

# **Geometry – 8<sup>th</sup> grade**

## **1. Introduction to Geometry**

- . Definition and importance of geometry in real life.**
- . Overview of basic shapes and their properties.**

## **2. Polygons and Angles**

- . Quadrilaterals: Sum of interior angles =  $360^\circ$ .**
- . Triangles: Classification (right, acute, obtuse) and sum of interior angles =  $180^\circ$ .**
- . Pentagons and Hexagons: Interior and exterior angle sums.**

- **Diagonals in polygons: How to calculate them.**

### **3. Perimeter and Area**

- **Rectangles: Perimeter =  $2(l + w)$ , Area =  $l \times w$ .**
- **Triangles: Area =  $\frac{1}{2} \times \text{base} \times \text{height}$ .**
- **Circles: Diameter =  $2 \times \text{radius}$ , Area =  $\pi r^2$ , Circumference =  $2\pi r$ .**
- **Parallelograms and Trapezoids: Area formulas.**

### **4. Three-Dimensional Shapes and Volume**

- **Cubes and Rectangular Prisms: Surface area and volume calculations.**
- **Cylinders: Volume =  $\pi r^2 h$ .**

- . Cones and Spheres: Volume and surface area formulas.**
- . Hexagonal Prisms: Application in real-world scenarios.**

## **5. The Pythagorean Theorem**

- . Definition:  $a^2 + b^2 = c^2$ .**
- . Application: Finding missing side lengths in right triangles.**
- . Examples: Word problems and practice exercises.**

## **6. Transformations and Symmetry**

- . Reflections, Rotations, and Translations.**
- . Congruency and Similarity in geometric figures.**

## **7. Summary and Review**

- . Recap of key concepts.**
- . Q&A session.**
- . Homework assignment: Practice problems covering perimeter, area, volume, and transformations.**

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### **Assessment & Homework**

**In-Class Quiz: Covering basic, medium, and advanced questions related to geometry. Homework: Solve practice problems on polygons, area, perimeter, volume, and transformations.**