions, fractions by whole numbers and fractions concretely, pictorially and symbolically.	• mixed numbers 1.2.4 Solve problems involving the multiplication of: • a fraction by a whole number • fraction by fraction • mixed numbers 1.2.5 Develop and apply algorithms to divide • a whole number by a fraction • a fraction by a whole number • a fraction by fraction. 1.2.6 Solve problems involving the division of:		problems. 3. Develop and apply procedures to divide whole numbers by fractions, fractions by whole numbers and fractions to solve problems.	numbers. [1.1.1, 1.2.1, 1.2.2, 1.3.2] MULTIPLICATION AND DIVISION • Model the multiplication of a fraction by a whole number, a fraction by a fraction and a mixed number by a mixed number, concretely or pictorially (using, for example, an area model and/or repeated addition) and record the process. [1.1.2, 1.2.3, 1.3.1] • Explain through the use of words and diagrams the procedures involving multiplication using fractions and mixed numbers. [1.1.2, 1.2.3, 1.3.2] • Generalize and apply rules (algorithms) for multiplication involving fractions and mixed numbers. [1.1.2, 1.2.3, 1.2.4, 1.3.2] • Model division of a whole number by a fraction, a proper fraction by a whole

MATHEMATICS: STANDARD 5				
CONTENT	**SKILLS**	**DISPOSITIONS**	**OUTCOMES**	**ELABORATIONS**
Students will:				
	• a whole number by a fraction • a fraction by a whole number • a fraction by a fraction.			number or fraction, concretely or pictorially and record the process. [1.1.3, 1.2.5, 1.3.1] • Explain through the use of words and diagrams division involving fractions. [1.1.3, 1.2.5, 1.3.1] • Generalize and apply rules (algorithms) for division involving fractions. [1.1.3, 1.2.5, 1.2.6, 1.3.2] • Determine the effects of multiplying or dividing by a fraction. [1.1.2, 1.1.3, 1.2.4, 1.2.6, 1.3.2] • Explain why division by a fraction is equivalent to multiplication by its reciprocal. [1.1.2, 1.1.3, 1.2.4, 1.2.6, 1.3.2] • Apply the algorithms for multiplication and division involving fractions to solve problems. [1.1.2, 1.1.3, 1.2.4,

MATHEMATICS: STANDARD 5				
CONTENT	**SKILLS**	**DISPOSITIONS**	**OUTCOMES**	**ELABORATIONS**
Students will:				
				1.2.6, 1.3.2]
Decimals 1.1.4 Demonstrate an understanding of multiplication and division involving decimals.	1.2.7 Solve problems involving the multiplication of: • a decimal by a whole number • tenths by tenths. 1.2.8 Solve problems involving the division of: • a decimal fraction up to 2 decimal places by a whole number.	1.3.3 Develop confidence in understanding and using mathematical procedures to solve decimal problems.	4. Develop and apply the procedures to multiply decimals by whole numbers and decimals (limited to tenths by tenths) and to divide a decimal by a whole number (up to hundredths) to solve problems.	• Investigate multiplication of decimals by whole numbers and decimals by converting decimal to base ten fractions before multiplying. E.g. $0 \cdot 8 \times 6 = \frac{8}{10} \times 6 = \frac{48}{10} = 4 \cdot 8$; $0 \cdot 6 \times 0 \cdot 4 = \frac{6}{10} \times \frac{4}{10} = \frac{24}{100} = 0 \cdot 24$ [1.1.4, 1.2.7, 1.3.3] • Observe patterns before generalizing and applying rules (algorithms) for multiplication involving decimals. [1.1.4, 1.2.7, 1.3.3] • Investigate division of decimals (limited to hundredths) by whole numbers. [1.1.4, 1.2.8, 1.3.3] • Generalize and apply rule (algorithm) for dividing decimals by whole

