



1. Number Systems:

- Rational and Irrational Numbers: Understanding properties and operations with rational and irrational numbers.
- Expressions and Equations with Rational or Irrational Numbers: Extend operations and solve equations involving rational and irrational numbers.

Phet Links:

[Arithmetic](#)
[Number Line: Integers](#)
[Number Play](#)

LabXchange Links:

[Exponents & Radicals](#)
[Prime Factorizations](#)

2. Algebra:

- Solving linear equations and inequalities with one variable.
- Systems of equations with two variables.
- Factoring quadratic expressions.
- Independent and Dependent Variables

Phet Links:

[Expression Exchange](#)
[Equality Explorer: Basics](#)
[Equality Explorer: Two Variables](#)
[Graphing Lines](#)
[Graphing Quadratics](#)
[Graphing Slope-Intercept](#)

LabXchange Links:

[Coordinates & Equations](#)
[Quadratic Equations](#)

3. Geometry:

- Properties of angles and triangles (e.g., Pythagorean theorem, special triangles).
- Similarity and congruence of figures.
- Trigonometry basics (sine, cosine, tangent) for right-angled triangles.

Phet Links:

[Area Builder](#)
[Trig Tour](#)

LabXchange Links:

[Pythagoras' Theorem](#)

4. Coordinate Geometry:

- Plotting and analyzing points on the coordinate plane.
- Calculating distance and midpoint between two points.

Phet Links:

[Graphing Lines](#)
[Number Line: Distance](#)

LabXchange Links:

[Coordinates & Equations](#)

5. Data Analysis and Probability:

- Advanced data interpretation from various types of graphs and charts.
- Calculating probability for independent and dependent events.

Phet Links:

[Plinko Probability](#)

LabXchange Links:

[Data Visualization](#)
[Introduction to Statistics](#)
[Probability](#)
[Summary Statistics and Probability](#)

6. Functions:

- Understanding basic concepts of functions (domain, range, mapping).
- Graphing linear and exponential functions.

Phet Links:

[Function Builder](#)
[Graphing Lines](#)
[Graphing Slope-Intercept](#)

7. Statistics:

- Measures of central tendency and variability for large datasets.
- Constructing and interpreting box-and-whisker plots.

Phet Links:

[Mean: Share and Balance](#)
[Plinko Probability](#)

LabXchange Links:

[Data Visualization](#)
[Introduction to Statistics](#)
[Summary Statistics and Probability](#)

8. Ratios, Proportions, and Percentages:

- Solving problems involving proportions and percentages.
- Applications of percentage increase and decrease.

Phet Links:

[Proportion Playground](#)
[Unit Rates](#)

LabXchange Links:

[Sets & Venn Diagrams](#)
[Probability](#)

9. Real Numbers and Operations:

- Understanding properties of real numbers (associative, commutative, distributive).
- Solving problems involving mixed operations with real numbers.

Phet Links:

[Number Play](#)
[Arithmetic](#)

LabXchange Links:

[Summary Statistics and Probability](#)

10. Word Problems and Applications:

- Complex word problems involving multiple concepts and operations.
- Applying mathematical skills to real-life scenarios and practical situations.

Phet Links:

[Projectile Motion](#)
[The Moving Man](#)

LabXchange Links:

[Reasoning, Planning and Solving Problems](#)
[Time, Speed & Distance](#)