

Assessment Name	Assessment Level	Domain	Performance Level	Descriptor	One line descriptor	Order	GR 2-3	GR 4-6	GR 8-9
Uwezo	National Citizen-Led Assessment	Math	<b>Below Standard 2</b>	<ul style="list-style-type: none"> <li>Cannot correctly count 4 sets of pictures</li> </ul>	Students at this level fail to count sets of objects on a consistent basis.	1			
UNICEF MICS6	Household Survey	Math	<b>Less than Foundational Numeracy Skills</b>	<ul style="list-style-type: none"> <li>Cannot successfully complete 1-4 of the above tasks*</li> <li>Successfully complete a number reading task</li> <li>Successfully complete a number discrimination task</li> <li>Successfully complete an addition task</li> <li>Successfully complete a pattern recognition and completion task)</li> </ul>	Students at this level have difficulty in completing some tasks involving number sense, addition, or patterns.	2			
Uwezo	National Citizen-Led Assessment	Math	<b>Below Standard 2</b>	<ul style="list-style-type: none"> <li>Can correctly count 4 sets of pictures</li> </ul>	Students at this level can repeatedly count sets of objects.	3			
Early Grade Math Assessment	National	Math	N/A	Count objects 0 to 100	Students at this level can count up to 100 objects.	4			
Early Grade Math Assessment	National	Math	N/A	Count out loud from 0-100; 100+	Students at this level can count from rote to numbers greater than 100.	5			
ASER 2017	National Citizen-Led Assessment	Math	<b>Standard 1 and Below</b>	<ul style="list-style-type: none"> <li>Cannot identify 4 of 5 single-digits</li> </ul>	Students at this level are unable to identify a minimum of 4 out of 5 one-digit numbers.	6			
ASER 2017	National Citizen-Led Assessment	Math	<b>Standard 1 and Below</b>	<ul style="list-style-type: none"> <li>Can identify 4 out of 5 numbers (1-9)</li> </ul>	Students at this level can identify 4 out of 5 one-digit numbers.	7			
Uwezo	National Citizen-Led Assessment	Math	<b>Below Standard 2</b>	<ul style="list-style-type: none"> <li>Can correctly recognize 4 numbers</li> </ul>	Students at this level can repeatedly recognize whole numbers.	8			

ASER 2017	National Citizen-Led Assessment	Math	<b>Standard 1 and Below</b>	• Can identify 4 out of 5 numbers (10-99)	Students at this level can identify 4 out of 5 two-digit numbers.	9			
Early Grade Math Assessment	National	Math	N/A	Identify numerals 0-100; 100+	Students at this level can recognize numbers greater than 100.	10			
Early Grade Math Assessment	National	Math	N/A	Accurately solve facts with addition or subtraction of 1 and 2 digit numbers	Students at this level can add and/or subtract numbers from memorized facts and algorithms.	11			
Early Grade Math Assessment	National	Math	N/A	Recognize basic shapes	Students at this level can recognize basic shapes.	12			
Early Grade Math Assessment	National	Math	N/A	Accurately solve basic facts with addition or subtraction	Students at this level can add and subtract using the standard algorithms.	13			
Early Grade Math Assessment	National	Math	N/A	Recognize basic attributes	Students at this level can recognize attributes of basic shapes.	14			
Early Grade Math Assessment	National	Math	N/A	Identify missing object in pattern	Students at this level can identify an object missing from a simple pattern.	15			
Early Grade Math Assessment	National	Math	N/A	Identify missing number in a simple pattern (0-100); complicated pattern	Students at this level can identify a number (up too 100) missing from a simple or complex pattern.	16			
Early Grade Math Assessment	National	Math	N/A	Identify which of two numbers is larger 0-100; 100+	Students at this level can compare two numbers up to or greater than 100.	17			
UNICEF MICS6	Household Survey	Math	<b>Foundational Numeracy Skills Proficient</b>	<ul style="list-style-type: none"> <li>• Successfully complete a number reading task</li> <li>• Successfully complete a number discrimination task</li> <li>• Successfully complete an addition task</li> <li>• Successfully complete a patern recognition and completion task</li> </ul>	Students at this level can perform a variety of tasks involving number sense, addition, and patterns.	18			
Uwezo	National Citizen-Led Assessment	Math	<b>Below Standard 2</b>	• Can correctly complete at least 3 addition sums	Students at this level can repleatedy add using memorized facts and/or algorithms.	19			

