

4: Budgeting & Systems of Inequalities

Unit Plan for Teachers

All lessons are designed to be approximately 60 minutes in length.

4.1 Budgeting for Teens

Personal Finance

Objectives:

- ✓ Write and graph linear equations and determine if a given point is a possible solution
- ✓ Calculate percentages
- ✓ Create a mathematical model in the form of a budget
- ✓ Differentiate between income and expenses and explain how they're used to create a budget
- ✓ Consider needs versus wants when deciding how to spend money
- ✓ Build a basic budget with constant or variable income

Common Core Math Standards

- Link to [all CCSS Math](#)
- [CCSS.PRACTICE.MP4](#)
- [CCSS.HSF.IF.C.7.A](#)
- [CCSS.HSF.BF.A.1](#)
- [CCSS.HSF.LE.B.5](#)
- [CCSS.HSM](#)

National Standards for Personal Financial Education

Spending

- 1a: Develop a budget to allocate current income to necessary and desired spending, including estimates for both fixed and variable expenses.
- 5b: Brainstorm consumer research strategies and resources to use when making purchase decisions.

Resources

- [Student Activity Packet](#)
- [Lesson Guide](#)

4.2 Graphing Linear Inequalities

Math

Objectives:

- ✓ Graph linear inequalities and identify solutions.
- ✓ Write linear inequalities from word problems.
- ✓ Interpret solutions to inequalities in terms of a real-world context.
- ✓ Model budgeting constraints based on two sources of income.

Common Core Math Standards

- Link to [all CCSS Math](#)
- [CCSS.PRACTICE.MP3](#)
- [CCSS.PRACTICE.MP4](#)
- [CCSS.HSA.REI.D.12](#)
- [CCSS.HSA.CED.A.3](#)

National Standards for Personal Financial Education

Earning Income

- 11a: Evaluate the benefits and costs of gig employment, such as driving for a cab or delivery service.

Resources

- [Student Activity Packet](#)
- [Lesson Guide](#)
- [Application Problems](#)
- [Application Answer Key](#)

4.3 Budgeting Strategies

Personal Finance

Objectives:

- ✓ Correctly use arithmetic with decimals and percents
- ✓ Create a mathematical model in the form of a budget
- ✓ Appreciate the importance of creating a budget
- ✓ Identify features and limitations of three different budgeting strategies
- ✓ Create a budget given imperfect information

Common Core Math Standards

- Link to [all CCSS Math](#)
- [CCSS.PRACTICE.MP4](#)
- [CCSS HSM](#)

National Standards for Personal Financial Education

Spending

- 1b: Develop a budget to allocate current income to necessary and desired spending, including estimates for both fixed and variable expenses.
- 9a: Explain how having a system for financial record-keeping can make it easier to make financial decisions.

Earning Income

- 7c. Differentiate between gross, net, and taxable income

Resources

- [Student Activity Packet](#)
- [Lesson Guide](#)

4.4 Budgeting Tools

Math

Objectives:

- ✓ Write equations that represent real life scenarios
- ✓ Explore different budgeting apps
- ✓ Create your own budget using a spreadsheet

Common Core Math Standards

- Link to [all CCSS Math](#)
- [CCSS.PRACTICE.MP4](#)
- [CCSS.HSA.CED.A.1](#)
- [CCSS.7.EE.B.4](#)

National Standards for Personal Financial Education

Spending

- 1b: Develop a budget to allocate current income to necessary and desired spending, including estimates for both fixed and variable expenses.
- 1d: Evaluate the advantages of using budgeting tools, such as spreadsheets or apps
- 9a: Explain how having a system for financial record-keeping can make it easier to make financial decisions.

Resources

- [Student Activity Packet](#)
- [Lesson Guide](#)
- [Application Problems](#)
- [Application Answer Key](#)

4.5 Graphing a System of Inequalities

Math

Objectives:

- ✓ Graph systems of linear inequalities
- ✓ State solutions to the system using the solution region on the graph
- ✓ Understand special cases of systems of linear inequalities
- ✓ Work with a budget given restraints

Common Core Math Standards

- Link to [all CCSS Math](#)
- [CCSS.PRACTICE.MP1](#)
- [CCSS.HSA.REI.D.12](#)
- [CCSS.HSF.LE.B.5](#)

National Standards for Personal Financial Education

Spending

- 1b: Develop a budget to allocate current income to necessary and desired spending, including estimates for both fixed and variable expenses.

