Evaluating Service Deals Using Linear Equations

What is this?

In this project, you will create a guide to help friends and family make informed choices about pay-as-you-go subscription services. Using linear equations, you will analyze the cost of these services in relation to their features and benefits.

Why am I doing it?

This project will help you learn how linear equations can be used to decide how much to pay for a service and whether it's worth the cost.

What am I supposed to do?

Individually you will use graphs, tables, and equations to represent and analyze the value of different subscription service options. Then, as a group, you will create a guide to help others make cost-effective subscription decisions.

Driving Question

How can you use linear equations to determine whether a subscription service is worth the cost and guide others in making informed choices?

The driving question identifies the purpose, product, and audience.

Mission

Do you or your friends and family use streaming services, play video games, or subscribe to other pay-as-you-go apps? How do you know if these services are worth the cost? Your mission is to investigate and compare different subscription services and pay-as-you-go options that you, your friends, or your family frequently use. Using linear equations, you will determine when each option provides the best deal. By the end of the project, you'll create an easy-to-understand guide that helps people make smart financial choices based on their service usage. Whether it's for streaming music, gaming, fitness apps, or any other subscription, your guide will show how to maximize value and make informed decisions.

Requirements for Individual Product

Subscription Service Comparison and Analysis:

- Information on the **cost structure** of at least **two** services, subscriptions, or pay-as-you-go options, such as **music streaming, video games, food or beverage clubs, or car wash plans**, based on services used or considered by you, your classmates, or your family.
- Descriptions of **three levels of subscription usage** (e.g., **minimal, regular, and heavy**) with quantified measures such as **number of downloads, visits, or usage frequency**.
- Linear equations representing the **cost of each service over time** for the three different usage levels.
- A **mathematical model** for computing the value of a subscription based on different inputs.
- Graphs, tables, and equations that visually represent the analysis, along with an explanation of how they support decision-making.
- Examples demonstrating how the model applies to **different time periods and varying service usage amounts**.

Requirements for Team Product

A **community guide** designed to help individuals make cost-effective decisions about subscription services. The guide should include:

- Methods for **collecting data** on personal spending related to subscription services.
- An explanation of how **linear equations** can be used to compare subscription options.
- **Visual aids**, such as graphs or charts, illustrating common service usage scenarios in the community.

- A plan for sharing the guide as a **community resource**, which may include distribution through a **local website, social media outlet, or a community event** (such as a financial literacy workshop or school fair).

Each project has an individual product and a group product.

Badge

M101 Linear Equations: Concepts and Skills

Learning Goals

The teams support the individuals throughout the sprints.

In this project, you will use linear equations to compare different subscription services and figure out which options give you the best value based on how much you use them. Your work will help you save money and help others make smarter choices, too. Along the way, you'll build problem-solving skills, learn how to make informed financial decisions, and practice explaining your findings clearly.

In this project, we will learn to

The team product is a culmination of the individuals' learning.

- Reason about and solve one-variable linear equations and inequalities. (101.a)
- Solve real-life and mathematical problems using linear expressions, equations, and inequalities.(101.b)
- Analyze and solve two-variable linear equations and pairs of simultaneous linear equations. (101.c)
- Represent and solve linear equations and inequalities graphically. (101.d)
- Engage in the modeling cycle (102.a)
- Interpret how linear functions and equations relate to real-world contexts. (102.b)
- Analyze linear functions using different representations. (102.c)
- Construct linear functions that depict relationships between quantities. (102.d)

Each week, students identify when and how they have met

- Solve linear equations and pairs of simultaneous linear equations to make conclusions. (102.e)
- Interpret expressions of linear functions based on the situation they model. (102.f)
- Create equations that describe linear relationships. (102.h)
- Understand the importance of modeling with linear functions. (102.i)
- Identify quantities of interest for modeling purposes. (100.a)
- Reason with units in problems, formulas, and data displays to solve problems. (100.b)
- Interpret simple numeric and algebraic expressions that arise in applications in terms of the context. (100.c)
- Interpret equations, tables, and graphs that arise in applications involving proportional relationships. (100.d)

the content expectations.

Content expectations are reinforced through the other activities (5MM, NOWS, Interrupters, ENDS) in the module.