basic education
Department:
Basic Education
REPUBLIC OF SOUTH AFRICA

ANNUAL NATIONAL ASSESSMENT 2013
ASSESSMENT GUIDELINES
MATHEMATICS
GRADE 5

INTRODUCTION

The 2013 cycle of Annual National Assessment (ANA 2013) will be administered in all public and designated[1] independent schools from 10 to 13 September 2013. During this period all learners in Grades 4-6 will write nationally set tests in Language and Mathematics. The results will be used to report progress related to achieving the goals set in the *Action Plan 2014, Towards Schooling 2025*.

The ANA tests will be written during the third school term and, therefore, the Department of Basic Education (DBE) has developed Assessment Guideline documents for each grade and subject (Language and Mathematics) outlining the minimum curriculum content that must be covered by all learners prior to the writing of the test. The Assessment Guidelines define the scope of work that will be covered in the test for each grade and subject.

INTERMEDIATE PHASE

In Grades 4-6, the tests will cover work that is prescribed for the first three-quarters of the school year. The Assessment Guidelines are arranged in three columns: Content Area; Concepts and Skills; and Content to be assessed.

It is important to note that the ANA 2013 Assessment Guidelines do not imply that the delimited scope is all that must be taught and learnt during the school year. Instead, the Assessment Guidelines provide the basic minimum curriculum requirements that must be covered by the end of the third school quarter.

Teachers are expected to use these Assessment Guidelines together with the other resources for their teaching and assessment programmes.

[1] "Designated" independent schools are those that will apply and register either their Grade 3 or Grade 6 learners to participate in ANA for purposes of securing State subsidy.

Content Area	Concepts and skills To test whether the learner is able to …	Content Area Assessed
NUMBERS, OPERATIONS AND RELATIONSHIPS	**Number range for counting, ordering, comparing, representing and place value of digits** • Count forwards and backwards in whole number intervals up to at least 10 000 • Order, compare and represent numbers up to at least 6-digit numbers • Represent odd and even numbers to at least 1 000 • Recognise the place value of digits in whole numbers up to at least 6-digit numbers. • Round off to the nearest 5, 10, 100 and 1 000 **Number range for calculations** • Addition and subtraction of whole numbers of at least 5 digits • Multiplication of at least whole 3-digit by 2-digit numbers • Division of at least whole 3-digit by 2-digit numbers **Number range for multiples and factors** • Multiples of 2-digits whole numbers up to at least 100 • Factors of 2-digit whole numbers up to at least 100	Counting forwards and backwards Order, compare and represent numbers Place value Rounding off Addition and subtraction of whole numbers Multiplication of whole numbers Division of whole numbers Multiples of 2-digit whole numbers Factors of 2-digit whole numbers

	Properties of whole numbers • Recognise and use the commutative, associative, distributive properties of whole numbers • 0 in terms of its additive property • 1 in terms of its multiplicative property **Solving problems** • Solve problems involving whole numbers, including: - financial contexts - measurement contexts • Solve problems involving whole numbers, including: - comparing two or more quantities of the same kind (ratio) - comparing two quantities of different kinds (rate) - grouping and equal sharing with remainders	commutative, associative, distributive properties of whole numbers 0 in terms of its additive property 1 in terms of its multiplicative property Solving problems in financial contexts Comparing two quantities of different kinds (rate)
	Describing and ordering fractions: • Count forwards and backwards in fractions • Compare and order common fractions up to at least twelfths **Calculations with fractions:** • Addition and subtraction of common fractions with the same denominators • Addition and subtraction of mixed numbers • Fractions of whole numbers which result in whole numbers • Recognise, describe and use the equivalence of division and fractions	Addition and subtraction of common fractions with the same denominator

	Solving problems • Solve problems in contexts involving common fractions, including grouping and sharing **Equivalent forms** • Recognise and use equivalent forms of common fractions (fractions in which one denominator is a multiple of another)	Recognise equivalent forms of common fractions
PATTERNS, FUNCTIONS AND ALGEBRA	**Investigate and extend patterns** • Investigate and extend numeric patterns looking for relationships or rules of patterns: - sequences not limited to a constant difference or ratio - learner's own creation • Describe observed relationships or rules in learner's own words **Input and output values** • Determine input values, output values and rules for the patterns and relationships using flow diagrams - flow diagrams - tables **Equivalent forms** Determine equivalent forms of different descriptions of the same relationship or rule presented: • verbally • in a flow diagram • in a table • by a number sentence	Investigate and extend numeric patterns to sequences not limited to a constant difference or ratio Determine input values, output values and rules for the patterns and relationships using flow diagrams: - flow diagrams - tables

