



SPRINGFIELD PUBLIC SCHOOLS
ENGAGING STUDENTS • FOSTERING ACHIEVEMENT • CULTIVATING 21ST CENTURY GLOBAL SKILLS

Springfield Public Schools **Springfield, New Jersey 07081**

Financial Algebra

Curriculum Guide

2024

**This curriculum may be modified through varying materials, techniques, and strategies
as per an individual student's IEP.**

Springfield Board of Education
Approved on August 26, 2024



SPRINGFIELD PUBLIC SCHOOLS
ENGAGING STUDENTS • FOSTERING ACHIEVEMENT • CULTIVATING 21ST CENTURY GLOBAL SKILLS

**Springfield Public Schools
Springfield, New Jersey**

**Dr. Rachel Goldberg
Superintendent of Schools**

**Erica Scudero
Assistant Superintendent of Curriculum and Instruction**

Curriculum Developed By:

Dr. Norman Francis ~ Principal of Jonathan Dayton High School

Gregory Salmon ~ STEM Supervisor

Kendra Newman ~ Mathematics Teacher



Unit Overview Template

Content Area: Math

Grade Level: 11-12

Unit Title: The Stock Market

Unit Summary: Students will study the stock market in Financial Algebra. They will study the business organization and analyze stock market data and stock market data charts. Students will compute the simple moving averages in the stock market and be able to interpret the stock market ticker. Students will also understand stock transactions and the fees associated with those transactions. This unit will also include discussing traditional and reverse stock splits and dividend income.

Primary Interdisciplinary Connections: *Material in this unit is fundamental in mathematics and financial planning.*

21st Century Themes ☐ Creativity and Innovation ☒ Critical Thinking and Problem Solving ☐ ICT Literacy
☒ Information Literacy ☒ Life and Career Skills ☐ Communication and Collaboration ☐ Media Literacy

Unit Rationale: This is the introductory unit in Financial Algebra. The students will understand the risk and reward of the stock market. Students will use mathematics to understand market events and be able to make educated decisions regarding personal investments.

Career Readiness (Standard 9):

9.1.12.CFR.4: Demonstrate an understanding of the interrelationships among attitudes, assumptions, and patterns of behavior regarding money, saving, investing, and work across cultures.

9.1.12.EG.3: Explain how individuals and businesses influence government policies.

9.1.12.EG.4: Explain the relationship between your personal financial situation and the broader economic and governmental policies.

9.1.12.EG.5: Relate a country's economic system of production and consumption to building personal wealth, the mindset of social comparison, and achieving societal responsibilities.

9.1.12.EG.6: Analyze the rights and responsibilities of buyers and sellers under consumer protection laws.

9.1.12.FP.3: Relate the concept of delayed gratification (i.e., psychological distance) to meeting financial goals, investing and building wealth over time.

9.1.12.PB.1: Explain the difference between saving and investing.

9.2.12.CAP.3: Investigate how continuing education contributes to one's career and personal growth.

9.2.12.CAP.4: Evaluate different careers and develop various plans (e.g., costs of public, private, training schools) and timetables for achieving them, including educational/training requirements, costs, loans, and debt repayment.

9.4.12.IML.4: Assess and critique the appropriateness and impact of existing data visualizations for an intended audience.

9.4.12.TL.1: Assess digital tools based on features such as accessibility options, capacities, and utility for accomplishing a specified task

9.4.12.TL.2: Generate data using formula-based calculations in a spreadsheet and draw conclusions about the data.

Learning Targets

Standards: A.SSE; A.CED; S.ID

Content Statements: Write expressions in equivalent forms to solve problems; Summarize, represent, and



SPRINGFIELD PUBLIC SCHOOLS
ENGAGING STUDENTS • FOSTERING ACHIEVEMENT • CULTIVATING 21ST CENTURY GLOBAL SKILLS

interpret data on a single count or measurement variable; Create equations that describe numbers or relationships.

