School Curriculum and Standards Authority

JUDGING STANDARDS IN YEAR 7

MATHEMATICS

Assessment pointers validate teachers' professional judgement when reporting against a five-point scale. The pointers:

- are examples of evidence in relation to the achievement standard
- should be used with the annotated student work samples
- exemplify what *students may demonstrate* rather than a checklist of *everything they should do*.

YEAR 7 MATHEMATICS ACHIEVEMENT STANDARD

Number and Algebra
At Standard, students solve problems involving the comparison, addition and subtraction of integers. They make the connections between whole numbers and index notation and the relationship between perfect squares and square roots. Students use fractions, decimals and percentages, and their equivalences. They express one quantity as a fraction or percentage of another. Students solve problems involving percentages and all four operations with fractions and decimals. They compare the cost of items to make financial decisions. Students represent numbers using variables. They connect the laws and properties for numbers to algebra. Students assign ordered pairs to given points on the Cartesian plane. They interpret simple linear representations and model authentic information. Students solve simple linear equations and evaluate algebraic expressions after numerical substitution.

Measurement and Geometry
Students describe different views of three-dimensional objects. They represent transformations in the Cartesian plane. Students solve simple numerical problems involving angles formed by a transversal crossing two lines. They use formulas for the area and perimeter of rectangles and calculate volumes of rectangular prisms. Students classify triangles and quadrilaterals. They name the types of angles formed by a transversal crossing parallel lines.

Statistics and Probability
Students identify issues involving the collection of continuous data. They construct stem-and-leaf plots and dot plots. Students describe the relationship between the median and mean in data displays. They calculate mean, mode, median and range for data sets. Students determine the sample space for simple experiments with equally likely outcomes and assign probabilities to those outcomes.

2016/7363v2 [PDF 2016/9812] Published: 19 December, 2016

YEAR 7 MATHEMATICS ASSESSMENT POINTERS

	A Excellent achievement	B High achievement	C Satisfactory achievement	D Limited achievement	E Very low achievement
			Number and Algebra		
Number and Place Value	Moves flexibly between whole numbers and index notation, selecting form to best suit familiar and unfamiliar situations.	Makes connections between positive whole numbers and index notation and draws on knowledge of a wide range of integers expressed in index form. Uses index notation to express numbers as a product of their prime factors. Deduces the highest common factor.	Makes connections between positive whole numbers and index notation and draws on knowledge of a limited range of integers expressed as squares and cubes of small prime numbers. Evaluates and compares numbers expressed in index form with or without technology. Expresses a number as a product of multiple factors.	Expands numbers expressed in index form. Expresses numbers as a product of two factors.	Does not meet the requirements of a D grade.
	Refines estimates of the square root of numbers.	Uses factors to find square roots of perfect squares that are multiples of 100 and 10000. For example: $\sqrt{4900} = \sqrt{49} \times \sqrt{100}$. Estimates the square root of numbers.	Makes connection between perfect squares and positive square roots, e.g. connects the square root of a perfect square to the side length of a square. Uses the square root symbol appropriately with and without technology.	Makes connection between perfect squares and positive square roots. Use the square root symbol appropriately with technology.	
	Compares, orders, adds and subtracts integers to solve meaningful, unfamiliar problems, applying efficient mental and written strategies.	Compares, orders, adds and subtracts integers to solve meaningful, familiar problems, applying efficient mental and written strategies.	Compares, orders, adds and subtracts integers to solve simple meaningful, familiar problems, applying mental and written strategies.	Uses diagrams and limited mental and written strategies to compare, order, add and subtract integers to solve simple meaningful problems.	

