basic education

Department:
Basic Education
REPUBLIC OF SOUTH AFRICA

CURRICULUM AND ASSESSMENT POLICY STATEMENT (CAPS)

MATHEMATICS – INTERMEDIATE PHASE

FINAL DRAFT

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CHAPTER 1
CURRICULUM AND ASSESSMENT POLICY STATEMENT (CAPS)

(BACKGROUND)

1.1. Background

The *National Curriculum Statement Grades R – 12* (NCS) stipulates policy on curriculum and assessment in the schooling sector.

To improve its implementation, the *National Curriculum Statement* was amended, with the amendments coming into effect in January 2011. A single comprehensive Curriculum and Assessment Policy document was developed for each subject to replace the old Subject Statements, Learning Programme Guidelines and Subject Assessment Guidelines in Grades R - 12.

The amended *National Curriculum Statement Grades R - 12: Curriculum and Assessment Policy (January 2011)* replaces the *National Curriculum Statement Grades R - 9 (2002)* and the *National Curriculum Statement Grades 10 - 12 (2004)*.

1.2. Overview

1.2.1. The *National Curriculum Statement Grades R – 12 (January 2011)* represents a policy statement for learning and teaching in South African schools and comprises the following:

(a) Curriculum and Assessment Policy documents for each approved school subject as listed in the policy document *National Intermediate Certificate: A qualification at Level 4 on the National Qualifications Framework (NQF);* and

(b) The policy document *National Intermediate Certificate: A qualification at Level 4 on the National Qualifications Framework (NQF).*

1.2.2. The *National Curriculum Statement Grades R – 12 (January 2011)* should be read in conjunction with the following documents:

(a) *An addendum to the policy document, the National Intermediate Certificate: A qualification at Level 4 on the National Qualifications Framework (NQF), regarding the National Protocol for Assessment Grade R – 12*, published in the *Government Gazette, No. 29467* of 11 December 2006; and

(b) *An addendum to the policy document, the National Intermediate Certificate: A qualification at Level 4 on the National Qualifications Framework (NQF), regarding learners with special needs***,** published in the *Government Gazette, No.29466* of 11 December 2006.

1.2.3. The Subject Statements, Learning Programme Guidelines and Subject Assessment Guidelines for Grades R - 9 and Grades 10 - 12 are repealed and replaced by the *Curriculum and Assessment Policy documents for Grades R – 12 (January 2011)*.

1.2.4. The sections on the Curriculum and Assessment Policy as contemplated in Chapters 2, 3 and 4 of this document constitute the norms and standards of the *National Curriculum Statement Grades R – 12* and therefore, in terms of *section 6A* of the *South African Schools Act, 1996 (Act No. 84 of 1996,)* form the basis for the Minister of Basic Education to determine minimum outcomes and standards, as well as the processes and procedures for the assessment of learner achievement to be applicable to public and independent schools.

1.3. General aims of the South African Curriculum

1.3.1. The *National Curriculum Statement Grades R - 12* gives expression to what is regarded to be knowledge, skills and values worth learning. It will ensure that learners acquire and apply knowledge and skills in ways that are meaningful to their own lives. In this regard, the curriculum promotes the idea of grounding knowledge in local contexts, while being sensitive to global imperatives.

1.3.2. The National Curriculum Statement Grades R - 12 serves the purposes of:

(a) equipping learners, irrespective of their socio-economic background, race, gender, physical ability or intellectual ability, with the knowledge, skills and values necessary for self-fulfilment, and meaningful participation in society as citizens of a free country;
(b) providing access to higher education;
(c) facilitating the transition of learners from education institutions to the workplace; and
(d) providing employers with a sufficient profile of a learner's competences.

1.3.3. The National Curriculum Statement Grades R - 12 is based on the following principles:

(a) **Social transformation**; ensuring that the educational imbalances of the past are redressed, and that equal educational opportunities are provided for all sections of our population;
(b) **Active and critical learning**; encouraging an active and critical approach to learning, rather than rote and uncritical learning of given truths;
(c) **High knowledge and high skills**; the minimum standards of knowledge and skills to be achieved at each grade are specified and sets high, achievable standards in all subjects;
(d) **Progression**; content and context of each grade shows progression from simple to complex;

(e) **Human rights, inclusivity, environmental and social justice**; infusing the principles and practices of social and environmental justice and human rights as defined in the Constitution of the Republic of South Africa. The National Curriculum Statement Grades 10 – 12 (General) is sensitive to issues of diversity such as poverty, inequality, race, gender, language, age, disability and other factors;
(f) **Valuing indigenous knowledge systems**; acknowledging the rich history and heritage of this country as important contributors to nurturing the values contained in the Constitution; and
(g) **Credibility, quality and efficiency**; providing an education that is comparable in quality, breadth and depth to those of other countries.

1.3.4. The National Curriculum Statement Grades R - 12 aims to produce learners that are able to:

(a) identify and solve problems and make decisions using critical and creative thinking;
(b) work effectively as individuals and with others as members of a team;
(c) organise and manage themselves and their activities responsibly and effectively;
(d) collect, analyse, organise and critically evaluate information;
(e) communicate effectively using visual, symbolic and/or language skills in various modes;
(f) use science and technology effectively and critically showing responsibility towards the environment and the health of others; and
(g) demonstrate an understanding of the world as a set of related systems by recognising that problem solving contexts do not exist in isolation.

1.3.5. Inclusivity should become a central part of the organisation, planning and teaching at each school. This can only happen if all teachers have a sound understanding of how to recognise and address barriers to learning, and how to plan for diversity.

1.4. Time Allocation

1.4.1. Foundation Phase

(a) The instructional time for subjects in the Foundation Phase is as indicated in the table below:

Subject	Time allocation per week (hours)
i. Home Language	**6**
ii. First Additional Language	**4 (5)**
iii. Mathematics	**7**
iv. Life Skills • Beginning Knowledge • Arts and Craft • Physical Education • Health Education	**6** 1 (2) 2 2 1

(b) Instructional time for Grades R, 1 and 2 is 23 hours. For Grade 3, First Additional Language is allocated 5 hours and Beginning Knowledge is allocated 2 hours as indicated by the hours in brackets in the table above.

1.4.2. Intermediate Phase

(a) The table below shows the subjects and instructional times in the Intermediate Phase.

Subject	Time allocation per week (hours)
i. Home Language	**6**
ii. First Additional Language	**5**
iii. Mathematics	**6**
iv. Science and Technology	**3.5**
v. Social Sciences	**3**
vi. Life Skills • Creative Arts • Physical Education • Religion Studies	**4** 1.5 1.5 1

1.4.3. Intermediate Phase

The instructional time in the Intermediate Phase is as follows:

	Subject	Time allocation per week (hours)
i.	Home Language	5
ii.	First Additional Language	4
iii.	Mathematics	4.5
iv.	Natural Sciences	3
v.	Social Sciences	3
vi.	Technology	2
vii.	Economic Management Sciences	2
viii.	Life Orientation	2
ix.	Arts and Culture	2

1.4.4. Grades 10-12

The instructional time in Grades 10-12 is as follows:

	Subject	Time allocation per week (hours)
i.	Home Language	4.5
ii.	First Additional Language	4.5
iii.	Mathematics	4.5
iv.	Life Orientation	2
v.	Three Electives	12 (3x4h)

The allocated time per week may be utilized only for the minimum required NCS subjects as specified above, and may not be used for any additional subjects added to the list of minimum subjects. Should a learner wish to offer additional subjects, additional time must be allocated for the offering of these subjects.

CHAPTER
CURRICULUM AND ASSESSMENT POLICY STATEMENT (CAPS)
(CONTENT OVERVIEW)

2.1. What is Mathematics?

Mathematics is a language that makes use of symbols and notations for describing numerical, geometric and graphical relationships. It is a human activity that involves observing, representing and investigating patterns and qualitative relationships in physical and social phenomena and between mathematical objects themselves. It helps to develop mental processes that enhance logical and critical thinking, accuracy and problem solving that will contribute in decision-making.

2.2. Specific Aims

The teaching and learning of Mathematics aims to develop the following in the learner:

- a critical awareness of how mathematical relationships are used in social, environmental, cultural and economic relations;
- confidence and competence to deal with any mathematical situation without being hindered by a fear of Mathematics;
- an appreciation for the beauty and elegance of Mathematics;
- a spirit of curiosity and a love for Mathematics;
- recognition that Mathematics is a creative part of human activity;
- deep conceptual understandings in order to make sense of Mathematics; and
- acquisition of specific knowledge and skills necessary for:
    - the application of Mathematics to physical, social and mathematical problems,
    - the study of related subject matter (e.g. other subjects), and
    - further study in Mathematics.

2.3. Overview of content topics

2.3.1. What content knowledge will be learnt by a Intermediate Phase Mathematics learner?

Mathematics in the Intermediate Phase covers five main content areas. Each content area contributes towards the acquisition of the skills specific skills. The table below shows the general content areas of each topic as well as the specific content for grade 4 to 6. The skills which Intermediate Phase learners are required to demonstrate are also included in the next table below.

MATHEMATICS CONTENT KNOWLEDGE		
Content Area	**General content focus**	**Intermediate Phase specific content focus**
1. Numbers, Operations and Relationships	Development of number sense that includes: • the meaning of different kinds of numbers; • relationship between different kinds of numbers; • the relative size of different numbers; • representation of numbers in various ways; and • the effect of operating with numbers.	• The range of numbers developed by the end of Intermediate Phase is extended to at least 9-digit whole numbers, decimal fractions to at least 2 decimal places, common fractions and fractions written in percentage form. • In this phase, the learner is expected to move from counting reliably to calculating fluently with all four operations. The learner should be encouraged to memorise multiplication fluently, and sharpen mental calculation skills. • Attention needs to be focused on understanding the concept of place value so that the learner develops a sense of large numbers and decimal fractions. • The learner should recognise and describe properties of numbers and operations, including identity properties, factors, multiples, and commutative, associative and distributive properties.
2. Patterns, Functions and Algebra	Algebra is the language for investigating and communicating most of Mathematics and can be extended to the study of functions and other relationships between variables. A central part of this content area is for the learner to achieve efficient manipulative skills in the use of algebra. It also focuses on the: • description of patterns and relationships through the use of symbolic expressions, graphs and tables; and • identification and analysis of regularities and change in patterns, and relationships that enable learners to make predictions and solve problems.	• Numeric and geometric patterns are extended with a special focus on the relationships: o between terms in a sequence; and o between the number of the term (its place in the sequence) and the term itself. • The study of numeric and geometric patterns develops the concepts of variable, relationship and function. The understanding of these relationships by the learners will enable them to describe the rules generating the patterns. • This phase has a particular focus on the use of different, yet equivalent, representations to describe problems or relationships by means of flow diagrams, tables, number sentences or verbally.
3. Space and Shape (Geometry)	The study of Space and Shape improves understanding and appreciation of the pattern, precision, achievement and beauty in natural and cultural forms. It focuses on the properties, relationships, orientations, positions and transformations of two-dimensional shapes and three-dimensional objects.	• The learner's experience of space and shape in this phase moves from recognition and simple description to classification and more detailed description of features and properties of two-dimensional shapes and three dimensional objects. • Learners should be given opportunities to: o draw two-dimensional shapes and make models of three-dimensional objects; and o describe location, transformations and symmetry.
4. Measurement	Measurement focuses on the selection and use of appropriate units, instruments and formulae to quantify characteristics of events, shapes, objects and the environment. It relates directly to the learner's scientific, technological and economic worlds, enabling the learner to: • make sensible estimates; and • be alert to the reasonableness of measurements and results.	• Learners should be introduced to the use of standardised units of measurement and appropriate instruments for measuring. They should be able to estimate and verify results through accurate measurement. • Learners should be exposed to a variety of measurement activities that will make it possible to select and convert between appropriate units of measurement and to use common fractions and decimals in context. • Measurement in this phase should also enable the learner to: o informally measure angles, area, perimeter and capacity/volume; and o discuss and describe the historical development of measuring instruments and tools.
5. Data handling	Through the study of data handling, the learner develops the skills to collect, organise, display, analyse and interpret this information. The study of chance enables the learner to develop skills and techniques for making informed choices, and coping with randomness and uncertainty.	• Data handling in the Intermediate Phase focuses on the skills to gather and summarize data so that they can be interpreted and predictions made from them. • The study of chance (probability) develops awareness that: o different situations have different probabilities of occurring; and o for many situations there are a finite number of different possible outcomes. • In this phase, the learner is *not* expected to calculate the probability of events occurring

2.3.2. Weighting of content areas

The weighting of mathematics content areas serves two primary purposes: *firstly* the weighting gives guidance on the amount of time needed to adequately address the content within each content area; *secondly* the weighting gives guidance on the spread of content in the examination (especially end of the year summative assessment).

WEIGHTING OF CONTENT AREAS			
Content Area	**Grade 4**	**Grade 5**	**Grade 6**
Number, Operations and Relations	40%	35%	30%
Patterns, Functions and Algebra	15%	15%	20%
Space and Shape (Geometry)	25%	25%	25%
Measurement	10%	10%	10%
Data handling (Statistics)	10%	15%	15%
	100%	**100%**	**100%**

2.3.3. Overview of content areas and topics to show progression

The primary purpose of the overview of content topics is to show progression in terms of content and skills from grade R to 12. The transition between the phases was considered to minimise the content gaps and ensure smooth content flow (where necessary). In trying to ensure seamlessness in Mathematics content, few changes became unavoidable. This is mainly the case in the grades that start a new phase (excluding grade R) and those that are the exit points in the phase.