CPI#:	Cumulative Progress Indicator (CPI):
A.SSE.B.3	Choose and produce an equivalent form of an expression to reveal and explain properties of the quantity represented by the expression. a. Factor a quadratic expression to reveal the zeros of the function it defines. b. Complete the square in a quadratic expression to reveal the maximum or minimum value of the function it defines. c. Use the properties of exponents to transform expressions for exponential functions. For example the expression $1.15t$ can be rewritten as $(1.151/12)12t \approx 1.01212t$ to reveal the approximate equivalent monthly interest rate if the annual rate is 15%.
S.ID.A.2	Use statistics appropriate to the shape of the data distribution to compare center (median, mean) and spread (interquartile range, standard deviation) of two or more different data sets.
A.CED.A.4	Rearrange formulas to highlight a quantity of interest, using the same reasoning as in solving equations. For example, rearrange Ohm's law $V = IR$ to highlight resistance R .
8.1.12.DA.5	Create data visualizations from large data sets to summarize, communicate, and support different interpretations of real-world phenomena.
8.1.12.DA.6	Create and refine computational models to better represent the relationships among different elements of data collected from a phenomenon or process.
SEL.PK-12.4.1	Develop, implement and model effective problem-solving, and critical thinking skills
SEL.PK-12.4.2	Identify the consequences associated with one's actions in order to make constructive choices
SEL.PK-12.4.3	Evaluate personal, ethical, safety, and civic impact of decisions

Unit Essential Questions:

- What are the fundamental elements of business organizations?
- How can stock market data be used to follow daily progress of a corporate stock?
- What are different stock market data charts?
- How can a stock market data chart be created and interpreted?
- How can simple moving averages be computed and graphed?
- What is the stock market ticker and how can trade volumes be determined?
- How can gains and losses be computed from stock trades?
- What fees are associated with stock transactions?
- What are the different stock splits and how can they be computed?
- How can dividend income be computed?

Unit Enduring Understandings:

- Creating ratios and percentages to compute business ownership.
- Use spreadsheets and formulas to interpret stock market data.



SPRINGFIELD PUBLIC SCHOOLS

ENGAGING STUDENTS • FOSTERING ACHIEVEMENT • CULTIVATING 21ST CENTURY GLOBAL SKILLS

- Create and interpret candlestick and stock bar charts.
- Calculate simple moving averages and interpret their trends.
- Read a stock market ticker and be able to calculate different stock market data such as previous days closing price.
- Compute the gains and losses of stock trades.
- Calculate the fees involving buying and selling stocks.

Unit Learning Targets:

Students will analyze and formulate a deeper understanding of the Stock Market.

Climate Change Example: Students may rearrange formulas related to the economic impact of climate change to highlight a quantity of interest, using the same reasoning as in solving equations.



Evidence of Learning

Summative Assessment: 20 days

Equipment Needed: Teacher laptop, student laptops, internet access, Google Sheets, calculator, Desmos

Teacher Resources:

Textbook: Financial Algebra, Cengage Learning, 2011

Notes on Chapter 1

Workbook Worksheets

Desmos

Formative Assessments:

- Students will be assessed on classwork/workbook assignments.
- Students will be assessed on group and individual projects.
- Students will be assessed on quizzes and tests.
- Students will be assessed on homework assignments.
- Students will be assessed on exit/entry tickets.



SPRINGFIELD PUBLIC SCHOOLS
ENGAGING STUDENTS • FOSTERING ACHIEVEMENT • CULTIVATING 21ST CENTURY GLOBAL SKILLS

Lesson Plans

Lesson	Time Frame
Lesson 1 Stock Market Data	1 class period
Lesson 2 Stock Market Data Charts	2 class periods
Lesson 3 Simple Moving Averages	2 class periods

Teacher Notes:

Emphasize the applications of Google Sheets for larger analysis.

