

## Mathematics Expectations Early Childhood 1

Strand		
DH	I	discuss and identify outcomes that will happen, won't happen and might happen.
M	I	identify, compare and describe attributes of real objects and situations: longer, shorter, heavier, empty, full, hotter, colder
P&F	I	find and describe simple <i>patterns</i>
P&F	I	create simple <i>patterns</i> using real objects.
N	I	use <i>ordinal numbers</i> to describe the position of things in a sequence
N	I	use <i>1-1 correspondence</i>

**Key:** DH    **Data Handling**  
M        **Measurement**  
S&S     **Shape and Space**  
P&F     **Pattern and Function**  
N        **Number**

## Mathematics Expectations Early Childhood 2

**Further develop expectations introduced in EC2 (D) and introduce (I):**

Strand		
DH	D	discuss and identify outcomes that will happen, won't happen and might happen.
M	D	identify, compare and describe attributes of real objects and situations: longer, shorter, heavier, empty, full, hotter, colder
P&F	D	find and describe simple patterns
P&F	D	create simple patterns using real objects.
N	D	use ordinal numbers to describe the position of things in a sequence
N	D	use 1–1 correspondence
DH	I	sort and label real objects into <i>sets</i> by attributes
M	I	identify, compare and sequence events in their daily routine: before, after, bedtime, storytime, today, tomorrow.
S&S	I	explore and describe the paths, regions and boundaries of their immediate environment (inside, outside, above, below) and their position (next to, behind, in front of, up, down).
N	I	<i>estimate</i> quantities to 10
N	I	<i>model</i> number relationships to 10: “Show me one more than three, take two away from these cubes”
N	I	use the language of mathematics: more, less, number names, <i>total</i>

**Key:**    **DH**    **Data Handling**  
           **M**      **Measurement**  
           **S&S**    **Shape and Space**  
           **P&F**    **Pattern and Function**  
           **N**      **Number**

## Mathematics Expectations Grade Kindergarten

### Further develop expectations introduced in EC (D) and introduce (I):

Strand		
DH	D	discuss and identify outcomes that will happen, won't happen and might happen.
M	D	identify, compare and describe attributes of real objects and situations: longer, shorter, heavier, empty, full, hotter, colder
P&F	D	find and describe simple patterns
P&F	D	create simple patterns using real objects.
N	D	use ordinal numbers to describe the position of things in a sequence
N	D	use 1–1 correspondence
DH	D	sort and label real objects into sets by attributes
M	D	identify, compare and sequence events in their daily routine: before, after, bedtime, storytime, today, tomorrow.
S&S	D	explore and describe the paths, regions and boundaries of their immediate environment (inside, outside, above, below) and their position (next to, behind, in front of, up, down).
N	D	estimate quantities to 10
N	D	model number relationships to 10: “Show me one more than three, take two away from these cubes”
N	D	use the language of mathematics: more, less, number names, total
DH	I	sort and label objects into <i>sets</i> by one or more attribute
N	I	read, write and <i>model</i> numbers to 20
N	I	count, compare and order numbers to 20
N	I	explore the <i>conservation</i> of number through the use of <i>Manipulatives</i>
DH	I	discuss and compare data represented in teacher generated diagrams: <i>tree, Carroll, Venn</i>
DH	I	collect, display and interpret data for the purpose of finding information
DH	I	understand the purpose of <i>graphing</i> data
M	I	<i>estimate</i> , measure, label and compare using <i>nonstandard units of measurement</i> : length, <i>mass</i> , time and temperature
DH	I	discuss and identify outcomes that will happen, won't happen and might happen.
M	I	<i>estimate</i> , measure, label and compare using <i>nonstandard units of measurement</i> : length, <i>mass</i> , time and temperature
M	I	use a calendar to determine the date, and to identify and sequence days of the week and months of the year
M	I	read and write the time to the hour, half hour and quarter hour.
S&S	I	sort, describe and compare <i>3-D shapes</i> according to attributes such as size or form
S&S	I	use what they know about <i>3-D shapes</i> to see and describe <i>2-D shapes</i>
S&S	I	create <i>2-D shapes</i>
P&F	I	create, describe and extend <i>patterns</i>
P&F	I	identify <i>patterns</i> and rules for <i>addition</i> : $4 + 3 = 7$ , $3 + 4 = 7$ ( <i>commutative property</i> )
P&F	I	identify <i>patterns</i> and rules for <i>subtraction</i> : $7 - 3 = 4$ , $7 - 4 = 3$
P&F	I	<i>model</i> , with <i>manipulatives</i> , the relationship between <i>addition</i> and <i>subtraction</i> : $3 + 4 = 7$ , $7 - 3 = 4$ .