ASER 2017	National Citizen-Led Assessment	Math	<b>Standard 2 Proficient</b>	<ul style="list-style-type: none"> <li>• Can correctly solve two subtraction operations (2 by 2 subtraction with borrowing)</li> </ul>	Students at this level can subtract two-digit numbers requiring regrouping	20			
Uwezo	National Citizen-Led Assessment	Math	<b>Below Standard 2</b>	<ul style="list-style-type: none"> <li>• Can correctly complete at least 3 subtraction sums</li> </ul>	Students at this level can repeatedly subtract using memorized facts and/or algorithms.	21			
Uwezo	National Citizen-Led Assessment	Math	<b>Below Standard 2</b>	<ul style="list-style-type: none"> <li>• *Can correctly complete at least 3 multiplication sums</li> </ul>	Students at this level can repeatedly multiply using memorized facts and/or algorithms.	22			
ASER 2017	National Citizen-Led Assessment	Math	<b>Standard 2+</b>	<ul style="list-style-type: none"> <li>• Can correctly solve one division operation (3 by 1 division with remainder)</li> </ul>	Students at this level can divide a three-digit number by a one-digit number.	23			
Uwezo	National Citizen-Led Assessment	Math	<b>Standard 2 Proficient</b>	<ul style="list-style-type: none"> <li>• Can correctly complete at least 3 division sums</li> <li>• *Can correctly complete at least 3 multiplication sums</li> </ul>	Students at this level can repeatedly multiply and divide using memorized facts and/or algorithms.	24			
Early Grade Math Assessment	National	Math	N/A	Correctly answer word problem involving simple addition and subtraction, multiplication and division	Students at this level can solve one-step word problems involving the four operations.	25			
PASEC 2014 (grade 2)	Regional	Math	<b>Below Level 1 66.9-400.2</b>	<ul style="list-style-type: none"> <li>• Students at this level do not display the competencies measured by this test. These students are in difficulty when it comes to Level 1 knowledge and competencies.</li> </ul>	Students at this level show little to no understanding of the knowledge, skills, and abilities measured by this test.	26			
SERCE 2006 (grade 3)	Regional	Math	<b>Below Level 1</b>	Students who do not achieve the skills required for level I.	Students at this level demonstrate no ability in the skills measured by this test.	27			
SERCE 2006 (grade 3)	Regional	Math	<b>Level 1</b>	<p>Students can:</p> <ul style="list-style-type: none"> <li>• Recognise the relationship of order between natural numbers and common two-dimensional geometric figures in simple drawings.</li> <li>• Locate relative positions of an object in a spatial representation.</li> <li>• Interpret tables and graphs in order to extract direct information.</li> </ul>	Students at this level can read and recognize basic mathematical representations.	28			

TERCE 2014 (grade 3)	Regional	Math	<b>Level 1</b> <i>Up to 688</i>	<p>Students can:</p> <ul style="list-style-type: none"> <li>• Order natural numbers and compare quantities</li> <li>• Identify basic geometric figures</li> <li>• Identify missing elements in simple sequences (graphic and numerical)</li> <li>• Read explicit information in tables and graphs</li> </ul>	Students at this level can perform only the simplest of mathematical tasks in various domains.	29	X		
PASEC 2014 (grade 2)	Regional	Math	<b>Level 1</b> 400.3-488.9	<ul style="list-style-type: none"> <li>• Students progressively develop their knowledge of the mathematical language and master the first concepts of quantity (quantification, comparison) with objects and numbers under twenty.</li> <li>• Students can appraise the relative size of objects, recognize simple geometric shapes and they develop an awareness of the first concepts of spatial orientation (inside, outside).</li> </ul>	Students at this level possess limited understanding of number concepts and geometry.	30	X		
PILNA 2015 (grades 4/6)	Regional	Math	<b>Level 0</b> <i>Up to 375</i>	<ul style="list-style-type: none"> <li>• Students at this level are not able to do any of the skills above and/or there is insufficient evidence to indicate their ability.</li> </ul>	Students at this level show little to no understanding of the knowledge, skills, and abilities measured by this test.	31	X		
TERCE 2014 (grade 3)	Regional	Math	<b>Level 2</b> 688-749 <u>Proficient</u>	<p>Students can:</p> <ul style="list-style-type: none"> <li>• Read and write natural numbers</li> <li>• Interpret simple fractions</li> <li>• Identify the units of measurement or instruments best adapted to measure attributes of a known object.</li> <li>• Identify relative positions of objects on a map</li> <li>• Identify elements on geometric figures or flat representations of geometric shapes</li> <li>• Extract information delivered in tables and graphs</li> </ul>	Students at this level possess a basic level of understanding of mathematical concepts and can perform routine procedures.	32	X		

PASEC 2014 (grade 2)	Regional	Math	<b>Level 2</b> 489.0-577.6 <u>Proficient</u>	<ul style="list-style-type: none"> <li>• Students can recognize numbers up to one hundred, compare them, complete logical series and perform operations (sums and subtractions) with numbers under fifty.</li> <li>• Students have developed awareness of spatial orientation (below, above, beside).</li> <li>• Students begin to develop an ability to solve basic problems with numbers under twenty using reasoning skills.</li> </ul>	Students at this level demonstrate the ability to solve routine mathematical and real-world problems related to geometry and number sense.	33	X		
SERCE 2006 (grade 3)	Regional	Math	<b>Level 2</b>	<p>Students can:</p> <ul style="list-style-type: none"> <li>• Recognise the decimal and positional organisation of the numbering system and the elements of geometric figures.</li> <li>• Identify a path on a plane and the most appropriate unit of measure for measuring an attribute of a known object.</li> <li>• Interpret tables and charts in order to extract and compare data.</li> <li>• Solve addition or multiplication problems involving proportions in the field of natural numbers.</li> </ul>	Students at this level can solve mathematical and application problems in a variety of domains.	34	X		
SERCE 2006 (grade 3)	Regional	Math	<b>Level 3</b>	<p>Students can:</p> <ul style="list-style-type: none"> <li>• Solve multiplication problems or addition problems that involve an equation or require two operations.</li> <li>• Solve addition problems using units of measure and their equivalents or problems that include common fractions.</li> <li>• Recognise the rule governing a graphic sequence or additive numerical sequence and continue it.</li> <li>• Identify elements of unusual geometric figures and interpret the different types of figures for extracting information and solving problems using the data.</li> </ul>	Students at this level can solve mathematical and application problems in a variety of domains.	35	X		