MATHEMATICS: STANDARD 5				
CONTENT	**SKILLS**	**DISPOSITIONS**	**OUTCOMES**	**ELABORATIONS**
Students will:				
				numbers. [1.1.4, 1.2.8, 1.3.3] • Recognise the number patterns formed when decimal numbers are multiplied or divided by 10 or 100. [1.1.4, 1.2.7, 1.2.8, 1.3.3] • Explain why keeping track of place value positions is important when applying the operations on decimal numbers. [1.1.4, 1.2.7, 1.2.8, 1.3.3] • Use a number of strategies to solve routine and non-routine problems involving decimals. [1.1.4, 1.2.7, 1.2.8, 1.3.3]
Percent 1.1.5 Develop an understanding of percent, concretely, pictorially and	1.2.9 Develop an understanding of percent concretely, pictorially and	1.3.4 Appreciate the importance of mathematics in real-life	5. Demonstrate an understanding of percent concretely,	• Investigate area models divided into 100 equal parts concretely or pictorially to connect fractions to percents. [1.1.5,

MATHEMATICS: STANDARD 5				
CONTENT	**SKILLS**	**DISPOSITIONS**	**OUTCOMES**	**ELABORATIONS**
Students will:				
symbolically. 1.1.6 Demonstrate an understanding of the relationships between fractions and percents. 1.1.7 Apply understanding of fractions, decimals and percents to solve problems.	symbolically. 1.2.10 Calculate the percent of a quantity. 1.2.11 Express a quantity as a percentage of another. 1.2.12 Relate percents to fractions (halves, quarters, fifths and tenths) and decimals. 1.2.13 Compare and order fractions, percents and decimals. 1.2.14 Solve problems involving fractions,	situations.	pictorially and symbolically. 6. Demonstrate an understanding of the relationships between fractions and percents. 7. Apply understanding of fractions, decimals and percents to solve problems.	1.2.9, 1.3.4] • Explain that "percent" means "out of 100" and that the symbol % means 'percent'. [1.1.5, 1.2.9, 1.3.4] • Record the percent displayed in a given concrete or pictorial representation symbolically. [1.1.5, 1.2.9, 1.3.4] • Identify and describe percents from real-life situations, and record them symbolically. [1.1.5, 1.2.9, 1.3.4] • Calculate simple percents of quantities, e.g. 10% of \$200 = $\frac{1}{10}$ of \$200 = \$20. [1.1.5, 1.2.10, 1.3.4] • Express quantities as percentages of other quantities. [1.1.5, 1.2.11, 1.3.4] • Explain how a percent of an amount could be less/more than a percent of

MATHEMATICS: STANDARD 5				
CONTENT	**SKILLS**	**DISPOSITIONS**	**OUTCOMES**	**ELABORATIONS**
Students will:				
	decimals and percents.			another amount. [1.1.5, 1.2.11, 1.3.4]
				• Solve given problems involving percents. [1.1.7, 1.2.14, 1.3.4]
				• Relate percents (e.g. 50%, 25%, 20% and 10%) to fractions (e.g. $\frac{1}{2}, \frac{1}{4}$, $\frac{1}{5}$ and $\frac{1}{10}$) and decimals (e.g. 0·5, 0·25, 0·2 and 0·1). [1.1.6, 1.2.12, 1.3.4]
				• Recall commonly used related percents, decimals and fractions e.g. 75%, 0.75 and $\frac{3}{4}$. [1.1.6, 1.2.12, 1.3.4]
				• Compare and order fractions, decimals and percents. [1.1.6, 1.2.13, 1.3.4]
				• Use mental strategies to convert between percents and fractions to estimate discounts. [1.1.7, 1.2.12, 1.2.14, 1.3.4]
				• Interpret and explain the use of

MATHEMATICS: STANDARD 5

CONTENT	SKILLS	DISPOSITIONS	OUTCOMES	ELABORATIONS
Students will:				
				fractions, decimals and percents in everyday contexts e.g. $\frac{3}{4}$ hr. = 45 mins. in solving problems. [1.1.7, 1.2.14, 1.3.4]
Problem Solving 1.1.8 Create and solve single and multi-step problems involving the four operations. 1.1.9 Apply mental mathematics strategies to solve problems. 1.1.10 Use patterns and other strategies to solve problems.	1.2.15 Create and solve real-life, one-step and multi-step problems involving operations with whole numbers, fractions, mixed numbers, decimals, simple percents and money (including profit and loss, discount, savings, salaries, wages, loans, simple	1.3.5 Demonstrate appropriate judgment in selecting problem solving strategies. 1.3.6 Develop flexibility in using a variety of strategies to solve problems. 1.3.7 Demonstrate independence and	8. Create and solve one-step and multi-step problems involving whole numbers, fractions, mixed numbers, decimal, percents including money using algorithms, mental strategies and other problem	• Create and solve real-life, one-step and multi-step problems involving whole numbers, fractions, mixed numbers, decimals, percents and money (including profit and loss, discount, savings, salaries, wages, loans, simple interest, VAT). [1.1.8, 1.2.15, 1.3.5, 1.3.7] • Select and use appropriate estimation strategies to check for reasonableness of answers and use calculators to check answers/solutions. [1.1.10, 1.2.15, 1.3.6] • Select and use appropriate mental strategies to aid in finding solutions to

