EDUCACION sin Barreras

GEOMETRY SYLLABUS

1. **Segments**
   Points, lines, planes, rays. Midpoint properties and theorems.
2. **Angles**
   Definition, elements, classification by position and measure.
3. **Parallel Lines**
   Angles formed by parallel lines and transversals. Angles with parallel/perpendicular sides.
4. **Triangles I**
   Classification (isosceles, right, equilateral). Angle sum theorem. Triangle inequality.
5. **Triangles II**
   Notable lines (medians, altitudes). Angle bisector theorems.
6. **Triangle Congruence**
   Congruence postulates (ASA, SAS, SSS). Applications.
7. **Auxiliary Constructions**
   Construction techniques. Special theorems.
8. **Polygons**
   Sum of interior/exterior angles. Diagonals in convex polygons.
9. **Quadrilaterals**
   Properties of parallelograms, trapezoids.
10. **Circles I**
    Tangent theorems. Relative positions.
11. **Circles II**
    Inscribed/circumscribed quadrilaterals. Central/inscribed angles.
12. **Similarity I**
    Thales' theorem. Angle bisector theorem.

13. **Similarity II**

    Ceva's/Menelaus' theorems. Harmonic division.

14. **Notable Points**

    Centroid, orthocenter. Euler's line.

15. **Metric Relations I**

    Pythagorean theorem. Power of a point.

16. **Metric Relations II**

    Euclid's theorems. Heron's formula.

17. **Regular Polygons**

    Central angles. Apothem formulas.

18. **Triangular Areas**

    Area formulas (Heron's, inradius).

19. **Quadrilateral Areas**

    Trapezoid, kite areas.

20. **Circular Areas**

    Sector, segment, annulus areas.

21. **Lines & Planes I**

    Spatial relationships. Thales' theorem in 3D.

22. **Lines & Planes II**

    Perpendicularity. Distance theorems.

23. **Dihedral Angles**

    Definitions. Projection theorems.

24. **Regular Polyhedrons**

    Platonic solids. Euler's formula.

25. **Prisms**

    Right/oblique prisms. Parallelepipeds.

26. **Pyramids**

    Volume. Frustums.

27. **Cylinders**

    Right/oblique cylinders.

28. **Cones**

    Right circular cones.

29. **Spheres**

    Spherical segments. Archimedes' theorems.

30. **Pappus-Guldin Theorem**

    Solids of revolution.