



**Topic: Addition and Subtraction of Fractions**

**Year: 7**

**NC Strand: Numbers**

**What should I already know?**

- How to use common factors to simplify fractions; use common multiples to express fractions in the same denomination
- How to compare and order fractions, including fractions  $> 1$
- How to add and subtract fractions with different denominators and mixed numbers, using the concept of equivalent fractions

**What will I know by the end of the unit?**

- How to represent fractions
- How to convert between mixed numbers and fractions
- How to add and subtract unit fractions with the same denominator
- How to add and subtract fractions from integers expressing the answer as a single fraction
- Understand and use equivalent fractions
- How to add and subtract fractions where denominators share a simple common multiple
- How to add and subtract fractions with any denominator
- How to add and subtract improper fractions and mixed numbers
- How to use fractions in algebraic contexts
- How to use equivalence to add and subtract decimals and fractions
- How to add and subtract simple algebraic fractions

**Vocabulary**

Equal parts	Smaller/Bigger than	Partition	Solve
Denominator	Greater/Less than	Equivalent	Equation
Numerator	Unit Fraction	Lowest common multiple	Linear
Congruent	Whole	Common denominator	Geometric
Divide	Multiple	Equivalent	Inverse
Ascending	Mixed number	Commutative	Expression
Descending	Addition	Improper fraction	Place Value
Positive	Subtraction	Sequence	Tenths
Negative	Integer	Substitute	Hundredths
Decimal	Simplify	Like terms	Collect
In terms of			

**Investigate/Homework tasks**

- Homework will be set by your teacher using google classroom
- You should complete at least 30 minutes of maths tasks using the website and log in provided by your teacher. Please attend help sessions if you do not have access to the internet at home
- Additional work you could complete:
  - Find out more about the meaning of the vocabulary list using <http://www.amathsdictionaryforkids.com/>
- To challenge yourself: Answer the key questions to deepen your knowledge

**Key Information/Diagrams**

**Key Representations**



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**Key Questions**

<p>How do you know each part is equal when they look different?</p> <p>Where would this fraction be on a number line? How else can you represent this fraction?</p>	<p>How many _____ are there in a whole?</p> <p>Is (e.g. <math>\frac{5}{4}</math>) greater than one or less than one? How do we know?</p> <p>Why is it called a 'mixed' number?</p> <p>Why is it called an 'improper' fraction?</p>	<p>How many _____ make a whole?</p> <p>What happens when you subtract a unit fraction from the same unit fraction?</p> <p>Would the answers to these questions be different if we performed the operations in a different order?</p>
<p>How many _____ make a whole?</p> <p>If I have three-fifths and I take away two of those fifths, how many fifths do I have now?</p> <p>Is it possible to have a negative fraction? Where would it be on the number line?</p>	<p>How many _____ are there in a whole?</p> <p>How can a number line or diagram be used to represent this calculation?</p> <p>How does partitioning help us to subtract fractions from integers?</p>	<p>How do we find a fraction that is equivalent to a given fraction?</p> <p>Which is the greater/smaller fraction? (e.g. <math>\frac{3}{4}</math>, <math>\frac{5}{8}</math>)</p> <p>How many fractions can you find are there that are equivalent to one-half? How many are there altogether?</p>
<p>Why do we need a common denominator to add fractions?</p> <p>Why is <math>\frac{1}{10} + \frac{7}{10}</math> easier to calculate than <math>\frac{1}{10} + \frac{7}{15}</math>?</p> <p>Is it possible to subtract a larger fraction from a smaller one e.g. <math>\frac{1}{4} - \frac{1}{2}</math>?</p>	<p>What's the same and what's different about the way we approach <math>\frac{1}{8} + \frac{3}{4}</math> and <math>\frac{1}{6} + \frac{3}{4}</math>?</p> <p>Why don't we always multiply two numbers to find their lowest common multiple?</p> <p>How would approach adding and subtracting with mixed numbers?</p>	<p>Which method is most efficient for this question and why?</p> <p>Is it possible to have a negative fraction? Where would this be on the number line?</p> <p>What could we do if we need to add a negative fraction to a positive integer?</p>
<p>How do we substitute numbers into an expression?</p> <p>Is it possible to substitute fractions into expressions?</p> <p>What is the inverse operation of _____?</p> <p>How can you tell if a sequence is linear or not?</p>	<p>How could a number line help with addition and subtraction of fractions and decimals?</p> <p>If we know <math>\frac{1}{4} = 0.25</math>, how could this help us find <math>\frac{1}{8}</math>?</p> <p>Which fractions would be more difficult to give your answer in decimal form?</p>	<p>What's the same/different about e.g. <math>\frac{1}{2}a</math> and <math>\frac{a}{2}</math>?</p> <p>What does 'in terms of <math>m</math>' mean? Is it possible to get a numeric answer?</p> <p>How would I do this if algebra were not involved? Now how would I do this algebraically?</p>