N	I	use mathematical vocabulary and symbols of <i>addition</i> and <i>subtraction</i> : add, subtract, <i>difference</i> , <i>sum</i> , +, –
N	I	automatically recall <i>addition</i> and <i>subtraction</i> facts to 10
N	I	describe the meaning and use of <i>addition</i> and <i>subtraction</i>
N	I	<i>estimate</i> the reasonableness of answers
N	I	select and explain an appropriate method for solving a problem.
DH	I	create a <i>graph</i> of real objects and compare quantities using number words.

**N.B. Students who begin school until KG may have to be introduced to objectives previously introduced in EC 1 & 2**

**Key:**    **DH**    **Data Handling**  
              **M**     **Measurement**  
              **S&S**   **Shape and Space**  
              **P&F**   **Pattern and Function**  
              **N**     **Number**

## Mathematics Expectations Grade 1

**Further develop expectations introduced in EC and Kg (D) and introduce (I):**

Strand		
DH	D	sort and label objects into sets by one or more attribute
N	D	read, write and model numbers to 20
N	D	count, compare and order numbers to 20
N	D	explore the conservation of number through the use of Manipulatives
DH	D	discuss and compare data represented in teacher generated diagrams: tree, Carroll, Venn
DH	D	collect, display and interpret data for the purpose of finding information
DH	D	understand the purpose of graphing data
M	D	estimate, measure, label and compare using nonstandard units of measurement: length, mass, time and temperature
DH	D	discuss, identify, predict and place outcomes in order of likelihood: impossible, unlikely, likely and certain.
M	I	estimate, measure, label and compare using nonstandard units of measurement: length, mass, time and temperature
M	D	use a calendar to determine the date, and to identify and sequence days of the week and months of the year
M	D	read and write the time to the hour, half hour and quarter hour.
S&S	D	sort, describe and compare 3-D shapes according to attributes such as size or form
S&S	D	use what they know about 3-D shapes to see and describe 2-D shapes
S&S	D	create 2-D shapes
P&F	D	create, describe and extend patterns
P&F	D	identify patterns and rules for addition: $4 + 3 = 7$ , $3 + 4 = 7$ (commutative property)
P&F	D	identify patterns and rules for subtraction: $7 - 3 = 4$ , $7 - 4 = 3$
P&F	D	model, with manipulatives, the relationship between addition and subtraction: $3 + 4 = 7$ , $7 - 3 = 4$ .
N	D	use mathematical vocabulary and symbols of addition and subtraction: add, subtract, difference, sum, +, -
N	D	automatically recall addition and subtraction facts to 10
N	D	describe the meaning and use of addition and subtraction
N	D	estimate the reasonableness of answers
N	D	select and explain an appropriate method for solving a problem.
DH	D	create a graph of real objects and compare quantities using number words.
DH	I	create a <i>pictograph</i> and simple <i>bar graph</i> from a <i>graph</i> of real objects, and interpret data by comparing quantities: more, fewer, less than, greater than
M	I	understand why we use <i>standard units of measurement</i> to measure
M	I	<i>estimate</i> , identify and compare lengths of time: second, minute, hour, day, week, month
S&S	I	sort and label 2-D and 3-D shapes using appropriate mathematical vocabulary: <i>sides</i> , <i>corners</i> , <i>circle</i> , sphere, <i>square</i> , cube
S&S	I	find and explain <i>symmetry</i> in their immediate environment
S&S	I	create and explain simple symmetrical designs

