

Scheme of Learning: Year 7 Summer Term

Topic Sequence: Reasoning with numbers

13	14	15
Developing number sense	Sets and probability	Prime numbers and proof

Topic Overview:

Factors and multiples will be revisited to introduce the concept of prime numbers, and the higher strand will include using Venn diagrams from the previous block to solve more complex HCF and LCM problems. Odd, even, prime, square and triangular numbers will be used as the basis of forming and testing conjectures. The use of counterexamples will also be addressed

Learning Sequence:

Find and use multiples Knowledge will be built on from KS2 and it will be emphasised that multiples are found by multiplying any number by a positive integer. The confusion between factors and multiple will be addressed.

Prime numbers Students will be shown that prime numbers are integers greater than 0 that have exactly 2 factors, 2 is the first prime number as 1 has only one factor. It will be an opportunity to revisit topics such as Venn diagrams.

Square and triangle numbers This step provides opportunities for students to spot patterns and follow a line of enquiry. They will be encouraged to notice that the sum of two consecutive triangle numbers in a square number and this can be easily shown with a diagram

Common factors and HCF Times tables knowledge are beneficial for this step. Students will be looking at common factors and of algebraic expressions if appropriate.

Common multiples and LCM Students will benefit from the modeling of a systematic method of finding the LCM. They will make the link to finding the lowest common denominator when adding fractions. They will also look at the LCM of more than two numbers and possibly algebraic expressions

Product of Prime factors A key concept that will covered is that all non-prime positive integers can be written as a product of prime factors and that this product is unique. Index form may be explored if appropriate. A factor tree may be used

Venn diagrams to find HCF/LCM Identifying the intersection on a Venn diagram as common elements in both sets reinforces the idea of common factors supporting the understanding of the calculation for the HCF. They will find any common multiples of two numbers using a Venn diagram and finally work out a method to calculate the LCM.

Make and test conjectures Conjectures arise when the students notice a pattern, they will have already made many conjectures (predicting the next term in a sequence, square numbers etc). The students will be provided with the opportunity to explore the concept of a conjecture by using examples where several conjecture emerge and can be tested

Counterexamples Students will understand the word counterexample as an example that shows a conjecture s false. It is often easier to disprove a conjecture than prove it.

Sequence of Learning:

1	Find and use multiples
2	Identify factors of numbers and expressions
3	Recognise and identify prime numbers
4	Recognise square and triangular numbers
5	Find common factors of a set of numbers including the HCF
6	Find common multiples of a set of numbers including the LCM
7	Write a number as a product of its prime factors
8	Use a Venn diagram to calculate the HCF and LCM (H)
9	Make and test conjectures
10	Use counterexamples to disprove a conjecture

Topic Resources:

Knowledge Maps:	Factors, Multiples, Primes
Assessment:	
Knowledge:	End of Topic test
Application of Knowledge:	Termly mixed topic assessment
Supportive Reading:	
Any supported reading listed here	Sparx Maths www.sparxmaths.co.uk
	Corbett Maths : www.corbettmaths.com
	AQA Revision Guide