



An ISO 9001-2008 Certified Organization

NSES CURRICULUM: HIGH SCHOOL MATHEMATICS

Eureka.in 3DS Content List

Designmate (I) PVT LTD

Horizon, Swati Society Road,

Darpan Circle, Ahmedabad – 380014

www.designmate.com

Follow us on



Reduce your carbon footprint, think before printing this document.

CATEGORY	TOTAL TOPIC	TOTAL DURATION
High School - Number and Quantity	4	00.04.09
High School - Algebra	31	01.23.16
High School - Functions	8	00.18.10
High School - Geometry	112	04.47.45
High School - Statistics and prob	3	00.11.13
Add-On Category	29	01.20.31
TOTAL	187	08.05.04

SUBCATEGORY	TOTAL TOPIC	TOTAL DURATION
High School – Number and Quantity	4	00.04.09
The Real Number System	2	00.04.09
Vector and Matrix Quantities	2	00.00.00
High School – Algebra	31	01.23.16
Seeing Structure in Expressions	7	00.19.58
Arithmetic with Polynomials and Rational Expressions	7	00.10.33
Creating Equations	5	00.12.31
Reasoning with Equations and Inequalities	12	00.40.14
High School – Functions	8	00.18.10
Interpreting Functions	2	00.09.13
Building Functions	2	00.08.57
Trigonometric Functions	4	00.00.00
High School – Geometry	112	04.47.45
Congruence	48	02.17.03
Similarity, Right Triangles and Trigonometry	12	00.38.13
Circles	18	00.28.33
Expressing Geometric Properties with Equations	19	00.42.26

SUBCATEGORY	TOTAL TOPIC	TOTAL DURATION
Geometric Measurement and Dimension	13	00.36.34
Modeling with Geometry	2	00.04.56
High School – Statistics and prob	3	00.11.13
Conditional probability and the rules of probability	2	00.11.13
Interpreting categorical and Quantitative data	1	00.00.00
Add-On Category	29	01.20.31
Polygons	7	00.12.31
SET THEORY	5	00.25.19
3 D GEOMETRY	10	00.14.53
CALCULUS	6	00.22.12
Sequence and Series	1	00.05.36
TOTAL TOPICS	187	08.05.04

High School – Number and Quantity

Topic Name	Duration	Sim	Int
------------	----------	-----	-----

The Real Number System

- **Core Topics**

- | | | | |
|-----------------------------|----------|---|--|
| 1. Exponents and Logarithms | 00.04.09 | | |
| 2. Euclid's Division Lemma | 00.00.00 | √ | |

Vector and Matrix Quantities

- **Suggested Topics**

- | | | | |
|------------------------|----------|---|--|
| 1. Direction Cosines | 00.00.00 | √ | |
| 2. Vectors in 3D space | 00.00.00 | √ | |

TOTAL TOPICS IN HIGH SCHOOL – NUMBER AND QUANTITY – 4	00.04.09		
--	-----------------	--	--

High School – Algebra

Topic Name	Duration	Sim	Int
------------	----------	-----	-----

Seeing Structure in Expressions

- **Core Topics**

1.	Evaluation (Algebra)	00.00.00	√
2.	$(a + b)^2$	00.01.48	√
3.	$(a + b)^3$	00.02.47	√
4.	$(a + b + c)^2$	00.04.53	√
5.	$a^2 - b^2$	00.02.39	√
6.	$(a - b)^2$	00.02.18	√
7.	Factorization: $(a^3 + b^3)$ and $(a^3 - b^3)$	00.05.33	

Arithmetic with Polynomials and Rational Expressions

- **Core Topics**

1.	Degree of a Polynomial	00.02.34	
2.	Monomial, Binomial and Trinomial	00.03.02	
3.	Multiplication of Polynomials	00.00.00	√
4.	Addition of Polynomials	00.00.00	√
5.	$a^2 - b^2$	00.02.39	√
6.	$(a - b)^2$	00.02.18	√
7.	Relationship between Zeroes and Coefficients of a Polynomial	00.00.00	√

High School – Algebra

Topic Name	Duration	Sim	Int
------------	----------	-----	-----

Creating Equations

- **Core Topics**

1.	Solving a Linear Equation in One Variable (Balancing method)	00.04.05	√
2.	Compound Inequality	00.00.00	√
3.	Quadratic Functions	00.00.00	√
4.	Linear Inequality in Two Variables	00.05.12	
5.	Linear Equations in Two Variables: Graphical Representation	00.03.14	