MATHEMATICS: STANDARD 5				
CONTENT	**SKILLS**	**DISPOSITIONS**	**OUTCOMES**	**ELABORATIONS**
Students will:				
	interest, VAT). 1.2.16 Solve problems involving unequal sharing (not including the use of ratio).	perseverance in solving problems.	solving strategies. 9. Solve problems involving unequal sharing.	problems. [1.1.9, 1.2.15, 1.3.5, 1.3.6] • Solve routine and non-routine problems using a variety of strategies such as: use a model, act it out, draw a picture, look for a pattern, guess and check, work backwards, logical reasoning, make a table or chart, make an organized list, and try a simpler form of the problem. [1.1.10, 1.2.15, 1.3.5, 1.3.6, 1.3.7] • Solve problems in mathematical games. [1.1.10, 1.2.15, 1.3.7] • Pose and solve problems involving unequal sharing e.g. "Garvin and Thomas shared 35 mangoes between themselves so that Garvin received 5 more than Thomas. Find each boy's share". [1.1.10, 1.2.16, 1.3.5, 1.3.6, 1.3.7]
Language				

MATHEMATICS: STANDARD 5

CONTENT	SKILLS	DISPOSITIONS	OUTCOMES	ELABORATIONS
Students will:				
1.1.11 Develop appropriate vocabulary associated with number**.**	1.2.17 Use appropriate vocabulary associated with number, orally and in writing.	1.3.8 Communicate with confidence using language related to number. 1.3.9 Demonstrate an appreciation for others by listening to their point of view.	10. Communicate effectively using vocabulary associated with number.	• Use appropriate language associated with number, such as: percent (%), percentage, discount, savings, salaries, wages, loans, simple interest, tax, VAT, express, principal, rate and unequal sharing. [1.1.11, 1.2.17, 1.3.8, 1.3.9]
GEOMETRY (Include Std. 4)				
Solids and Plane Shapes 2.1.1 Develop an understanding of the properties of solids and plane shapes. 2.1.2 Develop spatial sense through exploration	2.2.1 Investigate the properties of solids by examining their cross-sections, base and height	2.3.1 Display curiosity while exploring solids and plane shapes.	1. Describe solids in terms of their properties. 2. Classify and determine the	SOLIDS • Identify and list the properties of solids. [2.1.1, 2.2.1, 2.3.1] • Investigate right angles and non-right

MATHEMATICS: STANDARD 5				
CONTENT	**SKILLS**	**DISPOSITIONS**	**OUTCOMES**	**ELABORATIONS**
Students will:				
of solids and plane shapes. 2.1.3 Explore angles in solids and plane shapes. 2.1.4 Solve problems involving solids and plane shapes.	and angles. 2.2.2 Identify types of quadrilaterals: rectangle, square, trapezium, parallelogram and rhombus. 2.2.3 Classify and compare quadrilaterals according to their attributes (angles, sides, perpendicular and parallel). 2.2.4 Solve problems involving solids and plane shapes.	2.3.2 Develop perseverance when solving problems involving shape and space.	properties of quadrilaterals. 3. Solve problems involving solids and plane shapes.	angles in solids. [2.1.2, 2.1.3, 2.2.1, 2.3.1] • Make skeletal and plasticine models of solids. [2.1.2, 2.2.1, 2.3.1] • Explore and describe the cross-sections of solids, base and height. [2.1.1, 2.1.2, 2.2.1, 2.3.1] • Recognise that some solids have a uniform cross-section and name them. [2.1.1, 2.1.2, 2.2.1, 2.3.1] • Solve problems involving solids. [2.1.4, 2.2.4, 2.3.2] PLANE SHAPES: QUADRILATERALS • Sort quadrilaterals (rectangles, squares, trapezoids, parallelograms, rhombuses) according to their attributes (e.g. angles, lengths of sides, parallel sides). [2.1.1,

