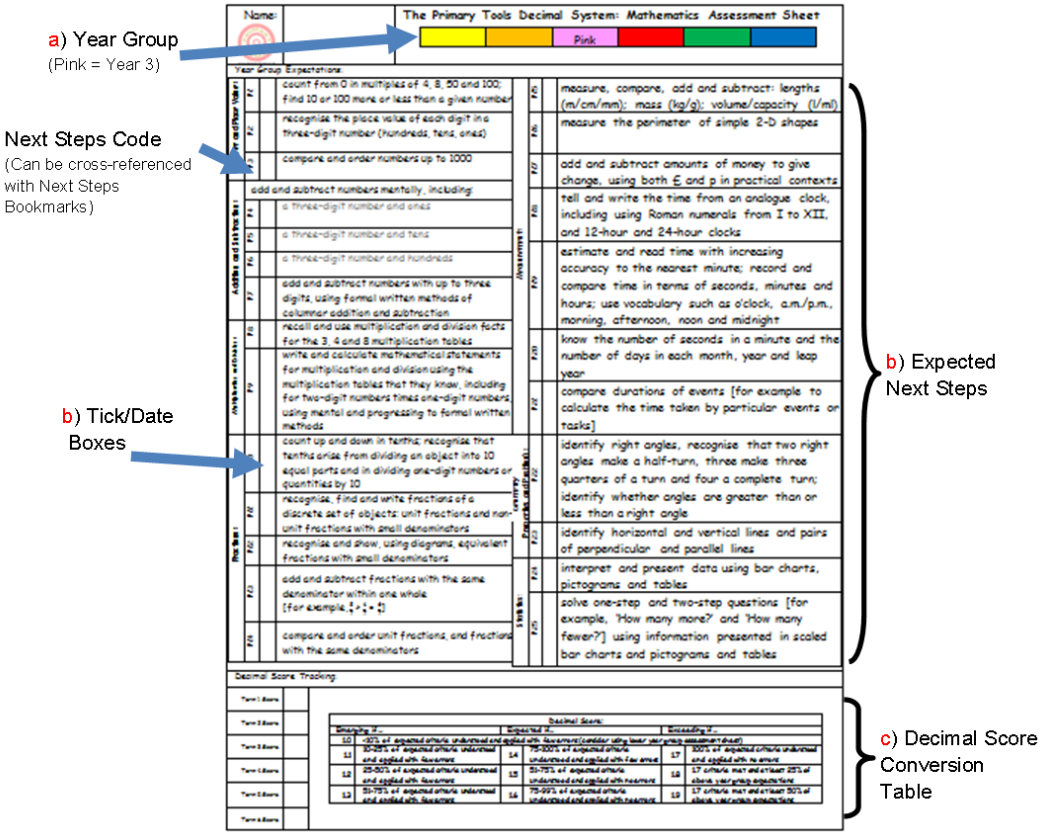
The Primary Tools Decimal System: Mathematics Assessment Process

The Primary Tools Decimal Assessment System has been designed first and foremost with children's needs at heart. The mathematics system is based on the **next steps** criteria found in the National Curriculum released in 2014. Key **next steps** have been selected; **next steps** not included can be found at the end of this document for your reference.

For Pupils and Parents:
It aims to inform pupils of the **next steps** needed in order to progress learning in their mathematics. It is recommended that these assessment sheets are used alongside the Next Steps Bookmarks found on the PrimaryTools.co.uk website.
For Teachers:
The system is also designed to be easily picked up by teachers. Recommended process is detailed below, although the final rules can be decided within your school to meet your needs.
For School Leaders:
The system also creates a Decimal Score that can be used for tracking and informing planning for the needs of your pupils. It is recommended that the free tracking system is used from the PrimaryTools.co.uk website.