	A Excellent achievement	B High achievement	C Satisfactory achievement	D Limited achievement	E Very low achievement
Real Numbers	Moves flexibly between fraction, decimal and percentage, including fractions with unrelated denominators, when solving problems.	Moves between fraction, decimal and percentage, including fractions with unrelated denominators, when solving problems.	Moves between simple fraction, decimal and percentage, including only fractions with related denominators, when solving problems.	Recognises equivalence of a limited range of simple fractions, decimals and percentages without technology.	Does not meet the requirements of a D grade.
	Solves complex problems involving fractions, decimals and percentages and any of the four operations with or without digital technology.	Solves unfamiliar problems involving fractions, decimals and percentages and any of the four operations with or without technology.	Solves familiar, everyday problems involving simple fractions, decimals and percentages and any of the four operations with or without technology.	Solves familiar, everyday problems involving a limited range of simple fractions, decimals and percentages and any of the four operations with and without technology.	
	Solves unfamiliar problems involving simple ratios and/or the expression of one quantity as a fraction or percentage of another with or without technology.	Solves familiar problems involving simple ratios and/or the expression of one quantity as a fraction or percentage of another with or without technology.	Calculates (without technology) familiar/common percentages of quantities in simple cases and expresses one quantity as a percentage or fraction of another. Solves everyday problems involving the expression of one quantity as a fraction or percentage of another with or without technology.	Expresses one quantity as a fraction or percentage of another involving simple, straightforward calculations with and without a calculator.	
Money and financial mathematics	Uses flexible and efficient calculations and proportional reasoning to calculate and compare the cost of items with and without the use of digital technologies.	Chooses and uses appropriate methods and proportional reasoning to calculate and compare the cost of items with and without the use of digital technologies, e.g. cost of 100 g or 1 kg when given the cost per 150 g of the item.	Uses a familiar method and simple proportional reasoning to calculate and compare the cost of items, with and without the use of digital technologies.	Calculates and compares the cost of items without proportional reasoning, e.g. which is better: $1000 upfront payment or eight payments of $150?	Does not meet the requirements of a D grade.

	A Excellent achievement	B High achievement	C Satisfactory achievement	D Limited achievement	E Very low achievement
Patterns and algebra	Represents numbers using variables and writes multiple algebraic expressions to represent unfamiliar concrete and authentic situations.	Represents numbers using variables and writes multiple algebraic expressions to represent familiar concrete and authentic situations.	Represents numbers using variables and writes algebraic expressions to represent simple concrete and authentic situations.	With prompting, represents a number using a variable and writes algebraic expressions to represent simple concrete situations.	Does not meet the requirements of a D grade.
	Identifies and justifies equivalent forms by substitution and applying the laws and properties of arithmetic to algebraic expressions.	Identifies and justifies equivalent forms by substitution and applying the laws and properties of arithmetic to algebraic expressions.	Applies the laws and properties of numbers to variables in simple situations.	With prompting, recognises and/or applies the laws and properties of numbers to variables.	
Linear and non-linear	Models and interprets authentic information from concrete materials and diagrams that can be represented by a complex linear relationship in the first quadrant. Independently explains and makes connections between a table of values, number pattern, multiple word and algebraic rule representations and graph, with and without technology.	Models and interprets authentic information from concrete materials and diagrams that can be represented by a linear relationship in the first quadrant. With prompting, explains and makes connections between a table of values, number pattern, multiple word and algebraic rule representations and graph, with and without technology.	Models and interprets authentic information from concrete materials and diagrams that can be represented by a simple linear relationship in the first quadrant. With guidance, describes and makes connections between a table of values, number pattern, word rule, algebraic rule and graph, with and without technology.	With support, models authentic information from concrete materials and diagrams that can be represented by a simple linear relationship in the first quadrant. Generates a table of values, number pattern, word rule and graph, with and without technology.	Does not meet the requirements of a D grade.
	Independently rearranges and solves linear equations with positive coefficients, validating solutions.	Plots and assigns ordered pairs to given points on the Cartesian plane, and finds coordinates given a point. With prompting, rearranges and solves linear equations, with positive coefficients, validating solutions.	Assigns ordered pairs to given points on the Cartesian plane, and finds coordinates given a point. Solves simple two-step linear equations with positive coefficients, validating solutions.	Identifies axes and assigns ordered pairs to given points on the first quadrant of the Cartesian plane. Solves simple one-step linear equations with prompting, validates solutions.	

	A Excellent achievement	B High achievement	C Satisfactory achievement	D Limited achievement	E Very low achievement
	Measurement and Geometry				
Using units of measurement	Explains and uses the formulas of area and perimeter of rectangles, triangles and parallelograms to solve problems in context. Identifies and accounts for specific or changed conditions when solving problems in measurement contexts.	Explains and uses the formulas of area and perimeter of rectangles, right triangles and parallelograms related to rectangles to solve problems in authentic situations, including composite shapes involving rectangles. Identifies and accounts for some specific or changed conditions when solving problems in measurement contexts.	Explains and uses the formulas of area and perimeter of rectangles to solve simple problems in authentic situations. Identifies information from a simple diagram or straightforward text when solving problems in measurement contexts.	Calculates and explains the area and perimeter of rectangles in concrete, authentic situations.	Does not meet the requirements of a D grade.
	Calculates, compares and justifies the volume of rectangular prisms, including those with dimensions in different and part units, using concrete material and diagrams.	Calculates and justifies the volume of a rectangular prism, including those with dimensions in different and part units, using concrete materials and diagrams. Uses correct units for the context.	Calculates and justifies the volume of a rectangular prism using concrete material and diagrams.	Calculates and justifies the volume of a rectangular prism using concrete material.	
	Distinguishes between linear, area and volume units when expressing solutions to most measurement problems.	Distinguishes between linear, area and volume units sometimes, when expressing solutions to some measurement problems	Uses linear units when expressing solutions in most measurement problems.	Expresses solutions to simple measurement problems without including units.	
Shape	Interprets, describes, compares and draws different views of prisms and solids formed from combinations of prism, selecting and justifying appropriate types of drawing to best represent information in an authentic way.	Interprets, describes, compares and draws isometric, orthogonal and oblique views of square and rectangular prisms and solids formed from combinations of prisms.	Interprets, describes and draws isometric, orthogonal and oblique views of square and rectangular prisms.	Describes and draws isometric, orthogonal and oblique views of square and rectangular prisms.	Does not meet the requirements of a D grade.