MATHEMATICS: STANDARD 5				
CONTENT	**SKILLS**	**DISPOSITIONS**	**OUTCOMES**	**ELABORATIONS**
Students will:				
				2.1.3, 2.2.2, 2.2.3, 2.3.1] • Describe the properties of specific quadrilaterals. [2.1.1, 2.1.3, 2.2.2, 2.2.3, 2.3.1] • Name, explore and compare a wide variety of quadrilaterals in terms of size and number of angles, type and number of sides e.g. trapezium. [2.1.1, 2.1.2, 2.1.3, 2.2.3, 2.3.1] • Sketch and label quadrilaterals from a given verbal description. [2.1.1, 2.1.2, 2.1.3, 2.1.4, 2.2.2, 2.2.3, 2.2.4, 2.3.2] • Solve problems involving plane shapes. [2.1.4, 2.2.4, 2.3.2]
Language 2.1.5 Develop appropriate	2.2.5 Use appropriate vocabulary	2.3.3 Communicate with confidence	4. Communicate effectively	• Use appropriate language associated

MATHEMATICS: STANDARD 5				
CONTENT	**SKILLS**	**DISPOSITIONS**	**OUTCOMES**	**ELABORATIONS**
Students will:				
vocabulary associated with geometry.	associated with geometry, orally and in writing.	using language related to geometry.	using vocabulary associated with geometry.	with geometry, such as: cross-section, height, trapezium, parallelogram and rhombus. [2.1.5, 2.2.5, 2.3.3]
MEASUREMENT (Include Std. 4)				
Linear: Perimeter 3.1.1 Develop and apply formulae for measurement of perimeter. 3.1.2 Solve problems in real life situations involving perimeter.	3.2.1. Develop and use formulae for finding the perimeter of squares and rectangles. 3.2.2. Solve problems involving perimeter of compound shapes.	3.3.1. Appreciate the functional role of measurement in their everyday lives. 3.3.2. Appreciate the importance of formulae for calculations in perimeter.	1. Develop and use proficiently the formulae to calculate perimeter of squares and rectangles in problem solving.	• Determine the perimeter of rectangles and squares. [3.1.1, 3.2.1, 3.3.1] • Write and explain the formulae for finding the perimeter of any given rectangle and square. [3.1.1, 3.2.1, 3.3.1] • Calculate and compare perimeters of squares and rectangles. [3.1.2, 3.2.1, 3.3.2] • Find the perimeters of simple composite figures that may be dissected into rectangles and squares.

MATHEMATICS: STANDARD 5				
CONTENT	**SKILLS**	**DISPOSITIONS**	**OUTCOMES**	**ELABORATIONS**
Students will:				
				[3.1.2, 3.2.2, 3.3.2] • Use estimation strategies to check for reasonableness of solutions to problems relating to perimeter. [3.1.2, 3.2.2, 3.3.2] • Solve problems in real-life contexts involving perimeter. [3.1.2, 3.2.1, 3.2.2, 3.3.2]
Mass/Weight 3.1.3 Use algebraic reasoning to solve problems in mass/weight. 3.1.4 Solve problems involving mass/weight.	3.2.3. Apply algebraic reasoning to calculate unknown mass/weight on a balance. 3.2.4. Solve problems involving	3.3.3. Show perseverance in solving problems related to algebraic reasoning.	2. Apply algebraic reasoning to calculate unknown values involving mass/weight. 3. Solve problems involving	• Explore algebraic thinking by exploring balance tools (concretely, pictorially, including online resources) using shapes of unknown masses/weights. [3.1.3, 3.2.3, 3.3.3] • Calculate unknown mass/weight on a balance. [3.1.3, 3.1.4, 3.2.3, 3.2.4, 3.3.3]