The Decimal System Process:



1) Use the correct assessment sheet for the year group (a):
   - Yellow is Year 1, Orange is Year 2 and so on with Blue being Year 6
   - Depending on the ability of the pupil, you may judge it appropriate to use a lower or higher year group assessment sheet.
2) Tick/date the Expected **Next Steps** that have been met (b):
   - As a general rule, the pupil must show at least 80% confidence ("few errors") for it to be ticked/dated although this depends on the **next step** itself. Higher performing pupils should have no errors.
3) Turn the number of ticks/dated steps into a decimal score (c):
   - The first number represents the year group, with the second number showing the finer stage within that year group.
   - For example: A score of 3.0 to 3.3 shows the pupil is Emerging against the Year 3 Expectations. 3.4 to 3.6 shows the pupil is Expected against the Year 3 Expectations. 3.7 and higher means they are Exceeding.
   - Generally speaking, a pupil should not be moved to a higher year group's sheet but should deepen and extend (through using and applying) on the current year group's next steps. You may want to apply this to the exceeding criteria rather than move up a year group.
   - This can then be input into the tracking system freely available from the PrimaryTools.co.uk website.

Editing Notes: When opening this document in MS Word 2010 or later, parts of this document are protected for copyright reasons. This is mainly the first page and headers/footers. The rest of the document is editable. Editable sections may be highlighted in a cream colour. To turn off this highlighting so you have a cleaner look of the pages for when they will printed, go to 'Review' (on the ribbon), 'Restrict Editing' and then uncheck the box that says 'Highlight the regions I can edit' (this is usually on the right-hand side of the screen).

Name:

The Primary Tools Decimal System: Mathematics Assessment Sheet

Pink

Year Group Expectations:

Number and Place Value:	P1		count from 0 in multiples of 4, 8, 50 and 100; find 10 or 100 more or less than a given number
	P2		recognise the place value of each digit in a three-digit number (hundreds, tens, ones)
	P3		compare and order numbers up to 1000
Addition and Subtraction:			add and subtract numbers mentally, including:
	P4		a three-digit number and ones
	P5		a three-digit number and tens
	P6		a three-digit number and hundreds
	P7		add and subtract numbers with up to three digits, using formal written methods of columnar addition and subtraction
Multiplication and Division:	P8		recall and use multiplication and division facts for the 3, 4 and 8 multiplication tables
	P9		write and calculate mathematical statements for multiplication and division using the multiplication tables that they know, including for two-digit numbers times one-digit numbers, using mental and progressing to formal written methods
Fractions:	P10		count up and down in tenths; recognise that tenths arise from dividing an object into 10 equal parts and in dividing one-digit numbers or quantities by 10
	P11		recognise, find and write fractions of a discrete set of objects: unit fractions and non-unit fractions with small denominators
	P12		recognise and show, using diagrams, equivalent fractions with small denominators
	P13		add and subtract fractions with the same denominator within one whole [for example, $\frac{5}{7} + \frac{1}{7} = \frac{6}{7}$]
	P14		compare and order unit fractions, and fractions with the same denominators
Measurement:	P15		measure, compare, add and subtract: lengths (m/cm/mm); mass (kg/g); volume/capacity (l/ml)
	P16		measure the perimeter of simple 2-D shapes
	P17		add and subtract amounts of money to give change, using both £ and p in practical contexts
	P18		tell and write the time from an analogue clock, including using Roman numerals from I to XII, and 12-hour and 24-hour clocks
	P19		estimate and read time with increasing accuracy to the nearest minute; record and compare time in terms of seconds, minutes and hours; use vocabulary such as o'clock, a.m./p.m., morning, afternoon, noon and midnight
	P20		know the number of seconds in a minute and the number of days in each month, year and leap year
	P21		compare durations of events [for example to calculate the time taken by particular events or tasks]
Geometry (Properties and Position):	P22		identify right angles, recognise that two right angles make a half-turn, three make three quarters of a turn and four a complete turn; identify whether angles are greater than or less than a right angle
	P23		identify horizontal and vertical lines and pairs of perpendicular and parallel lines
Statistics:	P24		interpret and present data using bar charts, pictograms and tables
	P25		solve one-step and two-step questions [for example, 'How many more?' and 'How many fewer?'] using information presented in scaled bar charts and pictograms and tables

Decimal Score Tracking:

Term 1 Score	
Term 2 Score	
Term 3 Score	
Term 4 Score	
Term 5 Score	
Term 6 Score	

Decimal Score:

Emerging if…		Expected if…		Exceeding if…	
3.0	<10% of expected criteria understood and applied with few errors (consider using lower year group assessment sheet)				
3.1	10-25% of expected criteria understood and applied with few errors	3.4	75-100% of expected criteria understood and applied with few errors	3.7	100% of expected criteria understood and applied with no errors
3.2	25-50% of expected criteria understood and applied with few errors	3.5	51-75% of expected criteria understood and applied with no errors	3.8	1.7 criteria met and at least 25% of above year group expectations
3.3	51-75% of expected criteria understood and applied with few errors	3.6	75-99% of expected criteria understood and applied with no errors	3.9	1.7 criteria met and at least 50% of above year group expectations

Criteria Not Included (1):

	Year 1 (Yellow)	Year 2 (Orange)	Year 3 (Pink)	Year 4 (Red)	Year 5 (Green)	Year 6 (Blue)
Number and Place Value	• identify and represent numbers using objects and pictorial representations including the number line, and use the language of: equal to, more than, less than (fewer), most, least	• identify, represent and estimate numbers using different representations, including the number line • read and write numbers to at least 100 in numerals and in words • use place value and number facts to solve problems	• identify, represent and estimate numbers using different representations • read and write numbers up to 1000 in numerals and in words • solve number problems and practical problems involving these ideas.	• identify, represent and estimate numbers using different representations • solve number and practical problems that involve all of the above and with increasingly large positive numbers	• count forwards or backwards in steps of powers of 10 for any given number up to 1 000 000 • solve number problems and practical problems that involve all of the above	• solve number and practical problems that involve all of the above

	Year 1 (Yellow)	Year 2 (Orange)	Year 3 (Pink)	Year 4 (Red)	Year 5 (Green)	Year 6 (Blue)
Addition, Subtraction, Multiplication, Division	• solve one-step problems that involve addition and subtraction, using concrete objects and pictorial representations, and missing number problems such as 7 = □ – 9	• solve problems using concrete objects and pictorial representations, including those involving numbers, quantities and measures • solve problems applying their increasing knowledge of mental and written methods • show that addition of two numbers can be done in any order (commutative) and subtraction of one number from another cannot • calculate mathematical statements for multiplication and division within the multiplication tables and write them using the multiplication (×), division (÷) and equals (=) signs • show that multiplication of two numbers can be done in any order (commutative) and division of one number by another cannot	• estimate the answer to a calculation and use inverse operations to check answers • solve problems, including missing number problems, using number facts, place value, and more complex addition and subtraction • solve problems, including missing number problems, involving multiplication and division, including positive integer scaling problems and correspondence problems in which n objects are connected to m objects	• estimate and use inverse operations to check answers to a calculation • use place value, known and derived facts to multiply and divide mentally, including: multiplying by 0 and 1; dividing by 1; multiplying together three numbers • solve problems involving multiplying and adding, including using the distributive law to multiply two digit numbers by one digit, integer scaling problems and harder correspondence problems such as n objects are connected to m objects	• add and subtract numbers mentally with increasingly large numbers • use rounding to check answers to calculations and determine, in the context of a problem, levels of accuracy • solve addition and subtraction multi-step problems in contexts, deciding which operations and methods to use and why • establish whether a number up to 100 is prime and recall prime numbers up to 19 • multiply and divide numbers mentally drawing upon known facts • solve problems involving multiplication and division including using their knowledge of factors and multiples, squares and cubes • solve problems involving addition, subtraction, multiplication and division and a combination of these, including understanding the meaning of the equals sign • solve problems involving multiplication and division, including scaling by simple fractions and problems involving simple rates	• perform mental calculations, including with mixed operations and large numbers • use their knowledge of the order of operations to carry out calculations involving the four operations • solve addition and subtraction multi-step problems in contexts, deciding which operations and methods to use and why

