**Spring Term Overview Year 4 Maths**

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| **Spring Term Book – How to Train Your Dragon** |
| **Topic(s) - Multiplication and Division** | **Guide Time = 3 weeks** |
| **Assessment:** | White Rose end of unit assessmentsEnd of term assessmentsTeacher judgements | **This planning is based on the** [**White Rose Maths schemes of learning**](https://wrm-13b48.kxcdn.com/wp-content/uploads/2020/12/Year-4-Spring-block-1-Multiplcation-and-division.pdf)**.****Very Important Points (VIPs):**The commutative law means the order of a multiplication can be swapped around.Partitioning means we can use our knowledge of the 1, 2 and 10 times tables to recall 11 and 12 times tables facts.The commutative law means the order of a multiplication can be swapped around and still get the same answer.The associative law means it doesn't matter how we group numbers when multiplying.A factor is a whole number that multiplies by another number to make a given number (product).A factor is a number that divides into another number exactly and without leaving a remainder.A factor pair is two whole numbers that are multiplied together to make a number (product).Multiplication is repeated addition.Multiplication means lots of. The formal short multiplication method is presented in columns.Start with the smallest place value.A number multiplied by 0 is always 0.Dividing means sharing into groups.If the tens cannot be grouped equally, exchange for ones.Amounts that cannot be grouped are called remainders.Remainders can never be greater than the number you are dividing by. Dividing means sharing into groups.If the hundreds cannot be grouped equally, exchange for tens.Combinations are alternative solutions.The total number of combinations are the number of separate options multiplied together.**Fat Questions:**How is the commutative law useful when multiplying numbers?Are formal methods always the most appropriate when multiplying and dividing?When might you use multipliation or division in real life?Why do we learn multiplication and division methods when we have calculators? |
| **Links to prior learning (sequencing) and canon book** | **Multiplication and division**Children have completed the first 13 lessons of multiplication and division in Autumn 2, and this unit completes the sequence of learning.Children will also have been focussing on learning times tables, clearly an important skill when tackling multiplication and division.In Year 3, children practised using the 3, 4 and 8 times tables to answer multiplication and division questions. They also learned how to multiply a 2-digit number by a 1 digit number using a formal method and divide a 2-digit number by a 1-digit number using base 10 and part-whole models. Remainders were also introduced. |
| **Links to other learning (cross fertilisation)** | Music – understanding types of notes and equal groupings of values in each bar.Geography – calculating relative sizes of biomes and vegetation belts.Computing – calculating sizes of sprites and calculating numbers of repetitions of instructions. |
| **Links to future learning** | The skills taught this half term will be applied and built upon throughout the year. Helping children to build on prior knowledge to use during arithmetic tests, termly tests and to prepare for the following year. **Thematic questions:****The world beyond us:**How many times bigger/smaller are the sun, earth and moon?How many times further away are other planets, solar systems, galaxies?**Modern Britain:**Is it important to learn multiplication and division methods when mobile phones have built in calculators?Lots of purchases are made by paying back in installments. How is division and multiplkication useful when comparing prices and how much you can afford?**Healthy bodies, healthy minds:**How is multiplication useful in working out the amount of different types of nutrients we have eaten?**The world around us:**Where do you see groups of amounts in nature?Where might using times tables be useful?**Culture:**Do we have an over reliance on technology to carry out calculations?Is it important to understand multiplication and division given we purchase many items that we pay for over many months?**Technology in action:**Is using a calculator the most efficient tool when multiplying and dividing? |
| **Character/Wider Development ('50 things', cultural capital, skills)** | 50 Things are personal to each school. When raising money for charity, you may be sponsored depending on how much you do such as the number of repetitions, for each minute or the distance completed. How would you calculate the amount of money to be given?If you were to make a meal, or bake a cake, you may need to adjust the recipe to make a bigger or smaller amount. What maths skills would you use to work out how much of each ingredient you would need?If you go swimming, you may wish to know how far you have swum. How could you do this? |

