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## Options EHS Algebra 1A-OR

## Scope and Sequence

## Unit Lesson

## Objectives

## Modeling with Linear Equations and Inequalities: Part One

Quantitative Reasoning
Describe a quantitative relationship shown in a table or graph, including graphs without scales.

Interpret a graph given with or without a scale to determine the quantitative relationship it describes.

Dimensional Analysis
Use dimensional analysis to convert units and compare quantities, attending to limitations on the unit of measurement

Equations in One Variable
Explain the steps used to solve a two-step, one-variable linear equation.
Create two-step, one-variable linear equations to model problems.

Solve two-step, one-variable linear equations and simple absolute value equations, pointing out solutions that are viable or not viable in a modeling context.

Writing and Solving Equations in Two Variables

Solve for an unknown quantity in a two-variable linear equation, given one of the values.

Determine a two-variable linear equation that represents a scenario, identifying constraints on the variables in terms of the context.

Writing and Graphing Equations in Two Variables

Construct a table of values and a graph for a two-variable linear equation that models a situation, pointing out solutions that are viable or not viable based on the context.

Write a two-variable linear equation to model a quantitative relationship, describing the constraints of the model

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| Unit | Lesson | Objectives |
|  |  | based on the context. |
|  |  | Interpret graphs and rates by examining the quantities represented by each axis. |
|  | Solving Linear Equations: Variable on One Side |  |
|  |  | Determine the input value that produces the same output value for two functions from a table or graph. |
|  |  | Explain the steps used to solve a one-variable linear equation having the variable on one side only. |
|  |  | Solve one-variable linear equations having the variable on one side only, pointing out solutions that are viable or not viable in a modeling context. |
|  |  | Create one-variable linear equations, having the variable on one side only, to model and solve problems. |
|  | Solving Linear Equations: Variables on Both Sides |  |
|  |  | Explain the steps used to solve a one-variable linear equation having the variable on both sides. |
|  |  | Solve one-variable linear equations having the variable on both sides using tables, graphs, or algebra, pointing out solutions that are viable or not viable in a modeling context. |
|  |  | Create one-variable linear equations, having the variable on both sides, to model and solve problems. |
|  | Solving Linear Equations: Distributive Property |  |
|  |  | Solve one-variable linear equations involving the distributive property. |
|  |  | Determine if a one-variable linear equation has zero, one, or infinite solutions. |
|  |  | Create one-variable linear equations involving the distributive property to model and solve problems. |
|  | Performance Task: Tablet Time |  |
|  | Unit Test |  |
| Modeling with Linear Equations and Inequalities: Part Two |  |  |
|  | Solving Mixture Problems |  |

Use a table to organize information given in mixture problems.

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| Solving Rate Problems | Write and solve one-variable linear equations to model and solve mixture problems. |
|  | Use a table to organize information given in time-distance-rate and work problems. |
|  | Write and solve one-variable linear equations to model and solve time-distance-rate and work problems. |
| Literal Equations | Rearrange a literal equation to highlight a quantity of interest and use it to solve problems. |
| Inequalities in One Variable | Solve two-step one-variable linear inequalities, and state the solution in set or interval notation or graph it on a <br> number line. |
| Create two-step one-variable linear inequalities to model and solve problems, pointing out solutions that are viable |  |
| or not viable in the context. |  |

Options EHS Algebra 1A-OR
Unit Lesson
Introduction to Functions

Function Notation

Evaluating Functions
Analyze a function represented by an equation, table, or graph to determine the output when given the input, and vice versa.

Find input and output values of two functions graphed in the same coordinate plane.

Write the inverse of a given linear function.
Analyzing Graphs
Use the graph of a function to determine the key aspects, using interval notation where applicable.

Analyzing Tables
Given a table of values for a continuous function, make predictions about the key features of the graph of the function.