The following critical aspects should be noted to avoid possible confusion in the contents of the overview:
Certain content topics and skills are similar in two or three successive grades. This does NOT always mean that similar content should be taught in the affected grades. In instances where content is similar in two or more successive grades in the Content Overview, progression of content is indicated in the content outline (Chapter 3). The overview (Chapter 2) should therefore be read in conjunction with the content outline (Chapter 3).

1. NUMBERS, OPERATIONS AND RELATIONSHIPS

CONTENT	GRADE 4	GRADE 5	GRADE 6
1.1. Whole numbers	4.1.1.1. Count forwards and backwards in 2s, 3s, 5s, 10, 25, 50, 100) between 0 and at least 10 000. 4.1.1.2. Order, compare and represent numbers to at least 4-digit numbers. 4.1.1.3. Represent odd and even numbers to at least 1000. 4.1.1.4. 4.1.1.5. Recognize the place value of digits in whole numbers to at least 4-digit numbers. 4.1.1.6. Rounding off to the nearest 10, 100 or 1000. 4.1.1.7. Add and subtract whole numbers with at least 4 digits. 4.1.1.8. Multiplication of at least whole 2-digit by 2-digit umbers. 4.1.1.9. Division of at least whole 3-digit by 1-digit numbers. 4.1.1.10. Using a range of techniques to perform written and mental calculations with whole numbers including: • building up and breaking down numbers • rounding off and compensating • doubling and halving • using a number line 4.1.1.11. Mental calculations involving: • Addition and subtraction • Multiplication of whole numbers to at least 10×10 • Reciprocal relationship between multiplication and division 4.1.1.12. Problem-solving involving whole numbers	5.1.1.1. Count forwards and backwards in whole number intervals up to at least 10 000 5.1.1.2. Order, compare and represent numbers to at least 6-digit numbers 5.1.1.3. Represent odd and even numbers to at least 1000. 5.1.1.4. Add, subtract, multiply and divide whole numbers. 5.1.1.5. Recognise the place value to at least 6 digit numbers. 5.1.1.6. Rounding off to the nearest 5, 10, 100 or 1000 5.1.1.7. Addition and subtraction of whole numbers with at least 5 digits 5.1.1.8. Multiplication of at least whole 3-digit by 2-digit numbers 5.1.1.9. Division of at least whole 3-digit by 2-digit numbers 5.1.1.10. Using a range of techniques to perform written and mental calculations with whole numbers including: • Adding and subtracting in columns • building up and breaking down numbers and using a number line • rounding off and compensating • doubling and halving 5.1.1.11. Mental calculations involving: • addition and subtraction • multiplication of whole numbers to at least 10×10 • Reciprocal relationship between multiplication and division 5.1.1.12. Problem-solving involving whole numbers	6.1.1.1. Count forwards and backwards in decimals 6.1.1.2. Order, compare and represent numbers at least 9-digit numbers 6.1.1.3. Represent prime numbers to at least 100 6.1.1.4. Add, subtract, multiply and divide whole numbers. 6.1.1.5. Recognising the place value of digits in whole numbers to at least 9-digit numbers 6.1.1.6. Rounding off to the nearest 5, 10, 100 or 1000 6.1.1.7. Addition and subtraction of whole numbers 6.1.1.8. Multiplication of at least whole 4-digit by 3-digit numbers 6.1.1.9. Division of at least whole 4-digit by 3-digit numbers 6.1.1.10. Using a range of techniques to perform written and mental calculations with whole numbers including: • adding, subtracting and multiplying in columns • long division • building up and breaking down numbers • rounding off and compensating • using a calculator 6.1.1.11. Mental calculations involving: • addition and subtraction • multiplication of whole numbers to at least 12×12 • Divisibility rules for 2, 5, 10, 100, 1000 6.1.1.12. Problem-solving involving whole numbers
1.2. Fractions	4.1.2.1. Common Fractions • Describing and comparing common fractions with different denominators from 2 to 8 • Describing and comparing common fractions in diagrammatic form • Addition of common fractions with same denominators • Equal sharing with remainders • Recognising, describing and using the equivalence of division and fractions • Problem-solving involving common fractions	5.1.2.1. Common Fractions • Describing and comparing common fractions to at least twelfths • Addition and subtraction of common fractions with same denominator • Addition and subtraction of mixed fractions • Fractions of whole numbers which result in whole numbers • Count forwards and backwards in fractions • Recognising, describing and using the equivalence of division and fractions	6.1.2.1. Common Fractions • Describing and comparing common fractions (tenths and hundredths) • Addition and subtraction of common fractions (denominators which are multiples of each other) • Addition and subtraction of mixed fractions • Fractions of whole numbers • Problem-solving involving common fractions

	4.1.2.2. Decimals • Describing and comparing decimal fractions of the form 0,5; 1,5 and 2,5 etc in the context of measurement. • Problem-solving involving decimals 4.1.2.3. Equivalent forms: • Recognising and using equivalent forms (denominators which are multiples of each other) • Recognising and using equivalent forms decimal fractions of the form 0,5; 1,5 and 2,5 etc in the context of measurement.	• Problem-solving involving common fractions 5.1.2.2. Decimals • Describing and comparing decimal fractions of the form 0,5; 1,5 and 2,5 etc in the context of measurement. • Problem-solving involving decimals 5.1.2.3. Equivalent forms: • Recognising and using equivalent forms (denominators which are multiples of each other) • Recognising and using equivalent forms decimal fractions of the form 0,5; 1,5 and 2,5 etc in the context of measurement.	6.1.2.2. Decimals • Describing and comparing decimal to at least to decimal places • Place value of digits in at least two decimal places • Addition and subtraction of positive decimals with at least two decimal places • Count forwards and backwards in decimals • Problem-solving involving decimals 6.1.2.3. Equivalent forms: • Recognising and using equivalent forms of common fractions with 1-digit or 2-digit denominators • Equivalent forms of decimal fractions to at least two decimal places • Equivalent forms of percentages 6.1.2.4. Percentages of whole numbers
1.3. Ratio and Rate	4.1.3.1. Compare two or more quantities of the same kind (ratio) 4.1.3.2. Comparing two quantities of different kind s (rate)	5.1.3.1. Compare two or more quantities of the same kind (ratio) 5.1.3.2. Comparing two quantities of different kind s (rate)	6.1.3.1. Compare two or more quantities of the same kind (ratio) 6.1.3.2. Comparing two quantities of different kinds (rate)
1.4. Multiples and Factors	4.1.4.1. Multiples of 1-digit numbers to at least 100	5.1.4.1. Multiples of 2-digits whole numbers to at least 100 5.1.4.2. Factors of 2-digit whole numbers to at least 100	6.1.4.1. Multiples of 2-digit and 3-digit numbers 6.1.4.2. Factors of 2-digit and 3-digit whole numbers 6.1.4.3. Prime factors of numbers to at least 100
1.5. Properties of Rational numbers	4.1.5.1. Commutative; associative; distributive properties with whole numbers	5.1.5.1. Commutative; associative; distributive properties with whole numbers	6.1.5.1. Commutative; associative; distributive properties with whole numbers 6.1.5.2. Properties of 0 and 1
1.6. Financial Mathematics	4.1.6.1. Buying and selling 4.1.6.2. Simple budgets	5.1.6.1. Buying and selling 5.1.6.2. Simple budgets 5.1.6.3. Profit and loss	6.1.6.1. Buying and selling 6.1.6.2. Simple budgets 6.1.6.3. Profit and loss 6.1.6.4. Reading and interpreting accounts 6.1.6.5. Discount

2. PATTERNS, FUNCTIONS AND ALGEBRA

CONTENT	GRADE 4	GRADE 5	GRADE 6
2.1. Numeric & Geometric patterns	4.2.1.1. Investigate and extend numeric and geometric patterns looking for relationships or rules of patterns: • represented in physical or diagrammatic form • including sequences involving constant difference or ratio • of learner's own creation 4.2.1.2. Describe observed relationships or rules in learner's own words	5.2.1.1. Investigate and extend numeric and geometric patterns looking for relationships or rules of patterns: • represented in physical or diagrammatic form • including sequences involving constant difference or ratio • of learner's own creation 5.2.1.2. Describe observed relationships or rules in learner's own words	6.2.1.1. Investigate and extend numeric and geometric patterns looking for relationships or rules of patterns: • represented in physical or diagrammatic form • including sequences involving constant difference or ratio • of learner's own creation • represented in tables 6.2.1.2. Describe generated rules
2.2. Input and Output values	Determine output values for given input values using: • Verbal description • Flow diagrams	Determine output values for given input values using: • Verbal description • Flow diagrams	Determine output values for given input values, or input values for given output values using: • Verbal description • Flow diagrams • Tables
2.3. Number sentences (Introduction to Algebraic Expressions)	4.2.3.1. Write number sentences to describe problem situation 4.2.3.2. Solve and complete number sentences by: • inspection • trial and improvement • substitution 4.2.3.3. Determine equivalence of different descriptions of the same relationship or rule presented: • verbally • in flow diagrams • by a number sentence	5.2.3.1. Write number sentences to describe problem situation 5.2.3.2. Solve and complete number sentences by: • inspection • trial and improvement • substitution 5.2.3.3. Determine equivalence of different descriptions of the same relationship or rule presented: • verbally • in flow diagrams • by a number sentence	6.2.3.1. Write number sentences to describe problem situation 6.2.3.2. Solve and complete number sentences by: • inspection • trial and improvement • substitution 6.2.3.3. Determine equivalence of different descriptions of the same relationship or rule presented: • verbally • in flow diagrams • by a number sentence in tables

3. SPACE AND SHAPE (GEOMETRY)

CONTENT	GRADE 4	GRADE 5	GRADE 6
3.1. Properties of 2-D shapes and 3-D objects	4.3.1.1. Recognize, visualize and name 2-D shapes and 3-D objects in the environment: • rectangular prisms, • spheres • cylinders • pyramids • circles • polygons (up to 6-sided figures)	5.3.1.1. Recognize, visualize and name 2-D shapes and 3-D objects in natural and cultural forms and geometric setting: • similarities between cubes and rectangular prisms • similarities between squares and rectangles • differences between cubes and rectangular prisms • differences between squares and rectangles • polygons (up to 7-sided figures)	6.3.1.1. Recognize, visualize and name 2-D shapes and 3-D objects in natural and cultural forms and geometric setting: • similarities between tedrahendrons and other pyramids • similarities between rectangles and parallelograms • differences between tedrahendrons and other pyramids • differences between rectangles and parallelograms • polygons (up to 8-sided figures)
	4.3.1.2. Draw 2-D shapes on grid paper	5.3.1.2. Draw 2-D shapes on grid paper	6.3.1.2.
	4.3.1.3. Describe, sort and compare 2-D shapes and 3-D objects in terms of: • Shapes of faces, • Flat and curved surfaces • Straight and curved sides • Number of sides	5.3.1.3. Describe, sort and compare 2-D shapes and 3-D objects in terms of: • Shape of faces • Number of faces • Number of sides • Length of sides	6.3.1.3. Describe, sort and compare 2-D shapes and 3-D objects in terms of: • Faces • Vertices • Edges • Length of sides • Size of angles
	4.3.1.4. Make 3-D models using cut out polygons	5.3.1.4. Make 3-D models using cut out polygons	6.3.1.4. Make 3-D models using: • drinking straws to make a skeleton • nets
	4.3.1.5. Draw shapes on grid paper	5.3.1.5. Draw shapes on grid paper	6.3.1.5. Draw shapes on grid paper 6.3.1.6. Draw circles, patterns in circles and patterns with circles using an pair of compasses
3.2. Transformations	4.3.2.1. Recognising, draw and describing line of symmetry in 2-D shapes 4.3.2.2.	5.3.2.1. Recognising, draw and describing line of symmetry in 2-D shapes 5.3.2.2. Use geometric figures and solids to perform: • Rotations (turns) • reflections (flips) • translations (slides)	6.3.2.1. Recognising, draw and describing line of symmetry in 2-D shapes 6.3.2.2. Use transformations (rotations, reflections and translations) and symmetry to describe relationships between 2-D shapes and 3-D objects.
	4.3.2.3. Making 2-D shapes, 3-D objects and patterns using: • Tessellations; and • Line symmetry	5.3.2.3. Making 2-D shapes, 3-D objects and patterns using: • tessellations • line symmetry	6.3.2.3. Draw enlargement and reductions of 2-D shapes to compare size and shape of: • triangles • quadrilaterals

		• rotational symmetry • rotations • reflections • translation	
3.3. Viewing of objects	Viewing objects in different positions	Viewing objects in different positions	Draw and interpret 3-D objects from different positions
3.4. Position and movement	4.3.4.1. Locate position on: • Labelled (coded) grid • Column and row • Maps	5.3.4.1. Locate position on: • Labelled (coded) grid • Maps 5.3.4.2. Tracing a path between position	6.3.4.1. Locate position on: • Labelled (coded) grid • Maps 6.3.4.2. Describe how to move between positions on the grid

