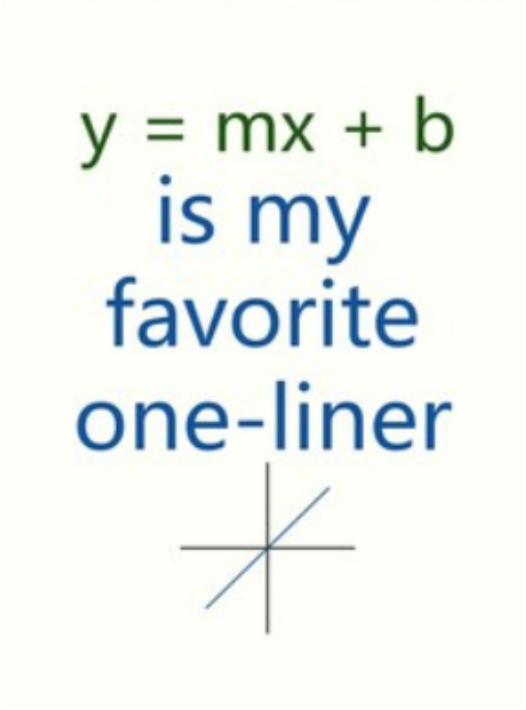
Unit 4: Functions and applications of linear equations



Unit Introduction

We will focus on the topic of linear relationships and functions. Students will explore Linear functions and their application in maths and real life situations. They will continue extending their understanding of algebraic rules through their work with linear functions. This knowledge is then applied to recognize and use functions to represent, analyze, and solve problems and then translate among multiple representations of functions.

Unit Priority Standards

- Understand the connections between proportional relationships, lines, and linear equations
- Analyse and solve linear equations and pairs of simultaneous linear equations
- Solve real-life mathematical problems using numerical and algebraic expressions and equations

Unit Transfer Goals

- Use a problem-solving model that incorporates analysing the information given, determining a plan or strategy, solving the problem, justifying the solution, and checking for reasonableness of answer;
- Communicate and organise mathematical ideas, reasoning, and their implications using multiple representations, including symbols, diagrams, graphs, and language as appropriate in a professional manner; and

Unit Essential questions	
1. How can we identify if a relationship is proportional? 2. What is the difference between a function and relation? 3. How are linear functions used in real life to model situations? 4. How can we use system of linear equations in real life?	
Acquisition of Knowledge Skill	
Students will know… 1. Relevant vocabulary to effectively communicate using mathematical language about functions 2. To solve equations and solve inequalities on a number line 3. That linear function are equation in the form y=mx+b whose graph is a straight line with slope m and y-intercept b. 4. How to Solve a system of linear equations through substitution and elimination	*Students will be skilled at…*I can... 1. 2. Solve system of linear equations 3.Interpreting slope from graphs, table of values, and two points. 4. Write and solve equations and inequalities. 5. Finding equation given one point and slope 6. Find slope given two points, or given a graph.

Unit Plan

Week 1: Dates: Feb 28- March 1	**What is the difference between a relation and function? What is domain and range? How do we graph linear equations with a table?**
Learning Target(s):	L1: Relation Vs Function L2: Domain and Range L3: Graphing linear equations using a table
Acquired Knowledge:	-Understanding the properties of relations and functions -Understanding and interpreting domain and range from a graph and equations
Skills, Activities, Due Dates and Assessments:	-Function vs Relation sorting activity on Google Slides -Domain and range desmos activity Putting Equations into table, ect Check in 1

Week 2: Dates: March 7-11	**What is slope? How can we use slope to describe and compare linear relationships? What are the different forms of linear functions?**
Learning Target(s):	L1: Properties of slope and evaluating slope from a graph L2: Slope Formula and application L3: Graphing linear equations by slope-intercept form
Acquired Knowledge:	An understanding of rate of change in the context of linear functions Ability to use, interpret and analyze linear functions in slope-intercept form Use and apply the slope formula to find slope given a line.
Skills, Activities, Due Dates and Assessments:	-Kahoot (2) -Graph of the galaxy online game (L3) -Check in (L3) **Summative Mini Project** **Graphing Linear Equation Art mini assignment (L3)**

Week 3 March 14-18	**How can we use linear expressions to describe real life situation**
Learning Target(s):	L1: Graphing Slope using slope-intercept form L2: Graphing Vertical and Horizontal Lines L3: Application of linear equations to describe real life situations
Acquired Knowledge:	Understanding how to use slope intercept form Ability to graph vertical and horizontal lines on a cartesian plane Use linear equations to describe real life scenarios and make predictions
Skills, Activities, Due Dates and Assessments:	Math Stations L3 **Summative:** Introduce Graph Project Check in L3

Week 4: March 28-April 1st	**What are simultaneous equations? How can we use graphs to interpret relationships between two lines?**
Learning Target(s):	L1: Find all properties of lines using slope intercept form L2: Solve system of equations by graphing L3:Solve system of equations algebraically using substitution
Acquired Knowledge:	Determine the solution of a system of linear equations Interpret graphs of linear function Interpret equations of linear functions to determine key characteristics
Skills, Activities, Due Dates and Assessments:	Weekly Homework Weekly Check in

Week 5: April 4-8th	**Unit review and wrap up**
Learning Target(s):	L1: Continue Solving system of linear equations by substitution(with isolation) L2: Solving system of equation by elimination L3: Application of System of equations
Acquired Knowledge:	Represent a real-world problem using system of equations Interpret and analyse linear functions in the context of real life problems Use both elimination and substitution to solve system of equations
Skills, Activities, Due Dates and Assessments:	Weekly Homework Weekly Check in

Week 6: April 11-15th	**Unit review and wrap up**
Learning Target(s):	L1: Review L2: Review L3: Unit Test
Acquired Knowledge:	Practice strategies to solve linear equations and systems of linear equations Consult study guide and textbook questions for practice
Skills, Activities, Due Dates and Assessments:	Summative: Unit test

Assessment Details

Evidence	
I will check students' understanding throughout the unit by...	
Summative Weekly Check ins (5 of them) Project 1: Graphing Linear Equations Mini-Project: Final Unit Test (April 11th)	**Formative** Daily warm up questions ● Daily bell ringer questions will be used as a way to review and go over previous lessons content. This will act as formative Weekly homework (self grading in class) ● Weekly homework will be assigned and corrected on the first day of each week. They will have one week to complete it.