PATTERNS AND ALGEBRA CONCEPT SEQUENCE

Select the Level number to link to the TEACHING RESOURCES for that Level at A LEARNING PLACE A TEACHING PLACE.

Concepts with a logical basis are in the same column to allow for easy differentiation.

Algebraic thinking means looking for patterns and relationships – we have been thinking algebraically from a very young age.

This concept is broken into Patterns – arithmetic patterns with identifiable parts that repeat, and into Algebra - investigating operations using properties and relationships.

	LINKS	PATTERNS	LINKS	ALGEBRA	
KINDERGARTEN	1	Copy and continue patterns of sounds, actions, objects, shapes and pictures, identifying the part that repeats.			T2
	2	Recognise when an error occurs in patterns of objects, shapes and pictures using the part that repeats.			T3
YEAR 1	3	Identify the number of elements in the part that repeats in patterns of objects, shapes and pictures to determine a missing element.			T1
			4	Add single-digit numbers explaining commutativity. *(Also Addition and Subtraction 5)*	
			5	Add and subtract zero. *(Also Addition and Subtraction 10)*	T3
			6	Add 3 or more numbers using associativity and friends of 10. *(Also Addition and Subtraction 11)*	
			7	Investigate equivalent number sentences involving addition and subtraction, describing the equals sign as equality. *(Also Addition and Subtraction 12)*	
	8	Number patterns rhythmic / skip counting forwards and backwards by 2s, 5s and 10s naming multiples. *(Also Multiplication and Division 3)*			T4
			9	Explain even numbers by halving to get a whole number. *(Also Fractions and Decimals 2)*	
	10	Identify odd and even number patterns, recognising when an error occurs.			

	LINKS	PATTERNS	LINKS	ALGEBRA	
YEAR 2	11	.1 Explain counting forwards by 10s on the decade. .2 Explain counting backwards by 10s on the decade. .3 Explain counting forwards by 10s off the decade. .4 Explain counting backwards by 10s off the decade. *(Also Place Value 12)*			T1
		Use this concept now to investigate adding and subtracting tens numbers counting by 10s. (ADDITION AND SUBTRACTION 13, 15)			
	12	Describe patterns that increase and decrease by adding and subtracting 100s, 10s and 1s, on and off the hundred and decade. *(Also Place Value 16)*			
	13	Describe patterns with numbers and identify missing elements.			T2
			14	Describe difference in three ways. *(Also Addition and Subtraction 19)*	T3
			15	Addition and subtraction word problems as number sentences. *(Also Addition and Subtraction 20)*	
YEAR 3	16	Count forwards backwards by 100s 1000s on and off the decade, hundred and thousand from four-digit numbers, including over 1000s. *(Incorporated Place Value 17)*			T1
			17	Explain even numbers and odd numbers by dividing by 2 and halving. (Also Multiplication and Division 10)	T2
			18	.1 Multiply using the distributive property. .2 Associate dividing into equal groups with fractions. *(Incorporated into Multiplication and Division 9, 10, 11, 12, 13, 14, 15, 16, 17 – no separate Teaching Resources so this is not linked to any specific Level.)*	Y3 T2 T3 T4 Y4 T2 T3 T4
	19	Describe informal rule for number pattern, then create pattern.			T4
			20	Missing addition and subtraction number sentences, explaining the equals sign. (*Also Addition and Subtraction 22)*	

	LINKS	PATTERNS	LINKS	ALGEBRA	
YEAR 4	21	Count forwards and backwards by 1000s, 100s, 10s and 1s on and off the decade, hundred and thousand from five-digit numbers. *(Also Place Value 19)*			T1
			22	Add and subtract combinations of even and odd numbers, use to check calculations. *(Also Addition and Subtraction 25)*	
	23	.1 Number patterns with fractions increase through addition. .2 Number patterns with fractions, decrease through subtraction. *(Also Addition and Subtraction 26, Fractions and Decimals 15)*			T3
	24	.1 Skip counting forwards and backwards multiples, identifying the rule and terms through multiplication. .2 Skip counting forwards and backwards non-multiples, identifying the rule, and terms. .3 Describe a rule using multiplication then create number patterns that increase and decrease. *(Also Multiplication and Division 18)*			
			25	Equivalent number sentences involving addition and subtraction to find unknown quantities. (Also Addition and Subtraction 27)	T4
			26	Multiplication and division word problems as number sentences. (Also Multiplication and Division 19)	
YEAR 5			27	.1 Equivalent simpler division calculations result if both numbers are divided by a common factor, thus creating and solving equivalent number sentences. .2 Create and solve equivalent number sentences involving multiplication and division. (Also Multiplication and Division 21)	T2
	28	.1 Explain patterns that increase by adding fractions. .2 Explain patterns that decrease by subtracting fractions. .3 Explain patterns that increase by adding decimals. .4 Explain patterns that decrease by subtracting decimals. (Also Fractions and Decimals 24, Place Value 27)			T3

YEAR 6	LINKS	PATTERNS	LINKS	ALGEBRA	
	29	.1 Number patterns with whole numbers in a table, describing the rule using the relationship between the term and the number. .2 Number patterns with fractions in a table, describing the rule using the relationship between the term and the number. .3 Number patterns with and decimals in a table, describing the rule using the relationship between the term and the number. .4 Geometric shape number patterns, in a table, describing the rule using the relationship between the term and the number. *(Also Addition and Subtraction 31, Place Value 31, Fractions Decimals 34)*			T2
			30	Identify square and triangular numbers. *(Also Multiplication and Division 27)*	
			31	Negative numbers. *(Also Addition and Subtraction 32)*	T3
			32	Missing and equivalent number sentences using order of operations and grouping symbols. *(Also Addition and Subtraction 33, Multiplication and Division 29)*	
			33	.1 Prime and composite numbers. .2 Explain composite numbers as the product of prime factors .3 Use prime factors to simplify calculations. *(Also Multiplication and Division 28)*	T4