4. MEASUREMENT

CONTENT	GRADE 4	GRADE 5	GRADE 6
4.1. Length, mass and capacity	4.4.1.1. Length • units: millimetres (mm), centimetres (cm), metres (m) and kilometres (km). • measuring instruments: rulers, metre sticks, tape measures and trundle wheels • conversion: between millimetres (mm), centimetres (cm), metres (m) and kilometres (km).	5.4.1.1. Length • units: millimetres (mm), centimetres (cm), metres (m) and kilometres (km). • measuring instruments: rulers, metre sticks, tape measures and trundle wheels • conversion: between millimetres (mm), centimetres (cm), metres (m) and kilometres (km).	6.4.1.1. Length • Use appropriate measuring instruments including rulers, measuring tapes, metre sticks, bathroom scales, kitchen scales, measuring jugs etc. to measure length, mass and capacity. • Estimate , measure, record, compare and order 2-D shapes and 3-D objects using SI units with appropriate precision for: Length: mm , cm , m , km Mass: g , kg Capacity: ml , l
	4.4.1.2. Mass • units: grams (g) and kilograms (kg) • measuring instruments: bathroom scales, kitchen scales and balances • conversion: between grams (g) and kilograms (kg)	5.4.1.2. Mass • units: grams (g) and kilograms (kg) • measuring instruments: bathroom scales, kitchen scales and balances • conversion: between grams (g) and kilograms (kg)	6.4.1.2. Mass • units: grams (g) and kilograms (kg) • conversion: between grams (g) and kilograms (kg)
	4.4.1.3. Capacity • units: millilitres (ml) and litres (l) • measuring instruments: measuring jugs • conversion: between millimetres (ml) and litres (l) 4.4.1.4. Solve real life problems involving length, mass and capacity	5.4.1.3. Capacity • units: millilitres (ml) and litres (l) • measuring instruments: measuring jugs • conversion: between millimetres (ml) and litres (l) 5.4.1.4. Solve real life problems involving length, mass and capacity	6.4.1.3. Capacity • units: millilitres (ml) and litres (l) • conversion: between millimetres (ml) and litres (l) 6.4.1.4. Solve real life problems involving length, mass and capacity

4.2. Time	4.4.2.1. Read, tell and write analogue, digital and 24-hour time in terms of: • seconds, • minutes • hours 4.4.2.2. use time measuring instruments with precision: • watch • clock 4.4.2.3. Conversion between time units: • seconds, • minutes, • hours, • days, • weeks, • months, • years 4.4.2.4. Solve problems involving time	5.4.2.1. Read, tell and write analogue, digital and 24-hour Time in terms of: • seconds, • minutes • hours 5.4.2.2. use time measuring instruments with precision: • watch • stopwatch 5.4.2.3. Conversion between time units: • decades • centuries • millennia 5.4.2.4. Solve problems involving time	6.4.2.1. Read, tell and write analogue, digital and 24-hour time in terms of: • seconds, • minutes • hours 6.4.2.2. 6.4.2.3. Conversion between time units: • time zones 6.4.2.4. Solve problems involving time
4.3 Temperature		• units: degree Celsius • measuring instruments: thermometers • Solve real life problems involving temperature	• units: degree Celsius • measuring instruments: thermometers • Solve real life problems involving temperature
4.4 Perimeter, surface area and volume	4.4.4.1. Investigate: • perimeter using rulers or measuring tapes. • Area of polygons using square grids and tiling to develop the concept of square units. • Volume and capacity of 3-D objects to develop the concept of cubic units. • Solve real life problems involving perimeter, surface area and volume.	5.4.4.1. Investigate: • perimeter using rulers or measuring tapes. • Area of polygons using square grids and tiling to develop the concept of square units. • Volume and capacity of 3-D objects to develop the concept of cubic units • Solve real life problems involving perimeter, surface area and volume.	6.4.4.1. Investigate: • perimeter using rulers or measuring tapes. • Area of polygons using square grids to develop the rules for calculating the area of squares and rectangles. • Volume and capacity of 3-D objects for to develop the rules for calculating the area of squares and rectangles. • Relationship between perimeter and area of rectangles and squares. • Relationship between surface area, volume and dimensions of rectangular prisms. • Solve real life problems involving perimeter, surface area and volume.
4.5 Classification of angles		5.4.5.1. Recognize and describe right angles in 2-D shapes, 3-D objects and the environment.	6.4.5.1. Recognize and describe right angles in 2-D shapes, 3-D objects and the environment in terms of: • Right angles • Angles smaller than right angles • Angles greater than right angles

5. DATA HANDLING

CONTENT	GRADE 4	GRADE 5	GRADE 6
5.1. Collection of data	4.5.1.1. Posing questions about own school and family environment 4.5.1.2. Identify appropriate data sources 4.5.1.3. . 4.5.1.4. Collect data to answer questions	5.5.1.1. Posing questions about own school and family environment 5.5.1.2. Identify appropriate data sources 5.5.1.3. Making and using simple data collection sheets that involve counting objects to answer questions 5.5.1.4. Collect data to answer questions	6.5.1.1. Posing questions about own school and family environment 6.5.1.2. Identify appropriate data sources 6.5.1.3. Using simple data collection sheets requiring tally marks) and simple questionnaires (yes/no type response) to answer questions. 6.5.1.4. Collect data to answer questions
5.2. Organizing, recording and summarising data	4.5.2.1. Records data using: tally marks	5.5.2.1. Organizes and records data using: • tally marks • tables 5.5.2.2. Examining ungrouped numerical data to determine the mode	6.5.2.1. Organizes and records data using: • tally marks • tables 6.5.2.2. Distinguishing between samples and populations 6.5.2.3. Examining ungrouped numerical data to determine the mode and the median
5.3. Displaying data	4.5.3.1. Drawing a variety of graphs to display and interpret data including: • Pictographs (one-to-one correspondence between data and representation) • Bar graphs	5.5.3.1. Drawing a variety of graphs to display and interpret data including: • Pictographs (many-to-one correspondence) • Bar graphs	6.5.3.1. Drawing a variety of graphs to display and interpret data including: • Pictographs (many-to-one correspondence) • Bar graphs
5.4. Interpreting data	4.5.4.1. Critically reading and interpreting data presented in a variety of ways to draw conclusions and make predictions sensitive to the role of: • context (e.g. rural or urban); • other human rights issues.	5.5.4.1. Critically reading and interpreting data presented in a variety of ways in order to draw conclusions and make predictions sensitive to the role of: • context (e.g. rural or urban); • categories within the data (e.g. gender, race); • any other human rights issues.	6.5.4.1. Critically reading and interpreting data presented in a variety of ways in order to draw conclusions and make predictions sensitive to the role of: • context (e.g. rural, urban, provincial or national); • categories within the data (e.g. age, gender, race); • any other human rights issues.
5.5. Probability	**4.5.5.1.** Comparing and classifying events as: • certain that they will happen • certain that they will not happen • uncertain **4.5.5.2.** **4.5.5.3.** Counting the number of possible outcomes for simple trials.	**5.5.5.1.** Comparing and classifying events on scale from • certain that they will happen, to • certain that they will not happen **5.5.5.2.** List possible outcomes for simple experiments: • tossing a coin, • rolling a die, • spinning a spinner **5.5.5.3.** Counting the frequency of actual outcomes for a series of trials.	**6.5.5.1.** Predicting the likelihood of events based on observation and places them on a scale from • impossible, to • certain. **6.5.5.2.** List possible outcomes for simple experiments: • tossing a coin, • rolling a die, • spinning a spinner **6.5.5.3.** Counting the frequency of actual outcomes for a series of trials.

CHAPTER 3
CURRICULUM AND ASSESSMENT POLICY STATEMENT (CAPS)
(CONTENT OUTLINE)

Introduction

- Chapter 3 (Content Outline) is aligned to the Chapter 2 (Overview) and provides the teacher with sequenced content topics to be taught in each term.

- The examples given in the column "Clarification or Notes" in Chapter 3 are intended to guide the teacher on the content to be covered. Therefore, these notes do not cover the whole content.

- The order of content in not rigid but care must be taken not to teach content areas that involve measurement before the basic operations such as addition, subtraction, multiplication and division have been mastered at the required level.

- The time allocation (in weeks) is not rigid. It should be noted the time allocated for formal assessment tasks indicated at the end of each term does NOT imply that all the tasks should be written within the given time. The days of the week set aside for assessment should be spread in the whole term when planning for assessment.

TERM 1 – Grade 4

<table>
<tr><th>CONTENT AREA</th><th>CONTENT</th><th>CLARIFICATION or NOTES</th><th>DURATION (in weeks)</th></tr>
<tr><td rowspan="3">NUMBERS, OPERATIONS AND RELATIONSHIPS</td><td>1.1Whole numbers

Whole number counting</td><td>• Count forwards between 0 and 10 000 in a variety of intervals including: 2s, 3s, 5s, 10s, 25s, 50s, 100s and also in 9s, 49s, 99s.
Examples:
a) Count in 2s from 31
b) Count in 3s from 110
c) Count in 9s from 267

• Revise natural numbers, whole numbers, even and odd numbers.</td><td>Every day</td></tr>
<tr><td>1.1Whole numbers

Mental calculations:
• Addition
• Subtraction</td><td>• Addition: Add 1-digit number to a 3-digit number.
Example:
$123 + 2 = 125$

• Subtraction: Subtract a 1-digit number from 3-digit number.
Example:
$423 - 6 = 417$

• Extend number sequences.
Examples:
Write down the next 3 numbers in the sequence:

a) 173 ; 175 ; 177 ...
b) 769 ; 719 ; 669 ...</td><td>Every day</td></tr>
<tr><td>1.1Whole numbers

Place values</td><td>• Recognise the values of digits in whole numbers to at least 4-digit numbers.

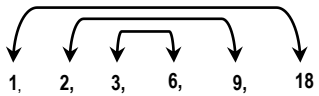
Example: The place value of each digit in 4 371 is:

<table><tr><th>Thousands</th><th>Hundreds</th><th>Tens</th><th>Units</th></tr><tr><td>4</td><td>3</td><td>7</td><td>1</td></tr></table>
The place value of:
a) 4 is Thousands
b) 3 is Hundreds
c) 7 is Tens
d) 1 is Units</td><td>2 weeks</td></tr>
</table>

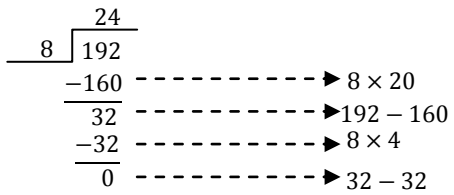
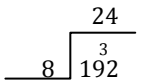
	1.1Whole numbers *Number lines*	• Insert 2-digit, 3-digit and 4-digit numbers on given number lines.
	1.1Whole numbers *Ordering numbers*	• Arrange numbers from: a) smallest to biggest (ascending order); and b) biggest to the smallest (descending order). **Examples**: a) $4\,261 < 5\,261 < 6\,261 < 8\,261$ b) $8\,484 > 8\,476 > 8\,467 > 8\,448$
	1.1Whole numbers ***ADDITION*** *Add whole numbers with at least 4 digits*	• **Emphasize** that numbers can be added in any order. **Example:** 26 + 19 = 19 + 26 • By **breaking down** numbers. **Example:** Calculate 4362 + 2486 = 4 000+300+60+2+2 000+400+80+6 = 4 000+2 000+300+400+60+80+2+6 = 6 000 + 700 + 140 + 8 = 6 848 **OR** 2 + 6 = 8 + 60 + 80 = 140 + 300 + 400 = 700 + 4 000 + 2 000 = 6 000 means 4 362 + 2 486 = 6 848 **or adding on**: **Example:** 4 362 + 2 000 → 6 362 + 400 → 6 762 + 80 → 6 842 + 6 → 6 848 • Filling up tens: **Example:** 96 + 48 = 100 + 44 = 144 • **Use the vertical column-method.** The vertical column method must not be forced or insisted upon. It should be introduced when learners fully understand how to add horizontally. 4 362 + 2 486 6 848 • Use a range of strategies to check solutions and judge reasonableness of solutions.
	1.1Whole numbers *Rounding off whole numbers to the nearest 10, 100 or 1000*	• Round off whole numbers to the nearest 10, 100 or 1 000. **Example:** Use a number line to show that: a) 2 180 ≈ correct to the nearest 10 b) 2 176 ≈ 2 200 correct to the nearest 100 c) 2 176 ≈ 2 000 correct to the nearest 1 000

	1.1Whole numbers ***SUBTRACTION*** *Counting*	**Emphasize** that numbers **cannot** be subtracted in any order. **Example:** 78 – 20 ≠ 20 -78 • Count backwards between 0 and 1000 in a variety of intervals. **Examples:** a) Count backwards in 5s from 624 to 604 b) Count backwards in 9s from 624 to 588 c) Count backwards in 20s from 624 to 524	**Every day**
	1.1Whole numbers *Converse relationship between addition and subtraction.*	• Recognise and use the converse relationship between addition and subtraction. **Example:** If 19 + 8 = 27 then 27 – 19 = 8 and 27 – 8 = 19	
	1.1Whole numbers *Number lines*	• Insert 1 , 2 , 3 and 4-digit numbers on given number lines.	
	1.1Whole numbers *Subtracting whole numbers with at least 4 digits*	• Subtract whole numbers with at least 4 digits. **Example**: Calculate :4687 – 2143 Use the **breaking down** technique 4 687 – 2 143 = 4 000 + 600 + 80 + 7 – 2 000 – 100 – 40 – 3 = 4 000 – 2 000 + 600 – 100 + 80 – 40 + 7 – 3 = 2 000 + 500 + 40 + 4 = 2 544 **OR** 7 – 3 = 4 80 – 40 = 40 600 – 100 = 500 4 000 – 2 000 = 2 000 **means** 4 687 – 2 143 = 2 544 **or** 4 687 – 2 000 → 2 687 – 100 → 2 587 – 40 → 2 547 – 3 = 2 544 **or** 4 687 – 2 000 – 140 – 3 = 2 687 – 140 – 3 = 2 547 – 3 = 2 544 **or** use the **vertical column** method (only after learners understand how to subtract horizontally) **Example:** 4 687 – 2 143 2 544 **or** 2 12 5 11 3 2 6 1 – 1 8 4 6 1 4 1 5 • Uses a range of strategies to check solutions and judge reasonableness of solutions.	**2 weeks**