Curriculum Development Resources/Technology Resources:

Click the links below to access additional resources used to design this unit:

<https://app.uncoursesystems.com/>

http://www.cengage.com/cgi-wadsworth/course_products_wp.pl?fid=M20b&product_isbn_issn=9780538449670&token=5503649ED981F116634603149CBB2620164E955C7DD6D16285BAB123ECC2098C3DDA1999476FE1CC7D3E65B60241A515EC6C07766539880061A99B557CC97714F2BBCFF142AB3A7A

<http://finance.yahoo.com>

<http://www.desmos.com>



Lesson Plan 1 Template

Content Area: Math Lesson Title: Stock Market Data Time Frame: 1 Class Period

Lesson Components

21st Century Themes

- ☒ Global Awareness ☒ Financial, Economic, Business and Entrepreneurial Literacy
☐ Civic Literacy ☐ Health Literacy

21st Century Skills

- ☐ Creativity and Innovation ☒ Critical Thinking and Problem Solving ☐ Information Literacy
☐ Life and Career Skills ☐ Communication and Collaboration ☒ Media Literacy ☐ ICT Literacy

Interdisciplinary Connections:

Finance, Technology, and Mathematics

Integration of Technology:

Students will access Desmos for lessons

Equipment Needed:

Laptops with internet access

Goals/Objectives	Learning Activities/ Instructional Strategies	Formative Assessment Tasks
Students will: • Be able to understand all vocabulary in Chapter 1-2 Stock Market Data • Be able to calculate high and low prices and their difference given published closings of stocks. • Be able to calculate the actual volume of stock shares • Be able to find the percent increase or decrease from a stock on two days. • Be able to calculate the net change between two days given the stocks opening and closing prices.	Lesson Sequence 1. Students will use the online glossary to define and discuss vocabulary in Chapter 1-2 Stock Market Data. 2. Students will complete practice problems using Desmos in pairs after teacher models example problems on guided notes. 3. Independently, students will be able to calculate a specified stock market data (opening price, closing price, net change, percent increase/decrease). Formative assessments on Desmos will be used to assess students'	• Students will respond to verbal prompts during discussion of vocabulary and guided notes. • Circulate through the room as students complete practice problems in pairs to discuss their progress. • Circulate through the room as students complete exit tickets and assist students as necessary. • Collect application problems to assess mastery.



SPRINGFIELD PUBLIC SCHOOLS

ENGAGING STUDENTS • FOSTERING ACHIEVEMENT • CULTIVATING 21ST CENTURY GLOBAL SKILLS

understanding of information in Chapter 1-2.

4. Students will be assessed on completion of the application problem set located in the textbook at the end of Chapter 1-1 using Desmos.
5. Start the following long term assignment:
Students will choose several stocks to “purchase” with a set amount of money each, then track the value of their investments. Students can then choose to “sell” and “buy” through the “broker” (teacher). At the end of 2 weeks, 1 month, 6 months, etc students will analyze the value, and discuss the choices they made in why they purchased and why they made changes.

Differentiation:

Students will be paired so they are working with partners at similar or diverse ability levels, whatever is best for each student. Model example problems to students who may need assistance however students who have a firm understanding can continue onto guided notes examples independently. Application problems may be modified to fit a student's abilities e.g. by using Desmos to elaborate on different concepts through additional worked out examples.

Resources Provided:

- Guided notes
- Exit Ticket
- Desmos
- Access to the online textbook for application problem access as well as textbook for student's preference.



Lesson Plan 2 Template

Content Area: Math Lesson Title: Stock Market Data Charts Time Frame: 2 class periods

Lesson Components

21st Century Themes

- ☐ Global Awareness ☒ Financial, Economic, Business and Entrepreneurial Literacy
☐ Civic Literacy ☐ Health Literacy

21st Century Skills

- ☐ Creativity and Innovation ☒ Critical Thinking and Problem Solving ☐ Information Literacy
☐ Life and Career Skills ☐ Communication and Collaboration ☒ Media Literacy ☐ ICT Literacy

Interdisciplinary Connections:

Finance, Technology and Mathematics

Integration of Technology:

Students will access cengage online student learning portal, use Desmos and will use Google Sheets.