Recognizing Patterns

## Scope and Sequence

Objectives

Determine the domain and range of a functional relationship given in a mapping diagram, table, graph, or scenario. Analyze a mapping diagram, table, graph, or scenario to recognize functional relationships.

Interpret function notation that models a real-world situation.
Identify the input and output of a functional relationship, pointing out constraints on the domain and range.
Use function notation to represent a functional relationship.

Analyze a sequence of numbers to determine the pattern, and identify whether it is arithmetic or geometric.

Use a recursive rule to calculate a term of a sequence.


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## Scope and Sequence

Unit Lesson
Objectives
Write two-variable linear equations in different forms using varying pieces of information about the relationships.
Special Linear Relationships
Determine if a relationship is a direct variation.
Find the constant of variation in a direct variation.
Write an equation for a direct variation.
Write recursive and explicit rules for arithmetic sequences using function notation.
Unit Test

## Linear Systems of Equations and Inequalities

Solving Systems of Linear
Equations: Graphing
Use technology to find or approximate the solution of a system of linear equations graphically.
Analyze a system of linear equations to determine if it has one solution, no solution, or infinitely many solutions.
Solving Systems of Linear Equations: Substitution

Solve a system of linear equations using substitution.

Interpret the solution of a system of linear equations in a modeling context.

Solving Systems: Introduction to Linear Combinations

Solve systems of linear equations using linear combinations, limiting the systems to those that do not require multiples of both equations.

Interpret the solution of a system of linear equations in a modeling context.

Verify that, given a system of two equations in two variables, replacing one equation by the sum of that equation

Solving Systems of Linear Equations: Linear Combinations

Modeling with Systems of Linear Equations
Graphing Two-Variable Linear
Inequalities

## Modeling with Two-Variable Linear

 InequalitiesSolving Systems of Linear
Inequalities

Create a system of linear equations to model a problem.
Interpret the solution of a system of linear equations in a modeling context.

Relate the graph of a two-variable linear inequality to its algebraic representation.

Create a two-variable linear inequality to model a problem.
Graph the solutions to a two-variable linear inequality.
Interpret the solutions of a two-variable linear inequality in a modeling context.

## Scope and Sequence

Objectives
and a multiple of the other produces a system with the same solutions.

Solve a system of linear equations using linear combinations.
Interpret the solution of a system of linear equations in a modeling context.


Identify solutions of a system of two-variable linear inequalities.
Graph a system of two-variable linear inequalities.
Determine a system of two-variable linear inequalities given a solution set.

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## Scope and Sequence

Unit Lesson

## Objectives

Create a system of two-variable linear inequalities to model a problem.
Graph the solutions to a system of two-variable linear inequalities.
Interpret the solutions to a system of two-variable linear inequalities in a modeling context.
Unit Test

## Introduction to Statistics

Designing a Study
Classify study types.

Classify sampling methods.
Determine if a sample is biased.
Analyze study types and sampling methods.
Introduction to Sampling Methods
Describe a population and sample given a description of a study.
Identify whether a study utilized convenience sampling or voluntary response sampling.
Analyze a study to determine if bias is present and whether that bias leads to an overestimate or underestimate of the population parameter.

Simple Random Sample
Describe the process of simple random sampling.
Explain the process of generating a simple random sample using a table of random digits.
Explain the process of generating a simple random sample using a random number generator.
Other Sampling Methods

Describe the process and/or advantages and disadvantages of stratified random sampling.
Describe the process and/or advantages and disadvantages of systematic random sampling.

Describe the process and/or advantages and disadvantages of cluster sampling.
Distinguish between stratified random sampling, systematic random sampling, and cluster sampling.
Observational Studies and Experiments

Distinguish between an observational study and an experiment.
Describe the effect of confounding.
Identify the explanatory variable, response variable, treatments, experimental units/subjects, factors, and levels of an experimental design.
Test
Cumulative Exam
Cumulative Exam Review
Cumulative Exam

