

Week 1

This topic we will review and extend mental strategies for carrying out calculations in our heads.

We will look at partitioning a number to help addition and subtraction mentally.

Eg. For $83 + 54$ we can do $80 + 50$ first and then add on $3 + 4$ afterwards.

We will look at counting on or back

Eg. For $83 + 54$ we will start at 83 and count up in tens five times, 93, 103, 113, 123, 133 and then add on 4.

We will apply these strategies to decimals and fractions as well.

Support learners will focus on area of shapes.

Area rectangle = length x width

Area of a parallelogram = base x height

Week 2

This week we will use factors to simplify calculations. Factors are numbers that go into another number exactly.

We will also use estimation to check our mental calculations. Eg. When trying to work out 13×42 I can use $10 \times 40 = 400$ to help me know if my answer is correct.

We will also use known facts to help us work out new facts. Eg. Because $6 \times 8 = 48$ I know that $60 \times 80 = 4800$ as each number is 10 times bigger in the question the answer will be 100 times bigger. Higher learners will also go on to do this with algebra.

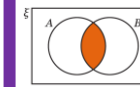
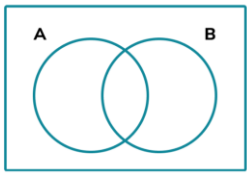
Support learners will work on the area of triangles this week ($A = \frac{1}{2} \text{ base} \times \text{height}$) and solving area problems.

Week 3

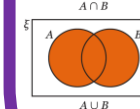
This week we will learn what a set is and how to write it in set notation. A **set** is a list of all the items in that group. We write the list inside curly brackets. Eg. $S = \{1, 2, 3, 4, 5, 6\}$ where S is the set of numbers on a dice.

We will put information into a **Venn diagram**.

The Venn diagram will show 2 different sets, where some items might appear in one list, both lists or neither list.



The part where the sets overlap is called the **intersection** and is written as $A \cap B$



The part of the diagram that shows items that could be in either set is called the **union** and is written as $A \cup B$.

If you want to describe something not in a set we say the complement of the set and use a dash A' is A complement (not in set A)

Year 7 Maths Topics 13, 14 & 15

Number Sense, Sets & Probability, Primes & Proof

Week 4

This week we will look at probability.

Probability describes how likely something is to happen.

We will start by recording sample spaces which list all the possible outcomes of an event. Eg. The possible outcomes when flipping a coin are heads and tails so $S = \{H, T\}$

We will write probability as a fraction. The probability of me rolling a six on a dice is $\frac{1}{6}$ because there are six numbers on a dice and only 1 of them is a six.

We will also get probabilities from Venn diagrams.

The total of all the possible probabilities is 1. This is called the probability scale ranging from 0 (impossible) to 1 (certain)

Week 5

The next topic will look at finding factors and multiples of a number.

A **factor** is a number that goes into another number without any remainders. Eg. 3 is a factor of 15.

A **multiple** is a number that is in the timestables of another number Eg. 36 is a multiple of 4 because it is in the 4 times table.

To find the **Highest Common Factor (HCF)** you list all the factors of each number and look for the biggest number that appears in both lists. Eg.

The HCF of 6 and 15 is 3

Factors of 6 = 1, 2, 3, 6

Factors of 15 = 1, 3, 5, 15

To find the **Lowest Common Multiple (LCM)** you write out the times tables of each number until you find a number in both lists.

Week 6

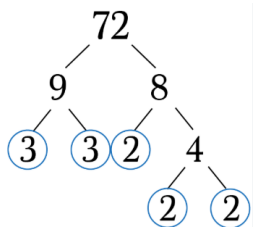
This week we will learn about Prime numbers.

Prime numbers are numbers have only have 2 factors, 1 and the number itself.

The first few prime numbers are 2, 3, 5, 7, 11, 13, 17, 19...

We can write a number as a **product of its prime factors**. We do this by splitting a number up into two numbers that multiply together to make it. If the number is prime stop, if it is not prime split it up again until there are only prime numbers.

Eg. $72 = 2 \times 2 \times 2 \times 3 \times 3$



We will also test conjectures.

Conjectures are ideas that can be proven or disproved.

Week 1

Questions	Answers
What is a mental strategy?	A way of working it out in your head.
What is it called when you split a number up eg 83 -> 80 + 3	Partitioning.
How do you find the area of a rectangle?	Length x width.
The base x height is the area of what shape?	Parallelogram.

Week 2

Questions	Answers
What is a factor?	A number that goes into another number exactly.
What can you use to check your calculations?	Estimation.
If $6 \times 8 = 48$ What is 60×80 ?	4800.
How do you find the area of a triangle?	$\frac{1}{2} \times \text{base} \times \text{height}.$

Week 3

Questions	Answers
What is a set?	A list of all the items in a group.
What do you call a diagram of two overlapping circles?	A Venn diagram.
What is the middle part of the Venn diagram called where the circles overlap?	The intersect.
What does the union of two sets mean?	Anything in either of the sets.
What do you say when you want to describe something not in the set	Complement of the set.



Year 7 Maths Topics 13,14 & 15 Number Sense, Sets & Probability, Primes & Proof



Week 4

Questions	Answers
What is probability?	The likelihood of something happening.
What is a sample space?	It is a list of all the possible outcomes.
How can fractions be used for probability?	They tell you how many successful outcomes out of the total outcomes.
What do all the probabilities add up to?	One.
If the probability is zero, what does that mean?	It is impossible.

Week 5

Questions	Answers
What is a factor?	A number that goes into another number exactly.
What is a multiple?	A number that is in the times table of another number.
What does HCF stand for?	Highest common factor.
How do we shorten the Lowest Common Factor?	LCM.
What are the factors of 12?	1, 2, 3, 4, 6 and 12.

Week 6

Questions	Answers
What is a prime number?	A number that only has two factors, 1 and the number itself.
List the first eight prime numbers.	2, 3, 5, 7, 11, 13, 17, 19 ...
What does product of prime factors mean?	A number that is made by multiplying prime numbers together.
What is 72 as a product of its prime factors?	$72 = 2 \times 2 \times 2 \times 3 \times 3$
What word do we use for an idea that can be proved or disproved?	A conjecture.