Resources

- [Student Activity Packet](#)
- [Lesson Guide](#)
- [Application Problems](#)
- [Application Answer Key](#)

4.6 Budgeting for Fixed Costs

Personal Finance

Objectives:

- ✓ Represent constraints by equations or inequalities
- ✓ Understand how changing parameters alters inequalities with two variables
- ✓ Understand factors that affect net worth
- ✓ Differentiate between fixed/variable expenses and needs/wants
- ✓ Consider common fixed costs and explore various ways to reduce them
- ✓ Specifically assess housing costs and how to reduce them
- ✓ Identify government aid programs to assist with expenses

Common Core Math Standards

- Link to [all CCSS Math](#)
- [CCSS.PRACTICE.MP1](#)
- [CCSS.HSA.REI.D.12](#)
- [CCSS.HSA.CED.A.3](#)

National Standards for Personal Financial Education

Spending

- 1b: Develop a budget to allocate current income to necessary and desired spending, including estimates for both fixed and variable expenses.

Resources

- [Student Activity Packet](#)
- [Lesson Guide](#)

4.7 Budgeting for Variable Costs

Personal Finance

Objectives:

- ✓ Analyze real-life constraints using systems of inequalities
- ✓ Identify and contextualize solutions to a system of inequalities
- ✓ Analyze strategies for budgeting variable expenses
- ✓ Describe common costs associated with car ownership
- ✓ Summarize strategies for reducing everyday spending on significant variable costs, including transportation and food.

Common Core Math Standards

- Link to [all CCSS Math](#)
- [CCSS.PRACTICE.MP4](#)
- [CCSS.HSA.CED.A.3](#)

National Standards for Personal Financial Education

Spending

- 1b: Develop a budget to allocate current income to necessary and desired spending, including estimates for both fixed and variable expenses.
- 1c: Explain methods for adjusting a budget for unexpected expenses or emergencies.
- 5b: Brainstorm consumer research strategies and resources to use when making purchase decisions.

Resources

- [Student Activity Packet](#)
- [Lesson Guide](#)

4.8 Constraints and Optimization

Math

Objectives:

- ✓ Represent constraints by equations or inequalities
- ✓ Graph the solutions to a linear inequality in two variables with multiple constraints
- ✓ Solve a system of inequalities graphically
- ✓ Find an optimal solution to a system of inequalities built from realistic constraints
- ✓ Understand how constraints play a role in business
- ✓ Apply logical principles to make optimal decisions

Common Core Math Standards

- Link to [all CCSS Math](#)
- [CCSS.PRACTICE.MP3](#)
- [CCSS.PRACTICE.MP4](#)
- [CCSS.HSA.REI.D.12](#)
- [CCSS.HSA.CED.A.3](#)

National Standards for Personal Financial Education

Spending

- 2a: Select a product or service and describe the various factors that may influence a consumer's purchase decision
- 2b: Describe a process for making an informed consumer decision

Resources

- [Student Activity Packet](#)
- [Lesson Guide](#)
- [Application Problems](#)
- [Application Answer Key](#)

4.9 Complete a Budget

Personal Finance

Objectives:

- ✓ Calculate averages
- ✓ Differentiate between salary and wage work
- ✓ Create and analyze a zero-based budget using a spreadsheet

Common Core Math Standards

- Link to [all CCSS Math](#)
- [CCSS.HSF.IF.B.4](#)
- [CCSS.HSF.IF.B.5](#)

National Standards for Personal Financial Education

Earning Income

- 2b: Describe how intangible benefits can affect a worker's career choices and income
- 6a: Calculate the amount of taxes a person is likely to pay when given information or data about the person's sources of income and amount of spending.

Spending

- 1b: Develop a budget to allocate current income to necessary and desired spending, including estimates for both fixed and variable expenses.
- 1d: Evaluate the advantages of using budgeting tools, such as spreadsheets or apps

Resources

- [Student Activity Packet](#)
- [Lesson Guide](#)

4.0 Unit Assessment

- 20 multiple-choice questions, 5 open-ended math questions, and 1 free response personal finance question
- Please access the Unit Test from the [Financial Algebra course page](#) while logged in to your teacher account.