	Investigate and extend patterns • Investigate and extend geometric patterns looking for relationships or rules of patterns: - represented in physical or diagram form - sequences not limited to a constant difference or ratio - learner's own creation • Describe observed relationships or rules in learner's own words	Investigate and extend geometric patterns looking for relationships or rules of patterns in sequences involving a constant difference
	Number sentences • Write number sentences to describe problem situations • Solve and complete number sentences by: - inspection - trial and improvement • Check solution by substitution	Write number sentences to describe problem situations and solve it
SPACE AND SHAPE (GEOMETRY)	**Range of shapes** • Recognise, visualise and name 2-D shapes in the environment and geometric setting, focusing on: • Regular and irregular polygons - triangles, squares, rectangles, other quadrilaterals, pentagons, hexagons, heptagons • Circles • Similarities and differences between squares and rectangles	Recognise and name regular and irregular polygons - triangles, squares, rectangles, other quadrilaterals, pentagons, hexagons, heptagons Recognise circles Recognise similarities and differences between squares and rectangles

	Characteristics of shapes • Describe, sort and compare 2-D shapes in terms of: - straight and curved sides - number of sides - lengths of sides - angles in shapes, limited to: ◊ right angles ◊ angles smaller than right angles ◊ angles greater than right angles **Angles** • Recognise and describe angles in 2-D shapes: - right angles - angles smaller than right angles - angles greater than right angles	Characteristics of shapes
	Range of objects • Recognise, visualise and name 3-D objects in the environment and geometric settings, focusing on: - rectangular prisms and other prisms - cubes - cylinders - cones - pyramids - similarities and differences between cubes and rectangular prisms	Recognise, visualise and name 3-D objects in the environment and geometric settings, focusing on rectangular prisms and other prisms: cubes, cylinders, cones, pyramids Similarities and differences between cubes and rectangular prisms

	Characteristics of objects • Describe, sort and compare 3-D objects in terms of - shape of faces - number of faces - flat and curved surfaces **Further activities** • Make 3-D models using cut-out polygons • Cut open boxes to trace and describe their nets	Characteristics of objects
	Symmetry • Recognise, draw and describe line(s) of symmetry in 2-D shapes	Recognise, draw and describe line(s) of symmetry in 2-D shapes
	Use transformations to make composite shapes • Make composite 2-D shapes including shapes with line symmetry by tracing and moving a 2-D shape in one or more of the following ways by: - rotation - translation - reflection **Use transformations to make tessellations** • Make tessellated patterns including some patterns with line symmetry by tracing and moving 2-D shapes in one or more of the following ways: - by rotation - by translation - by reflection Describe patterns	Use transformations to make composite shapes Make composite 2-D shapes including shapes with line symmetry by tracing and moving a 2-D shape in one or more of the following ways: - by rotation - by translation - by reflection

	• Refer to lines, 2-D shapes, 3-D objects, lines of symmetry, rotations, reflections and translations when describing patterns: - in nature - from modern everyday life - from our cultural heritage	Refer to lines, 2-D shapes, 3-D objects and/or lines of symmetry; and/or rotations; and/or reflections and/or translations when describing patterns
	Position and views Links the position of viewer to views of: • single everyday objects • collections of everyday objects or everyday scenes	**Position and views**
MEASUREMENT	**Calculations and problem-solving involving length** • Solve problems in contexts involving length • Conversions include converting between any of the following units: - millimetres (mm), centimetres (cm), metres (m), kilometres (km) • Conversions limited to whole numbers and common fractions	Conversions include converting between any of the following units: millimetres (mm), centimetres (cm), metres (m), kilometres (km)
	Calculations and problem-solving involving mass • Problems in contexts involving mass • Converting between grams and kilograms	Calculations and problem-solving involving mass include: • problems in contexts involving mass • converting between grams and kilograms
	Calculations and problem solving involving capacity/volume: • Problems in contexts involving capacity/volume • Converting between litres and millilitres	Calculations and problem solving involving capacity/volume include: • problems in contexts involving capacity/volume • converting between litres and millilitres

	Read, tell and write time Read, tell and write time in 12-hour and 24-hour formats on both analogue and digital instruments in: - hours - minutes - seconds Calculations and problem solving time include: • problems in contexts involving time • calculation of time intervals where time is given in - seconds and/or minutes - minutes and/or hours - hours and/or days	Read, tell and write time in 12-hour and 24-hour formats on both analogue and digital instruments in: - hours - minutes - seconds Calculations and problem solving time include problems in contexts involving time Calculation of time intervals where time is given in seconds and/or minutes; minutes and/or hours; hours and/or days
	Measure temperature Practical measuring of temperature by: • estimating • measuring • recording • degrees Celsius Calculations and problem solving related to temperature include: • problems in contexts related to temperatures • calculating temperature differences limited to positive whole numbers	Problems in contexts related to temperatures
DATA HANDLING	**Collecting and organising data** • collect data using tally marks and tables for recording • order data from smallest group to largest group representing data Draw a variety of graphs to display and interpret data including: • pictographs (many-to-one correspondence) • bar graphs	Collecting and organising data

	Interpreting data Critically read and interpret data represented in: • words • pictographs • bar graphs • pie charts **Analysing data** Analyse data by answering questions related to: • data categories • data sources and contexts reporting data Summarise data verbally and in short written paragraphs that include: • drawing conclusions about the data • making predictions based on the data ungrouped data Examine ungrouped numerical data to determine the most frequently occurring score in the data set (mode)	Interpret and analyse data represented
	Representing data Draw a variety of graphs to display and interpret data including: • pictographs (many-to-one correspondence) • bar graphs	Representing data