Equipment Needed:

Laptops with internet access

Goals/Objectives	Learning Activities/ Instructional Strategies	Formative Assessment Tasks
Students will: - Be able to understand all vocabulary terms in Chapter 1-3 Stock Market Data Charts - Be able to read and interpret stock bar charts and candlestick charts - Construct stock bar charts and candlestick charts on paper and electronically - Compute the difference between different days' high and low prices using a chart	Lesson Sequence - Students will use an online glossary to define vocabulary in Chapter 1-3 "Stock Market Data Charts." - Students will complete practice problems independently on guided notes recognizing a stock bar chart and a candlestick chart. The Teacher will model example problems to assist students who may need assistance. Students will also interpret the data presented by these charts via examples in guided notes. - In groups, students will first research candlestick charts online, then create	- Students will respond to verbal prompts regarding vocabulary - Circulate through the room while students work in groups. Assist any groups who may need assistance creating charts - Develop through discussion class lists of pros and cons of creating the charts electronically versus creating them by hand - Collect application problems to assess student mastery.



SPRINGFIELD PUBLIC SCHOOLS

ENGAGING STUDENTS • FOSTERING ACHIEVEMENT • CULTIVATING 21ST CENTURY GLOBAL SKILLS

a candlestick chart and a stock bar chart both by hand and electronically. Electronic graphs will be created using Google Sheets.

4. Students will use "How To" notes from Desmos for assistance.
5. Students will discuss and reflect in their groups whether they prefer creating the graphs by hand or electronically. Emphasize what elements make one or the other easier.
6. Students will be assessed on the application problem set which is located at the end of Chapter 1-3 in the textbook.
7. Students will then choose a few companies or an ETF to analyze candlestick graphs of, and make conjectures about the trends of the graphs.

Differentiation:

Group students together with different skill levels to allow students to assist each other. Modify application problems to accommodate students' skill levels e.g. on Desmos, set up additional candlestick examples. Motivate students by showing current candlestick charts from [investment.com](https://www.investor.com) or other sites, and describe what sorts of investments would apply to each situation (calls, puts, condors, etc).

Resources Provided:

- Guided Notes including "How To: Google Sheets" Sheet
- Access to online textbook
- Desmos



Lesson Plan 3 Template

Content Area: Math Lesson Title: Simple Moving Averages Time Frame: 2 class periods

Lesson Components

21st Century Themes

- ☐ Global Awareness ☒ Financial, Economic, Business and Entrepreneurial Literacy
☐ Civic Literacy ☐ Health Literacy

21st Century Skills

- ☐ Creativity and Innovation ☒ Critical Thinking and Problem Solving ☐ Information Literacy
☐ Life and Career Skills ☐ Communication and Collaboration ☐ Media Literacy ☐ ICT Literacy

Interdisciplinary Connections:

Finance, Technology and Mathematics

Integration of Technology:

Students will access Cengage online student learning portal, use Desmos and will use Google Sheets.

Equipment Needed:

Laptops with internet access.

Goals/Objectives	Learning Activities/ Instructional Strategies	Formative Assessment Tasks
Students will: - Be able to understand all vocabulary terms in Chapter 1-4 Simple Moving Averages - Compute simple moving averages using the arithmetic average formula - Understand the addition and subtraction methods to compute simple moving averages - Be able to construct a spreadsheet to graph simple moving averages - Interpret when crossovers of simple moving averages occur	Lesson Sequence - Students will use online glossary to define vocabulary in Chapter 1-4 "Simple Moving Averages" - Teacher will model computing the simple moving average using the arithmetic average formula. Students will practice the arithmetic average formula on examples in guided notes. - The Teacher will complete a brief mini lesson on addition and subtraction methods to compute simple moving averages and provide students a link to a Khan Academy video and Desmos activity for	- Students will discuss in groups the vocabulary - Circulate through room while students complete practice problems on guided notes to answer questions and assist students - Rotate to each group to assist students as they complete spreadsheets to compute simple moving averages using Google Sheets - Collect application set to assess student mastery



SPRINGFIELD PUBLIC SCHOOLS

ENGAGING STUDENTS • FOSTERING ACHIEVEMENT • CULTIVATING 21ST CENTURY GLOBAL SKILLS

additional assistance.
Students can choose which method they feel most comfortable with to compute simple moving averages.