S&S	I	give and follow simple directions, describing paths, regions and boundaries of their immediate environment and their position: left, right, forward and backward.
P&F	I	recognize, describe and extend <i>patterns</i> in numbers: odd and even, skip counting, 2s, 5s and 10s
N	I	read, write and <i>model</i> numbers, using the <i>base 10 system</i> , to 100
N	I	count (in 1s, 2s, 5s and 10s), compare and order numbers to 100
N	I	<i>estimate</i> quantities to 100
N	I	read, write and <i>model addition</i> and <i>subtraction</i> to 20 (with and without <i>regrouping</i> )
N	I	explore and <i>model multiplication</i> and <i>division</i> using their own language/ methods
N	I	use <i>fraction</i> names (half, quarter) to describe part and whole relationships
N	I	select and explain an appropriate method for solving a problem.
DH	I	design a <i>survey</i> , process and interpret the data
DH	I	collect and display data in a <i>bar graph</i> and interpret results
N	I	use number <i>patterns</i> to learn <i>multiplication</i> tables: 1s, 2s, 4s, 5s, 10s
N	I	use mathematical vocabulary and symbols of <i>multiplication</i> and <i>division</i> : times, divide <i>product</i> , <i>quotient</i> , $\times$ , $\div$
N	I	use and describe multiple strategies to solve <i>addition</i> , <i>subtraction</i> , <i>multiplication</i> and <i>division</i> problems
N	I	compare <i>fractions</i> using <i>manipulatives</i> and using fractional notation
N	I	select and explain an appropriate method for solving a problem.

Key: DH Data Handling  
M Measurement  
S&S Shape and Space  
P&F Pattern and Function  
N Number

## Mathematics Expectations Grade 2

### Further develop previous expectations (D) and introduce (I):

Strand		
DH	D	create a pictograph and simple bar graph from a graph of real objects, and interpret data by comparing quantities: more, fewer, less than, greater than
DH	?	discuss, identify, predict and place outcomes in order of likelihood: impossible, unlikely, likely and certain.
M	?	estimate, measure, label and compare using nonstandard units of measurement: length, mass, time and temperature
M	D	understand why we use standard units of measurement to measure
M	D	estimate, identify and compare lengths of time: second, minute, hour, day, week, month
S&S	D	sort and label 2-D and 3-D shapes using appropriate mathematical vocabulary: sides, corners, circle, sphere, square, cube
S&S	D	find and explain symmetry in their immediate environment
S&S	D	create and explain simple symmetrical designs
S&S	D	give and follow simple directions, describing paths, regions and boundaries of their immediate environment and their position: left, right, forward and backward.
P&F	D	recognize, describe and extend patterns in numbers: odd and even, skip counting, 2s, 5s and 10s
N	D	read, write and model numbers, using the base 10 system, to 100
N	D	count (in 1s, 2s, 5s and 10s), compare and order numbers to 100
N	D	estimate quantities to 100
N	D	read, write and model addition and subtraction to 20 (with and without regrouping)
N	D	explore and model multiplication and division using their own language/ methods
N	D	use fraction names (half, quarter) to describe part and whole relationships
N	D	select and explain an appropriate method for solving a problem.
DH	D	design a survey, process and interpret the data
DH	D	collect and display data in a <i>bar graph</i> and interpret results
N	D	use number patterns to learn multiplication tables: 1s, 2s, 4s, 5s, 10s
N	D	use mathematical vocabulary and symbols of multiplication and division: times, divide product, quotient, X, +
N	D	use and describe multiple strategies to solve addition, subtraction, multiplication and division problems
N	D	compare fractions using manipulatives and using fractional notation
N	D	select and explain an appropriate method for solving a problem.
DH	I	discuss, compare and create <i>sets</i> from data that has <i>subsets</i> using <i>tree</i> , <i>Carroll</i> , <i>Venn</i> and other diagrams
DH	I	use the <i>scale</i> on the vertical <i>axis</i> of a <i>bar graph</i> to represent large quantities
DH	I	understand the purpose of a <i>database</i> by manipulating the data to answer questions and solve problems.