	1.1Whole numbers	• Solve problems involving addition and subtraction in real life situations. **Key words**: add, altogether, total, sum, subtract, difference, more than, less than. **Examples:** a) If 237 is added to a number, the answer is 1 396. What is the number? b) Nosipho has R18 more than Helen. How much do they have altogether if Helen has R60? c) A farmer sold 359 of his 1 108 sheep. Two months later he bought 560 sheep. How many sheep did he then have?	**0,5 week**
SPACE AND SHAPE	**3.1. The properties of 2-D shapes and 3-D objects**	• Describe, sort and compare 2-D shapes which have straight and/or curved sides. • Recognise, visualise and name 2-D shapes in the environment & in pictures including rectangles, triangles and circles. • Name polygons in terms of the number of sides up to 6-sided figure, namely triangles, quadrilaterals, pentagons and hexagons. • Draw polygons on grid paper. • Describe, sort and compare 3-D objects according to geometric properties including the shapes of faces, the number of faces (sides) and the number of vertices. • Recognise, visualise and name 3-D objects including cubes, rectangular prisms, triangular prisms, cylinders, spheres and pyramids. • Make 3-D models using cut-out polygons.	**2 weeks**
NUMBERS, OPERATIONS AND RELATIONSHIPS	**1.1Whole numbers** ***MULTIPLICATION***	• **Emphasize** that numbers can be multiplied in any order. **Example:** $60 \times 76 = 76 \times 60$	**Every day**
	1.1Whole numbers *Mental calculations*	• Calculations involving multiplication of whole numbers to at least 10 × 10 (revise the multiplication tables). • Write down the multiples of one-digit numbers to at least 100. **Example:** The multiples of 8 between 30 and 60 are 32 , 40 , 48 , 56.	
	1.1Whole numbers *Number lines*	• Use number lines to illustrate multiplication through repeated addition. **Example:** Illustrate that $2 + 2 + 2 + 2 = 8$ and that $4 \times 2 = 8$	**1 week**
	1.1Whole numbers *Doubling 1 , 2 and 3 digit numbers.*	• Double 1 , 2 and 3 digit numbers. **Examples:** a) Double 8 = 8 + 8 = 16 or $2 \times 8 = 16$ b) Double 16 = 16 + 16 = 32 or $2 \times 16 = 32$ c) Double 132 = 132 + 132 = 264 or $2 \times 132 = 264$	
	1.1Whole numbers *Multiplying 2-digit numbers by 10, 100 and 1000*	• Multiply 2-digit numbers by 10, 100 and 1 000. **Examples:** $73 \times 10 = 730$, $73 \times 100 = 7\,300$, $73 \times 1\,000 = 73\,000$ because 73 is respectively 10 times, 100 times and 1 000 times larger. A misconception is that to multiply a number by 10, 100 or 1 000 means to add 1 or 2 or 3 zeros to the number and then incorrectly say that $0{,}73 \times 10 = 0{,}730$.	**1 week**

	1.4Multiples and Factors *Factors of 2-digit numbers*	• Determine factors of 2-digit numbers. **Examples:** a) Determine factors of 6 Because 6 = 1 × 6 or 2 × 3 the factors of 6 are 1 , 2 , 3 and 6 b) Determine factors of 18  The factors of 18 are **1, 2, 3, 6, 9, 18** **Note**: Factors are introduced so that learners can use factors to multiply 2-digit numbers by 2-digit numbers using their multiplication tables knowledge – **not** so that they can be asked to factorize any 2-digit number e.g. 68 or 84.	
	1.1Whole numbers *The distributive property of multiplication over addition*	• Use the distributive property of multiplication over addition. **Example:** Investigate that 5 × 7 = 5 × (4 + 3) = (5 × 4) + (5 × 3) = 20 + 15 = 35	
	1.1Whole numbers *Solving problems involving multiplication*	• Solve problems that involve multiplication in real life situations. **Key words:** multiply, product, altogether, total. **Examples:** a) Which number is 38 less than the product of 17 and 4? b) In a school, there are 30 desks in each of 9 classrooms and 25 desks in each of 8 classrooms. How many desks are there in the 17 classrooms altogether?	**0,5 week**
Formal Assessments (to be completed during Term 1)	• **2 Tests** • **1 Task**		**1 week** (days to be spread for the three formal assessments)

TERM 2 – Grade 4			
CONTENT AREA	**CONTENT**	**CLARIFICATION** or **NOTES**	**DURATION (in weeks)**
NUMBERS, OPERATIONS AND RELATIONSHIPS	**1.1. Whole numbers** ***DIVISION***	**Emphasize** that numbers cannot be divided in any order. **Example:** 125 ÷ 5 ≠ 5 ÷ 125	**Every day**
	1.1. Whole numbers *Mental mathematics*	• Calculate quotients using knowledge of multiplication tables. **Example:** a) 72 ÷ 9 = 8 b) 74 ÷ 9 = 8 remainder 2 c) 132 ÷ 12 = 11	
	1.1. Whole numbers *Halving* 1 , 2 and 3 digit numbers.	• Halve 1 , 2 and 3 digit numbers. **Example:** **Half of:** a) 8 = 8 ÷ 2 = 4 b) 94 = 94 ÷ 2 = 47 c) 216 = 216 ÷ 2 = 108	
	1.1. Whole numbers *Even and odd numbers*	• Compare even and odd numbers. **Examples:** a) 376 is an even number because it is exactly divisible by 2. b) 377 is an odd number because divided by 2 it gives a remainder of 1. **Example:** Write down the even numbers between 237 and 251.	
	1.1. Whole numbers *Number lines*	**Example:** Illustrate that **:** 8 – 2 – 2 – 2– 2 = 0 and that 8 ÷ 2 = 4	**2 weeks**
	1.1. Whole numbers *Divide whole numbers with at least 3 digits by 1-digit whole numbers.*	**Example :** Calculate**:** 192 ÷ 8 **By breaking down** technique. Write 192 as the sum of multiples of 8 (192 = 160 + 32 or 80+ 80 + 32) 32 ÷ 8 = 4 **and** 160 ÷ 8 = 20 **means** 192 ÷ 8 = 24	

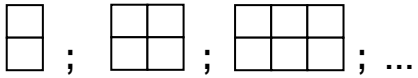
		• **Use long division method** Use long division-method only if learners fully understand the division process. **Note:** Long division-method may be shown to learners in Grade 4 but should not be tested until Grade 5.  • **Use short-method** (without writing all the long-division steps)  • Use a range of strategies to check solutions and judge reasonableness of solutions.	
	1.1. Whole numbers *Converse relationship between multiplication and division.*	• Recognize and use the converse relationship between multiplication and division. **Example:** If 47 × 9 = 423 **then** 423÷ 47 = 9 **and** 423 ÷ 9 = 47	**2 weeks**
	2.3. Multiple operations and number sentences	• Calculations involving addition and /or subtraction and /or multiplication and /or division. **Examples:** a) $(124 + 16) \div 7 = 140 \div 7 = 20$ b) $(23 \times 8) - (110 - 26) = 184 - 84 = 100$ c) $(12 \times 9) - (9 \div 3) = 108 - 3 = 105$ **Note:** Inserting brackets does not mean to draw ( ) but involves performing an operation. • Use symbols to write number sentences. **Example:** A certain number □ is 3 more than t means $\square = t + 3$ or $\square - 3 = t$ • Complete number sentences by inspection and check the answers by substitution. **Example:** a) $\square + 18 = 36$ means $\square = 28$ b) $(4 + \square) \times 6 = 42$ means $\square = 3$	

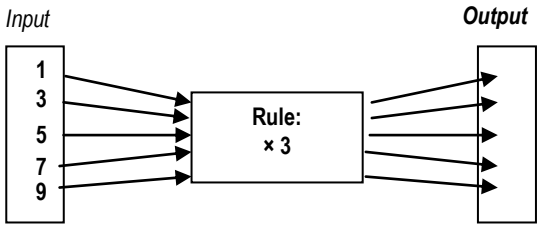
	1.1. Whole numbers ***Problems involving division.***	• Solve problems that involve division in context. **Key words:** each, share equally, per group/packet, class etc. **Examples:** a) The product of two numbers is 405. If the one number is 9, what is the other? b) 580 apples must be shared equally between 18 people. Calculate how many apples each person will get and how many apples will be left.	**1 week**
MEASUREMENT	**4.1.*Length; Mass; Capacity***	• Use appropriate measuring instruments including rulers, measuring tapes, metre sticks, bathroom scales, kitchen scales, measuring jugs etc. to measure length, mass and capacity. • Estimate, measure, record, compare and order 2-D shapes and 3-D objects using SI units with appropriate precision for: **Length**: mm , cm , m , km **Mass**: g , kg **Capacity**: ml, l **Convert units of length, mass & capacity.** • Solve problems involving length, mass & capacity in real life situations. **Examples:** a) Siphiwe cuts 6 pieces of ropes each 500mm long, from 3,5 metres of rope. What I the length of the rope that will be left over? b) A bag of maize meal contains 10 kg. Busi used 2 kg in the first week in the week and 3 kg in the next week. She then divided the rest equally into 2 separate bags. What will be the mass of the 2 remaining bags? c) Waseela used 2l of water for making tea and coffee, and 60,5 litres of water for doing her washing and 3,5l of water for washing dishes. How much water did she use all together?	**3 weeks**
	4.4. Perimeter, Area, Capacity and Volume	• Investigate and approximate: a) The perimeter of polygons using rulers or measuring tapes. b) The area of polygons (using square grids and tiling) in order to develop an understanding of square units. c) The capacity of 3-D objects by filling them. d) The volume of 3-D objects (using 1 cm^3 cubes) to develop an understanding of cubic units.	
Formal Assessments (to be completed during Term 2)	• **1 Task** • **1 Test** • **1 Half-yearly Examination**		**2 weeks** (days to be spread for the three formal assessments)

TERM 3 – Grade 4			
CONTENT AREA	**CONTENT**	**CLARIFICATION** or **NOTES**	**DURATION (in weeks)**
NUMBERS, OPERATIONS AND RELATIONSHIPS	1.6. **Financial Mathematics** • *Money* • *Solving problems involving money*	• Convert between Rand and cents. • Calculate making or giving change when shopping. • Financial mathematics including buying, selling and simple budgets. • Solve problems involving money. **Example:** Modise buys 3 books at R5,50 each, 2 pencils at R2,25 each, and a ruler for R3,75. How much change will she get from R30?	**3 weeks**
	1.2Fractions • *Common fractions and decimal fractions.* • *Solving problems involving common fractions and decimal fractions*	• Recognise and represent common fractions in diagrammatic form in order to describe and compare them. **Emphasize** the equivalence of division and common fractions e.g. $1 \div 8 = \frac{1}{8}$ • Describe and compare fractions with different denominators including halves, thirds, quarters, fifths, sixths, sevenths and eights. • Use equivalent forms of common fractions with denominators that are multiples of each other. • Addition of common fractions with the same denominators. Orally: two sevenths plus three sevenths equals five sevenths. Using symbols $\frac{2}{7} + \frac{3}{7} = \frac{5}{7}$ • Calculate fractional parts of quantities in the context of measurement. **Example:** If $\frac{1}{4}$ of $28\text{m} = 7$ then $\frac{3}{4}$ of $28\text{m} = 7 \times 3\text{m} = 21\text{m}$ • Solve problems involving fractions including equal sharing with remainders. **Example:** 5 slices of bread shared by 4 friends • Recognise and use equivalent forms of decimal fractions of the form 0,5 , 1,5 and 2,5 etc. in the context of measurement.	**3 weeks**
	1.3.Ratio and Rate *Solving problems involving ratio and rate*	• Comparing two or more quantities of the same kind (ratio concept) • Comparing two quantities of different kinds (rate concept e.g. R/kg) **Examples:** Complete: a) If Sarah is 7 years old and Peter is 12 years old, then Sarah's age : Peter's age = _____ b) The ratio of 1 cm to 1m = _____ c) If 2 oranges cost R3 it means that the cost of 1 orange = _____ cents. d) Determine the cost of the following number of apples if one apple cost R2,50: i) Two apples ii) Three apples iii) Ten apples	**2 week**

Formal Assessments (to be completed during Term 3)	• **2 Tests** • **1 Task**		**2week** (days to be spread for the three formal assessments)

TERM 4 – Grade 4

CONTENT AREA	CONTENT	CLARIFICATION or NOTES	DURATION (in weeks)
SPACE & SHAPE	**2.2Transformation Geometry** • *Lines of symmetry* • *Tessellations* • *Views of simple 3-D objects* • *Locate position on a grid or map*	• Recognise and describe lines of symmetry in 2-D shapes. • Draw lines of symmetry in 2-D shapes. • Use 2-D shapes to make geometric patterns and to tessellate (tile) a surface leaving no gaps. • Describe and sketch views of simple 3-D objects (solids) from different positions. • Locate position on a labelled grid or map: a) from given instructions b) in columns and rows • Describe how to move positions on a grid.	**1 week**
PATTERNS AND FUNCTIONS	**2.1Numeric & Geometric patterns**	• Look for a relationship or rule represented in diagrammatic form not limited to sequences involving constant difference or ratio. **Example:** Write down the next 3 numbers in each of the following sequences and also write down the rule which you used. a) 4; 7 ; 10 ; … b) 36 ; 32 ; 28 ; … c) 1 ; 2 ; 4 ; … d) 1 ; 1 ; 2 ; 3 ; 5 ;…	**2 weeks**
		• Describe observed relationships or sequences or rules in own words. **Examples:** Describe the rules in the following sequences in own words: a) 3; 6; 9; … b) 11; 22; 33;… c)  ; …	

	2.2 Input and output Values	• Determine output values for given input values using: a) verbal descriptions b) flow diagrams **Examples:** a) Use the given rule to calculate the output values for the given input values.  	
MEASUREMENT	**4.2. Time**	• Read, tell and write analogue, digital and 24-hour time to at least the nearest, hour, minute and second.	**2 weeks**
		• Solve problems involving calculation and conversion between appropriate time units including: seconds, minutes, hours, days, weeks, months and years.	
DATA HANDLING	**5.1. Collection of data**	• Pose simple questions about own school and family environment, and identify appropriate data sources to address human rights, social, political, cultural, environmental and economic issues in the environment.	**2 weeks**
		• Collect data (alone and/or as a member of a group or team) in the classroom and school environment to answer questions posed by the teacher and the class.	
	5.2. Organizing and recording data	• Organise and record data, using tally marks and tables.	
	5.3. Displaying data	• Draw a variety of graphs to display and interpret data (ungrouped) including: a) pictographs with a 1-1 correspondence between data and representation (e.g. one picture represents one person) b) bar graphs (emphasize the correct labelling of the horizontal & vertical axes)	
	5.4.Interpreting Data	• Critically read and interpret data represented in a variety of ways (including own representations and representations in the media – both words and graphs) to draw conclusions and make predictions sensitive to the role of: a) context (e.g. rural or urban) b) other human rights issues.	
	5.5. Probability	• Compare and classify events from daily life as: a) certain that they will happen, or b) certain they will not happen, or c) uncertain.	