4. Teacher will provide students with a "How To: Create a Spreadsheet with Google Sheets" step-by-step worksheet. Students will work in groups to create a spreadsheet to compute simple moving averages on Google Sheets.
5. Students will be assessed on application problem set which is located at the end of Chapter 1-4 in the textbook

Differentiation:

Provide Khan Academy video for using the addition and subtraction methods to compute simple moving averages. Group students with similar skill ability and model example problems for students who need assistance while other students can continue on in guided notes independently. Modify the choice activity by altering application problems.

Resources Provided:

- Guided Notes
- "How To" Worksheet
- Access to online textbook
- Desmos



SPRINGFIELD PUBLIC SCHOOLS
ENGAGING STUDENTS • FOSTERING ACHIEVEMENT • CULTIVATING 21ST CENTURY GLOBAL SKILLS

Lesson Reflection

Reflect on the lesson you have developed and rate the degree to which the lesson *Strongly, Moderately* or *Weakly* meets the criteria below.

Lesson Activities	Strongly	Moderately	Weakly
Are challenging Strongly and require higher order thinking and problem solving skills	☐	☒	☐
Allow for student choice	☐	☒	☐
Provide scaffolding for acquiring targeted knowledge/skills	☐	☒	☐
Integrate global perspectives	☒	☐	☐
Integrate 21st century skills	☒	☐	☐
Provide opportunities for interdisciplinary connection and transfer of knowledge and skills	☒	☐	☐
Foster student use of technology as a tool to develop critical thinking, creativity and innovation skills	☒	☐	☐
Are varied to address different student learning styles and preferences	☐	☒	☐
Are differentiated based on student needs	☒	☐	☐
Are student-centered with teacher acting as a facilitator and co-learner during the teaching and learning process	☐	☒	☐
Provide means for students to demonstrate knowledge and skills and progress in meeting learning goals and objectives	☐	☒	☐
Provide opportunities for student reflection and self- assessment	☐	☒	☐
Provide data to inform and adjust instruction to better meet the varying needs of learners	☐	☐	☐

Curriculum Design Template

Content Area: Math	Grade Level: 11-12	Course Title: Financial Algebra
Created: 2024	Board Approved on:	



Unit Overview Template

Content Area: Math

Grade Level: 11-12

Unit Title: Modeling a Business

Unit Summary: Students will study how to model a business in a variety of elements. Students will understand what a scatterplot is and how to interpret a scatterplot graph. Linear regression and developing regression lines to fit to data will assist students in interpreting bivariate data. Students will understand supply and demand and be able to interpret the graphs associated with supply and demand equations. Fixed and variable expenses will be discussed and developed into expense equations. Students will be able to write, graph and interpret revenue functions and how they relate to expense equations. Being able to determine breakeven prices and amounts through the use of technology and/or algebra will assist students in further understanding expense and revenue functions. The students will be able to compute maximum profit that can be attained which will assist them in being able to mathematically model a business.

Primary Interdisciplinary Connections: *Material in this unit is fundamental in being able to understand all financial aspects involving modeling a business.*

21st Century Themes ☐ Creativity and Innovation ☒ Critical Thinking and Problem Solving ☐ ICT Literacy
☐ Information Literacy ☒ Life and Career Skills ☐ Communication and Collaboration ☐ Media Literacy

Unit Rationale: This unit is an introduction to modeling a business. Students will begin to understand what is necessary, financially, to model a business. Supply and demand will allow students to further understand the expenses involved to be able to allow a business to breakeven or even be successful.

Career Readiness (Standard 9):

9.1.12.CFR.4: Demonstrate an understanding of the interrelationships among attitudes, assumptions, and patterns of behavior regarding money, saving, investing, and work across cultures.

9.1.12.EG.3: Explain how individuals and businesses influence government policies.

9.1.12.EG.4: Explain the relationship between your personal financial situation and the broader economic and governmental policies.

9.1.12.EG.5: Relate a country's economic system of production and consumption to building personal wealth, the mindset of social comparison, and achieving societal responsibilities.

9.1.12.EG.6: Analyze the rights and responsibilities of buyers and sellers under consumer protection laws.

