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| **Key Topics and Learning Sequence**  |
| **= First Steps** |  **= Moving On** |  **= Stretch** |  **= Challenge** |
| **1. Mathematical Similarity**a) Can identify good and bad **copies** of a shapeb) Can **define similarity** and justify why shapes are **mathematically similar** c) Can identify **enlargements** of a shape and justify by describing a common **multiplier** (**scale factor)** d) Can explain the effect of scale factors greater than / equal to /less than, and use the word **congruent** correctly  |  **2. Angles and Congruency**a) Can identify and use correct notation for **corresponding sides** and angles in mathematically similar shapes b) Can use **corresponding angles** to justify if shapes are / are not mathematically similar c) Can draw similar shapes are related by a range of scale factors, including **less than 1**d) Can explain whether similar shapes are **always/sometimes/never** congruent |  **3.Between Ratios**a) Can identify **equivalent ratios** and simplify ratios **to unitary ratios.** b) Can use a “***between ratio****”* to describe the relationship between corresponding sides of mathematically similar shapes. c) Can explain how between ratios describe **multiplicative relationships.**d) Can use **unitary ratios** to justify why two shapes are similar.  | **4. Within Ratios**a) Can identify **within ratios** of side lengths in shapes b) Can identify corresponding ***“within ratios”*** for similar shapes  c) Can use within ratios to **justify** why two shapes are similar. d) Can state whether **within / between ratios** are **always/sometimes/never** equal for a range of enlargements of one shape.  |
| **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 **proportional reasoning, measuring the world,** as well as the recent topic on **ratio,** linking similar units or values by finding a **common multiplier**. This unit now, leads on from these ideas as we look at how to apply them to geometry, specifically with **triangles**. These ideas are important as it connects to the upcoming topics of **Pythagoras’ Theorem** and **circles,** where we continue to look at geometric relationships and **trigonometry** in **Year 10.** | **Reading:** Read this similar problem called Fit for Photocopying: <https://nrich.maths.org/7385> **Enrichment:** Look at the two shapes carefully. What do you notice? Is there a relationship connecting the two? <https://sites.google.com/site/inquirymaths/home/geometry-prompts/enlargements/enlargement.png>**Cultural Capital:** Plan a day out to the Science Museum, checking out the ‘Form and Beauty’ wing in the Mathematics: Winton Gallery. It shows great use how designing relies so much on similarity and proportion. <https://learning.sciencemuseumgroup.org.uk/wp-content/uploads/2018/10/Mathematics-The-Winton-Gallery-Guide.pdf> |

**LPS Mathematics: Year 9 Unit 3 - Similarity**

 **Enquiry Question:** **What shapes can be made by using three overlapping triangles?**

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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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