St Martin's CE (Aided) Primary School

Key Performance Indicators

Maths

Updated September 2021

This book provides details of the Key Performance Indicators (KPIs) for maths in each year group.

In order to meet age-related expectations your child must be able to do all the KPIs relevant to his/her year group in school, by the end of the academic year.

Year R

In order to meet the Early Learning Goal in Numbers at the end of Year R, your child must be able to:
- have a deep understanding of number to 10, including the composition of each number
- subitise (recognise quantities without counting) up to 5
- automatically recall (without reference to rhymes, counting or other aids) number bonds up to 5 (including subtraction facts) and some number bonds to 10, including double facts

In order to meet the Early Learning Goal in Numerical Patterns at the end of Year R, your child must be able to:
- verbally count beyond 20, recognising the pattern of the counting system
- compare quantities up to 10 in different contexts, recognising when one quantity is greater than, less than or the same as the other quantity
- explore and represent patterns within numbers up to 10, including evens and odds, double facts and how quantities can be distributed equally

Year 1

In order to meet age-related expectations at the end of Year 1, your child must be able to:

- count to and across 100, forwards and backwards, beginning with 0 or 1
- count to and across 100, forwards and backwards, beginning with any given number
- count, read and write numbers to 100 in numerals
- count in multiples of 2
- count in multiples of 5
- count in multiples of 10
- identify one more than a given number
- identify one less than a given number
- represent and use addition number bonds to 20
- represent and use subtraction number facts to 20
- recognise, find and name 1/2 as 1 of 2 equal parts of an object or shape
- recognise, find and name 1/2 of a quantity
- compare, describe and solve practical problems for length and height
- compare, describe and solve practical problems for mass/weight
- compare, describe and solve practical problems for capacity and volume
- compare, describe and solve practical problems for time
- tell the time to the hour and half past
- draw the hands on a clock face to show the time to an hour and half past
- recognise and name common 2D shapes including rectangles (including squares), circles and triangles
- recognise and name common 3D shapes including cuboids (including cubes), pyramids and spheres

Year 2

In order to meet age-related expectations at the end of Year 2, your child must be able to:

- read scales in divisions of ones, twos, fives and tens
- partition any two-digit number into different combinations of tens and ones, explaining their thinking verbally, in pictures or using apparatus
- add and subtract any 2 two-digit numbers using an efficient strategy, explaining their method verbally, in pictures or using apparatus (e.g. 48 + 35; 72 – 17)
- recall all number bonds to and within 10 and use these to reason with and calculate bonds to and within 20, recognising other associated additive relationships (e.g. If 7 + 3 = 10, then 17 + 3 = 20; if 7 – 3 = 4, then 17 – 3 = 14; leading to if 14 + 3 = 17, then 3 + 14 = 17, 17 – 14 = 3 and 17 – 3 = 14)
- recall multiplication and division facts for 2, 5 and 10 and use them to solve simple problems, demonstrating an understanding of commutativity as necessary
- identify 1/4 , 1/3 , 1/2 , 2/4 , 3/4 , of a number or shape, and know that all parts must be equal parts of the whole
- use different coins to make the same amount
- read the time on a clock to the nearest 15 minutes
- name and describe properties of 2-D and 3-D shapes, including number of sides, vertices, edges, faces and lines of symmetry

Year 3

In order to meet age-related expectations at the end of Year 3, your child must be able to:
- count from 0 in multiples of 3, 4 and 8
- count from 0 in multiples of 50 and 100
- find 10 and 100 more or less of any number
- recognise the place value of each digit in a three-digit number
- add and subtract numbers mentally - a 3-digit number and 1s, 10s and 100s
- recall and use multiplication and division facts for the 3, 4 and 8 times table
- write and calculate mathematical statements for multiplication and division using the multiplication tables that are known including for 2-digit numbers times 1-digit numbers using mental methods
- write and calculate mathematical statements for multiplication and division using the multiplication tables that are known including for 2-digit numbers times 1-digit numbers using written methods (grid method and chunking)
- multiply and divide by 10 and 100 to count up and down in tenths
- recognise, find and write fractions of a discrete set of objects (unit fractions and non-unit fractions with small denominators)
- recognise and show, using concrete apparatus and pictorial representations, equivalent fractions with small denominators
- measure and compare lengths (m/cm/mm), mass (kg/g) and volume/capacity (l/ml)
- add and subtract lengths (m/cm/mm), including calculating the perimeter of simple 2D shapes, mass (kg/g) and volume/capacity (l/ml)
- add and subtract amounts of money to give change using either £ or p in practical contexts
- tell and write the time from an analogue clock and 12-hour clocks to the nearest minute
- identify right angles, recognise that 2 right angles make a half-turn, 3 right angles make 3/4 of a turn and 4 right angles make a complete turn
- identify if an angle is greater than or less than a right angle
- describe 2D shapes using mathematical vocabulary (horizontal, vertical, perpendicular, parallel, symmetrical)
- describe 3D shapes using mathematical vocabulary (vertex, edge, face)
- interpret and present data using bar charts, pictograms and tables