9.1.12.FP.3: Relate the concept of delayed gratification (i.e., psychological distance) to meeting financial goals, investing and building wealth over time.

9.1.12.PB.1: Explain the difference between saving and investing.

9.2.12.CAP.3: Investigate how continuing education contributes to one's career and personal growth.

9.2.12.CAP.4: Evaluate different careers and develop various plans (e.g., costs of public, private, training schools) and timetables for achieving them, including educational/training requirements, costs, loans, and debt repayment.

9.4.12.IML.3: Analyze data using tools and models to make valid and reliable claims, or to determine optimal design solutions.

9.4.12.IML.4: Assess and critique the appropriateness and impact of existing data visualizations for an intended audience.



9.4.12.TL.1: Assess digital tools based on features such as accessibility options, capacities, and utility for accomplishing a specified task

9.4.12.TL.2: Generate data using formula-based calculations in a spreadsheet and draw conclusions about the data.

Learning Targets

Standards: A.REI; F.IF; S.ID

Content Statements: Solve systems of equations; Understand the concept of a function and use function notation; Analyze functions using different representations; Summarize, represent, and interpret data on two categorical and quantitative variables.

CPI#:	Cumulative Progress Indicator (CPI):
A.REI.C.6	Solve systems of linear equations algebraically (include using the elimination method) and graphically, focusing on pairs of linear equations in two variables.
F.IF.A.1	Understand that a function from one set (called the domain) to another set (called the range) assigns to each element of the domain exactly one element of the range. If f is a function and x is an element of its domain, then $f(x)$ denotes the output of f corresponding to the input x . The graph of f is the graph of the equation $y = f(x)$.
F.IF.C.7	Graph functions expressed symbolically and show key features of the graph, by hand in simple cases and using technology for more complicated cases. a. Graph linear and quadratic functions and show intercepts, maxima, and minima. b. Graph square root, cube root, and piecewise-defined functions, including step functions and absolute value functions. c. Graph polynomial functions, identifying zeros when suitable factorizations are available, and showing end behavior. d. (+) Graph rational functions, identifying zeros and asymptotes when suitable factorizations are available, and showing end behavior. e. Graph exponential and logarithmic functions, showing intercepts and end behavior. f. (+) Graph trigonometric functions, showing period, midline, and amplitude.
S.ID.B.6	Represent data on two quantitative variables on a scatter plot, and describe how the variables are related. a. Fit a function to the data (including with the use of technology); use functions fitted to data to solve problems in the context of the data. Use given functions or choose a function suggested by the context. Emphasize linear and exponential models. b. Informally assess the fit of a function by plotting and analyzing residuals, including with the use of technology. c. Fit a linear function for a scatter plot that suggests a linear association.
8.1.12.DA.1	Create interactive data visualizations using software tools to help others better understand real world phenomena, including climate change.



SPRINGFIELD PUBLIC SCHOOLS
ENGAGING STUDENTS • FOSTERING ACHIEVEMENT • CULTIVATING 21ST CENTURY GLOBAL SKILLS

8.1.12.DA.5	Create data visualizations from large data sets to summarize, communicate, and support different interpretations of real-world phenomena.
8.1.12.DA.6	Create and refine computational models to better represent the relationships among different elements of data collected from a phenomenon or process.
8.1.12.AP.1	Design algorithms to solve computational problems using a combination of original and existing algorithms.
SEL.PK-12.4.1	Develop, implement and model effective problem-solving, and critical thinking skills
SEL.PK-12.4.2	Identify the consequences associated with one's actions in order to make constructive choices
SEL.PK-12.4.3	Evaluate personal, ethical, safety, and civic impact of decisions

Unit Essential Questions:

- How can scatter plots be interpreted given bivariate data?
- How can a line and curve of best fit be fit to data?
- What predictions can be made based on lines of best fit or lines of regression?
- How can slopes of supply and demand curves be calculated?
- What is the difference between fixed and variable expenses?
- How can expense and revenue functions be written and graphs?
- What is a breakeven point and how can it be calculated?
- How can the profit equation be developed given the expense and revenue functions?

