ESF Number

	Phase 1	Phase 2	Phase 3	Phase 4
	Kindergarten Year 1 Year 2	Year 3 Year 4 Year 5	Year 6 Beyond Year 6	
IBO Overall Expectations	Learners will understand that numbers are used for many different purposes in the real world. They will develop an understanding of one-to-one correspondence and conservation of number, and be able to count and use number words and numerals to represent quantities.	Learners will develop their understanding of the base 10 place value system and will model, read, write, estimate, compare and order numbers to hundreds or beyond. They will have automatic recall of addition and subtraction facts and be able to model addition and subtraction of whole numbers using the appropriate mathematical language to describe their mental and written strategies. Learners will have an understanding of fractions as representations of whole-part relationships and will be able to model fractions and use fraction names in real-life situations.	Learners will develop the understanding that fractions and decimals are ways of representing whole-part relationships and will demonstrate this understanding by modelling equivalent fractions and decimal fractions to hundredths or beyond. They will be able to model, read, write, compare and order fractions, and use them in real-life situations. Learners will have automatic recall of addition, subtraction, multiplication and division facts. They will select, use and describe a range of strategies to solve problems involving addition, subtraction, multiplication and division, using estimation strategies to check the reasonableness of their answers.	Learners will understand that the base 10 place value system extends infinitely in two directions and will be able to model, compare, read, write and order numbers to millions or beyond, as well as model integers. They will develop an understanding of ratios. They will understand that fractions, decimals and percentages are ways of representing whole-part relationships and will work towards modelling, comparing, reading, writing, ordering and converting fractions, decimals and percentages. They will use mental and written strategies to solve problems involving whole numbers, fractions and decimals in real-life situations, using a range of strategies to evaluate reasonableness of answers.
IBO Conceptual Understanding	Numbers are a naming system. Numbers can be used in many ways for different purposes in the real world. Numbers are connected to each other through a variety of relationships. Making connections between our experiences with number can help us to develop number sense.	The base 10 place value system is used to represent numbers and number relationships. Fractions are ways of representing whole- part relationships. The operations of addition, subtraction, multiplication and division are related to each other and are used to process information to solve problems. Number operations can be modelled in a variety of ways. There are many mental methods that can be applied for exact and approximate computations.	The base 10 place value system can be extended to represent magnitude. Fractions and decimals are ways of representing whole-part relationships. The operations of addition, subtraction, multiplication and division are related to each other and are used to process information to solve problems. Even complex operations can be modelled in a variety of ways, for example, an algorithm is a way to represent an operation.	The base 10 place value system extends infinitely in two directions. Fractions, decimal fractions and percentages are ways of representing whole-part relationships. For fractional and decimal computation, the ideas developed for whole-number computation can apply. Ratios are a comparison of two numbers or quantities.

Place Value Outcomes	Subitiseordered patterns in real life situations e.g. dots on a dice Apply one to one-correspondence when counting up to 5 objects. Count by naming numbers in sequence, initially to and from 10 Develop an awareness of numbers to 10 Use the language of Mathematics to compare quantities, for example, more, less.	Subitise collections of objects in real life situations Apply one to one-correspondence when counting up to 10 objects Count by naming numbers in sequence to and from 20 Recognise, model, read, write and order numbers 10 using mathematical language for example more, less (cardinal) first, second (ordinal)	Recognises groups of zero to ten objects without counting using part whole Count by naming numbers in sequences, to 100, moving from any starting point Recognise, model, read, write and order numbers to 99 using mathematical language for example more, less (cardinal) first, second (ordinal)	Estimate, group and count collections to at least 100 by partitioning numbers using place value Count by naming numbers in sequences, to and back from 100, moving from any starting point Skip count by twos, fives and tens starting from zero Recognise, model, read, write and order numbers to at least 100 using mathematical language for example more, less (cardinal) first, second (ordinal) Round two digit numbers to the nearest 10	Estimate, group, and count collections up to 1000 by partitioning in hundreds, tens and ones Skip count by twos, fives, tens and hundreds starting from a number other than zero Recognise, model, represent and order numbers to at least 1000 Round two or three digit numbers to the nearest 10 or 100	Apply place value to partition and rename, numbers to at least 10 000 Recognise, represent and order numbers to at least 10 000 and beyond Round four digit numbers (or larger) to the nearest 10, 100, 1000	Apply place value to partition and rename numbers to tenths and hundredths. Recognise and order numbers to Millions or beyond Recognise, model and order decimal fractions to hundredths or beyond. Round decimal fractions to the nearest whole number	Apply place value to partition and rename numbers to thousandths Recognise, and order integers (including negative integers) Recognise, model and order decimal fractions to thousandths or beyond. Round decimal fractions to the nearest tenth or whole number	•