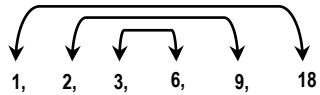
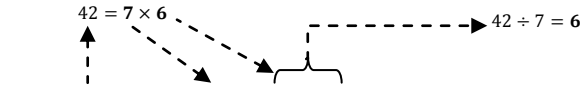
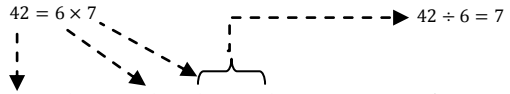
		• Count the number of possible outcomes for simple trials.	
Formal Assessments (to be completed during Term 4)	• **Revision** • **1 Tests** • **Final Examination**		**2 weeks** (days to be spread for the two formal assessments)

TERM 1- Grade 5			
CONTENT AREA	**CONTENT**	**NOTES** or **CLARIFICATION**	**DURATION (in weeks)**
Numbers, Operations and Relationships	**1.1 Whole numbers**	• Count forwards in a variety of intervals including 2s , 3s , 5s , 10s , 20s , 25s , 50s , 100s and also in 9s , 19s , 49s ,99s as an extension of adding 10, 20, 50 and 100. **Examples**: a) Count in 20s from 1 763 to 1 983 b) Count in 19s from 203 to 317 (to add 19, add 20 and subtract 1)	Every day
	1.1 Whole numbers *Mental calculations* • *Addition* • *Subtraction*	• Do mental addition involving whole numbers. **Examples**: a) 187 + 7 = 194 b) 9 + 392 = 401 c) Add the smallest even whole number and the largest 3-digit whole number. • Do mental subtraction involving whole numbers. **Examples**: a) 211 – 12 = 199 b) 375 – 25 = 350 c) Subtract the smallest 2-digit whole number from the smallest 4-digit whole number. d) Write down the next 3 number in each sequence: i. 447 ; 467 ; 487 ; … ii. 857 ; 807 ; 757 ; …	Every day
	1.1 Whole numbers *Place values*	• Recognise the place values of digits in whole numbers to at least 6 digits. **Examples**: a) The value of digit 7 in the number 871 253 is 7 ten thousands or 70 000 or 7 T th.	1 week

		b) In the number 56 783 there are 56 thousands, 567 hundreds, 5 678 tens and 57 783 units. c) The place value of each digit in 15 683 is: **TTH: 1 · TH: 5 · H: 6 · T: 8 · U: 3**	
1.1 Whole numbers *Number lines* *Ordering numbers*		• Insert 3-digit, 4-digit and 5-digit numbers on given number lines. • Arrange numbers in ascending order or in descending order of size. **Examples:** (a) $15\,682 < 16\,528 < 26\,185 < 26\,851$ (b) $76\,544 > 75\,464 > 67\,454 > 65\,474$	0,5 week
1.1 Whole numbers ***ADDITION*** *Addition of numbers with at least 5-digits*		**Emphasise** that numbers can be added in any order. **Example:** **Calculate : 56 423 + 7 581** Using the **breaking down** technique 50 000 + 6 000 + 400 + 20 + 3 + 7 000 + 500 + 80 + 1 = 50 000 + 6 000 + 7 000 + 400 + 500 + 20 + 80 + 3 + 1 = 50 000 + 13 000 + 900 + 100 + 4 = 63 000 + 1 004 = 64 004 **or** 3 + 1 = 4 and 20 + 80 = 100 and 400 + 500 = 900 and 6 000 + 7 000 = 13 000 and 50 000 + 0 = 50 000 means 56 423 + 7 581 = 64 004 **or** using the **adding on** technique : 56 423 + 7 000 → 63 423 + 500 → 63 923 + 80 → 64 003 + 1 → 64 004 **or use the vertical column method** (only after learners fully understand how to add horizontally). 1 1 1 5 6 4 2 3 + 7 5 8 1 6 4 0 0 4	1,5 weeks
1.1 Whole numbers *Round off whole numbers to the nearest 5 , 10 , 100 , or 1000*		• Round off whole numbers to the nearest 5, 10, 100 or 1 000. **Examples:** a) Use a number line to show that : i. 3 454 ≈ 3 455 correct to the nearest 5 ii. 3 454 ≈ 3 450 correct to the nearest 10 iii. 3 454 ≈ 3 500 correct to the nearest 100	0,5 week

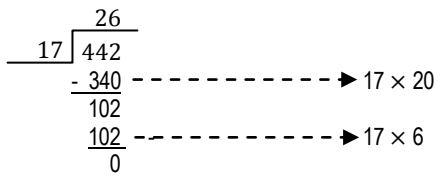
		iv. 3 454 ≈ 3 000 correct to the nearest 1000 b) Calculate the approximate value of 473 + 128 473 + 128 ≈ 470 + 130 ≈ 600 to the nearest 10	
	1.1 Whole numbers ***SUBTRACTION*** *Counting* *Converse relationship between addition and subtraction*	**Emphasize** that numbers cannot be subtracted in any order. **Example:** $149 - 123 \neq 123 - 149$ • Count backwards in a variety of intervals. **Examples:** a) Count backwards in 10s from 7 632 to 7 582 b) Count backwards in 50s from 7 632 to 7 382 c) Count backwards in 99s from 7 632 to 7 236 • Recognise and use the converse relationship between addition and subtraction. **Example:** If 67 + 22 = 89 **then** 89 – 67 = 22 **and** 89 – 22 = 67	Every day
	1.1 Whole numbers *Number lines*	• Insert 3, 4 and 5-digit numbers on given number lines.	
	1.1 Whole numbers *Subtraction of numbers with at least 5 digits*	• Subtract numbers with at least 5 digits **Example** : **Calculate : 25 746 – 14 532** Using the **breaking down** technique 25 746 – 14 532 = 20 000 + 5 000 + 700 + 40 + 6 = 10 000 = 4 000 – 500 – 30 – 2 = 20 000 – 10 000 + 5 000 – 4 000 + 700 – 500 + 40 – 30 + 6 – 2 = 10 000 + 1 000 + 200 + 10 + 4 = 11 214 **or** 25 746 – 10 000 → 15 746 – 500 → 11 246 – 30 → 11 216 – 1 → 11 214 **or** 25 746 – 10 000 – 4 000 – 500 – 2 = 15 746 – 4 000 – 500 – 30 – 2 = 11 746 – 500 – 30 – 2 = 11 246 – 30 – 2 = 11 216 – 2 = 11 214 **or** Use the **vertical column method** only after learners understand how to subtract horizontally 25 746	1,5 weeks

		- 14 532 11 214 • Using **compensation** (counterbalance) **a) Calculate : 8 743 – 5 684** 8 743 – 5 684 = 8 000 + 700 + 40 + 3 – 5 000 – 600 – 80 – 4 = 8 000 + 600 + 130 + 13 – 5 000 – 600 – 80 – 4 ----▶compensate by breaking up 743 into 600 + 130 + 13 = 8 000 – 5 000 + 600 - 600 + 130 – 80 + 13 – 4 = 3 000 + 0 + 50 + 9 = 3 059 **or** *8 6 13 13* 8 7 4 3 - 5 6 8 4 3 0 5 9 • Using the **additive property of zero** by compensation to calculate. **Example** : Calculate 96 + 87: 96 + 87 = 96 + 4 + 87 – 4 = 100 + 83 = 183 **or** 87 + 96 = 87 + 13 + 96 – 13 = 100 + 83 = 183 • Uses a range of strategies to check solutions and judge reasonableness of solutions.	
	1.1 Whole numbers *Solving Problems involving addition & subtraction*	• Solve problems that involve addition and subtraction in real life situations. **Examples**: a) The sum of two numbers is 1876. If the one number is 999, what is the other number? b) Seventy eight of the 207 Grade 5 learners in a school play netball. The number of learners who play soccer is 47 more than the number who plays netball. If the rest of the learners play tennis, calculate the number of learners who play tennis.	0,5 week
Space and Shape	**3.1 Properties of 2-D shapes and 3-D objects**	• Describe, sort and compare 2-D shapes which have straight and/or curved sides. • Recognise, visualise and name 2-D shapes in the environment and in pictures including rectangles, triangles and circles. • Name polygons in terms of the number of sides up to 8-sided figures. • Draw polygons on grid paper. • Investigate the similarities and differences between squares and rectangles. • Describe, sort and compare 3-D objects according to geometric properties including the shapes of faces, the number of faces (sides) and the number of vertices. • Recognise, visualise and name 3-D objects including cubes, rectangular prisms, triangular prisms, cylinders, spheres and pyramids. • Investigate the similarities and differences between cubes and rectangular prisms.	1,5 weeks

		• Make 3-D models using cut-out polygons. • Draw the nets of cubes and rectangular prisms. • Make 3-D models using cut-out polygons.	
Numbers, Operations and Relationships	**1.1 Whole numbers** ***MULTIPLICATION***	**Emphasize**: that numbers can be multiplied in any order. **Example**: $7 \times 8 \times 9 = 8 \times 7 \times 9$	Every day
	1.1 Whole numbers *Mental calculations*	• Do calculations involving multiplications of whole numbers to at least 10 × 10 (revise the multiplication tables).	
	1.1 Whole numbers *Doubling 1, 2 and 3-digit numbers*	• Double 1, 2 and 3-digit numbers. **Examples:** a) Double $9 = 2 \times 9 = 18$ b) Double $19 = 2 \times 19 = 38$ c) Double $199 = 2 \times 119 = 238$	
	1.1 Whole numbers *Factors of at least any 2-digit number*	• Determine the factors of 2-digit numbers. **Examples:** (a) Determine the factors of 18: Because 18 = 3× 6 or 2 × 9 or 1 × 18; the factors of 18 are 1 , 2 , 3 ,6 , 9 and 18.  (b) Determine the factors of 54. Because 54 = 2× 27 = 1× 54 = 3 × 18 = 9 × 6, the factors of 54 are: 1, 2, 3, 6, 9, 18, 27 and 54. • Use compensation (counter balancing using substitution) to calculate **Example:** Use the multiplicative property of one to calculate 129×42  **or** 	1 week

	1.1 Whole numbers *Multiply at least 3-digit whole numbers by 2-digit whole numbers*	• Multiply at least 3-digit whole numbers by 2-digit whole numbers. **Examples** : **a) Use factors to multiply** i. Calculate 547×60 $547 \times 60 = 547 \times 6 \times 10 = 3\,282 \times 10 = 32\,820$ ⟶ (using the factors of 60) ii. Calculate 547×45 $547 \times 45 = 547 \times 9 \times 5 = 4\,923 \times 5 = 24\,615$ ⟶ (using the factors of 45) **b) Use the distributive property** $547 \times (40 + 5) = 547 \times 40 + 547 \times 5$ ⟶ (using the distributive property) $= 21\,880 + 2\,735$ $= 24\,615$ **or** $547 \times (50 - 5) = 547 \times 50 - 547 \times 5$ ⟶ (using the distributive property) $= 27\,350 - 2\,735$ $= 24\,615$ **c)** Use the **vertical column method** only after learners understand the multiplication process. $\begin{array}{r} 5\ 4\ 7 \\ \times\ \ 4\ 5 \\ \hline 2\ 7\ 3\ 5 \\ +\ 21\ 8\ 8\ 0 \\ \hline 24\ 6\ 1\ 5 \end{array}$ ⟶ 547×5 ⟶ 547×40 ⟶ 547×45 • **Use rounding-off to estimate:** $54 \times 26 = 54 \times 30 \approx 1620$ by approximating the multiplicand. **or** $54 \times 26 = 50 \times 26 \approx 1300$ by approximating the multiplier. **or** $54 \times 26 = 50 \times 30 \approx 1500$ by approximating both the multiplicand & multiplier. • Uses a range of strategies to check solutions and judge reasonableness of solutions.	1 week
Formal Assessments (to be completed during Term 1)	• **2 Tests** • **1 Task**		**1 week** (days to be spread for the three formal assessments)