Unit Enduring Understandings:

- Create scatter plots given bivariate data
- Determine correlation of scatter plots
- Write the linear regression equation given bivariate data
- Find and interpret the correlation coefficient
- Determine retail price, markups, and wholesale price
- Create expense equations using fixed and variable expenses
- Use expense equations to determine break even points
- Graph linear and quadratic equations to represent expense and revenue functions
- Find intercepts of linear and quadratic equations using graphing calculators or Desmos
- Find the maximum of a quadratic equation to determine the maximum profit

Unit Learning Targets:

Students will begin to understand what is necessary, financially, to model a business. Supply and demand will allow students to further understand the expenses involved to be able to allow a business to breakeven or even be successful.

Climate Change Example: Students may represent geoscience data on two quantitative variables on a scatter plot and describe how the variables are related in order to analyze the data and the results from global climate models.



SPRINGFIELD PUBLIC SCHOOLS

ENGAGING STUDENTS • FOSTERING ACHIEVEMENT • CULTIVATING 21ST CENTURY GLOBAL SKILLS

Climate Change Example: Students may use linear or exponential functions fitted to geoscience data to solve problems and analyze the results from global climate models to make an evidence-based forecast of the current rate of global climate change.



Evidence of Learning

Summative Assessment: 18 days

Equipment Needed: Teacher laptop, student laptops, internet access, Google Sheets, graphing calculator, Desmos

Teacher Resources:

Textbook: Financial Algebra, Cengage Learning, 2011

Notes on Chapter 2

Workbook Worksheets

Cengage Online Student Portal

ExamView Test Generator

Desmos

Formative Assessments:

- Students will be assessed on classwork/workbook assignments.
- Students will be assessed on group and individual projects.
- Students will be assessed on quizzes and tests
- Students will be assessed on homework assignments.
- Students will be assessed on exit/entry tickets.
- Students will be assessed on answers given in Desmos.



SPRINGFIELD PUBLIC SCHOOLS

ENGAGING STUDENTS • FOSTERING ACHIEVEMENT • CULTIVATING 21ST CENTURY GLOBAL SKILLS

Lesson Plans

Lesson	Time Frame
Lesson 1 Interpret Scatterplots	1 class period
Lesson 2 Linear Regression	1 class period
Lesson 3 Supply and Demand	1 class period

Teacher Notes:

Emphasize the applications of Google Sheets for larger analysis.

Curriculum Development Resources/Technology Resources:

Click the links below to access additional resources used to design this unit:

http://www.cengage.com/cgi-wadsworth/course_products_wp.pl?fid=M20b&product_isbn_issn=9780538449670&token=5503649ED981F116634603149CBB2620164E955C7DD6D16285BAB123ECC2098C3DDA1999476FE1CC7D3E65B60241A515EC6C07766539880061A99B557CC97714F2BBCFF142AB3A7A

<http://finance.yahoo.com>

<http://www.desmos.com>



Lesson Plan 1 Template

Content Area: Math Lesson Title: Interpret Scatterplots Time Frame: 1 class period

Lesson Components

21st Century Themes

- ☐ Global Awareness ☒ Financial, Economic, Business and Entrepreneurial Literacy
☐ Civic Literacy ☐ Health Literacy

21st Century Skills

- ☐ Creativity and Innovation ☒ Critical Thinking and Problem Solving ☐ Information Literacy
☒ Life and Career Skills ☐ Communication and Collaboration ☐ Media Literacy ☐ ICT Literacy

Interdisciplinary Connections:

Finance, Technology and Mathematics

Integration of Technology:

Students will access the Cengage student learning portal for access to the online textbook resources, online glossary, and other supplemental resources. Students will also use Google Sheets or Desmos to create scatterplots.