TERCE 2014 (grade 3)	Regional	Math	<b>Level 3</b> 750-842	<p>Students can:</p> <ul style="list-style-type: none"> <li>• Identify forming rules or patterns of more complex sequences ((graphic and numerical), determine missing elements or continue the sequences</li> <li>• Solve problems involving elements of geometric figures or flat representation of geometric shapes</li> <li>• Solve problems that require interpretation of simple fractions</li> <li>• Solve problems that require application of natural numbers operations</li> <li>• Compare and estimate objects measures and solve problems involving measures</li> <li>• Interpret information presented in tables and graphs.</li> </ul>	Students at this level demonstrate the ability to understand most mathematical concepts and to perform various types of mathematical applications.	36	X		
SERCE 2006 (grade 3)	Regional	Math	<b>Level 4</b>	<p>Students can:</p> <ul style="list-style-type: none"> <li>• Recognise the rule governing the formation of a numerical sequence and identify its formulation.</li> <li>• Solve multiplication problems involving one unknown or that require making use of equivalency between the usual measures of length.</li> <li>• Identify an element on a two dimensional plane and the properties of the sides of a square or rectangle to solve a problem.</li> </ul>	Students at this level demonstrate ability with algebraic reasoning and with geometric properties.	37	X		
PASEC 2014 (grade 2)	Regional	Math	<b>Level 3</b> 577.7+	<ul style="list-style-type: none"> <li>• Students master the oral number sequence (counting up to sixty in two minutes) and are able to compare numbers, complete logical series and perform operations (sums and subtractions) with numbers over fifty.</li> <li>• Students can solve basic problems with numbers under twenty using reasoning skills.</li> </ul>	Students at this level demonstrate high levels of ability in mathematical processes and problem solving.	38	X		

SERCE 2006 (grade 6)	Regional	Math	<b>Below Level 1</b>	Students who do not achieve the skills required for level I	Students at this level demonstrate no ability in the skills measured by this test.	39	X		
PASEC 2014 (grade 6)	Regional	Math	<b>Below Level 1</b> <i>68.1-433.2</i>	<ul style="list-style-type: none"> <li>Students at this level do not display the competencies measured by this test. These students are in difficulty when it comes to level 1 knowledge and competencies.</li> </ul>	Students at this level show little to no understanding of the knowledge, skills, and abilities measured by this test.	40	X		
PILNA 2015 (grades 4/6)	Regional	Math	<b>Level 1</b> <i>375-424</i>	<ul style="list-style-type: none"> <li>Write a two-digit number not involving zero in words and in numerals, and also complete increasing number patterns in a simple relation.</li> <li>Add any pair of two-digit and two- or three-digit numbers without regrouping.</li> <li>Compare heights of data presented in a bar graph.</li> </ul>	Students at this level can add and write numbers and demonstrate limited understanding in statistics.	41	X		
SACMEQ 2007 (grade 6)	Regional	Math	<b>Level 1</b>	<p><u>Pre Numeracy</u></p> <p>Applies single step addition or subtraction operations. Recognizes simple shapes. Matches numbers and pictures. Count in whole numbers.</p>	Students at this level can perform only the simplest of computations and can recognize simple shapes.	42	X		
PILNA 2015 (grades 4/6)	Regional	Math	<b>Level 2</b> <i>425-449</i>	<ul style="list-style-type: none"> <li>Write a three-digit number not involving zero in words and in numerals, and write a three-digit number involving zero in words only.</li> <li>Compare prices of items and calculate the total cost of two items.</li> <li>Subtract a two-digit number from a two- or three-digit number without regrouping and solve simple word problems involving addition.</li> <li>Identify hands of a clock and know the relation of days and weeks.</li> </ul>	Students at this level can write, compare and compute with whole numbers.	43	X		

TERCE 2014 (grade 3)	Regional	Math	<b>Level 4</b> 843+	<p>Students can:</p> <ul style="list-style-type: none"> <li>• Solve more complex problems in the area of natural numbers.</li> <li>• Solve problems involving comparison and conversion of measures</li> <li>• Solve more complex problems involving elements of geometric figures or flat representation of geometric shapes.</li> </ul>	Students at this level are able to utilize reasoning skills to solve complex mathematical and real-world problems.	44	X	X	
PILNA 2015 (grades 4/6)	Regional	Math	<b>Level 3</b> 450-474 <u>Proficient (4)</u>	<ul style="list-style-type: none"> <li>• Write a four-digit number not involving zero in words and numerals.</li> <li>• Write a three-digit number involving zero in numerals and write a four-digit number involving zero in words.</li> <li>• Complete increasing number patterns involving decimal numbers to one decimal place in a relation and recognise money according to its value.</li> <li>• Add two- to four-digit numbers with two- to three-digit numbers with regrouping, and add two decimal numbers with the same number of decimal places and with regrouping.</li> <li>• Multiply a two-digit number and one-digit number with no regrouping and solve simple word problems involving subtraction.</li> <li>• Use a ruler to draw and read a given length and tell the time to the hour only from an analogue clock.</li> </ul>	Students at this level can write numbers, complete patterns, measure, and perform computations.	45	X	X	
SACMEQ 2007 (grade 6)	Regional	Math	<b>Level 2</b>	<p><u>Emergent Numeracy</u></p> <p>Applies a two-step addition or subtraction operation involving carrying, checking (through very basic estimation) or conversion of pictures to numbers. Estimates the length of familiar objects. Recognize two-dimensional shapes.</p>	Students at this level can perform basic computations and demonstrate limited knowledge of spatial sense.	46	X	X	