	Year 1 (Yellow)	Year 2 (Orange)	Year 3 (Pink)	Year 4 (Red)	Year 5 (Green)	Year 6 (Blue)
Fractions			• recognise and use fractions as numbers: unit fractions and non-unit fractions with small denominators • solve problems that involve all of the above	• solve simple measure and money problems involving fractions and decimals to two decimal places	• recognise and use thousandths and relate them to tenths, hundredths and decimal equivalents • solve problems involving number up to three decimal places • solve problems which require knowing percentage and decimal equivalents of ½, ¼, $\frac{1}{5}$, $\frac{2}{5}$, $\frac{4}{5}$ and those fractions with a denominator of a multiple of 10 or 25	• identify the value of each digit in numbers given to three decimal places and multiply and divide numbers by 10, 100 and 1000 giving answers up to three decimal places • use written division methods in cases where the answer has up to two decimal places • solve problems which require answers to be rounded to specified degrees of accuracy • recall and use equivalences between simple fractions, decimals and percentages, including in different contexts

Criteria Not Included (2):

	Year 1 (Yellow)	Year 2 (Orange)	Year 3 (Pink)	Year 4 (Red)	Year 5 (Green)	Year 6 (Blue)
Measurement		• choose and use appropriate standard units to estimate and measure length/height in any direction (m/cm); mass (kg/g); temperature (°C); capacity (litres/ml) to the nearest appropriate unit, using rulers, scales, thermometers and measuring vessels		• estimate, compare and calculate different measures, including money in pounds and pence • read, write and convert time between analogue and digital 12- and 24-hour clocks • solve problems involving converting from hours to minutes; minutes to seconds; years to months; weeks to days	• understand and use approximate equivalences between metric units and common imperial units such as inches, pounds and pints • estimate volume [for example, using 1 cm^3 blocks to build cuboids (including cubes)] and capacity [for example, using water] • solve problems involving converting between units of time • use all four operations to solve problems involving measure [for example, length, mass, volume, money] using decimal notation, including scaling	• solve problems involving the calculation and conversion of units of measure, using decimal notation up to three decimal places where appropriate • convert between miles and kilometres • recognise when it is possible to use formulae for area and volume of shapes
	Year 1 (Yellow)	Year 2 (Orange)	Year 3 (Pink)	Year 4 (Red)	Year 5 (Green)	Year 6 (Blue)
Geometry		• identify 2-D shapes on the surface of 3-D shapes [for example, a circle on a cylinder and a triangle on a pyramid] • compare and sort common 2-D and 3-D shapes and everyday objects • order and arrange combinations of mathematical objects in patterns and sequences	• draw 2-D shapes and make 3-D shapes using modelling materials; recognise 3-D shapes in different orientations and describe them • recognise angles as a property of shape or a description of a turn	• complete a simple symmetric figure with respect to a specific line of symmetry • plot specified points and draw sides to complete a given polygon	• know angles are measured in degrees: estimate and compare acute, obtuse and reflex angles • identify angles at a point and one whole turn (total 360°) • identify angles at a point on a straight line and a turn (total 180°) • identify other multiples of 90°	
	Year 1 (Yellow)	Year 2 (Orange)	Year 3 (Pink)	Year 4 (Red)	Year 5 (Green)	Year 6 (Blue)
Statistics		• ask and answer questions about totalling and comparing categorical data		• solve one-step and two-step questions [for example, 'How many more?' and 'How many fewer?'] using information presented in scaled bar charts and pictograms and tables		
	Year 1 (Yellow)	Year 2 (Orange)	Year 3 (Pink)	Year 4 (Red)	Year 5 (Green)	Year 6 (Blue)
Ratio and Proportion						• solve problems involving the relative sizes of two quantities where missing values can be found by using integer multiplication and division facts • solve problems involving similar shapes where the scale factor is known or can be found • solve problems involving unequal sharing and grouping using knowledge of fractions and multiples
	Year 1 (Yellow)	Year 2 (Orange)	Year 3 (Pink)	Year 4 (Red)	Year 5 (Green)	Year 6 (Blue)
Algebra						• generate and describe linear number sequences • find pairs of numbers that satisfy an equation with two unknowns • enumerate possibilities of combinations of two variables