DH	I	use probability to determine mathematically fair and unfair games and to explain possible outcomes.
M	I	<i>estimate</i> , measure, label and compare using formal methods and <i>standard units of measurement</i> : length, mass, time and temperature
M	I	select appropriate tools and units of measurement
M	I	describe measures that fall between numbers on a measure <i>scale</i> : 3½kg, between 4cm and 5cm
M	I	read and write the time to the minute and second, using intervals of 10 minutes, 5 minutes and 1 minute, on 12-hour and 24- hour clocks.
S&S	I	sort, describe and <i>model</i> regular and irregular <i>polygons</i> : <i>triangles</i> , hexagons, <i>trapeziums</i>
S&S	I	combine and transform <i>2-D shapes</i> to make another shape
S&S	I	understand an <i>angle</i> as a measure of rotation by comparing and describing rotations: whole turn; half turn; quarter turn; north, south, east and west on a compass
S&S	I	locate features on a grid using <i>coordinates</i> .
P&F	I	analyse <i>patterns</i> in number systems to 100
P&F	I	recognize, describe and extend more complex <i>patterns</i> in numbers
P&F	I	understand and use the relationship between <i>addition</i> and <i>subtraction</i> : $4 + 3 = 7$ , $7 - 3 = 4$
P&F	I	identify <i>patterns</i> and rules for <i>multiplication</i> and <i>division</i> : $4 \times 3 = 12$ , $3 \times 4 = 12$ , $12 \div 3 = 4$ , $12 \div 4 = 3$
P&F	I	<i>model</i> , with <i>manipulatives</i> , the relationship between <i>multiplication</i> and <i>division</i>
P&F	I	<i>model</i> , with <i>manipulatives</i> , the relationship between <i>multiplication</i> and <i>addition</i> (repeated addition)
P&F	I	<i>model</i> , with <i>manipulatives</i> , the relationship between <i>division</i> and <i>subtraction</i>
P&F	I	<i>model multiplication as an array</i>
P&F	I	understand and use number <i>patterns</i> to solve problems (missing numbers).
N	I	read, write and <i>model</i> numbers, using the <i>base 10 system</i> , to 1000
N	I	count, compare and order numbers to 1000
N	I	<i>estimate</i> quantities to 1000
N	I	count in 3s, 4s, 5s, and explore other numbers
N	I	automatically recall basic <i>addition</i> and <i>subtraction</i> facts
N	I	<i>model addition</i> and <i>subtraction equations</i> to 1000 (with and without <i>regrouping</i> )
N	I	read, write and <i>model multiplication</i> and <i>division</i> problems
N	I	<i>model addition</i> and <i>subtraction of fractions</i> with the same <i>denominator</i>
N	I	understand and <i>model</i> the concept of <i>equivalence</i> to 1: two halves = 1, three thirds = 1
N	I	reasonably <i>estimate</i> answers: rounding and <i>approximation</i>

Key: DH Data Handling  
M Measurement  
S&S Shape and Space  
P&F Pattern and Function  
N Number