MATHEMATICS: STANDARD 5				
CONTENT	**SKILLS**	**DISPOSITIONS**	**OUTCOMES**	**ELABORATIONS**
Students will:				
	mass/weight.		mass/weight.	• Solve problems involving mass/weight. [3.1.4, 3.2.4, 3.3.3]
Time 3.1.5 Solve problems in real-life contexts involving time.	3.2.5. Solve problems involving time and other related concepts (using proportional reasoning).	3.3.4. Display perseverance in solving problems related to time.	4. Solve problems involving time.	• Use a number of mental and written strategies to solve familiar and unfamiliar problems involving time. [3.1.5, 3.2.5, 3.3.4] • Use proportional reasoning to solve problems involving time and other related concepts. [3.1.5, 3.2.5, 3.3.4]
Capacity and Volume 3.1.6 Develop and apply the formula for measurement of volume. 3.1.7 Solve problems in	3.2.6. Develop and apply the formula for determining the volume of cubes	3.3.5. Demonstrate confidence in ones abilities	5. Develop and use proficiently the formula to calculate volume of	• Explain, using models, how the volume of cubes and cuboids can be determined. [3.1.6, 3.2.6, 3.3.5] • Generalize a rule (formula) for

MATHEMATICS: STANDARD 5				
CONTENT	SKILLS	DISPOSITIONS	OUTCOMES	ELABORATIONS
Students will:				
real-life contexts involving volume and capacity.	and cuboids. 3.2.7. Solve real-life problems involving volume and capacity.	to measure. 3.3.6. Appreciate the importance of formulae for calculations.	cubes and cuboids in problem solving. 6. Solve problems involving volume and capacity.	determining the volume of cubes and cuboids by considering the number of cubes used in each layer and the number of layers. [3.1.6, 3.2.6, 3.3.5] • Investigate to find the relationship between the length, breadth, height and volume of cubes and cuboids. [3.1.6, 3.2.6, 3.3.5] • Calculate the volume of cubes and cuboids. [3.1.7, 3.2.7, 3.3.6] • Recognise that solids with different appearances may have the same volume. [3.1.6, 3.2.6, 3.3.5] • Solve problems involving volume and capacity. [3.1.7, 3.2.7, 3.3.6]
Area				

MATHEMATICS: STANDARD 5				
CONTENT	**SKILLS**	**DISPOSITIONS**	**OUTCOMES**	**ELABORATIONS**
Students will:				
3.1.8 Develop and apply formula for measurement of area. 3.1.9 Solve problems in real-life situations involving area.	3.2.8. Develop and use formula to calculate the area of squares and rectangles. 3.2.9. Solve problems involving area of compound shapes.	3.3.7. Appreciate the importance of formula for calculations involving area. 3.3.8. Display confidence when working independently in solving problems.	7. Develop and use proficiently formula to calculate area in problem solving.	• Generalize a rule (formula) for determining the area of squares and rectangles. [3.1.8, 3.2.8, 3.3.7] • Write and explain the formula for finding the area of squares and rectangles. [3.1.8, 3.2.8, 3.3.7] • Apply formula to find the areas of simple composite figures that may be dissected into rectangles and squares. [3.1.8, 3.1.9, 3.2.8, 3.2.9, 3.3.7, 3.3.8] • Use estimation strategies to check for reasonableness of solutions to problems relating to area. [3.1.9, 3.2.8, 3.2.9, 3.3.8] • Solve problems in real-life contexts involving area. [3.1.9, 3.2.8, 3.2.9, 3.3.7,3.3.8] • Solve problems involving perimeter

MATHEMATICS: STANDARD 5				
CONTENT	**SKILLS**	**DISPOSITIONS**	**OUTCOMES**	**ELABORATIONS**
Students will:				
				and area. [3.1.9, 3.2.9, 3.3.8]
Language 3.1.10 Develop appropriate vocabulary associated with measurement.	3.2.10. Use appropriate vocabulary associated with measurement, orally and in writing.	3.3.9. Communicate with confidence using language related to measurement.	8. Communicate effectively using vocabulary associated with measurement.	• Use appropriate language associated with measurement, such as: cubic metre (m^3), formula. [3.1.10, 3.2.10, 3.3.9]
STATISTICS (Include Std. 4)				
4.1.1. Develop skills in collecting, organizing, displaying, analysing and communicating appropriate statistical data to	4.2.1. Formulate questions that can be addressed by statistical data. 4.2.2. Collect data based on the investigation of a	4.3.1. Appreciate the role of statistics in solving problems. 4.3.2. Display an objective approach in	1. Design survey(s) to solve problem(s) that involves the use of statistical data. 2. Gather, classify,	• Formulate problem situations that can be addressed via statistical data. [4.1.1, 4.2.1, 4.3.1, 4.3.3] • Collect data using surveys, questionnaires, experiments, data bases and other sources. [4.1.1, 4.2.2, 4.3.1, 4.3.2, 4.3.3]

