ESF Pattern & Function

	Phase 1		Phase 2			Phase 3		Phase 4
	K1	K2	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6

	Phase 1	Phase 2	Phase 3	Phase 4
BO Overall Expectation	Learners will understand that patterns and sequences occur in everyday situations. They will be able to identify, describe, extend and create patterns in various ways.	Learners will understand that whole numbers exhibit patterns and relationships that can be observed and described, and that the patterns can be represented using numbers and other symbols. As a result, learners will understand the inverse relationship between addition and subtraction, and the associative and commutative properties of addition. They will be able to use their understanding of pattern to represent and make sense of real-life situations and, where appropriate, to solve problems involving addition and subtraction.	Learners will analyse patterns and identify rules for patterns, developing the understanding that functions describe the relationship or rules that uniquely associate members of one set with members of another set. They will understand the inverse relationship between multiplication and division, and the associative and commutative properties of multiplication. They will be able to use their understanding of pattern and function to represent and make sense of real-life situations and, where appropriate, to solve problems involving the four operations.	Learners will understand that patterns can be represented, analysed and generalized using algebraic expressions, equations or functions. They will use words, tables, graphs and, where possible, symbolic rules to analyse and represent patterns. They will develop an understanding of exponential notation as a way to express repeated products, and of the inverse relationship that exists between exponents and roots. The students will continue to use their understanding of pattern and function to represent and make sense of real-life situations and to solve problems involving the four operations.
IBO Conceptual Understanding	Patterns and sequences occur in everyday situations. Patterns repeat and grow.	Whole numbers exhibit patterns and relationships that can be observed and described. Patterns can be represented using numbers and other symbols.	Functions are relationships or rules that uniquely associate members of one set with members of another set. By analysing patterns and identifying rules for patterns it is possible to make predictions.	Patterns can often be generalized using algebraic expressions, equations or functions. Exponential notation is a powerful way to express repeated products of the same number.

	Phase 1		Phase 2		Phase 3			Phase 4
	K1	K2	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Pattern and function	Sort familiar objects	Sort **and classify** familiar objects **and explain the basis for these classification**	Sort and classify familiar objects and explain the basis for these classifications.	Investigate, describe and represent patterns using numbers and other symbols	Investigate, describe and represent patterns with numbers and other symbols	Investigate and represent patterns using words, symbols, numbers and tables	Investigate and represent patterns using words, symbols, numbers, tables and graphs	Investigate and represent patterns using words, symbols, numbers, tables and graphs
	Recognise**,** **describe** and create simple patterns in everyday situations.	Create, describe and extend patterns in everyday situations using objects and drawings.	Copy, extend, create and describe patterns with objects and drawings		Identify missing elements in patterns	Identify rules for patterns to predict future terms	Identify rules for patterns to predict future terms	Use algebraic expressions to record the rules for patterns
			Recognise patterns in the number system	Recognise patterns in the number system and describe number patterns formed by skip counting	Explore and describe number patterns in multiplication facts	Explore and describe patterns in multiplication and division facts including their inverse relationship		Continue and create sequences involving whole numbers, fractions and decimals
			Investigate and describe number patterns formed by skip counting	Identify and describe the inverse relationship between addition and subtraction	Identify and describe the inverse relationship between addition and subtraction	Identify and describe properties of prime and composite numbers	Identify and describe factors and multiples of whole numbers	Identify and describe properties of square and triangular numbers
				Identify and describe patterns in odd and even numbers	Identify and describe patterns in odd and even numbers (including even + even = even)	Solve equivalent number sentences involving addition and subtraction to find unknown quantities	Solve equivalent number sentences involving multiplication and division to find unknown quantities	Explore the use of brackets and order of operations to write number sentences