## Mathematics Expectations Grade 3

### Further develop previous expectations (D) and introduce (I):

Strand		
DH	D	discuss, compare and create sets from data that has subsets using tree, Carroll, Venn and other diagrams
DH	D	use the scale on the vertical axis of a bar graph to represent large quantities
DH	D	understand the purpose of a database by manipulating the data to answer questions and solve problems.
DH	D	use probability to determine mathematically fair and unfair games and to explain possible outcomes.
M	D	estimate, measure, label and compare using formal methods and standard units of measurement: length, mass, time and temperature
M	D	select appropriate tools and units of measurement
M	D	describe measures that fall between numbers on a measure scale: $3\frac{1}{2}$ kg, between 4cm and 5cm
M	D	read and write the time to the minute and second, using intervals of 10 minutes, 5 minutes and 1 minute, on 12-hour and 24- hour clocks.
S&S	D	sort, describe and model regular and irregular polygons: triangles, hexagons, trapeziums
S&S	D	combine and transform 2-D shapes to make another shape
S&S	D	understand an angle as a measure of rotation by comparing and describing rotations: whole turn; half turn; quarter turn; north, south, east and west on a compass
S&S	D	locate features on a grid using coordinates.
P&F	D	analyse patterns in number systems to 100
P&F	D	recognize, describe and extend more complex patterns in numbers
P&F	D	understand and use the relationship between addition and subtraction: $4 + 3 = 7$ , $7 - 3 = 4$
P&F	D	identify patterns and rules for multiplication and division: $4 \times 3 = 12$ , $3 \times 4 = 12$ , $12 \div 3 = 4$ , $12 \div 4 = 3$
P&F	D	model, with manipulatives, the relationship between multiplication and division
P&F	D	model, with manipulatives, the relationship between multiplication and addition (repeated addition)
P&F	D	model, with manipulatives, the relationship between division and subtraction
P&F	D	model multiplication as an array
P&F	D	understand and use number patterns to solve problems (missing numbers).
N	D	read, write and model numbers, using the base 10 system, to 1000
N	D	count, compare and order numbers to 1000
N	D	estimate quantities to 1000
N	D	count in 3s, 4s, 5s, and explore other numbers
N	D	automatically recall basic addition and subtraction facts
N	D	model addition and subtraction equations to 1000 (with and without regrouping)
N	D	read, write and model multiplication and division problems
N	D	model addition and subtraction of fractions with the same denominator
N	D	understand and model the concept of equivalence to 1: two halves = 1, three thirds = 1
N	D	reasonably estimate answers: rounding and approximation
DH	I	find, describe and explain the <i>mode</i> in a set of data and its use

M	I	<i>estimate, measure, label and compare perimeter and area</i>
M	I	<i>model addition and subtraction using money</i>
S&S	I	<i>identify, describe and model congruency in 2-D shapes</i>
S&S	I	<i>create symmetrical patterns, including tessellation</i>
S&S	I	<i>identify lines and axes of reflective and rotational symmetry</i>
N	I	<i>use mathematical vocabulary and symbols of fractions: numerator, denominator, equivalence</i>

**Key:**    **DH**    **Data Handling**  
              **M**     **Measurement**  
              **S&S**   **Shape and Space**  
              **P&F**   **Pattern and Function**  
              **N**     **Number**

## Mathematics Expectations Grade 4

### Further develop previous expectations (D) and introduce (I):

Strand		
DH	D	find, describe and explain the mode in a set of data and its use
M	D	estimate, measure, label and compare perimeter and area
M	D	model addition and subtraction using money
S&S	D	identify, describe and model congruency in 2-D shapes
S&S	D	create symmetrical patterns, including tessellation
S&S	D	identify lines and axes of reflective and rotational symmetry
N	D	use mathematical vocabulary and symbols of fractions: numerator, denominator, equivalence
DH	I	design a <i>survey</i> and systematically collect, organize and record the data in displays: <i>pictograph, bar graph, circle graph (pie chart), line graph</i>
DH	I	create, interpret, discuss and compare data displays ( <i>pictograph, pie chart, bar/line graph</i> ) including how well they communicate information
DH	I	set up a <i>spreadsheet</i> , using simple <i>formulas</i> , to manipulate data and to create <i>graphs</i>
DH	I	use a <i>numerical probability scale</i> of 0 to 1 or 0% to 100%
M	I	select and use appropriate <i>standard units of measurement</i> when estimating, describing, comparing and measuring
M	I	use measuring tools, with simple <i>scales</i> , accurately
M	I	understand that the accuracy of a measurement depends on the situation and the precision of the tools
M	I	develop procedures for finding <i>area, perimeter</i> and <i>volume</i>
M	I	<i>estimate</i> , measure, label and compare, using formal methods and <i>standard units of measurement</i> , the dimensions of <i>area, perimeter</i> and <i>volume</i>
M	I	use <i>decimal notation</i> in measurement: 3.2cm, 1.47kg
M	I	understand that an <i>angle</i> is a measure of rotation
M	I	use and construct timetables (12-hour and 24- hour) and time lines
S&S	I	use the geometric vocabulary of 2-D and 3-D shapes: parallel, <i>edge, vertex</i>
S&S	I	classify, sort and label all types of <i>triangles</i> and <i>quadrilaterals</i> : <i>scalene, isosceles, equilateral, right angled, rhombus, trapezium, parallelogram, kite, square, rectangle</i>
S&S	I	understand and use the vocabulary of types of <i>angle</i> : <i>obtuse, acute, straight, reflex</i>
S&S	I	understand and use geometric vocabulary for circles: <i>diameter, radius, circumference</i>
S&S	I	use a pair of compasses
S&S	I	understand and use the vocabulary of <i>lines, rays</i> and <i>segments</i> : <i>parallel, perpendicular</i>
S&S	I	describe, classify and <i>model 3-D shapes</i>
S&S	I	turn a 2-D <i>net</i> into a 3-D <i>shape</i> and vice versa
S&S	I	use the language and notation of <i>bearing</i> to describe position
P&F	I	understand and use the relationship between <i>multiplication</i> and <i>addition</i>
P&F	I	understand and use the relationship between <i>multiplication</i> and <i>division</i> (inverse <i>function</i> )
P&F	I	understand and use the relationship between <i>division</i> and <i>subtraction</i>
P&F	I	<i>model</i> and explain number <i>patterns</i>