TIMSS 2015 (grade 4)	International	Math	<p style="text-align: center;"><b>Low International</b> <i>Up to 400</i></p>	<ul style="list-style-type: none"> <li>• Students have some basic mathematical knowledge.</li> <li>• Students can add and subtract whole numbers.</li> <li>• Students have some recognition of parallel and perpendicular lines, familiar geometric shapes, and coordinate maps.</li> <li>• Students can read and complete simple bar graphs and tables.</li> </ul>	Students at this level can perform basic computations, recognize basic geometric shapes, and read simple data displays.	47	X	X	
PILNA 2015 (grades 4/6)	Regional	Math	<p style="text-align: center;"><b>Level 4</b> <i>475-499</i></p>	<ul style="list-style-type: none"> <li>• Read numbers on a place value number system and compare four-digit whole numbers and decimal numbers.</li> <li>• Identify the numerator and denominator of a fraction to the extent of representing proportion of a whole as a simple percentage.</li> <li>• Add three two-digit whole numbers with regrouping, multiply a two- or a three-digit number and a one-digit number with regrouping, and divide a two-digit by a one-digit number without remainder.</li> <li>• Simplify expressions involving addition and subtraction and calculate total cost of three items.</li> <li>• Identify days in a week and read with understanding data from a bar graph.</li> </ul>	Students at this level understand place value, can perform three of the four basic operations, and have some facility with measurement and statistics.	48		X	

PILNA 2015 (grades 4/6)	Regional	Math	<p><b>Level 5</b> 500-524 <u>Proficient (6)</u></p>	<ul style="list-style-type: none"> <li>• Write a four-digit number involving zeros in numerals and identify place values of a two-digit number.</li> <li>• Add and subtract fractions with the same denominators, and add two decimal numbers with different numbers of decimal places and with regrouping.</li> <li>• Subtract a two-digit number from a three-digit number with regrouping.</li> <li>• Multiply a three-digit with a two-digit number without regrouping, and understand and simplify brackets to determine the order of operation.</li> <li>• Measure height.</li> </ul>	Students at this level demonstrate intermediate skills in computation and the ability to perform simple measurements.	49		X	
SERCE 2006 (grade 6)	Regional	Math	<p><b>Level 1</b></p>	<p>Students can:</p> <ul style="list-style-type: none"> <li>• Arrange natural numbers (up to five digits) and decimals (up to thousandths) in sequence.</li> <li>• Recognise common geometrical figures and the measurement unit consistent with the attribute being measured.</li> <li>• Interpret information in graphic representations in order to compare it and change it to a different form of representation.</li> <li>• Solve problems involving a single addition using natural numbers.</li> </ul>	Students at this level have some facility with numbers and the ability to recognize various mathematical concepts.	50		X	
TIMSS 2015 (grade 4)	International	Math	<p><b>Intermediate International</b> 401-475 <u>Proficient</u></p>	<ul style="list-style-type: none"> <li>• Students can apply basic mathematical knowledge in straightforward situations.</li> <li>• Students at this level demonstrate an understanding of whole numbers and some understanding of fractions.</li> <li>• Students can visualize three-dimensional shapes from two-dimensional representations.</li> <li>• Students can interpret bar graphs, pictographs, and tables to solve simple problems.</li> </ul>	Students at this level can solve routine problems in numeracy, geometry, and data.	51		X	

PASEC 2014 (grade 6)	Regional	Math	<b>Level 1</b> 433.3-521.4	<ul style="list-style-type: none"> <li>• Students can answer very brief questions by calling upon factual knowledge or a specific procedure.</li> <li>• In arithmetic, they are able to carry out the four basic operations with whole numbers which might require writing down the operation using regrouping.</li> <li>• In measurement, they recognize the length measurement unit: the meter.</li> <li>• In geometry, they are able to orientate themselves in space by identifying directions and positions and by reading coordinates on a graph.</li> </ul>	Students at this level possess limited understanding of concepts in numeracy, measurement, and geometry.	52		X	
SACMEQ 2007 (grade 6)	Regional	Math	<b>Level 3</b> <u>Proficient</u>	<u>Basic Numeracy</u> Translates verbal information presented in a sentence, simple graph or table using one arithmetic operation in several repeated steps. Translates graphical information into fractions. Interprets place value of whole numbers up to thousands. Interprets simple common everyday units of measurement.	Students at this level display a basic level of knowledge of number sense and measurement.	53		X	