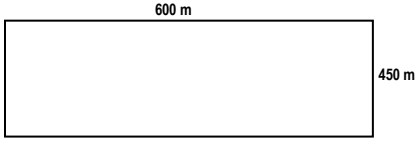
TERM 2- Grade 5			
CONTENT AREA	**CONTENT**	**NOTES or CLARIFICATION**	**DURATION (in weeks)**
Numbers, Operations and Relationships	**1.1 Whole numbers** ***DIVISION***	• **Emphasize** that numbers cannot be divided in any order. **Example:** 120 ÷ 10 ≠ 10 ÷ 120	
	1.1 Whole numbers *Mental mathematics*	• Calculate quotients using knowledge of multiplication tables. **Example:** 84 ÷ 7 = 12 , 66 ÷ 8 = 8 remainder 2	Every day
	1.1 Whole numbers *Halving 1, 2 and 3 digit numbers*	• Halve 1, 2 and 3-digit numbers **Example:** Half of 54 = 27, half of 168 = 84 and half of 500 = 250	
	1.1 Whole numbers *Divide whole numbers with at least 3 digits by 2-digit whole numbers*	• Divide whole numbers with at least 3 digits by 2-digit whole numbers **Examples**: a) Calculate 266 ÷ 7 Using **breaking down** technique Write 266 as the sum of multiples of 7, for example: 266 = 210 + 56 or 140 + 70 + 56 56 ÷ 7 = 8 **and** 210 ÷ 7 = 30 **means** 266 ÷ 7 = 38 b) Use **short division** 266 ÷ 7 = 38 $7\overline{)26^{5}6}$ (38) c) Use the **factor method** to calculate: i) 680 ÷ 20 680 ÷ 20 = 680 ÷ 10 ÷ 2 = 34 ii) 736 ÷ 16 736 ÷ 16 = 736 ÷ 8 ÷ 2 = 46 d) Use the **halving method** to calculate: 736 ÷ 16 736 ÷ 16 = 368 ÷ 8 = 184 ÷ 4 = 92 ÷ 2 = 46	3 weeks

		e) Use **long division** to calculate: 442 ÷ 17 - the long-division method  • Use a range of strategies to check solutions and judge reasonableness of solutions.	
	1.1 Whole numbers *Converse relationship between multiplication and division*	• Recognize and use the converse relationship between multiplication and division. **Example:** If 139 ×53 = 7 367 **then** 7 367 ÷ 139 = 53 **and** 7 367 ÷ 53 = 139.	
	1.1 Whole numbers *Multiple operations with whole numbers*	• Do calculations involving addition and/ or subtraction, multiplication and/or division by emphasizing the order of operations. **Examples:** a) (66 + 24) ÷ 6 = 90 ÷ 6 = 15 b) 66 + (24 ÷ 6) = 66 + 4 = 70 c) 19 × 3 – 3 × 2 = 57 – 6 = 51	1 week
	1.1 Whole numbers *Solving Problems involving multiplication and division*	• Solve problems involving multiplication and division in real life situations. **Examples:** a) Which number is 40 less than the product of nine and twelve? b) Jeremia planted peach trees in 15 rows in an orchard. How many trees did he plant altogether if he planted 20 trees in each row? c) 640 eggs must be packed into containers which each hold 18 eggs. How many containers can be filled and how many eggs will be left?	1 week

<table>
<tr>
<td>Measurement</td>
<td>4.1 Length
Mass
Capacity</td>
<td>
• Use appropriate measuring instruments including rulers, measuring tapes, metre sticks, bathroom scales, kitchen scales, measuring jugs etc. to measure length, mass and capacity.
• Use thermometers to measure temperature
• Estimate , measure, record, compare and order 2-D shapes and 3-D objects using SI units with appropriate precision for:

Length: mm , cm , m , km
Mass: g , kg
Capacity: ml , l
Temperature : degrees Celsius scale

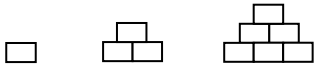
• Convert units of length, mass and capacity.

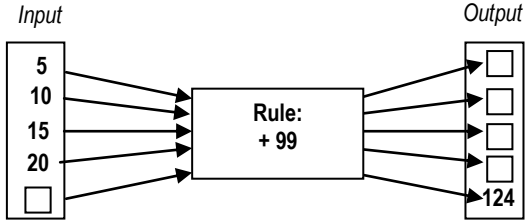
• Solve problems involving length, mass & capacity in real life situations.
</td>
<td rowspan="3">4 weeks</td>
</tr>
<tr>
<td>4.3 Temperature</td>
<td>
• Introduce units of measurement for temperature (degrees Celsius)
• Introduce thermometers as a measuring instrument to measure temperature.
• Solve real life problems involving temperature.
Example:
The temperature was 12°C in the morning. It increased with 5°C up to mid-day and decreased with 7°C up to 7pm. What was the temperature at mid-day and at 7pm?
</td>
</tr>
<tr>
<td>4.4 Perimeter, Area and Volume</td>
<td>
• Investigate and approximate:
a) Perimeter using rulers or measuring tapes.
b) Area of polygons (using square grids and tiling) in order to develop an understanding of square units.
c) Capacity of 3-D objects by filling them.
d) Volume of 3-D objects (using 1 cm3 cubes) to develop an understanding of cubic units.
Example:
The shape of the school grounds is shown below.


Calculate the lenth of fencing needed to fence all four sides of the school grounds.
</td>
</tr>
<tr>
<td>Formal Assessments (to be completed during Term 2)</td>
<td colspan="2">
• 1 Test
• 1 Task
• 1 Midyear/ Half-yearly examination
</td>
<td>1 week
(days to be spread for the three formal assessments)</td>
</tr>
</table>

TERM 3 - Grade 5			
CONTENT AREA	**CONTENT**	**NOTES or CLARIFICATION**	**DURATION (in weeks)**
Numbers & Number Operations	**1.6 Financial Mathematics** • *Money* • *Solving Problems involving money*	• Revise conversions between Rand and cents. • Revise and extend calculating making or giving change when shopping. • Financial mathematics including buying, selling, profit and loss and simple budgets.	2 weeks
	1.2 Fractions *Common Fractions*	• Revise and emphasise the equivalence of division and common fractions. **Example:** $1 \div 10 = \frac{1}{10}$ • Recognise and represent common fractions in diagrammatic form in order to describe and compare them. • Describe and compare fractions with different denominators to at least twelfths. • Use equivalent forms of common fractions with denominators that are multiples of each other. • Count forwards and backwards in fractions and illustrate simple fractions on a number line. • Add and subtract common fractions with the same denominators including mixed numbers. **Examples:.** (a) $\frac{7}{10} + \frac{2}{10} = \frac{9}{10}$ (b) $\frac{11}{12} - \frac{5}{12} = \frac{7}{12}$ (c) $2\frac{1}{2} + 1\frac{1}{2} = 4$ (d) $3\frac{4}{7} - 1\frac{2}{7} = 2\frac{2}{7}$ • Calculate fractional parts of quantities in the real life situations of measurement. **Example:** If $\frac{1}{9}$ of 54 kg = 6 kg then $\frac{4}{9}$ of 54 kg = 4 × 6 kg = 24 kg.	3 weeks
	1.2 Fractions *Decimal fractions*	• Write tenths, hundredths and thousandths in decimal form: **Examples:** a) $\frac{1}{10} = 0{,}1$ b) $\frac{7}{100} = 0{,}07$ c) $\frac{9}{1000} = 0{,}009$	3 weeks

		• The meaning of the prefixes : deci-, centi- and milli-. • Write decimal fractions as common fractions. **Examples:** a) $0{,}3 = \frac{3}{10}$ b) $0{,}09 = \frac{9}{100}$ • Use decimal fractions of the form 0,5 ; 1,5 ; 2,5 etc. in the real life situations.	
	1.3 Ratio & Rate	• Solve problems that involve comparing two or more quantities of the same kind (ratio concept) and comparing two quantities of different kinds (Rate concept e.g. R/kg) **Examples:** a) Write the ratio of 80 cents to R4,00 in the simplest form. b) Peter is 5 years old and his father is 25 years older than Peter. What is the ratio of Peter's age to his father's age? **c)** A motorist travelled 420 km in 5 hours. Calculate his average speed per hour.	1 week
Formal Assessments (to be completed during Term 3)	• **2 Tests** • **1 Task**		**1 week** (days to be spread for the three formal assessments)

TERM 4 - Grade 5			
CONTENT AREA	**CONTENT**	**NOTES or CLARIFICATION**	**DURATION (in weeks)**
SPACE AND SHAPE	**3.2 Transformation Geometry** *Transformations* *Tessellations* *Views of simple3-D objects* *Locate position on a grid or map*	• Recognise, describe and perform translations (slides), reflections (flips) and rotations (turns) using geometric figures and solids. • Draw lines of symmetry in 2-D shapes and figures. • Use 2-D shapes to make geometric patterns and to tessellate (tile) a surface leaving no gaps. • Describe and sketch views of simple 3-D objects (solids) from different positions. • Locate position on a labelled grid or map and trace paths between positions.	1 week
PATTERNS AND FUNCTIONS	**2.1 Numeric and Geometric patterns**	• Look for a relationship or rule in numeric and geometric patterns: a) Represented in diagrammatic form; b) Not limited to sequences involving constant difference or ratio. **Examples:** a) Write the next 3 numbers in each of the following sequences and also write down the rule which you used: b) 6 ; 8 ; 11 ; 15 ; … c) 1 ; 6 ; 2 ; 7 ; 3 ; 8 ; … d) 1 ; 3 ; 5 ; 7 ; … e) 1,5 ; 2 ; 2,5 ; 3 ; … • Describe observed relationships or rules in own words. **Example:** Describe the rule of the sequences in your own words: a) 1 ; 3 ; 5 ; 7 ; … b) 2, 4, 8, 16 ; … c)  • Look for a relationship or rule in patterns created by learners.	2 weeks

	2.2 Input and Output values	• Determine output values for given input values using verbal descriptions and flow diagrams **Example:** Describe the rule in the flow diagram in your own words and use the rule to calculate the missing input and output values.  	
	2.3 Number Sentences	• Use symbols to write number sentences. **Example:** A certain number ☐ is 12 less than t means t = ☐ + 12 • Complete number sentences by inspection and check answers by substitution. **Example:** Determine the value of $(20 - x) + 63 = 76$ means $x = 7$	
MEASUREMENT	**4.2 Time**	• Read, tell and write analogue, digital and 24-hour time to at least the nearest hour, minute and second. • Solve problems involving calculation and conversion between appropriate time units including decades, centuries and millennia.	2 weeks
DATA HANDLING	**5.1 Collection of Data**	• Pose simple questions about own school and family environment, and identify appropriate data sources. • Make and use simple data collection sheets that involve counting in order to collect data (alone and/or as a member of a group or team) to answer questions posed by the teacher and the class.	3 weeks
	5.2 Organizing, recording and summarizing data	• Organise and record data, using tally marks and tables. • Examine ungrouped numerical data to determine the mode of the data set.	
	5.3 Displaying Data *Draw graphs to display data*	• Draw a variety of graphs to display and interpret ungrouped data including: a) pictographs with a many-one correspondence and appropriate keys (e.g. one picture represents 10 people) b) bar graphs (emphasize the correct labelling of the horizontal & vertical axes)	
	5.3 Interpreting Data *Read and interpret graphs*	• Critically read and interpret data represented in a variety of ways (including own representations and representations in the media – both words and graphs) to draw conclusions and make predictions sensitive to the role of: a) real life situations (e.g. rural or urban) b) categories within the data (e.g. gender and race) c) other human rights issues.	
	5.5 Probability	• Compare, classify and order events from daily life on a scale from certain that they will happen to certain that they will not happen. • List possible outcomes for simple experiments (including tossing a coin, rolling a die and spinning a spinner). • Count the frequency of actual outcomes for a series of trials.	
Formal Assessments (to be completed during Term 4)	• **1 Test** • **1 Final examination**		**2 weeks** (days to be spread for the two formal assessments)

<table>
<tr><th colspan="4">TERM 1 – Grade 6</th></tr>
<tr><th>CONTENT AREA</th><th>CONTENT</th><th>CLARIFICATION or NOTES</th><th>DURATION (in weeks)</th></tr>
<tr><td rowspan="4">NUMBERS, OPERATIONS AND RELATIONSHIPS</td><td>1.1 Whole Numbers
Whole number counting</td><td>• Count forwards in a variety of intervals including 99, 999, 250, 500 etc.</td><td>Every day</td></tr>
<tr><td>1.1 Whole Numbers
Mental calculations : Addition and Subtraction</td><td>• Do mental addition and subtraction.

Examples:
a) 19 + 37 + 21 = 77
b) 86 + 23 + 14 = 123
c) 91 – 29 = 62
d) 93 + 38 – 3 = 128
e) 147 – □ = 28
f) Write down the next 3 numbers in the sequence 643 ; 542 ; 441 ; ...</td><td>Every day</td></tr>
<tr><td>1.1 Whole Numbers
Place values</td><td>• Recognise the place values of digits in whole numbers to at least 9 digits.
Emphasize the difference between the place value and the value of digits in numbers.

Example :
The place value of the digit 6 is hundred thousands (HTh) but the value of digit 6 in the number 7 693 417 is 6 HTh or 600 000 or 6 hundred thousandths. 6 is Hundred Thousands
In the number 7 693 417 there are
76 hundred thousands,
769 ten thousands
7 693 thousands
76 934 hundreds etc.