P&F	I	use real-life problems to create a number <i>pattern</i> , following a rule
N	I	read, write and <i>model</i> numbers, using the <i>base 10 system</i> , to millions and beyond; and to thousandths and beyond
N	I	automatically recall and use basic number facts
N	I	create and solve multiple <i>digit multiplication</i> and <i>division</i> problems
N	I	read, write and <i>model addition</i> and <i>subtraction</i> of <i>fractions</i> with related <i>denominators</i>
N	I	read, write and <i>model improper fractions</i> and <i>mixed numbers</i>
N	I	compare and order <i>fractions</i>
N	I	<i>model</i> equivalency of <i>fractions</i> : $2/4 = 1/2$
N	I	use the mathematical vocabulary of <i>fractions</i> : <i>improper, mixed numbers</i>
N	I	read, write and <i>model</i> the <i>addition</i> and <i>subtraction</i> of decimals to the thousandths
N	I	read, write and <i>model multiplication</i> and <i>division</i> of decimals (with reference to money)
N	I	round decimals to a given place or whole number
N	I	select and defend the most appropriate and efficient method of solving a problem: mental estimation, mental arithmetic, pencil and paper <i>algorithm</i> , calculator.

**Key:**    **DH**    **Data Handling**  
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              **S&S**   **Shape and Space**  
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              **N**     **Number**

