

Course Title: Pre-Algebra B

Topic/Concept: Integers

Time Allotment: 26 Days

Unit Sequence: 1

Major Concepts to be learned:

1. Evaluate expressions involving exponents. (2-6, 2-7, 2-8)
2. Express numbers in scientific and standard form. (2-9)

Expected Skills to be demonstrated:

1. Students will evaluate problems with negative and positive bases and exponents.

PA Standards/Anchors:

Eligible Content:

CC.2.2.8.B.1

M08.B-E.1

M08.B-E.1.1.1

M08.B-E.1.1.2

M08.B-E.1.1.3

M08.B-E.1.1.4

Instructional Strategies:

Assessments:

Problem solving activities
Group discussion
Hands-on activity
Summarizing

Lecture
Calculators
Note Taking
Math Binders

Math binders
Test and quizzes
Open-ended questions

Course Title: Pre-Algebra B

Topic/Concept: Real Number System

Time Allotment: 24 Days

Unit Sequence: 2

Major Concepts to be learned:

1. Solve equations and inequalities containing real numbers. (3-6, 3-7)
2. Evaluate expressions containing squares and square roots. (3-8, 3-9)
3. Determine if a number is rational or irrational. (3-10)

Expected Skills to be demonstrated:

1. Students will use the properties of equality to solve equations and inequalities containing rational numbers.
2. Students will be able to identify perfect squares and calculate the square root.
3. Students will be able to locate on a number line an approximated value for an irrational numbers.
4. Students will approximate the square root of a non-perfect square to the nearest tenth.

PA Standards/Anchors:

CC.2.1.8.E.1	M08.A-N.1
CC.2.1.8.E.4	

Eligible Content:

M08.A-N.1.1.1
M08.A-N.1.1.2
M08.A-N.1.1.3
M08.A-N.1.1.4
M08.A-N.1.1.5

Instructional Strategies:

Problem solving activities	Lecture
Group discussion	Hands-on activity
Note Taking	Graphic organizers
Evaluating	Math Binders
Graphic Calculators	

Assessments:

Math binders
Test and quizzes
Open-ended question

Course Title: Pre-Algebra B

Topic/Concept: Statistics & Data Analysis

Time Allotment: 16 Days

Unit Sequence: 3

Major Concepts to be learned:

1. Collect and analyze data. (4-1, 4-2)
2. Display data in various graphical forms. (4-5)
3. Analyze and interpret bivariate data displayed in multiple representations. (Ext.)
4. Understand that patterns of association can be seen in bivariate data by displaying frequencies and relative frequencies in a two-way table. (Ext.)

Expected Skills to be demonstrated:

1. Collect data and determine/construct an appropriate graphical display.
2. Be able to explain how a graphical display is misleading.
3. Determine from a given set of data, what type of relationship exists, if any, and use that data to make predictions.
4. Construct and interpret scatterplots for bivariate measurement data to investigate patterns of association between two quantities
5. Identify a line of best fit when appropriate.
6. Construct and interpret a two-way table summarizing data on two categorical variables collected from the same subjects.

PA Standards/Anchors:

Eligible Content:

CC.2.4.8.B.1
CC.2.4.8.B.2

M08.D-S.1

M08.D-S.1.1.1
M08.D-S.1.1.2
M08.D-S.1.1.3
M08.D-S.1.2.1

Instructional Strategies:

Assessments:

Cooperative groups	Problem solving activities
Lecture	Group discussion
Performance task	Written work
Hands-on activity	Note Taking
Charting	Summarizing
Evaluating	Math Binders
Graphic Calculators	

Math binders
Test, quizzes, and project (using a given data set)
Open-ended questions

Course Title: Pre-Algebra B

Topic/Concept: Basic Geometry

Time Allotment: 8 Days

Unit Sequence: 4

Major Concepts to be learned:

1. Determine congruence relationships between two figures. (5-6)
2. Apply transformations to geometric figures. (5-7)
3. Recognize, use, and apply types of symmetry. (5-8)

Expected Skills to be demonstrated:

1. Determine if two figures are congruent or similar based on given information and definition of congruence.
2. Discuss the relationship among quadrilaterals and describe what makes them different.
3. Use rotational and line symmetry.
4. Use symmetry to perform transformations of polygons.

PA Standards/Anchors:

CC.2.3.8.A.2 M08.C-G.1

Eligible Content:

M08.C-G.1.1.1
M08.C-G.1.1.2
M08.C-G.1.1.3
M08.C-G.1.1.4

Instructional Strategies:

Cooperative groups	Problem solving activities
Lecture	Performance task
Written work	Hands-on activity
Note Taking	Math Binders

Assessments:

Multiple projects
Math binders
Test and quizzes
Lesson activities that allow for student exploration.

Course Title: Pre-Algebra B

Topic/Concept: Perimeter, Area, & Volume

Time Allotment: 23 Days

Unit Sequence: 5

Major Concepts to be learned:

1. Use the Pythagorean Theorem to solve for unknown values of a right triangle. (6-3)
2. Find volume and surface area of solids. (6-6, 6-7, 6-8, 6-9, 6-10)

Expected Skills to be demonstrated:

1. Use the Pythagorean Theorem to find an unknown measure when given the other two.
2. Apply the Pythagorean Theorem in problem solving applications.
3. To calculate volume and surface area for three-dimensional solids.
4. To examine the effects of changing a given measurement on the new volume/surface area when compared to the original.