Reasoning with Equations and Inequalities

- **Core Topics**

1.	Solving a Linear Equation in One Variable (Balancing method)	00.04.05	√
2.	Solving Linear Equations	00.00.00	√
3.	Solving Linear Inequality in One Variable	00.05.08	
4.	Quadratic Polynomial: Completing the Square $(a - b)^2$	00.04.58	
5.	Quadratic Polynomial: Completing the Square $(a + b)^2$	00.04.22	
6.	Roots and Discriminant	00.06.33	√
7.	Roots of a Quadratic Equation: Illustration	00.06.42	

High School – Algebra

Topic Name	Duration	Sim	Int
8. Pair of linear equations in two variables	00.00.00	√	
9. Equations Reducible to a Pair of Linear Equations in Two Variables	00.00.00	√	
10. Linear Inequality in Two Variables	00.05.12		
11. Linear Equations in Two Variables: Graphical Representation	00.03.14		
• Suggested Topics			
1. Difference of two cubes	00.00.00	√	
TOTAL TOPIC IN HIGH SCHOOL – ALGEBRA – 31	01.23.16		

High School - Functions

Topic Name	Duration	Sim	Int
------------	----------	-----	-----

Interpreting Functions

- **Core Topics**

- | | | | |
|--|----------|--|--|
| 1. Function | 00.05.32 | | |
| 2. General Term of an Arithmetic Progression | 00.03.41 | | |

Building Functions

- **Core Topics**

- | | | | |
|--|----------|---|--|
| 1. Arithmetic Progression | 00.05.16 | √ | |
| 2. General Term of an Arithmetic Progression | 00.03.41 | | |

Trigonometric Functions

- **Core Topics**

- | | | | |
|--|----------|---|--|
| 1. Domain and range of trigonometric functions | 00.00.00 | √ | |
| 2. Period of trigonometric functions | 00.00.00 | √ | |
| 3. Graph of Cosine function | 00.00.00 | √ | |
| 4. Graph of Sine function | 00.00.00 | √ | |

TOTAL TOPIC IN HIGH SCHOOL – FUNCTIONS – 8	00.18.10		
---	-----------------	--	--

High School – Geometry

Topic Name	Duration	Sim	Int
------------	----------	-----	-----

Congruence

- Core Topics**

1. Reflection	00.03.17	√
2. Rotation	00.00.00	√
3. Translation of Axes	00.00.00	√
4. Construction : Rhombus and Kite	00.00.00	√
5. Congruent Figures	00.07.12	
6. Congruence of Triangles	00.08.47	
7. Congruence of Triangles - SAS Criterion	00.07.35	
8. Congruence of Triangles - SSS Criterion	00.04.37	
9. Congruent Triangles RHS Criterion	00.06.26	
10. Midpoint Theorem	00.04.46	
11. Converse of Pythagoras Theorem	00.03.11	
12. Pythagoras' Theorem (Geometric Proofs)	00.00.00	√
13. Converse of the Midpoint Theorem	00.02.54	
14. Centroid Theorem	00.00.00	√
15. Median of a triangle	00.00.00	√
16. Geometrical Shapes Using Set-squares	00.04.24	
17. Construction: Angle Bisector and an Angle of 30°	00.02.44	√
18. Constructions: Congruent Angle and An Angles of Measure 60° and 120°	00.03.22	√

High School – Geometry

Topic Name	Duration	Sim	Int
19. Construction: Perpendicular to a Line	00.03.49	√	
20. Dividing a Line segment into a Given Ratio (Internally)	00.05.39		
21. Dividing a Line segment into a Given Ratio (Externally)	00.04.00		
22. Construction: Perpendicular Bisector of a Line segment	00.01.18		
23. Construction: Line segment and Circle	00.02.23		
24. Construction: Parallel lines (Alternate Interior Angles Property)	00.03.11		
25. Construction of a triangle (Given its base, a base angle and sum of other two sides)	00.00.00	√	
26. Construction : Equilateral Triangle	00.00.00	√	
27. Construction Parallel lines (Using Corresponding Angle Property)	00.02.47		
28. Construction: Rectangle and Square	00.00.00	√	
● Suggested Topics			
1. Congruent and Similar Solids	00.00.00	√	
2. Triangle Angle-Sum Theorem (Illustration)	00.03.45	√	
3. Properties of Isosceles Triangle	00.00.00	√	
4. Arcs and Angles: Central Angle Theorem	00.05.00		
5. Angle Bisector Theorem	00.00.00	√	
6. Triangle Inequalities: Theorem - 1	00.00.00	√	
7. Triangle Inequalities: Theorem - 2	00.00.00	√	