<table><tr><th>M</th><th>H Th</th><th>T Th</th><th>Th</th><th>H</th><th>T</th><th>U</th></tr><tr><td>7</td><td>6</td><td>9</td><td>3</td><td>4</td><td>1</td><td>7</td></tr></table>
Emphasize:
The special names for very large numbers: 1 million, 1 milliard, 1 billion, 1 trillion</td><td>1 week</td></tr>
<tr><td>1.1 Whole Numbers
Ordering numbers</td><td>• Arrange numbers in ascending order or descending order of size.
Examples:
a) 8 569 231 < 8 676 321 < 8 765 321 < 8 965 321
b) 8 765 321 > 8 765 231 > 8 676 321 > 8 567 231</td><td></td></tr>
</table>

Numbers, Operations and Relationships	**1.1 Whole Numbers** *addition*	**Emphasize** that numbers can be added in any order **Example:** 5 192 + 4 678 = 4 678 + 5 192	1 week
Numbers, Operations and Relationships	**1.1 Whole Numbers** *Addition of whole numbers*	• **Add whole numbers** By **breaking down** numbers **Example : Calculate : 78 326 + 59 785** 78 326 + 59 785 = (70 000 + 50 000) + (8 000 + 9 000) + (300 + 700) + (20 + 80) + (6 + 5) = (120 000 + 17 000) + (1 000 + 100 + 11) = (137 000 + 1 111) = 138 111 **or** 6 + 5 = 11 and 20 + 80 = 100 and 300 + 700 = 1 000 and 8 000 + 9 000 = 17 000 and 70 000 + 50 000 = 120 000 78 326 + 59 785 = 138 111 **or** **By adding on :** **Example:** 78 326 + 50 000 → 128 326 + 9 000 → 137 326 + 700 → 138 026 + 80 → 138 106 + 5 → 138 111 **or** Using **vertical column-method** only after learners fully understand how to add horizontally. E**xample:** 11 11 78 326 + 59 785 138 111 **or** Use **compensation** (counter balancing) **Example:** 78 326 + 59 785 = 78 236 – 115 + 59 785 + 115 = 78 211 + 59 900 = 138 111 • Uses a range of strategies to check solutions and judge reasonableness of solutions.	

	1.1 Whole Numbers *Rounding off whole numbers to the nearest 5 , 10 , 100 or 1000*	• Use a number line to show rounding off. **Example:** a) 97 452 ≈ 97 450 correct to the nearest 5 b) 97 452 ≈ 97 450 correct to the nearest 10 c) 97 452 ≈ 97 500 correct to the nearest 100 d) 97 452 ≈ 9 700 correct to the nearest 1000 • Us e rounding off to estimate answers: **Example:** Calculate the approximate value of 5 878 + 3 295 5 878 + 3 295 ≈ 5 900 + 3 300 ≈ 9 200 to the nearest 100 **or** 5 878 + 3 295 ≈ 6 000 + 3 000 ≈ 9 000 to the nearest 1 000	
	1.1 Whole Numbers ***SUBTRACTION***	**Emphasize:** That numbers cannot be subtracted in any order **Example:** 3 000 – 500 ≠ 500 – 3 000	Every day
	1.1 Whole Numbers *Counting*	• Count backwards in a variety of intervals **Examples**: a) Count backwards in 200s from 5 836 to 4 636 b) Count backwards in 99s from 5 836 to 5 440	
	Cconverse relationship between addition and subtraction	• Recognise and use the converse relationship between addition and subtraction **Example:** If 4 852 + 697 = 5 549 then 5 549 – 697 = 4 852 **and** 5 549 – 4 852 = 697	
	1.1 Whole Numbers *Subtraction of whole numbers*	• Subtract whole numbers **Example:** **Calculate** 47 962 – 23 684 By **breaking down** numbers 47 962 – 23 684 = 40 000 + 7 000 + 900 + 60 + 2 – 20 000 – 30 000 – 600 – 80 – 4 = (40 000 – 20 000) + (7 000 – 3 000) + (800 – 600) + (150 – 80) + (12 – 4) = 20 000 + 4 000 + 200 + 70 + 8 = 24 278	1 week

		or 47 962 – 20 000 → 27 962 – 3 000 → 24 962 – 600 → 24 362 – 80 → 24 282 – 4 → 24 278 **or** 47 962 – 20 000 – 3 000 – 600 – 80 – 4 = 27 962 – 3 000 – 600 – 80 – 4 = 24 962 – 600 – 80 – 4 = 24 362 – 80 – 4 = 24 282 – 4 = 24 278 **or** Use **vertical column method:** 8 15 12 47 9 6 2 – 23 6 8 4 24 2 7 8 **or** Use compensation: 47 962 – 23 684 = (47 962 + 16) – (23 684 + 16) = 47 978 – 23 700 = 24 278 • Uses a range of strategies to check solutions and judge reasonableness of solutions.	
	Solving problems involving addition and subtraction	• Solve problems that involve addition & subtraction in real life situation. **Examples:** a) Increase 46 793 by 78 071 b) What must be added to 58 923 to get 105? c) A motorist travelled 465 km on Monday and 382 km on Tuesday. How far must he d) Travel on Wednesday to complete a journey of 1 137km?	1 week
Space and Shape	**3.1The properties of 2-D shapes and 3-D objects**	• Recognise, visualise and name 2-D shapes. • Describe and classify 2-D shapes in terms of the length of sides and sizes of vertex angles. • Investigate the similarities and differences between rectangles and parallelograms. • Learn to measure the sizes of angles. • Recognise, visualise and name 3-D objects including cubes, rectangular prisms, triangular prisms, cylinders, spheres and pyramids. • Describe and classify 3-D objects in terms of the geometric properties including the number of faces, vertices and edges. • Investigate the similarities and differences between tetrahedrons and pyramids. • Make 3-D models of objects using drinking straws to make a skeleton. • Make 3-D models using nets provided by the teacher. • Use a pair of compasses to draw circles, patterns in circles and patterns with circles.	2 weeks
Numbers, Operations and Relationships	**1.1 Whole Numbers** ***MULTIPLICATION***	• **Emphasize:** that numbers can be multiplied in any order **Example:** Calculate $47 \times 32 = 32 \times 47$	Every day

	1.1 Whole Numbers *Mental calculations*	• Calculations involving multiplications of whole numbers to at least 12×12. **Example:** The multiples of 9 between 80 and 110 are 81, 90, 99 108.	
	1.1 Whole Numbers *Multiples of factors of at any 2-digit and 3-digit numbers* *Prime numbers to at least 100*	• Determine multiples and factors. **Examples:** a) Write down the first five multiples of 62. b) Find all the factors of 256. c) Write down the first 8 prime numbers. d) Write down the prime numbers that are factors of 36.	1 week
	Multiplying at least 4-digit whole numbers by 3-digit whole numbers	• Multiply 4-digit whole numbers by 3-digit whole numbers. **Example:** **Calculate :** 4 362 × 108 4 362 × 108 = 4 362 × 12 × 9 = 52 344 × 9 = 471 096 ----→ (use the factors of 108) **or** 4 362 × 108 = 4 362 × (100 + 8) ----→ (use the distributive property) = 436 200 + 4 362 × 8 = 436 200 + 34 896 = 471 096 **or** 4 362 × 12 × 108 ÷ 12 = 52 344 × 9 = 471 096 ----→ (use compensation) **or** Use the vertical column method 4 362 × 108 34 896 ----→ 8 × 4 362 436 200 ----→ 100 × 4 362 471 096 ----→ 108 × 4 362 • Use a range of strategies to check solutions and judge reasonableness of solutions. • Use estimation to round off answers. **Example:** **Estimate the value of 793 × 184** 793 × 184 ≈ 800 × 184 ≈ 147 200 to the nearest 100	

		or 793 × 184 ≈ 793 × 200 ≈ 158 600 to the nearest 100 **or** 1000 × 184 ≈ 184 000 to the nearest 1000	
	Solving problems involving multiplication	• Solve problems that involve multiplication in real life situations. **Examples:** a) How many desks are there altogether in 15 classrooms with 35 desks in each? b) Mr. T, a factory representative travels an average of 160 km per day to visit clients. How many c) kilometres does he travel in a month of 22 working days? d) There are 86 sheep in a small camp and twice as many in a larger camp. How many sheep are e) there altogether in the 2 camps?	1 week
Formal Assessments (to be completed during Term 1)	• **2 Tests** • **1 Task**		**1 week** (days to be spread for the three formal assessments)

TERM 2 – Grade 6			
CONTENT AREA	**CONTENT**	**CLARIFICATION** or **NOTES**	**DURATION (in weeks)**
Numbers, Operations and Relationships	**1.1 Whole Numbers** ***DIVISION***	**Emphasize** that numbers cannot be divided in any order **Example:** 324 ÷ 18 ≠ 18 ÷ 324	Every day
	1.1 Whole Numbers *Mental mathematics*	• Calculate quotients using knowledge of multiplication tables.	
	1.1 Whole Numbers *Divisibility rules*	• Describe and use the divisibility rules for 2, 5, 10, 100 and 1000. **Example:** Investigate the divisibility rules for 3 , 4 , 6 , 8 and 9.	
	1.1 Whole Numbers *Division of at least 4-digit numbers by 3-digit whole numbers*	• Divide whole numbers by 10, 100, 1000 and their multiples. **Examples:** 12 800 ÷ 100 = 128 12 800 ÷ 1000 = 12 remainder 800 • Divide at least 4-digit by 3-digit whole numbers **Examples :** Calculate: 34 848 ÷ 132 34 848 ÷ 132 = 34 848 ÷ 12 ÷ 11 = 2 904 ÷ 11 = 264 (using the factor-method) or 34 848 ÷ 132 = 17 424 ÷ 66 = 8 712 ÷ 33 = 2 904 ÷ 11 = 264 (halving-method)	2 weeks

<table>
<tr>
<td rowspan="3">Numbers, Operations and Relationships</td>
<td></td>
<td>or use repeated subtraction
34 848
– 26 400 ------→ 132 × 200
8 448
– 7 920 ------→ 132 × 60
528
– 528 ------→ 132 × 4
0
Then 34 848 ÷ 132 = 200 + 60 + 4 = 264

or Use long division method:

264
132 | 34 848
- 26 400 ------→ 132 × 200
8 448
- 7 920 ------→ 132 × 60
528
- 528 ------→ 132 × 4
0
• Uses a range of strategies to check solutions and judge reasonableness of solutions.</td>
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</tr>
<tr>
<td>1.1 Whole Numbers

Multiple operations with whole numbers</td>
<td>• Calculations involving addition and/or subtraction, multiplication and/or division
Examples:
a) 246 + (54 ÷ 6) = 246 + 9 = 255
b) (246 + 54) ÷ 6 = 300 ÷ 6 = 50
c) 23 × 4 – 4 × 3 = 92 – 12 = 80 by emphasizing the order of operations
• Solve or complete number sentences by inspection or by trial-and-improvement, checking solution by substitution
Example:
$2\times t - 8 = 0$ means t = 4.</td>
<td></td>
</tr>
<tr>
<td>1.1 Whole Numbers

Problems involving division</td>
<td>Problems that involve division in real life situations
Examples:
a) The product of 2 numbers is 3 080. One of the numbers is 28. Calculate the other number.
b) Which number is 25 times smaller than 3 125?
c) In a division sum, the dividend x is divided by 9 giving a quotient of 12 and a remainder of 7. Find the value of x
d) 18 apple trees are planted in each of 24 rows. If the trees were planted in 16 equal rows, calculate how many trees there would be in each row.</td>
<td>1 week</td>
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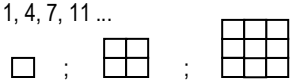
</table>

	1.2 Fractions *Common fractions* *Solving problems involving common fractions*	• Recognise, order and use equivalent forms of common fractions with 1-digit or 2-digit denominations. • Write mixed numbers as improper fractions and improper fractions as mixed numbers. • Add and subtract common fractions with denominators which are multiples of each other. • Calculate fractional parts of whole numbers. • Write proper fractions in equivalent form as hundredths. **Example:** $\frac{1}{5} = \frac{20}{100}, \frac{4}{25} = \frac{16}{100}$ • Solve problems involving common fractions a) Which is more: $\frac{2}{5}$ of 75 or $\frac{3}{8}$ of 84? Determine the difference between the two quantities. b) In the Grade 6 class $\frac{5}{9}$ are boys. If there are 75 boys, how many girls are in the class?	2 weeks
	1.2 Fractions Percentages	• Calculate percentages of quantities in real life situations. • Solve problems involving percentages **Example:** a) Of the 600 learners in the school, 6% were absent on Friday. What percentage of learners were present? How many learners were present? b) Mr Smith was given 15% discount on maked price of a shirt. The shirt was marked R150,00. How much discount did he get?	
	1.2 Fractions *Decimal fractions*	• Recognise and use equivalent forms of decimal fractions to at least 2 decimal places. • Insert decimal fractions on number lines. • Count forwards and backwards in decimals. • Add and subtract positive decimal fractions with at least 2 decimal places. • Multiply decimal fractions by 10, 100 and 1 000.	2 weeks
	1.2 Fractions *Solving problems involving common fractions and decimal fractions*	• Solve problems involving common fractions and decimal fractions in real life situations. **Examples**: a) How many ninths are there in $\frac{2}{3}$? b) Subtract the sum of 136,5 and 73,7 from the product of 0,263 and 300. c) Themba spent $\frac{1}{5}$ of his pocket money on chips and $\frac{1}{4}$ on a doughnut. What fraction of his money is left?	1 week
Formal Assessments (to be completed during Term 2)	• **1 Test** • **1 Task** • **1 Half-yearly examination**		**2 weeks** (days to be spread for the three formal assessments)