PA Standards/Anchors:

CC.2.3.8.A.1
CC.2.3.8.A.3

M08.C-G.2
M08.C-G.3

Eligible Content:

M08.C-G.2.1.1
M08.C-G.2.1.2
M08.C-G.2.1.3
M08.C-G.3.1.1

Instructional Strategies:

Assessments:

Problem solving activities
Group discussion
Hands-on activity
Evaluating
Graphic Calculators

Lecture
Performance task
Note Taking
Math Binders

Multiple projects
Math Binders
Tests and quizzes
Student lesson exploration activities

Course Title: Pre-Algebra B

Topic/Concept: Equations

Time Allotment: 31 Days

Unit Sequence: 6

Major Concepts to be learned:

1. Solve two-step equations. (10-1)
2. Solve multi-step equations. (10-2)
3. Solve equations with variables on both sides of the equals sign. (10-3)
4. Solve two-step inequalities and graph the solutions of an inequality on the number line. (10-4)
5. Solve an equation for a variable. (10-5)
6. Solve systems of equations. (10-6)

Expected Skills to be demonstrated:

1. Write or state a rule of a function.
2. Match a written situation to its numeric/algebraic expression.
3. Apply the concept of slope to direct variation. Representation of linear functions in various forms.
4. To graph linear functions using tables, slope, & y-intercept, and x- and y-intercepts.
5. Use linear functions to solve real life applications.
6. Make observations/predictions based on given data and determine any relationship between two sets of data.

PA Standards/Anchors:

Eligible Content:

CC.2.2.8.B.3	M08.B-E.3	M08.B-E.3.1.1 M08.B-E.3.1.2 M08.B-E.3.1.3 M08.B-E.3.1.4 M08.B-E.3.1.5
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Instructional Strategies:

Assessments:

Cooperative groups Lecture Student Journals Note Taking Evaluating Graphic Calculators	Problem solving activities Performance task Hands-on activity Summarizing Math Binders	Quizzes and tests Math binders Open-ended question Linear graphing activities with and without a graphing calculator
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Course Title: Pre-Algebra B

Topic/Concept: Graphing Linear Equations

Time Allotment: 32 Days

Unit Sequence: 7

Major Concepts to be learned:

1. Identify and graph linear functions using various methods (tables, graphs, intercepts, and relations). (11-1)
2. Find rates of change and slope and discuss their relationships. (11-2)
3. To write linear equations in 2 forms: slope-intercept and standard form. (11-3, 11-4)
4. Apply transformations to linear equations and discuss the effects of changing the slope and y-intercepts. (11-3)
5. To determine a line of best fit given data and from a scatter plot. (11-7)
6. Recognize direct variation by graphing tables of data and checking for constant ratios.

Expected Skills to be demonstrated:

1. Write or state a rule of a function.
2. Match a written situation to its numeric/algebraic expression.
3. Apply the concept of slope to direct variation. Representation of linear functions in various forms.
4. To graph linear functions using tables, slope, & y-intercept, and x- and y-intercepts.
5. Use linear functions to solve real life applications.
6. Make observations/predictions based on given data and determine any relationship between two sets of data.

PA Standards/Anchors:

Eligible Content:

CC.2.2.8.B.2	M08.B-E.2	M08.B-E.2.1.1
CC.2.2.8.C.2	M08.B-F.2	M08.B-E.2.1.2
		M08.B-E.2.1.3
		M08.B-F.2.1.1
		M08.B-F.2.1.2

Instructional Strategies:

Assessments:

Cooperative groups	Problem solving activities	Quizzes and tests
Lecture	Performance task	Math binders
Student Journals	Hands-on activity	Open-ended question
Note Taking	Summarizing	Linear graphing activities with and without a graphing calculator
Evaluating	Math Binders	
Graphic Calculators		

Course Title: Pre-Algebra B

Topic/Concept: Sequences & Functions

Time Allotment: 8 Days

Unit Sequence: 8

Major Concepts to be learned:

1. Examine patterns of numbers to determine what, if any, pattern exists. (12-1, 12-2, 12-3)
2. To discuss/define function and look at different types of functions. (12-4, 12-5, 12-6, 12-7, 12-8)
3. To apply specific functions in their appropriate context. (12-4, 12-5, 12-6, 12-7, 12-8)

Expected Skills to be demonstrated:

1. To determine whether a pattern of numbers is an arithmetic, geometric, or some other type of sequence.
2. To complete an x/y table of values for various functions: linear, quadratic, and exponential.
3. To graph functions by completing a table. Using a graph, determine what general type of function is displayed.

PA Standards/Anchors:

Eligible Content:

CC.2.2.8.C.1	M08.B-F.1	M08.B-F.1.1.1 M08.B-F.1.1.2 M08.B-F.1.1.3
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Instructional Strategies:

Assessments:

Cooperative groups Lecture Hands-on activity Evaluating Graphic Calculators	Problem solving activities Group discussion Note Taking Math Binders	Tests and quizzes Math binders Graphing activities using the graphing calculator
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