SERCE 2006 (grade 6)	Regional	Math	<b>Level 2</b>	<p>Students can:</p> <ul style="list-style-type: none"> <li>Analyse and identify the structure of the positional decimal number system, and estimate weight (mass) expressing it in units consistent with the attribute being measured.</li> <li>Recognise commonly used geometrical figures and their properties in order to solve problems.</li> <li>Interpret, compare and work with information presented through various graphic representations.</li> <li>Identify the regularity of a sequence following a simple pattern.</li> <li>Solve addition problems in different numerical fields (natural numbers and decimals), including commonly used fractions or measurement equivalence.</li> <li>Solve multiplication or division problems, or two operations with natural numbers, or operations that include direct proportionality relations.</li> </ul>	Students at this level can perform mathematical tasks that require basic analysis and problem-solving skills.	54		X	
SACMEQ 2007 (grade 6)	Regional	Math	<b>Level 4</b>	<p><u>Beginning Numeracy</u> Translates verbal or graphic information into simple arithmetic problems, Uses multiple different arithmetic operations (in the correct order) on whole numbers, fractions, and/or decimals.</p>	Students at this level can translate information into numerical form and solve simple problems involving numeracy.	55		X	

PILNA 2015 (grades 4/6)	Regional	Math	<p><b>Level 6</b> 525-549</p>	<ul style="list-style-type: none"> <li>• Complete an increasing number pattern that involves decimal numbers with two decimal places, and also complete a decreasing whole number pattern.</li> <li>• Subtract up to three-digit numbers from up to four-digit numbers with regrouping, and also subtract decimal numbers with different numbers of decimal places and with regrouping.</li> <li>• Multiply a three-digit number by a two-digit number with regrouping to the extent of solving word problems involving multiplication, calculating unit cost and calculating change from shopping.</li> <li>• Tell the time to the quarter hour and half hour from an analogue clock.</li> <li>• Draw a complete bar graph that will convey information from a given set of data.</li> </ul>	Students at this level demonstrate increasing mastery in concepts involving computation and statistics.	56		X	
TIMSS 2015 (grade 4)	International	Math	<p><b>High International</b> 476-550</p>	<ul style="list-style-type: none"> <li>• Students can apply their knowledge and understanding to solve problems.</li> <li>• Students can solve word problems involving operations with whole numbers.</li> <li>• Students can use division in a variety of problem situations.</li> <li>• Students can use their understanding of place value to solve problems.</li> <li>• Students can extend patterns to find a later specified term.</li> <li>• Students demonstrate understanding of line symmetry and geometric properties.</li> <li>• Students can interpret and use data in tables and graphs to solve problems.</li> <li>• Students can use information in pictographs and tally charts to complete bar graphs.</li> </ul>	Students at this level demonstrate consistent mastery over a wide range of mathematical concepts.	57		X	

SACMEQ 2007 (grade 6)	Regional	Math	<b>Level 5</b>	<p><u>Competent Numeracy</u> Translates verbal, graphic, or tabular information into an arithmetic form in order to solve a given problem. Solves multiple-operation problems (using the correct order of arithmetic operations) involving everyday units of measurement and/or whole and mixed numbers. Converts basic measurement units from one level of measurement to another ( for example metres to centimetres).</p>	Students at this level can translate information into numerical form and solve problems involving numeracy and measurement.	58		X	
PASEC 2014 (grade 6)	Regional	Math	<b>Level 2</b> <i>521.5-609.5</i> <u>Proficient</u>	<ul style="list-style-type: none"> <li>• Students are able to answer brief arithmetic, measurement and geometry questions by resorting to the three assessed processes: knowing, applying and reasoning. Some questions call on factual knowledge or a scientific approach; others require analysis of a situation prior to determining the appropriate approach.</li> <li>• In arithmetic, students perform operations with decimal numbers and can also solve familiar problems by analyzing the wording of the question or extracting data from a double-entry table.</li> <li>• Students know how to complete logical series with decimal numbers or fractions.</li> <li>• In measurement, students can tell the time and convert units of measurement with or without a conversion table.</li> <li>• Students are also able to solve arithmetic problems involving operations with days, hours and minutes, or units of length.</li> <li>• In geometry, students know the names of certain solids, basic geometric shapes and some characteristic lines (diagonal, median).</li> </ul>	Students at this level demonstrate the ability to solve routine mathematical and real-world problems across a number of domains.	59		X	

TERCE 2014 (grade 6)	Regional	Math	Level 1 <i>Up to 687</i>	<p>Students can:</p> <ul style="list-style-type: none"> <li>• Estimate weight and length of objects</li> <li>• Identify relative positions in map</li> <li>• Identify forming rules or patterns of simple numerical sequences and continue them</li> <li>• Arrange natural and decimal numbers</li> <li>• Use the structure of the decimal system and the monetary system</li> <li>• Solve simple problems involving proportional variations</li> <li>• Read explicit information in tables and graphs</li> </ul>	Students at this level can perform only the simplest of mathematical tasks in various domains.	60		X	
PILNA 2015 (grades 4/6)	Regional	Math	Level 7 <i>550-574</i>	<ul style="list-style-type: none"> <li>• Represent a proportion of a whole as a fraction and round off numbers to the nearest tens and hundreds.</li> <li>• Divide a two-digit number by a one-digit number with a remainder, and understand the order of operation by simplifying expressions involving the four operations.</li> <li>• Solve word problems involving both addition and subtraction to the extent of calculating the total cost and change from shopping.</li> <li>• Tell the time from an analogue clock in minutes.</li> </ul>	Students at this level can model complex arithmetic situations and perform high-level computations.	61		X	
TERCE 2014 (grade 6)	Regional	Math	Level 2 <i>687-788</i> <u>Proficient</u>	<p>Students can:</p> <ul style="list-style-type: none"> <li>• Solve simple problems that involve natural numbers, decimal numbers, fractions and proportional variations</li> <li>• Relate different spatial views</li> <li>• Identify missing final elements or continue graphical or numerical sequences</li> <li>• Determine measures of length and mass of objects, using graduated instruments</li> <li>• Calculate perimeters and area of polygons</li> </ul>	Students at this level possess a basic level of understanding of mathematical concepts and can perform routine procedures.	62		X	