TERM 3 – Grade 6			
CONTENT AREA	**CONTENT**	**CLARIFICATION or NOTES**	**DURATION (in weeks)**
Measurement	**4.1 Length,Mass and Capacity**	• Use appropriate measuring instruments including rulers, measuring tapes, metre sticks, bathroom scales, kitchen scales, measuring jugs etc. to measure length, mass and capacity. • Use thermometers to measure temperature • Estimate , measure, record, compare and order 2-D shapes and 3-D objects using SI units with appropriate precision for: a) Length: mm , cm , m , km b) Mass: g , kg c) Capacity: ml, l d) Temperature : degrees Celsius scale • Convert units of length, mass and capacity	2 weeks
	4.1 Length,Mass and Capacity *Problems involving length, mass & capacity.*	• Solve problems that involve length, mass and capacity in real life situations. **Examples:** a) How many pieces of rope, each 55cm long can be cut from a rope 9 metres long? What length of rope will be left over? b) A shopkeeper sells 7,5 kg ; 1, 25 kg and 10, 225 kg of beans out of a 20 g bag of beans. How much beans (in kg) are left in the bag? c) There is a leaking tap in the school yard. 450 ml of water is lost in one hour. How many litres of water will be lost in one day?	1 week
	4.4 Perimeter, Area and Volume	• Investigate and approximate: a) Perimeter using rulers or measuring tapes. b) Area of polygons (using square grids) in order to develop rules for calculating the area of squares and rectangles. c) Volume of 3-D objects in order to develop rules for calculating volumes of rectangular prisms. **Example:** A rectangular vegetable garden is 3,5 metres long and 2 metres wide. What length of fencing will be needed to fence the vegetable garden?	2 weeks
Numbers, Operations and Relationships	**1.6 Financial Mathematics** *Calculations with money* *Solving problems involving money*	• Add, subtract, multiply, divide and round off units of money • Financial mathematics including buying and selling, profit and loss, simple budgets, discount and reading and interpreting accounts. **Examples:** a) Mr Dlamini has R 1 925,95 in his bank account. He withdraws R 650,50 and then R 225,25 the next day. How much money is left in his bank account? b) A cell phone costs R 952,20. Alpheus pay a deposit of R 50,00 and then agrees to pay the rest of the amount in four equal monthly payments. How much will his monthly payments be?	2 weeks
	1.2Ratio and Rate *Solving problems involving money*	• Solve problems that involve: Comparing two or more quantities of the same kind (ratio) Comparing two quantities of different kinds (rate e.g. wages/day) **Examples:** a) Write the ratio of 400g to 2kg in the simplest form.	2 weeks

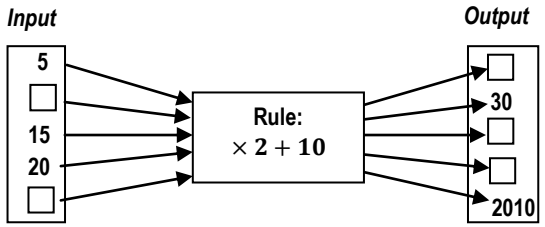
		b) If 8 pens cost R103,60, calculate the cost of: i)4 ii) 12 iii) 5 of the same pens. c) Sam travelled 304 km in 4 hours. Calculate his average speed per hour. d) Which is the cheapest? 6 oranges for R3,30 or 9 oranges for R5,22?	
Formal Assessments (to be completed during Term 3)	• **2 Tests** • **1 Task**		**1 week** (days to be spread for the three formal assessments)

TERM 4

TERM 4 – Grade 6			
CONTENT AREA	**CONTENT**	**CLARIFICATION** or **NOTES**	**DURATION (in weeks)**
Space and Shape	**3.2 Transformations**	• Recognise, describe and perform translations, reflections and rotations using 2-D shapes and 3-D objects. • Draw lines of symmetry in 2-D figures. • Draw enlargements and reductions of triangles and quadrilaterals using grid paper to compare their size and shape	1,5 weeks
	3.3 Views of simple 3-D objects	Draw and interpret sketches of simple 3-D objects from different positions.	
	3.4 Locate position on a grid or map	Locate positions on a coded grid, describe how to move between positions on the grid, and recognise maps as grids.	
Patterns and Functions	**2.1 Numeric and Geometric patterns**	• Look for a relationship or rule: a) Represented in diagrammatic form b) Not limited to sequences involving constant difference or ratio c) Of the learner's own creation d) represented in tables. • Describe observed relationships or rules in own words. **Examples:** Determine and describe the rule in your own words: a) 2, 4, 8, 16 ... b) 27, 9, 3, 1 ... c) 1, 4, 7, 11 ... d)  ...	2 weeks

<table>
<tr>
<td></td>
<td>2.2 Input and Output values</td>
<td>
• Determine output values for given input values or input values for given output values using
a) verbal descriptions
b) flow diagrams
c) tables

Examples:
a) Describe the rule in your own words and use the rule to calculate the missing input and output values



b) Describe the relationship between the numbers in the top row and the bottom row in the table. Use the rule to calculate the missing numbers.
<table>
<tr><td>Input</td><td>1</td><td>2</td><td>3</td><td>4</td><td></td></tr>
<tr><td>Output</td><td>5</td><td>10</td><td>15</td><td></td><td>25</td></tr>
</table>
• Determine the equivalence of different descriptions of the same rule.
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<tr>
<td>Measurement</td>
<td>4.2Time</td>
<td>• Read, tell and write analogue, digital and 24-hour time to at least the nearest minute and second.
• Solve problems involving calculation and conversion between appropriate time units including: time zones and differences.</td>
<td>2 weeks</td>
</tr>
<tr>
<td rowspan="3">Data handling</td>
<td>5.1Collecting of data</td>
<td>• Posing questions about own school and family environment
• Identify appropriate data sources
• Using simple data collection sheets requiring tally marks) and simple questionnaires (yes/no type response) to answer questions.
• Collect data to answer questions</td>
<td rowspan="3">3 weeks</td>
</tr>
<tr>
<td>5.2Organizing, recording and summaring data</td>
<td>• Organizes and records data using:
a) tally marks
b) tables
• Distinguishing between samples and populations
• Examining ungrouped numerical data to determine the mode and the median</td>
</tr>
<tr>
<td>5.3Displaying data</td>
<td>Drawing a variety of graphs to display and interpret data including Pictographs (many-to-one correspondence) and Bar graphs</td>
</tr>
</table>

	5.4Interpreting data	Critically reading and interpreting data presented in a variety of ways in order to draw conclusions and make predictions sensitive to the role of: a) real life situations (e.g. rural, urban, provincial or national); b) categories within the data (e.g. age, gender, race); c) any other human rights issues.	
	5.5Probability	• Predicting the likelihood of events based on observation and places them on a scale from impossible, to certain. • List possible outcomes for simple experiments: a) tossing a coin, b) rolling a die, c) spinning a spinner • Counting the frequency of actual outcomes for a series of trials.	
Formal Assessments (to be completed during Term 4)	• **Revision** • **1 Test** • **1 Final Examination**		**2 weeks** (days to be spread for the two formal assessments)

CHAPTER 4
CURRICULUM AND ASSESSMENT POLICY STATEMENT (CAPS)

(ASSESSMENT)

4.1. Forms and guidelines for assessment

The following general principles apply:

4.1.1. The requirements for assessment in Intermediate Phase Mathematics are:

- 6 Tests
- 1 Half-yearly Examinations; and 1 Final Examination
- 3 Tasks: (1 Assignment, 1 Project and 1 Investigation).

4.1.2. Tests and examinations must be done under supervision and assessed using a marking memorandum. Care needs to be taken to ask questions at all four cognitive levels: approximately 25% knowledge, 45% routine procedures, 20% complex procedures and 10% problem solving. Tests must be out of at least 25 marks each. Midyear/ Half-yearly examinations must be at least out of 30 marks for grades 4 and 5 and 40 marks for grade 6. Final examinations must be out of at least 40 marks for Grade 4, 50 marks for Grade 5 and 60 marks for Grade 6.

4.1.3. One assignment per year is required. Assignments are generally extended pieces of work completed at home. They can be collections of past questions, but should focus on the more demanding work as any resource material can be used, which is not the case in a task that is done in class under strict supervision.

4.1.4. One project should be set in a year. The assessment criteria must be clearly indicated on the project specification and should focus on the Mathematics involved and not on duplicated pictures and facts copied from reference material. Good projects contain the collection and display of real data, followed by deductions that can be substantiated.

4.1.5. One investigation per year is required. An investigation must promote critical and creative thinking. It can be used to discover rules or concepts and may involve inductive reasoning, identifying or testing patterns or relationships, making conclusions, and establishing general trends. To avoid having to assess work which is copied without understanding, it is recommended that whilst initial investigation could be done at home, the final write up should be done in class, under supervision, without access to any notes. Investigations are marked with rubrics which can be specific to the task, or generic, listing the number of marks awarded for each skill, for example:

- Organizing and recording ideas and discoveries using, for example, diagrams and tables.

- Communicating ideas with appropriate explanations.
- Calculations showing clear understanding of mathematical concepts and procedures.
- Generalizing and making conclusion

Assessment in Mathematics Intermediate Phase comprises of Continuous Assessment (CASS) and a final examination:

Assessment	Weighting
Continuous Assessment (CASS)	50%
Final Examination	50%
Total	**100%**

Minimum requirements for CASS are:

Assessment Form	Number per Year	Minimum Requirements	Weighting
Tests	6	• 2 tests in each of Term 1 and Term 3 • 1 test in each of Term 2 and Term 4	60%
Examinations	1	A midyear/ half-yearly examination in the second term	25%
Assessment Tasks	3	1 Assignment ; 1 Investigation; and 1 Project (spread in the first three terms)	15%
Total	10	To be completed before the final examination	100%

ANNUAL ASSESSMENT PLAN

GRADE	TERM 1	Weighting	TERM 2	Weighting	TERM 3	Weighting	TERM 4	Weighting
7	Test	10%	Test	10%	Test	10%	Test	10%
	Test	10%	Assignment/Project/ Investigation	5%	Test	10%	**Final Examination**	**50%**
	Assignment/Project/ Investigation	5%	Midyear/half yearly Examination	25%	Test Assignment/ Project/Investigation	5%		
8	Test	10%	Assignment/Project/ Investigation	5 %	Assignment/Project/ Investigation	5 %	Test	10%
	Test	10%	Test	10%	Test	10%	**Final Examination**	**50%**
	Assignment/Project/ Investigation	5%	Midyear/half-yearly Exam	25%	Test	10%		
9	Test	10%	Test	10%	Test	10%	Test	10%
	Test	10%	Assignment/Project/ Investigation	5%	Test	10%	**Final Examination**	**50%**
	Assignment/Project/ Investigation	5%	Midyear/half-yearly Exam	25%	Assignment/Project/ Investigation	5%		

4.2. Mathematical skills

To develop essential mathematical skills the learner should:

- Develop the correct use of the language of Mathematics.
- Develop number vocabulary, number concept and calculation and application skills.
- Learn to listen, communicate, think, reason logically and apply the mathematical knowledge gained.
- Learn to investigate, analyse, represent and interpret information.
- Learn to pose and solve problems.
- Build an awareness of the important role that Mathematics plays in real life situations including the personal development of the learner.

4.3. Cognitive levels

Descriptors for each level and the approximate percentages of tasks, tests and examinations that should be at each level are given below:

DESCRIPTION AND EXAMPLES OF COGNITIVE LEVELS		
Cognitive levels	**Description of skills to be demonstrated**	**Examples**
Knowledge **25%**	• Estimation and appropriate rounding of numbers • Straight recall • Identification and direct use of correct formula. • Use of mathematical facts • Appropriate use of mathematical vocabulary.	1. Write down the next the three numbers in the sequence: 103; 105; 107…**[Grade 4]** 2. Determine the factors of 64. **[Grade 5]** 3. Write down the prime numbers that are factors of 36. **[Grade 6]**
Routine procedures **45%**	• Perform well-known procedures • Simple applications and calculations which might involve many steps • Derivation from given information may be involved • Identification and use (after changing the subject) of correct formula • Generally similar to those encountered in class.	1. Determine the value for x if $x + 4 = 10$. [Grade 4] 2. Use three different techniques of calculating 488 ÷16. [Grade 5] 3. Calculate: $1\frac{1}{5} + \frac{3}{10} - \frac{1}{2}$. **[Grade 6]**
Complex procedures **20%**	• Problems involve complex calculations and/or higher order reasoning • Do investigations to describe rules and relationships. • There is often not an obvious route to the solution • Problems need not be based on a real world context • Could involve making significant connections between different representations • Require conceptual understanding	1. Peggy is 4 years old and Jock is 8 years old. Determine the ratio between their ages. Write the ratio in simplest fractional form.**[Grade 4]** 2. Investigate the properties rectangles and squares to identify similarities and differences. **[Grade 5]** 3. There were 20 sweets in the packet.. William and his friend ate $\frac{2}{5}$ of the sweets. How many sweets are left? **[Grade 6]**
Problem solving **10%**	• Unseen, non-routine problems (which are not necessarily difficult) • Higher order understanding and processes are often involved • Might require the ability to break the problem down into its constituent parts	1. The sum of three consecutive whole numbers is 27. Find the numbers. **[Grade 4]** 2. Heidi divided a certain number by 16.He found an answer of 246 with a remainder of 4. What is the number? **[Grade 5]** 3. Busi has a bag containing three coloured balls: 1 blue, 2 red ball and 3 yellow balls. She puts her hand in the bag and draws a ball. What is the chance that she will draw a red ball? Write the answer in simplest fractional form. **[Grade 6]**