Year 4

In order to meet age-related expectations at the end of Year 4, your child must be able to:

- count in multiples of 6, 7 and 9
- count in multiples of 25 and 1000
- count backwards through 0 to include negative numbers
- order and compare numbers beyond 1000
- round any number to the nearest 10, 100 or 1000
- solve addition and subtraction 2-step problems in context using column methods
- recall multiplication and division facts for multiplication tables up to 12 x 12
- solve multiplication and division problems (with exact answers) in context to include 2-digit and 3-digit numbers by 1-digit numbers using formal methods (short multiplication and short division)
- recognise and show, using pictorial representations and abstract models, families of common equivalent fractions
- count up and down in hundredths and recognise that hundredths arise when dividing an object by 100 and dividing tenths by 10
- round decimals with one decimal place to the nearest whole number
- solve simple measure and money problems using fractions
- solve simple measure and money problems using decimals to 2 decimal places including calculating perimeter of rectangular shapes (within the same unit)
- convert between different units of measure e.g. km to m, hour to min
- read, write and covert time between analogue and digital clocks (12 hour and 24 hour)
- compare and classify geometric shapes including quadrilaterals and triangles based on their properties and sizes
- identify lines of symmetry in 2D shapes presented in different orientations
- plot specified points and draw sides to complete a given polygon
- find the area of simple shapes by counting squares
- solve comparison, sum and difference problems using information presented in bar charts, pictograms, tables, line graphs and other graphs

Year 5

In order to meet age-related expectations at the end of Year 5, your child must be able to:

- read, write, order and compare numbers to at least 1,000,000 and determine the value of each digit
- interpret negative numbers in context, count forwards and backwards in whole numbers through 0
- add whole numbers with more than 4 digits, including using formal written methods (columnar addition)
- subtract whole numbers with more than 4 digits, including using formal written methods (columnar subtraction)
- work mentally with increasingly large numbers (e.g. 12,462 - 2,300 = 10,162)
- identify multiples and factors, including finding all factor pairs of a number and common factors of 2 numbers
- solve problems involving multiplication and division including using a knowledge of factors and multiples
- solve problems involving multiplication and division including using a knowledge of squares and cubes
- solve problems involving multiplication and division, including scaling by simple fractions and problems involving simple rates
- compare and order fractions whose denominators are all multiples of the same number
- read and write decimal numbers as fractions e.g. 0.71 = 71/100
- read, write, order and compare numbers with up to 3 decimal places
- solve problems which require knowing percentage and decimal equivalents of 1/2, 1/4, 1/5, 2/5, 4/5 and those fractions with a denominator of a multiple of 10 or 25
- convert between different units of metric measure (e.g. km and m, cm and m, cm and mm, g and kg, l and ml)
- measure and calculate the perimeter of composite rectilinear shapes in cm and m
- calculate and compare the area of rectangles (including squares) using standard units
- draw given angles
- measure angles in degrees
- distinguish between regular and irregular polygons based on reasoning about equal sides and angles
- complete, read and interpret information in tables, including timetables

Year 6

In order to meet age-related expectations at the end of Year 6, your child must be able to:

- demonstrate an understanding of place value, including large numbers and decimals (e.g. what is the value of the '7' in 276,541?; find the difference between the largest and smallest whole numbers that can be made from using three digits; 8.09 = 8 + 9?; 28.13 = 28 + ? + 0.03)
- calculate mentally, using efficient strategies such as manipulating expressions using commutative and distributive properties to simplify the calculation (e.g. 53 – 82 + 47 = 53 + 47 – 82 = 100 – 82 = 18; 20 × 7 × 5 = 20 × 5 × 7 = 100 × 7 = 700; 53 ÷ 7 + 3 ÷ 7 = (53 +3) ÷ 7 = 56 ÷ 7 = 8)
- use formal methods to solve multi-step problems (e.g. find the change from £20 for three items that cost £1.24, £7.92 and £2.55; a roll of material is 6m long: how much is left when 5 pieces of 1.15m are cut from the roll?; a bottle of drink is 1.5 litres, how many cups of 175ml can be filled from the bottle, and how much drink is left?)
- recognise the relationship between fractions, decimals and percentages and can express them as equivalent quantities (e.g. one piece of cake that has been cut into 5 equal slices can be expressed as 1/5 or 0.2 or 20% of the whole cake)
- calculate using fractions, decimals or percentages (e.g. knowing that 7 divided by 21 is the same as 7/21 and that this is equal to 1/3; 15% of 60; 112 + 34; 79 of 108; 0.8 × 70)
- substitute values into a simple formula to solve problems (e.g. perimeter of a rectangle or area of a triangle)
- calculate with measures (e.g. calculate length of a bus journey given start and end times; convert 0.05km into m and then into cm)
- use mathematical reasoning to find missing angles (e.g. the missing angle in an isosceles triangle when one of the angles is given; the missing angle in a more complex diagram using knowledge about angles at a point and vertically opposite angles)

If you have any questions about any of the Key Performance Indicators in this booklet, please talk to your child's class teacher.