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| **Key Topics and Learning Sequence**  |
| **= First Steps** |  **= Moving On** |  **= Stretch** |  **= Challenge** |
| **1. Understanding Pythagoras’ Theorem**1. Understand how the theorem describes the **relationship** between the three sides of a **right-angle triangle**
2. Can label the **hypotenuse** on a triangle and know what the word means
3. Know and understand **Pythagoras’ Theorem**
4. Can **determine** if any given triangle is right angled using the theorem.
5. Understand the link between Pythagoras and **similarity and scale factors**
6. Understand **proofs** of Pythagoras Theorem

  |  **2. Application to find missing side (without a calculator)**a) Know **the squares of numbers** up to 13 and their inverses up to 169. b) Can **substitute** the correct sides into the theorem c)Can find the length of the **hypotenuse** given the two shorter sides d) Can find a **shorter side** of the triangle given the hypotenuse and one shorter side  |  **3. Application to find missing side (with a calculator)**a) Can find the length of the **hypotenuse** given the two shorter sides b) Can find a **shorter side** of the triangle given the hypotenuse and one shorter side c) Can **round** your answer to a suitable degree of accuracy (throughout) d) Can apply Pythagoras **more than once** to a problem | **4. Pythagoras’ Theorem in Context**a) Can **sketch a diagram** correctly in relation to a worded problem b) Can use Pythagoras to solve a **worded problem.** c) Can apply Pythagoras to other **2D geometry problems** d) Can form and solve an **equation using Pythagoras’ Theorem** **e)** Can apply Pythagoras Theorem to problems involving  **ratio** | **5. Pythagoras’ Theorem with 3-D shapes**a) Can identify the **longest diagonal** in a cuboid b) Can find a **length in a 3D shape** c) Define the position of a point on a set **three dimensional axes** d) Use Pythagoras’ Theorem to find the **distance between two points** given in the form (a, b, c) and to find the length of a space diagonal of a 3D object.   |
| **How does this unit fit into your mathematical learning journey?** | **Further Exploration, Enrichment and Cultural Capital** |
| This Unit builds on work from **Years 7 & 8**, where we learn about **different shapes and symmetry**, as well as the recent topic on **Similarity**. This unit now, leads on from these ideas as we look at how to find missing lengths by proving and applying this theorem. This knowledge is crucial in moving forward in KS4 where we look at **Trigonometry.** | **Reading:** **Enrichment:**  Can you prove the theorem actually works in real life? <https://www.bbc.co.uk/bitesize/guides/z9gtsg8/revision/3>**Cultural Capital:** Visit the British Museum and appreciate/find out who Pythagoras was, and why his philosophical and scientific discoveries are so important? <https://www.britishmuseum.org/collection/term/BIOG77020>Who were the Pythagoreans? What did they believe in? |

**LPS Mathematics: Year 9 Unit 8 – Pythagoras’ Theorem Enquiry Question:** **How can you tell if there’s a right angle just by measuring lengths?**

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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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