	A Excellent achievement	B High achievement	C Satisfactory achievement	D Limited achievement	E Very low achievement
Location and transformation	Represents and describes, using coordinates, multiple combinations of translations, reflections in an axis and rotations of multiples of 90 degrees on the Cartesian plane.	Represents and describes, using coordinates, translations, reflections in an axis and rotations of multiples of 90 degrees on the Cartesian plane.	Represents translations, reflections in an axis and rotations of 90 degrees on the Cartesian plane.	Identifies translations, reflections in an axis and rotations of 90 degrees on the Cartesian plane.	Does not meet the requirements of a D grade.
Geometric reasoning	Solves angle problems involving multiple parallel and/or transversal lines, justifying solutions and explaining reasoning.	With prompting, solves angle problems involving multiple parallel and/or transversal lines, justifying solutions and explaining reasoning.	Solves simple angle problems, justifying solutions by naming angle relationships involving a transversal line cutting a pair of parallel lines.	Identifies and names simple angle relationships involving a transversal line cutting a pair of parallel lines.	Does not meet the requirements of a D grade.
	Applies knowledge of properties and given information of triangles and quadrilaterals to classify shapes and solve problems.	Applies knowledge of properties and given information of triangles and familiar quadrilaterals to classify shapes and solves problems.	Classifies triangles and quadrilaterals according to given side and angle properties.	Identifies types of triangles and quadrilaterals according to given side and angle properties.	
Statistics and Probability					
Chance	Independently devises a sample space for, and implements, a simple chance experiment with unequally likely outcomes. Assigns probabilities based on the outcomes of the experiment, identifying that sample size influences the reliability of the assigned probabilities.	With prompting, devises a sample space for, and implements, a simple chance experiment with unequally likely outcomes. Assigns probabilities based on the outcomes of the experiment, identifying that sample size influences the reliability of the assigned probabilities.	Constructs a sample space for a simple, single-step chance experiment with equally likely outcomes, and assigns probabilities based on the outcomes of the experiment.	With support, constructs a sample space for a simple, single-step chance experiment with equally likely outcomes, and assigns probabilities based on the outcomes of the experiment.	Does not meet the requirements of a D grade.
Data representation and interpretation	Collects, extracts and compares continuous data from a variety of primary and secondary sources. Predicts, tests and explains the influence of the identified issues on the collection, analysis and conclusions drawn on the data.	Collects and extracts continuous data from a variety of primary and secondary sources. Predicts, tests and explains the influence of the identified issues on the collection, analysis and conclusions drawn on the data.	Collects continuous data, identifying the issues involved in its collection.	Collects continuous data, and with support, identifies the issues involved in its collection.	Does not meet the requirements of a D grade.

	A Excellent achievement	B High achievement	C Satisfactory achievement	D Limited achievement	E Very low achievement
Data representation and interpretation	Displays, interprets and compares two sets of numerical data choosing the most appropriate data display, including stem-and-leaf plots and dot plots	Displays and interprets a set of numerical data choosing the most appropriate data display, including stem-and-leaf plots and dot plots.	Constructs and interprets stem-and-leaf plots and dot plots to display numerical data.	With support, constructs and interprets stem-and-leaf plots and dot plots to display numerical data.	Does not meet the requirements of a D grade.
	Extracts relevant information from data displayed in multiple ways to calculate the mean, mode, median and range for data sets. Interprets and compares them in the context of the data.	Compares data sets by calculating the means, modes, medians and ranges and interprets them in the context of the data.	Calculates the mean, mode, median and range for a data set and describes the relationship between the mean and median in the context of the data.	Calculates the mean, mode, median and range for a simple list of ranked numerical data.	