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| **H Unit 12: Similarity and Congruence in 2d and 3d** | **Road Map** |
| In this unit you will learn about geometry & measures. The aims are as follows:**LG1**: Knowledge**LG2**: Application**LG3**: Skills | Assessment Grades |  |  |
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| **Themes** | **Learning Goals/Outcomes/Content** |  |  |  |
| 12 Similarity and Congruence in 2d and 3d | Understand and use SSS, SAS, ASA and RHS conditions to prove the congruence of triangles using formal arguments, and to verify standard ruler and pair of compasses constructions;  |  |  |  |
| Solve angle problems by first proving congruence;  |  |  |  |
| Understand similarity of triangles and of other plane shapes, and use this to make geometric inferences;  |  |  |  |
| Prove that two shapes are similar by showing that all corresponding angles are equal in size and/or lengths of sides are in the same ratio/one is an enlargement of the other, giving the scale factor;  |  |  |  |
| Use formal geometric proof for the similarity of two given triangles;  |  |  |  |
| Understand the effect of enlargement on angles, perimeter, area and volume of shapes and solids;  |  |  |  |
| Identify the scale factor of an enlargement of a similar shape as the ratio of the lengths of two corresponding sides, using integer or fraction scale factors;  |  |  |  |
| Write the lengths, areas and volumes of two shapes as ratios in their simplest form;  |  |  |  |
| Find missing lengths, areas and volumes in similar 3D solids;  |  |  |  |
| Know the relationships between linear, area and volume scale factors of mathematically similar shapes and solids;  |  |  |  |
| Use the relationship between enlargement and areas and volumes of simple shapes and solids;  |  |  |  |
| Solve problems involving frustums of cones where you have to find missing lengths first using similar triangles. |  |  |  |

**Links:**

LG1: You will know how to structure a proof of congruence and will use scale factors to find missing sides, areas and volumes.

LG2: You will apply your knowledge of similar shapes to work with scale factors in 1 dimension, 2 dimensions and 3 dimensions depending on the information given.

LG3: You will solve problems that combine knowledge and skills from this topic with other topics, congruence proofs that require an understanding of other angle rules.