SERCE 2006 (grade 6)	Regional	Math	<b>Level 3</b>	<p>Students can:</p> <ul style="list-style-type: none"> <li>• Compare fractions, use the concept of percentages when analysing information and solving problems that require this type of calculation.</li> <li>• Identify perpendicularity and parallelism on a plane, as well as bodies and their elements, without graphic support.</li> <li>• Solve problems that require interpreting the constituent elements of a division or measurement equivalence.</li> <li>• Recognise central angles and commonly used geometrical shapes, including the circle; make use of their properties to solve problems.</li> <li>• Solve problems involving areas and perimeters of triangles and quadrilaterals.</li> <li>• Make generalisations in order to continue a graphic sequence or find the numerical sequence rule that applies to a relatively complex pattern.</li> </ul>	Students at this level translate between mathematical representations to solve problems.	63		X	
TIMSS 2015 (grade 4)	International	Math	<b>Advanced International</b> 551-625+	<ul style="list-style-type: none"> <li>• Students can apply their understanding and knowledge in a variety of relatively complex situations and explain their reasoning.</li> <li>• Students can solve a variety of multi-step word problems involving whole numbers, including proportions.</li> <li>• Students at this level show an increasing understanding of fractions and decimals.</li> <li>• Students can apply geometric knowledge of a range of two- and three-dimensional shapes in a variety of situations.</li> <li>• Students can draw a conclusion from data in a table and justify their conclusion.</li> </ul>	Students at this level can use and explain reasoning to solve a variety of complex mathematical problems	64		X	



PISA - D	Cross-national	Math	<p><b>Level 1c</b> Up to 357 <i>*Score Range not available</i></p>	<ul style="list-style-type: none"> <li>• Students can understand questions involving simple, everyday contexts where all relevant information is clearly given and defined in a very short syntactically simple text.</li> <li>• They are able to follow a single clearly prescribed instruction.</li> <li>• They can solve problems limited to a single step or operation.</li> </ul>	Students at this level can solve only the simplest of problems involving no more than one step.	65		X	
PISA - D	Cross-national	Math	<p><b>Level 1b</b> Up to 357 <i>*Score Range not available</i></p>	<ul style="list-style-type: none"> <li>• Students can understand questions involving everyday contexts where all relevant information is clearly given and defined in a short syntactically simple text.</li> <li>• They are able to follow clearly prescribed instructions.</li> <li>• They can perform the first step of a two-step solution of a problem</li> </ul>	Students at this level can solve simple one-step problems and partially solve multi-step problems.	66		X	
PILNA 2015 (grades 4/6)	Regional	Math	<p><b>Level 8</b> 575+</p>	<ul style="list-style-type: none"> <li>• Round off numbers to the nearest tenth and hundredth and convert fractions to percentages and vice versa.</li> <li>• Add and subtract fractions with denominators that are multiples.</li> <li>• Measure and determine the perimeter of a simple shape.</li> <li>• Show time on a clock and solve problems involving time duration.</li> <li>• Calculate averages from data given in a bar graph.</li> </ul>	Students at this level demonstrate consistent mastery in computation and can perform high-level tasks in other domains.	67		X	

SERCE 2006 (grade 6)	Regional	Math	<b>Level 4</b>	<p>Students can:</p> <ul style="list-style-type: none"> <li>• Find averages and solve calculations, combining the four basic operations in natural numbers.</li> <li>• Identify parallelim and perpendicularity in a real situation, and represent a percentage in graphic form.</li> <li>• Solve problems involving properties of angles in triangles and quadrilaterals incorporating areas of different shapes, or two operations with decimal numbers.</li> <li>• Solve problems involving fractions.</li> <li>• Make generalisations in order to continue a graphic sequence following a complex pattern.</li> </ul>	Students at this level can solve complex mathematical and real-world problems with a high degree of ability.	68		X	
SACMEQ 2007 (grade 6)	Regional	Math	<b>Level 6</b>	<p><u>Mathematically skilled</u></p> <p>Solves multiple-operation problems (using the correct order of arithmetic operations) involving fractions, ratios, and decimals. Translates verbal and graphic representation information into symbolic, algebraic and equation form in order to solve a given mathematical problem. Checks and estimates answers using external knowledge (not provided with the problem).</p>	Students at this level can use external knowledge and given information to solve mutli-step problems.	69		X	
SACMEQ 2007 (grade 6)	Regional	Math	<b>Level 7</b>	<p><u>Concrete problem solving</u></p> <p>Extracts and converts ( for example with respect to measurement units) information from tables, charts, visual and symbolic presentations in order to identify and then solves multi-step problems</p>	Students at this level can solve more complex, yet straightforward, multi-step problems by extracting information from a variety of source types.	70		X	