MATHEMATICS: STANDARD 5

CONTENT	SKILLS	DISPOSITIONS	OUTCOMES	ELABORATIONS
Students will:				
solve problems. 4.1.2. Demonstrate an understanding of mode and mean.	problem or question using questionnaires, experiments, data bases and other sources. 4.2.3. Classify, organize and represent data using tally charts, frequency tables and graphs (pictographs, block graphs, bar graphs, using various scale factors). 4.2.4. Interpret data from tables, charts and graphs.	collecting and analysing data sets to eliminate bias and ensure that fair conclusions are drawn. 4.3.3. Collaborate in teams to find solutions to problems. 4.3.4. Appreciate the use of data in making informed choices. 4.3.5. Demonstrate pride in displaying	organize and display using tables, tally charts and graphs (pictographs, block graphs and bar graphs) and interpret results. 3. Describe methods, analyse results and make decisions. 4. Communicate findings and recommendations using vocabulary associated with	• Create a table to organise collected data, e.g. using a computer program - Excel. [4.1.1, 4.2.3, 4.3.1, 4.3.3] • Determine a suitable scale for data and record the scale in a key e.g. ☺ = 10 people. [4.1.1, 4.2.3, 4.3.1, 4.3.3] • Represent data using tally charts, frequency tables and graphs (pictographs, block graphs, bar graphs, using various scale factors) or using simple graphing software to enter data and create a graph. [4.1.1, 4.2.3, 4.3.1, 4.3.3] • Utilize the features of graphs to ensure that they are completed appropriately (e.g. name and label the horizontal and vertical axes). [4.1.1, 4.2.3, 4.3.1, 4.3.3] • Interpret the findings displayed in the tables, charts and graphs. [4.1.1, 4.2.4,

MATHEMATICS: STANDARD 5				
CONTENT	**SKILLS**	**DISPOSITIONS**	**OUTCOMES**	**ELABORATIONS**
Students will:				
	4.2.5. Apply findings from analysis of data to solve problems. 4.2.6. Write report on findings and decisions made using appropriate vocabulary associated with statistics. 4.2.7. Evaluate decisions made based on analysis of data represented in tables, charts and graphs. 4.2.8. Compare different representations	work. 4.3.6. Demonstrate collaboration when writing group reports.	statistics. 5. Demonstrate an understanding of mode and mean.	4.3.1, 4.3.2, 4.3.3] • Use analysed data to solve problems, draw conclusions and make decisions. [4.1.1, 4.2.5, 4.3.2, 4.3.4] • Communicate findings and decisions by writing a report using language associated with statistics. [4.1.1, 4.2.6, 4.3.5, 4.3.6] • Evaluate decisions made on analysis of data by groups of students via group presentations. [4.1.1, 4.2.7, 4.3.3, 4.3.5] • Compare the effectiveness of different representations of the same data to determine suitability of forms and for different audiences. [4.1.1, 4.2.8, 4.3.2, 4.3.4] • Compare the effectiveness of different methods of collecting data. [4.1.1,

MATHEMATICS: STANDARD 5

CONTENT	SKILLS	DISPOSITIONS	OUTCOMES	ELABORATIONS
Students will:				
	of the same data to get an understanding of the suitability of forms and for different audiences. 4.2.9. Determine the mode for a given data set. 4.2.10. Develop the concept of mean/average. 4.2.11. Solve problems involving mean/average.			4.2.8, 4.3.3] • Determine the mode for a given set of data. [4.1.2, 4.2.9, 4.3.1, 4.3.4] • Explore the concept of mean using various activities related to equal sharing or distribution. [4.1.2, 4.2.10, 4.3.1, 4.3.4] • Determine and use the rule for calculating the mean of a given set of data. [4.1.2, 4.2.10, 4.3.1, 4.3.4] • Explain the term 'mean/average'. [4.1.2, 4.2.10, 4.3.1, 4.3.4] • Solve problems involving mean/average. [4.1.2, 4.2.11, 4.3.1, 4.3.4]