High School – Geometry

Topic Name	Duration	Sim	Int
8. Parallelogram and its Properties	00.05.37		
9. Special Segments Associated with a Triangle	00.08.25		
10. Types of Quadrilaterals	00.00.00	√	
11. Convex and Concave Quadrilaterals	00.03.15	√	
12. Condition for a Quadrilateral to be a Parallelogram	00.00.00	√	
13. Property of the Diagonals of a Rhombus	00.02.35	√	
14. Figures on the same base and between the same parallels	00.00.00	√	
15. Construction of a Quadrilateral: Given Four Sides and a Diagonal	00.06.23		
16. Construction of a Quadrilateral: Given three sides and two diagonals	00.03.21		
17. Congruent Triangles RHS Criterion	00.06.26		
18. Application of RHS Criterion for Congruence	00.01.45		
19. Application of ASA Criterion Criteria for Congruence of Triangles	00.03.27		
20. Application of SSS and SAS Criteria for Congruence of Triangles	00.04.42		

Similarity, Right Triangles and Trigonometry

- **Core Topics**

1. Converse of Pythagoras Theorem	00.03.11
2. Similarity in Right Triangles (Corollaries)	00.06.23

High School – Geometry

Topic Name	Duration	Sim	Int
3. AA similarity criterion for triangles – Application	00.00.00	√	
4. Ratios of areas of similar triangles	00.00.00	√	
5. Similarity in Right Triangles	00.05.59		
6. Construction of a Triangle similar to a given Triangle as per the given scale factor	00.08.21		
7. Criteria for Similarity of Triangles	00.06.45		
8. Introduction to Trigonometric Ratios	00.00.00	√	
9. Definition of Sine and Cosine Ratios	00.03.49	√	
10. Radian	00.00.00	√	
11. Polar Coordinate System	00.03.45	√	
12. Application of Trigonometry	00.00.00	√	

Circles

• Core Topics

1. Parts of a Circle	00.00.00	√	
2. Bisector of a Chord from the Centre of a Circle	00.03.59		
3. Arcs and Angles: Central Angle Theorem	00.05.00		
4. Angle subtended by an Arc of a circle	00.00.00	√	
5. Angles in different segments of a circle	00.00.00	√	
6. Tangents drawn from an external point	00.00.00	√	
7. Angles in a Semicircle	00.00.00	√	

High School – Geometry

Topic Name	Duration	Sim	Int
8. Angle Subtended by a Chord at the Centre	00.00.00	√	
9. Area and The Perimeter of a Sector	00.04.00	√	
• Suggested Topics			
1. Tangent	00.00.00	√	
2. Common Tangents to Two Circles	00.00.00	√	
3. Construction: Incircle	00.02.55	√	
4. Construction : Circumcircle	00.00.00	√	
5. Construction Tangents to a Circle from a Point Exterior to the Circle	00.04.08		
6. Construction: Tangents through an external point	00.00.00	√	
7. Construction: Direct Common Tangent	00.03.45		
8. Construction: Indirect or Transverse Common Tangents	00.04.46	√	
9. Equation of a Circle	00.00.00	√	

Expressing Geometric Properties with Equations

• Core Topics			
1. Conics an Overview	00.04.07	√	
2. Conic Sections with Special Cases	00.00.00	√	
3. Introduction to a Parabola	00.02.11	√	
4. Equation of a parabola	00.04.16		

High School – Geometry

Topic Name	Duration	Sim	Int
5. Hyperbola	00.00.00	√	
6. Ellipse	00.00.00	√	
7. More about Ellipses	00.00.00	√	
8. Cartesian Coordinate System	00.06.45	√	
9. Collinearity of Three Points	00.00.00	√	
10. Slope of a Line	00.00.00	√	
11. Area of a Triangle	00.05.26		
12. Areas of Similar Triangles	00.00.00	√	
13. Area of a Quadrilateral	00.00.00	√	
14. Derivation of Distance Formula 2-D	00.03.53	√	
15. Distance Formula in 3-D	00.04.49	√	
16. Application of Distance Formula in 3-D	00.06.13		