TERCE 2014 (grade 6)	Regional	Math	<b>Level 3</b> 789-877	Students can: <ul style="list-style-type: none"> <li>• Solve problems of proportional variations and that require information interpretation</li> <li>• Make units of measurement conversion and solve problems involving measurement</li> <li>• Solve problems involving angles and identify relations of perpendicularity and parallelism on a plan</li> <li>• Interpret numerical sequences forming patterns</li> <li>• Solve problems involving calculation of polygons perimeters and areas</li> <li>• Solve problems involving reading and interpretation of information provided through tables and graphs</li> </ul>	Students at this level demonstrate the ability to understand most mathematical concepts and to perform various types of mathematical applications.	71		X	
TERCE 2014 (grade 6)	Regional	Math	<b>Level 4</b> 878+	Students can: <ul style="list-style-type: none"> <li>• Solve more complex problems involving operations of natural numbers, decimal numbers and fractions, or proportional variations</li> <li>• Solve more complex problems involving calculation of perimeters and areas of polygons or polygon angles</li> <li>• Solve problems requiring conversion of units of measurement</li> <li>• Solve problems requiring interpretation of information presented in more complex tables or graphs</li> </ul>	Students at this level are able to utilize reasoning skills to solve complex mathematical and real-world problems.	72		X	

PISA 2012* (grade 8)	International	Math	<p><b>Level 1</b> <i>358-419</i></p>	<ul style="list-style-type: none"> <li>• Students can answer questions involving familiar contexts where all relevant information is present and the questions are clearly defined.</li> <li>• Students are able to identify information and to carry out routine procedures according to direct instructions in explicit situations.</li> <li>• Students can perform actions that are almost always obvious and follow immediately from the given stimuli.</li> </ul>	Students at this level can solve familiar problems involving routine procedures.	73		X	X
PISA 2012 (grade 8)	International	Math	<p><b>Level 2</b> <i>420-481</i> <u>Proficient</u></p>	<ul style="list-style-type: none"> <li>• Students can interpret and recognise situations in contexts that require no more than direct inference. They can extract relevant information from a single source and make use of a single representational mode.</li> <li>• Students at this level can employ basic algorithms, formulae, procedures, or conventions to solve problems involving whole numbers.</li> <li>• Students are capable of making literal interpretations of the results.</li> </ul>	Students at this level can solve basic problems involving numeracy and interpret the results in context.	74		X	X
TIMSS 2015 (grade 8)	International	Math	<p><b>Low International</b> <i>Up to 400</i></p>	<ul style="list-style-type: none"> <li>• Students have some basic mathematical knowledge.</li> <li>• Students have an elementary understanding of whole numbers.</li> <li>• Students can match tables to bar graphs and pictographs.</li> </ul>	Students at this level can perform basic computations and read simple graphs, diagrams, and tables.	75			X

PASEC 2014 (grade 6)	Regional	Math	<b>Level 3</b> <i>609.6+</i>	<ul style="list-style-type: none"> <li>• Students are able to answer arithmetic and measurement questions, usually presented in the form of a short text of two or three lines, requiring them to analyze situations and then decide on the appropriate approach. In arithmetic, they can solve problems involving fractions or decimal numbers; in measurement they can solve problems involving surface area or perimeter calculations.</li> <li>• Students can find data on a diagram prior to calculating distances while abiding by the constraints set out in the wording of the exercise.</li> <li>• Students are also able to perform calculations and conversions involving hours, minutes and even seconds.</li> </ul>	Students at this level demonstrate high levels of ability in mathematical processes and problem solving.	76			X
SACMEQ 2007 (grade 6)	Regional	Math	<b>Level 8</b>	<u>Abstract problem solving</u> Identifies the nature of an unstated mathematical problem embedded within verbal or graphic information, and then translate this into symbolic, algebraic or equation form in order to solve the problem.	Students at this level can solve abstract problems and translate among different mathematical representations.	77			X

PISA 2012 (grade 8)	International	Math	<p><b>Level 3</b> 482-544</p>	<ul style="list-style-type: none"> <li>• Students can execute clearly described procedures, including those that require sequential decisions. Their interpretations are sufficiently sound to be a base for building a simple model or for selecting and applying simple problem solving strategies.</li> <li>• Students at this level can interpret and use representations based on different information sources and reason directly from them. They typically show some ability to handle percentages, fractions and decimal numbers, and to work with proportional relationships. Their solutions reflect that they have engaged in basic interpretation and reasoning.</li> </ul>	Students at this level can interpret mathematical models and solve multi-step problems involving numeracy.	78			X
TIMSS 2015 (grade 8)	International	Math	<p><b>Intermediate</b> International 401-475 <u>Proficient</u></p>	<ul style="list-style-type: none"> <li>• Students can apply basic mathematical knowledge in a variety of situations.</li> <li>• Students can solve problems involving negative numbers, decimals, percentages, and proportions.</li> <li>• Students can calculate unit prices to solve a problem.</li> <li>• Students can evaluate and solve simple linear equations.</li> <li>• Students have some basic knowledge about two- and three-dimensional shapes.</li> <li>• Students can locate and interpret data presented in tables, bar graphs, pie charts, and compare data from two line graphs to solve a problem.</li> <li>• Students have some basic knowledge of chance.</li> </ul>	Students at this level demonstrate consistent mastery in solving non-routine problems over a wide range of mathematical concepts.	79			X

