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| **Key Topics and Learning Sequence** | | | | | |
| **= First Steps** | **= Moving On** | | **= Stretch** | | **= Challenge** |
| 1. **Ratio represented algebraically and graphically** 2. **Write** a ratio with 2 or 3 parts using algebraic notation 3. Given a numerical and equivalent algebraic ratio, **write an equation** relating the parts of the ratio 4. Understanding the connection between equations and **graphical representations** of the numerical ratio | 1. **Direct Proportion** 2. Understand what is meant by **directly proportional** and when a linear relation is NOT directly proportional 3. Write **equations** representing direct proportions 4. **Derive and use an equation** from given values of two variables 5. Look at more complex direct proportion to the **square, cube or square root** of a variable | 1. **Inverse Proportion** 2. Understand what is meant by **inversely proportional** 3. Write **equations** representing inverse proportions 4. Know how to **derive and use an equation** from given variables 5. Look at more complex inverse proportion to the **square, cube and square root** of a variable | | **4. Proportion in practice**   1. Can apply proportional reasoning and algebraic forms to problems in a range of **contexts** including: 2. **Scientific laws** such as gravity and Coulomb’s law 3. An Appreciation of the role of proportion in **art and architecture**, including for example the Golden Ratio 4. An appreciation of the role of scale, ratio and proportion in **maps and scale models** 5. An ability to use proportional reasoning to **estimate solutions** to problems | |
| **How does this unit fit into your mathematical learning journey?** | | | **Further Exploration, Enrichment and Cultural Capital** | | |
| This unit of work build on work you did on **proportional reasoning** and **ratio** in **year 7** and which you then deepened in work **on ratio** in **year 9**. It links work you did on **algebra** in **year 7 and 8** and also on **graphs and functions in year 9**. All of these different strands are pulled together in this important unit. | | | **Enrichment:**   * Multiplication Square <https://nrich.maths.org/2821> * What is possible? <https://nrich.maths.org/whatspossible>   **Cultural Capital:** Search; How did the early humans keep count?  Explore how the Hindu Arabic number system was formed. | | |

**LPS Mathematics: Year 10 - Unit 6 Ratio and proportion with algebra**

**Enquiry Question:** “**What is an inverse square law?**

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**Date: Initial Thoughts:**

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**Date: New Thoughts:**

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**Date: Final Thoughts:**

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