**Geometry**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Curriculum level | 3 | 4 | 5 | 6 |
| Shape | Classify 2-dimensional shapes and prisms by their spatial features.* Use number of sides, angles, parallel or non-parallel sides, side length, lines of mirror symmetry, order of rotational symmetry.
* Identify prisms by their cross section.

Represent objects with drawings and models.* Use plan views or nets.
* Create two-dimensional drawings of three-dimensional models. Models may be built with interlocking cubes.
 | Identify classes of 2- and 3-dimensional shapes by their geometric properties.* Classes of polygons by number of sides eg) quadrilaterals have 4 sides, as well as sub-classes eg) squares within rectangles, circles within ellipses, cubes within rectangular prisms.
* Classes of 3-D shapes as prisms, cylinders, pyramids, cones, regular polyhedral etc.

Relate 3-dimensional models to 2-dimensional representations, and vice versa.* Drawings can be isometric projections, plan views or nets.
* Construct a model (using interlocking cubes) from different plan views.
* Create nets for simple 3-D shapes
 | Deduce the angle properties of intersecting and parallel lines and the angle properties of polygons and apply these properties. * Vertically opposite angles
* Adjacent angles
* Corresponding angles
* Interior angles
* Alternate angles
* Find and apply properties of polygons (including interior and exterior angles).

Create accurate nets for simple 3-dimensional shapes and connect 3-dimensional solids with different 2-dimensional representations.* Include cuboids, right-angled prisms and pyramids.
* Draw plan views, isometric projections or nets from 3-D models.
 | Recognise when shapes are similar and use proportional reasoning to find an unknown length.Deduce and apply the angle properties related to circles* Circle theorems.
 |
| Position and orientation | Use a co-ordinate system or the language of direction and distance to specify locations and describe paths eg) Position of D1 or road runs East-West. | Communicate and interpret locations and directions, using compass directions, distances, and grid references.* Use grid references, distances and direction from a landmark, compass directions, map scales.
 | Interpret points and lines on co-ordinate planes, including scales and bearings on maps. Eg) Be able to identify the location of a person on a map given 2 bearings from given landmarks.  | Use a co-ordinate plane or map to show points in common and areas contained by two or more loci.* Using bearings in relation to a trigonometric context
 |
| Transformation | Describe the transformations (reflection, rotation, translation, or enlargement) that have mapped one object onto another. | Use the invariant properties of figures and objects under transformations (reflection, rotation, translation, or enlargement). * Identify what doesn’t change under different transformations (eg- under rotation, lengths, angles and areas do not change, but orientation does.
 | Define and use transformations and describe the invariant properties of figures and objects under these transformations.* Describe the transformation of an object in depth including angle, center of rotation, direction of translation, magnitude and centre of enlargement, line of reflections and describe the invariant properties.
* Draw the image when given instructions to transform objects.

Apply trigonometric ratios and Pythagoras’ theorem in two dimensions.* Use Pythagoras to find the length of the hypotenuse
* Use Pythagoras to find the length of a shorter side.
* Identify sides of a right angled triangle as O, A or H
* Use trigonometry to find lengths of sides in right-angled triangles
* Use trigonometry to find angles in right-angled triangles.
* Recognise similar triangles and that ratios of side lengths are the same.
 | Compare and apply single and multiple transformations.Analyse symmetrical patterns by the transformations used to create them. Use trigonometric ratios and Pythagoras’ theorem in two and three dimensions.  |