TIMSS 2015 (grade 8)	International	Math	<p style="text-align: center;"><b>High International 476-550</b></p>	<ul style="list-style-type: none"> <li>• Students can apply their understanding and knowledge in a variety of relatively complex situations.</li> <li>• Students can use information to solve problems involving different types of numbers and operations.</li> <li>• Students can relate fractions, decimals, ratios, and percentages to each other.</li> <li>• Students can solve problems with fractions, proportions, and percentages.</li> <li>• Students show basic procedural knowledge related to algebraic expressions.</li> <li>• Students can evaluate a variety of expressions and formulas.</li> <li>• Students can identify algebraic expressions that correspond to situations.</li> <li>• Students can identify the solutions of linear equations and a pair of simultaneous linear equations, and identify the values that satisfy two inequalities.</li> <li>• Students can determine a specific term of a numerical or geometric pattern.</li> <li>• Students can solve a variety of problems with angles including those involving triangles, parallel lines, rectangles, and similar figures.</li> <li>• Students can draw an angle to meet given specifications and the reflection of a shape.</li> <li>• Students can visualize rectangular solids</li> </ul>	<p>Students at this level can reason, generalize, communicate, and make connections in solving a variety of complex mathematical problems</p>	80			X
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PISA 2012 (grade 8)	International	Math	<p><b>Level 4</b> <i>545-606</i></p>	<ul style="list-style-type: none"> <li>• Students can work effectively with explicit models for complex concrete situations that may involve constraints or call for making assumptions.</li> <li>• Students select and integrate different representations, including symbolic, linking them directly to aspects of real-world situations.</li> <li>• Students at this level can utilise their limited range of skills and can reason with some insight, in straightforward contexts.</li> <li>• Students can construct and communicate explanations and arguments based on their interpretations, arguments, and actions.</li> </ul>	<p>Students at this level demonstrate some ability to reason and communicate, and to solve more complex problems.</p>	81			X
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TIMSS 2015 (grade 8)	International	Math	<p><b>Advanced International 551-625+</b></p> <ul style="list-style-type: none"> <li>• Students can apply and reason in a variety of problem situations, solve linear equations, and make generalizations.</li> <li>• Students can solve a variety of fraction, proportion, and percent problems and justify their conclusions.</li> <li>• Students can reason with different types of numbers in abstract and non-routine problems.</li> <li>• Students can write and solve linear equations in one or two variables.</li> <li>• Students can identify properties of linear functions from tables, graphs, and equations, including slopes and y-intercepts.</li> <li>• Students can express generalizations either algebraically or in words, such as expressing the nth term in number patterns.</li> <li>• Students can simplify algebraic expressions.</li> <li>• Students can use their knowledge of geometric figures to solve a wide range of problems about area and surface area.</li> <li>• Students can use the Pythagorean theorem to find the area of a triangle, the distance between two points on a coordinate grid, and the perimeter of a trapezoid.</li> <li>• Students can find points on a coordinate grid in problems involving geometric figures.</li> <li>• Students demonstrate understanding of the meaning of averages and can calculate means</li> </ul>	Students at this level can solve routine problems in all mathematical domains.	82			X
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PISA 2012 (grade 8)	International	Math	<p style="text-align: center;"><b>Level 5</b></p>	<ul style="list-style-type: none"> <li>• Students can develop and work with models for complex situations, identifying constraints and specifying assumptions.</li> <li>• Students can select, compare, and evaluate appropriate problem-solving strategies for dealing with complex problems related to these models.</li> <li>• Students at this level can work strategically using broad, well-developed thinking and reasoning skills, appropriate linked representations, symbolic and formal characterisations, and insight pertaining to these situations.</li> <li>• Students begin to reflect on their work and can formulate and communicate their interpretations and reasoning.</li> </ul>	<p>Students at this level can model mathematical situations, analyze strategies, make connections, demonstrate well-developed reasoning, and communicate solutions to complex problems.</p>	83			X
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PISA 2012 (grade 8)	International	Math	<b>Level 6</b>	<ul style="list-style-type: none"> <li>• Students can conceptualise, generalise and utilise information based on their investigations and modelling of complex problem situations, and can use their knowledge in relatively non-standard contexts.</li> <li>• Students can link different information sources and representations and flexibly translate among them.</li> <li>• Students at this level are capable of advanced mathematical thinking and reasoning.</li> <li>• Students can apply this insight and understanding, along with a mastery of symbolic and formal mathematical operations and relationships, to develop new approaches and strategies for attacking novel situations.</li> <li>• Students at this level can reflect on their actions, and can formulate and precisely communicate their actions and reflections regarding their findings, interpretations, arguments, and the appropriateness of these to the original situation.</li> </ul>	Students at this level can conceptualize, generalize, model, communicate, and use advanced reasoning in the course of solving complex problems.	84			X
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\*Except where noted, PISA and PISA-D share the same Performance Levels and Descriptors