- **Suggested Topics**

1. Locus	00.04.46		
2. General Equation of a Line	00.00.00	√	
3. Various forms of the equation of a line	00.00.00	√	

Geometric Measurement and Dimension

- **Core Topics**

1. Volume of a Cylinder	00.04.33	√	
2. Application of Mensuration - Cylinder	00.03.13		

High School – Geometry

Topic Name	Duration	Sim	Int
3. Volume of a Pyramid	00.03.50	√	
4. Volume of a Cone	00.03.00	√	
5. Volume of a Frustum	00.03.49	√	
6. Volume of a Sphere: Derivation	00.00.00	√	
7. Volume of a Sphere	00.02.55		
8. Practical Application of Mensuration	00.05.18		
9. Visualizing Solid Shapes	00.03.47	√	

• Suggested Topics

1. Area of a Circle	00.02.55	√	
2. Frustum of a cone	00.00.00	√	
3. Definition of Pi (π)	00.03.14	√	
4. Euler's Formula	00.00.00	√	

Modeling with Geometry

• Core Topics

1. Geometrical Shapes	00.04.56		
2. Geometric figures and their dimensions	00.00.00	√	

TOTAL TOPIC IN HIGH SCHOOL – GEOMETRY 04.47.45
– 112

High School – Statistics and prob

Topic Name	Duration	Sim	Int
------------	----------	-----	-----

Conditional probability and the rules of probability

- **Suggested Topics**

- | | | | |
|---------------------------------|----------|--|--|
| 1. Introduction to Combinations | 00.05.06 | | |
| 2. Introduction to Permutations | 00.06.07 | | |

Interpreting categorical and Quantitative data

- **Core Topics**

- | | | | |
|----------------------|----------|---|--|
| 1. Frequency polygon | 00.00.00 | √ | |
|----------------------|----------|---|--|

TOTAL TOPIC IN HIGH SCHOOL – STATISTICS AND PROB – 3	00.11.13		
---	-----------------	--	--

Add-On Category

Topic Name	Duration	Sim	Int
Polygons			
1. Angles in a Polygon	00.03.59	√	
2. Exterior Angles of a Polygon	00.03.56	√	
3. Regular polygons	00.00.00	√	
4. Introduction to Polygons	00.04.36		
5. Area of polygon	00.00.00	√	
6. Triangle Inequality	00.00.00	√	
7. Area of Parallelograms on the same base and between the same parallels	00.00.00	√	
SET THEORY			
1. Cartesian Product of Sets	00.03.23		
2. Introduction to Sets	00.05.53		
3. Types of Sets	00.05.11		
4. Universal Set and Subsets	00.04.45		
5. Venn Diagram	00.06.07	√	
3 D GEOMETRY			
1. Coordinate planes in three-dimensional space	00.03.04	√	
2. Three Dimensional Shapes	00.03.10		
3. Distance of a line from a point	00.00.00	√	
4. Planes in 3D space	00.00.00	√	

Add-On Category

Topic Name	Duration	Sim	Int
5. Shortest distance between two lines in space	00.00.00	√	
6. Distance of a point from a plane	00.00.00	√	
7. Equations of Planes	00.00.00	√	
8. Coplanarity of Two Lines	00.00.00	√	
9. Plane and its Equation	00.08.39	√	
10. Equation of a Line in Space	00.00.00	√	

CALCULUS

1. Limit	00.04.49		
2. Laws of Differentiation (Sum and Difference)	00.05.11		
3. Laws of Differentiation (Product and Quotient)	00.04.55		
4. Critical Points and First Derivative Test	00.07.17		
5. Volume of Solids using the Method of Disc	00.00.00	√	
6. Area under a Curve using Riemann Sum	00.00.00	√	

Add-On Category

Topic Name	Duration	Sim	Int
------------	----------	-----	-----

Sequence and Series

1. Sum of the First 'n' Terms of an Arithmetic Progression	00.05.36	√	
--	----------	---	--

TOTAL TOPICS IN ADD-ON CATEGORY – 29 01.20.31

TOTAL TOPICS IN HIGH SCHOOL MATHEMATICS – 187 08.05.04

*Sim = Simulation

*Int = Interactive