## Mathematics Expectations Grade 5

**Further develop previous expectations (D) and introduce (I):**

Strand		
DH	D	design a <i>survey</i> and systematically collect, organize and record the data in displays: <i>pictograph, bar graph, circle graph (pie chart), line graph</i>
DH	D	create, interpret, discuss and compare data displays ( <i>pictograph, pie chart, bar/line graph</i> ) including how well they communicate information
DH	D	set up a <i>spreadsheet</i> , using simple <i>formulas</i> , to manipulate data and to create <i>graphs</i>
DH	D	use a <i>numerical probability scale</i> of 0 to 1 or 0% to 100%
DH		determine the <i>theoretical probability</i> of an event and explain why it might differ from <i>experimental probability</i> .
M	D	select and use appropriate <i>standard units of measurement</i> when estimating, describing, comparing and measuring
M	D	use measuring tools, with simple <i>scales</i> , accurately
M	D	understand that the accuracy of a measurement depends on the situation and the precision of the tools
M	D	develop procedures for finding <i>area, perimeter</i> and <i>volume</i>
M	D	<i>estimate</i> , measure, label and compare, using formal methods and <i>standard units of measurement</i> , the dimensions of <i>area, perimeter</i> and <i>volume</i>
M	D	use <i>decimal notation</i> in measurement: 3.2cm, 1.47kg
M	D	understand that an <i>angle</i> is a measure of rotation
M	D	use and construct timetables (12-hour and 24- hour) and time lines
S&S	D	use the geometric vocabulary of <i>2-D</i> and <i>3-D shapes</i> : <i>parallel, edge, vertex</i>
S&S	D	classify, sort and label all types of <i>triangles</i> and <i>quadrilaterals</i> : <i>scalene, isosceles, equilateral, right angled, rhombus, trapezium, parallelogram, kite, square, rectangle</i>
S&S	D	understand and use the vocabulary of types of <i>angle</i> : <i>obtuse, acute, straight, reflex</i>
S&S	D	understand and use geometric vocabulary for circles: <i>diameter, radius circumference</i>
S&S	D	use a pair of compasses
S&S	D	understand and use the vocabulary of <i>lines, rays</i> and <i>segments</i> : <i>parallel, perpendicular</i>
S&S	D	describe, classify and <i>model 3-D shapes</i>
S&S	D	turn a <i>2-D net</i> into a <i>3-D shape</i> and vice versa
S&S	D	use the language and notation of <i>bearing</i> to describe position
P&F	D	understand and use the relationship between <i>multiplication</i> and <i>addition</i>
P&F	D	understand and use the relationship between <i>multiplication</i> and <i>division</i> ( <i>inverse function</i> )
P&F	D	understand and use the relationship between <i>division</i> and <i>subtraction</i>
P&F	D	<i>model</i> and explain number <i>patterns</i>
P&F	D	use real-life problems to create a number <i>pattern</i> , following a rule
N	D	read, write and <i>model</i> numbers, using the <i>base 10 system</i> , to millions and beyond; and to thousandths and beyond
N	D	automatically recall and use basic number facts
N	D	create and solve multiple <i>digit multiplication</i> and <i>division</i> problems
N	D	read, write and <i>model addition</i> and <i>subtraction</i> of <i>fractions</i> with related <i>denominators</i>

N	D	read, write and <i>model improper fractions</i> and <i>mixed numbers</i>
N	D	compare and order <i>fractions</i>
N	D	<i>model</i> equivalency of <i>fractions</i> : $2/4 = 1/2$
N	D	use the mathematical vocabulary of <i>fractions</i> : <i>improper, mixed numbers</i>
N	D	read, write and <i>model</i> the <i>addition</i> and <i>subtraction</i> of decimals to the thousandths
N	D	read, write and <i>model multiplication</i> and <i>division</i> of decimals (with reference to money)
N	D	round decimals to a given place or whole number
N	D	select and defend the most appropriate and efficient method of solving a problem: mental estimation, mental arithmetic, pencil and paper <i>algorithm</i> , calculator.
P&F	I	develop, explain and <i>model</i> simple <i>algebraic formulas</i> in more complex <i>equations</i> : $x + 1 = y$ , where y is any even whole number
P&F	I	<i>model exponents</i> as repeated <i>multiplication</i> understand and use <i>exponents</i> and <i>roots</i> as inverse <i>functions</i> : $9^2$ , $\sqrt[4]{81}$ .
S&S	I	read and plot <i>coordinates</i> in four <i>quadrants</i> .
S&S	I	find and use <i>scale (ratios)</i> to enlarge and reduce shapes
M	I	determine times worldwide.
M	I	measure and construct <i>angles</i> in <i>degrees</i> using a protractor
M	I	determine the relationships between <i>area, perimeter</i> and <i>volume</i>
DH	I	find, describe and explain the <i>range, mode, median</i> and <i>mean</i> in a set of data and understand their use
DH	I	create and manipulate an electronic <i>database</i> for their own purposes
N	I	read, write and <i>model percentages</i>
N	I	Interchange <i>fraction, percentages</i> and <i>decimals</i>
N	I	find and use <i>ratios</i>
N	I	read, write and <i>model integers</i>
N	I	read, write and <i>model addition and subtraction of integers (negative numbers)</i>
N	I	read, write and <i>model exponential notation</i>

**Key:**    **DH**    **Data Handling**  
              **M**     **Measurement**  
              **S&S**   **Shape and Space**  
              **P&F**   **Pattern and Function**  
              **N**     **Number**