ESF Number

	Phase 1		Phase 2		Phase 3		Phase 4
	K1	K2	Year 1	Year 2	Year 3	Year 4	Year 5	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.		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.

Phase 1		Phase 2			Phase 3		Phase 4
K1	K2	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Place Value Outcomes							
Count by naming numbers in sequence, initially to and from 10	Count by naming numbers in sequence to and from 20	Count by naming numbers in sequences, to 100, moving from any starting point	Count by naming numbers in sequences, to and back from 1000, moving from any starting point				
Apply one to one-correspondence when counting up to 10 objects.	Apply one to one-correspondence when counting up to 20 objects	Apply place value to partition and rename two-digit numbers	Apply place value to partition and rename three-digit numbers	Apply place value to partition and rename four-digit numbers	Apply place value to partition and rename five-digit numbers	Apply place value to partition and rename numbers to tenths and hundredths.	Apply place value to partition and rename numbers to thousandths
		Skip count in tens starting from zero	Skip count by twos, fives and tens starting from zero	Skip count by twos, fives, tens and hundreds starting from a number other than zero			
Recognise, model, read, and order numbers to at least 10	Recognise, model, read, and order numbers to at least 20 write numbers to 10	Recognise, model, read, write and order numbers to 100	Recognise, model, read, write and order three-digit numbers	Recognise, model, represent and order four-digit numbers	Recognise, represent and order five-digit numbers	Recognise and order numbers to millions or beyond	Recognise, and order integers (including negative integers)
Use the language of Mathematics to compare quantities, for example, more, less.	Use mathematical language for example more, less (cardinal) first, second (ordinal)	Use mathematical language for example more, less (cardinal) first, second (ordinal)				Recognise, model and order decimal fractions to hundredths or beyond.	Recognise, model and order decimal fractions to thousandths or beyond.
			Round numbers to the nearest 10	Round numbers to the nearest 10 or 100	Round numbers to the nearest 10, 100, 1000	Round decimal fractions to the nearest whole number	Round decimal fractions to the nearest tenth or whole number

	Phase 1		Phase 2			Phase 3		Phase 4
	K1	K2	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
	Subitise ordered patterns in real life situations e.g. dots on a dice	Subitise small collections of objects in real life situations	Estimate and subitise groups of up to ten objects	Estimate up to 20 objects				
Four Operations	Understand simple addition and subtraction using concrete materials in situations	Solve simple addition and subtraction problems up to ten using concrete material Solve problems, including doubling, halving and sharing	Recall addition facts for single-digit numbers and related subtraction facts Solve simple addition and subtraction problems using concrete material Solve simple addition and subtraction problems using part/whole strategies	Recall addition facts for numbers at least to 20 and related subtraction facts Model addition and subtraction of whole numbers Represent and solve addition problems (including real life and word) involving 2 digit numbers, using appropriate strategies Represent and solve subtraction problems (including real life and word) involving 2 digit numbers, using appropriate strategies	Recall addition facts of multiples of ten to at least 100 and related subtraction facts Model addition and subtraction of whole numbers Solve addition problems (including real life and word) using appropriate written and mental strategies Solve subtraction problems (including real life and word) using appropriate written and mental strategies	Model addition and subtraction of whole numbers Solve addition problems (including real life and word) using a range of efficient mental and written strategies Solve subtraction problems (including real life and word) using appropriate efficient mental and written strategies	Model addition and subtraction of decimal fractions up to hundredths Solve addition problems including decimals in the form of money and measurement. Solve subtraction problems including decimals in the form of money and measurement.	Use efficient mental and written strategies to add integers and decimals Use efficient mental and written strategies subtract integers and decimals

Phase 1		Phase 2		Phase 3			Phase 4
K1	K2	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
			Model multiplication and division using groups and/or arrays	Model multiplication and division using groups and/or arrays	Model multiplication and division using groups and/or arrays		Model multiplication and division of decimals by a single digit integer
			Skip count by twos, fives and tens starting from zero	Recall multiplication and division facts to at least two, five, three 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	
			Recognise and represent division as grouping into equal sets and solve simple problems using these representations	Solve multiplication problems (including real life and word) using appropriate written and mental strategies	Solve multiplication problems (including real life and word) using efficient mental and written strategies	Solve problems (including real life and word) involving multiplication of large numbers by one- or two-digit numbers using efficient mental and written strategies	Use efficient mental and written strategies to multiply decimal fractions by a one-digit integer
			Use estimation to check reasonableness of answers to calculations	Solve division problems (including real life and word) using written and mental strategies for division without remainders	Solve division problems (including real life and word) involving division by a one digit number, including those with remainders	Use efficient mental and written strategies for division	Use efficient mental and written strategies for division representing remainders as fractions decimal fractions
				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	

Phase 1		Phase 2		Phase 3			Phase 4
K1	K2	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Fractions and Ratio		Share collections into equal parts Divide objects into equal parts	Find equal parts of shapes and collections Use the language of fractions, for example, half, whole, equal	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 Add and subtract fractions with the same denominator using concrete materials and pictorial representations	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	Read, write, compare and order 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	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

Phase 1		Phase 2			Phase 3		Phase 4
K1	K2	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
					Count in quarters halves and thirds, including mixed numbers	Model and solve simple problems involving ratio and proportion Model and solve simple problems involving fractions	Read, write and solve problems involving ratio