**OVERVIEW OF TEACHING SEQUENCE**

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| **Key Facts/Learning**  | **Learning Focus or Key Question** | **Learning Outcomes (NC)** | **Key Words/****Vocabulary** | **Greater Depth/SEND**  | **Misconceptions** | **Activities and Resources** |
| **Multiplication and division**(Weeks 1-3) | To recall and use the 11 and 12 times-tables. | Recall and use multiplication and division facts for multiplication tables up to 12 × 12.Use place value, known and derived facts to multiply and divide mentally, including multiplying by 0 and 1; dividing by 1; multiplying together three numbers. Recognise and use factor pairs and commutativity in mental calculations. Multiply two-digit and three-digit numbers by a one digit number using formal written layout. Solve problems involving multiplying and adding, including using the distributive law to multiply two-digit numbers by one-digit, integer scaling problems and harder correspondence problems such as n objects are connected to m objects. | fact family, partition, representation, inverse | GD to apply skills to problem solving. To represent problems using bar models.SEND to be able to recognise and write the 11 and 12 times tables. To use base 10/counters to visualise the times tables. |  | For further information visit [White Rose Maths Home Learning](https://whiterosemaths.com/homelearning/). Videos to support learning will be added in the spring term by White Rose.**Deepen the Moment**How could partitioning help use calculate facts from the 13 times table? |
|  | To multiply 3 numbers. | commutative law, associative law, product | GD to apply skills to problem solving. To explain how changing the order may improve efficiency in calculating.SEND to use counters to show multiplication of 3 numbers.. | Product means adding rather than multiplying. | For further information visit [White Rose Maths Home Learning](https://whiterosemaths.com/homelearning/). Videos to support learning will be added in the spring term by White Rose.**Deepen the Moment**How would you explain the commutative law to someone? |
|  | To understand factor pairs. | commutative law, associative law, factor, whole number, array, multiples, product | GD can identify factors given through a series of clues.SEND to use times table facts and link to factors. |  | For further information visit [White Rose Maths Home Learning](https://whiterosemaths.com/homelearning/). Videos to support learning will be added in the spring term by White Rose.**Deepen the Moment**What is the link between arrays and factor pairs? |
|  | To carry out efficient multiplication. | efficient, method, multiply, efficient | GD can independently choose the most efficient method for multiplication. GD can explain the process and best methods to tackle problems.SEND use times table fact for multiplication. To be able to understand multiplication as repeated addition.  |  | For further information visit [White Rose Maths Home Learning](https://whiterosemaths.com/homelearning/). Videos to support learning will be added in the spring term by White Rose.**Deepen the Moment**When might you use mental methods for calculations? |
|  | To use written multiplication methods. | number line, part whole model, base 10, method, partition | GD use a variety of methods and choose and explain the best method. To develop their understanding of number by looking for efficient methods.SEND To be able to understand multiplication as repeated addition. To use base 10/counters to represent calculations. |  | For further information visit [White Rose Maths Home Learning](https://whiterosemaths.com/homelearning/). Videos to support learning will be added in the spring term by White Rose.**Deepen the Moment**Explain how to use the part whole model to answer a multiplication. |
|  | To multiply 2-digits by 1-digit. | short multiplication, column method, place value, exchange | GD to apply their skils to solving problems using short multiplication accurately.SEND use times tables facts. To represent calculations using Base 10. |  | For further information visit [White Rose Maths Home Learning](https://whiterosemaths.com/homelearning/). Videos to support learning will be added in the spring term by White Rose.**Deepen the Moment**When using the formal short multiplication method, why do you need to start with the smallest place value? |
|  | To multiply 3-digits by 1-digit. | short multiplication, column method, place value, exchange | GD to apply their skils to solving problems using short multiplication accurately.SEND use place value counters to show multiplications. | Accurate use of 0 as a place holder, such as when writing answers – 23 not 203 if there are no tens. | For further information visit [White Rose Maths Home Learning](https://whiterosemaths.com/homelearning/). Videos to support learning will be added in the spring term by White Rose.**Deepen the Moment**Do you think it would be easy to multiply a 4 or 5 digit number by a 1 digit number? Explain your thinking. |
|  | To divide 2-digits by 1-digit. | division, sharing, grouping, part whole model, exchanging | GD to apply their skils to solving problems using part whole model division accurately.To begin using the short method (bus stop).SEND use place value counters to show necessary exchanging. To understand the idea of grouping. |  | For further information visit [White Rose Maths Home Learning](https://whiterosemaths.com/homelearning/). Videos to support learning will be added in the spring term by White Rose.**Deepen the Moment**Explain how to use the part whole model to answer a division calculation. |
|  | To divide 2-digits by 1-digit with remainders. | division, sharing, grouping, part whole model, exchanging, remainder | GD to apply their skils to solving problems using part whole model division accurately.To begin using the short method (bus stop).SEND use place value counters to show necessary exchanging. To understand the idea of grouping and remainders. | Children answer with remainders that are larger than the divisor. | For further information visit [White Rose Maths Home Learning](https://whiterosemaths.com/homelearning/). Videos to support learning will be added in the spring term by White Rose.**Deepen the Moment**How would you explain remainders? How would you know what the largest remainder for a calculation would be? |
|  | To divide 3-digits by 1-digit. | division, sharing, grouping, part whole model, exchanging, remainder | GD to solve division problems using a method that is efficient for them.SEND use place value counters to show necessary exchanging. To understand the idea of grouping. |  | For further information visit [White Rose Maths Home Learning](https://whiterosemaths.com/homelearning/). Videos to support learning will be added in the spring term by White Rose.**Deepen the Moment**Why do we need to learn calculation methods when we have calculators built in to our phones? |
|  | To understand correspondence problems. | correspondence, combinations, alternatives | GD to represent possible combinations through written calculations. To be able to solve combination problems.SEND to use items to calculate combinations. To list or draw posssible combinations. |  | For further information visit [White Rose Maths Home Learning](https://whiterosemaths.com/homelearning/). Videos to support learning will be added in the spring term by White Rose.**Deepen the Moment**How would you explain to someone how they could calculate the number of different combinations of clothes they could wear? |
| Context (big picture learning)Mathematics is an important, creative discipline that helps us to understand and change the world. We want all of our children within the Pontefract Academies Trust to experience all that mathematics has to offer and to develop a sense of curiosity about the subject with a clear understanding. As they grow throughout primary education we want them to feel a sense of pride and achievement within this core subject. A subject that will impact their daily lives.A key factor of this will be the positive attitude we have and will pass onto the children as they learn important mathematical concepts during their mathematics learning journey. We include VIPs (Very Important Points) to help retain and repeat important knowledge and skills over time. These are a bank of important skills that all of our children will have access to. Mistakes and misconceptions are a key part of the successes during their learning journey as these moments help to show resilience, perseverance and commitment to learning mathematical concepts. At our school, the majority of children will be taught the content from their year group only. All children will have the opportunity to progress, build on prior knowledge, and have access to reasoning and problem solving questions. These questions help to secure and deepen their thinking and learning with mathematics. Another key factor is cross fertilization at every opportunity. As a whole, the children will spend their time learning, applying and mastering key skills that they will need throughout their life. They will learn new skills that will be incredibly important as they progress through their education. In year 4, they will build on their mathematical knowledge which they can take forward with them as they go into year 5 and beyond. |