Four Operations			Recall addition facts for single-digit numbers and related subtraction facts	Recall addition facts for numbers at least to 20 and related subtraction facts					
		Model addition and subtraction of whole numbers using manipulatives in play based situations.	Solve simple addition and subtraction problems using manipulatives	Model addition and subtraction of whole numbers (Progression tab)	Model addition and subtraction of whole numbers (Progression tab)	Model addition and subtraction of whole numbers (Progression tab)	Model addition and subtraction of decimal fractions up to hundredths	Model addition and subtraction of decimal fractions up to thousandths and beyond	
			Solve simple addition and subtraction problems using part/whole strategies	Represent and solve addition problems involving 2 digit numbers, using a range of strategies (progression tab)	Solve addition problems using a range of written and mental strategies (progression tab)	Solve additionproblems using a range of efficient mental and written strategies (progression tab)	Solve addition problems including decimals in the form of money and measurement. (progression tab)	Use efficient mental and written strategies to add integers and decimals (progression tab)	
				Represent and solve subtraction problems involving 2 digit numbers, using a range of strategies (progression tab)	Solve subtraction problems using a range of written and mental strategies (progression tab)	Solve subtraction problems using a range of efficient mental and written strategies (progression tab)	Solve subtraction problems including decimals in the form of money and measurement. (progression tab)	Use efficient mental and written strategies subtract integers and decimals (progression tab)	
				Model multiplication and division using groups and/or arrays (Progression tab)	Model multiplication and division using groups and/or arrays (Progression tab)	Model multiplication and division using groups and/or arrays (Progression tab)		Model multiplication and division of decimals by a single digit integer (Progression tab)	
				Skip count by twos, fives and tens starting from zero	Recall multiplication and division facts beyond two, five and ten times tables.	Recall multiplication facts up to 10 × 10 and related division facts	Uses known times tables facts to mentally multiply any 2 digit number by a 1 digit number	Read and write exponents (square / cubed) and square roots	
					Represent and solve problems involving multiplication using mental and written strategies	Represent and solve problems involving multiplication using efficient mental and written strategies	Solve problems involving multiplication of large numbers by one- or two-digit numbers using efficient mental and written strategies	Use efficient written methods to multiply decimal fractions by a one digit integer	
				Recognise and represent division as grouping into equal sets and solve simple problems using these representations	Develop efficient written and mental strategies for division without remainders	Solve problems involving division by a one digit number, including those with remainders	Develop efficient mental and written strategies for division representing remainders as fraction	Use efficient written methods to divide decimal fractions by a one digit integer	
					Use estimation and rounding to check the reasonableness of answers to calculations	Use estimation and rounding to check the reasonableness of answers to calculations	Use estimation and rounding to check the reasonableness of answers to calculations		

Fractions and Ratio		Recognise and interpret everyday uses of halves and quarters of shapes and collections	Recognise and interpret everydayuses of halves, quarters and eighths of shapes and collections Find equal parts of shapes and collections	Model, represent,Compare and order fractions in a practical context Use the language of fractions, for example, numerator, denominator Find fractions of shapes and quantities Model equivalent fractions Model addition and subtraction of fractions with the same denominator	Read, write, compare and order fractions Use the language of fractions, for example, numerator, denominator Find fractions of shapes, numbers and quantities Investigate equivalent fractions used in context Model addition and subtraction of fractions with related denominators Model and compare improper fractions and mixed numbers Count in quarters halves and thirds, including mixed numbers	Read, writes compares and orders common fractions and decimal fractions to hundredths or beyond Understand the relationship and convert between common fractions and decimal fractions Simplify fractions to the lowest common denominator Model, read, write and compare improper fractions and mixed numbers Model, read, write and compare percentages understanding them as the number of parts in every 100 Model and solve simple problems involving ratio and proportion	Understand the relationship and convert between common fractions, decimal fractions and percentages Find percentages of numbers or quantities with and without a calculator Simplify fractions in mental and written form Solve problems involving addition and subtraction of common fractions with the same or related denominators Convert improper fractions to mixed numbers and vice versa Read, write and solve problems involving ratio	