Edward Peake Church of England Middle School		
Topic: Number Sense	**Year: 7**	**NC Strand: Number**

What should I already know?
• How to perform mental calculations, including with mixed operations and large numbers

What will I know by the end of the unit?
• How to use mental addition and subtraction strategies for integers • How to use mental multiplication and division strategies for integers • How to use mental arithmetic strategies for decimals • How to use mental arithmetic strategies for fractions • How to use factors to simplify calculations • How to use estimation as a method to check mental calculations • How to use known number facts to derive other facts • How to use known algebraic facts to derive other facts • Which method to use: mental strategy , formal written method or a calculator

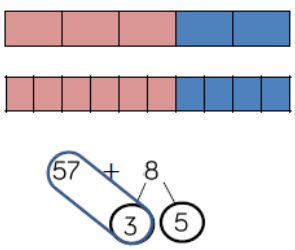
Vocabulary			
Compensation	Factors	Denominator	Compensate
Number Line	Place Value	Equivalent	Product
Addition	Estimate	Calculation	Quotient
Subtraction	Tenths	Multiple	Equation
Associative	Hundredths	Rounding	Expression
Commutative	Thousandths	Significant Figure	Equality
Partition	Whole	Overestimate	Equal
Multiply	Equal Parts	Underestimate	Mental
Divide	Numerator	Addend	Calculator
Formal	Efficient	Interpret	

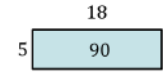
Investigate/Homework tasks

- 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

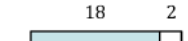
Key Representations





$10 \times 5 = 50$
$8 \times 5 = 40$
$50 + 40 = 90$

$18 \times 10 = 180$
$180 \div 2 = 90$



$20 \times 5 = 100$

18×5 can be calculated in many different ways. It could be partitioned into 10×5 and 8×5 or 18 could be halved and 5 could be doubled to change the calculation to 9×10

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Key Questions		
How can you check answers to subtraction problems using addition? Can you explain why addition is commutative using concrete manipulatives? Does the same apply to subtraction?	What does partitioning mean? Why do we do some multiplications by portioning and adding, but others by partitioning and subtracting?	How does estimation help us check if answers are reasonable? Does multiplication always make a number bigger? Why is multiplying by 0.1 the same as dividing by 10? Can you just "add a zero" to multiply by 10?
Is $\frac{1}{2}$ of an amount always bigger than $\frac{1}{4}$ of an amount? Is it possible to find $\frac{5}{3}$ of a number? What is the relationship between the denominator, numerator and finding a fraction of an amount?	What numbers are easiest to multiply by? What factors should you look for to make a calculation easier? Why does using a different form of the number still give you the same answer?	Why is estimation useful? Is estimating the same as rounding? Is estimating the same as approximating?
What's remains the same about the question, what's different? How does multiplying one number in a calculation affect the answer? What about both numbers? How can I change both numbers in a division but keep the answer the same?	Explain the difference between an equation and an expression. If I double both sides in an equation, is the value of the unknown the same? What does the = sign mean?	Is your mental method more efficient than a written method? Is it quicker or slower than using a written method? Can you interpret your calculator display in terms of the context of the question? Can time calculations be done on a calculator e.g. how long is it from 1835 to 1920?