Equipment Needed:

Laptops with internet access

Goals/Objectives	Learning Activities/ Instructional Strategies	Formative Assessment Tasks
Students will: - Be able to understand all vocabulary in Chapter 2-1 Interpret Scatterplots. - Be able to construct a scatterplot given bivariate data. - Be able to interpret trends given a scatter plot . - Be able to determine if a scatterplot shows positive, negative or relatively no correlation.	Lesson Sequence - Students will use the online glossary to define and discuss vocabulary in Chapter 2-1 Interpret Scatterplots - Students will complete guided notes in which they construct scatter plots by hand. Teacher will model examples for students who may need additional assistance - In groups, students will use prerequisite knowledge to create a spreadsheet and electronically create a scatter plot on Google Sheets or Desmos.	- Students will respond to verbal prompts during discussion of vocabulary and guided notes - Circulate through room as students construct scatter plots while taking guided notes - Facilitate group discussion so that students can assist group members in creating a spreadsheet and scatterplot electronically - Collect application problems to assess mastery.



SPRINGFIELD PUBLIC SCHOOLS

ENGAGING STUDENTS • FOSTERING ACHIEVEMENT • CULTIVATING 21ST CENTURY GLOBAL SKILLS

4. Students will be assessed on completion of the application problem set located in the textbook at the end of Chapter 2-1.
5. In groups, students will then analyze scatter plot data from a given company based on recent market data.

Differentiation:

Students will be paired so they are working with partners at similar or diverse ability levels, whatever is best for each student. Model example problems to students who may need assistance however students who have a firm understanding can continue onto guided notes examples independently. Assist groups as needed with creating scatterplots electronically or prompt group discussion. Application problems may be modified to fit a student's abilities via Desmos.

Resources Provided:

- Guided Notes
- Access to online textbook
- Google Sheets on laptops
- Desmos



Lesson Plan 2 Template

Content Area: Math Lesson Title: Linear Regression Time Frame: 1 class period

Lesson Components

21st Century Themes

- ☐ Global Awareness ☒ Financial, Economic, Business and Entrepreneurial Literacy
☐ Civic Literacy ☐ Health Literacy

21st Century Skills

- ☐ Creativity and Innovation ☒ Critical Thinking and Problem Solving ☐ Information Literacy
☒ Life and Career Skills ☐ Communication and Collaboration ☐ Media Literacy ☐ ICT Literacy

Interdisciplinary Connections:

Finance, Technology and Mathematics

Integration of Technology:

Students will access the Cengage student learning portal for access to online textbook resources, online glossary, and other supplemental resources. Students will also use a graphing calculator or Desmos to determine correlation coefficient.

Equipment Needed:

Laptops with internet access and graphing calculators.

Goals/Objectives	Learning Activities/ Instructional Strategies	Formative Assessment Tasks
Students will: - Be able to understand all vocabulary in Chapter 2-2 Linear Regression - Calculate the slope for a line of linear regression given bivariate data - Interpret the slope for a line of linear regression - Calculate and interpret correlation coefficients	Lesson Sequence - Students will use the online glossary to define and discuss vocabulary in Chapter 2-2 Linear Regression - Students will complete example problems on guided notes as teacher models examples - In groups, use "How To: Correlation Coefficients" to calculate correlation coefficients using the graphing calculator or Desmos. - Students will be assessed on completion of the application problem set located in the textbook at the end of Chapter 2-2.	- Students will respond to verbal prompts during discussion of vocabulary and guided notes - Circulate through room as students complete example problems to discuss their progress - Monitor and facilitate discussion regarding finding correlation coefficients using the graphing calculator and what makes a strong, moderate or weak correlation coefficient - Collect application problems to assess mastery



SPRINGFIELD PUBLIC SCHOOLS

ENGAGING STUDENTS • FOSTERING ACHIEVEMENT • CULTIVATING 21ST CENTURY GLOBAL SKILLS

Differentiation:

Group students together with different skill levels to allow students to assist each other. Meet with small groups to ensure skills are understood. Modify application problems to accommodate students' skill levels.

Resources Provided:

- Guided Notes including "How To: Correlation Coefficients" Sheet
- Access to online textbook
- Google Sheets
- Graphing Calculator
- Desmos



SPRINGFIELD PUBLIC SCHOOLS
 ENGAGING STUDENTS • FOSTERING ACHIEVEMENT • CULTIVATING 21ST CENTURY GLOBAL SKILLS

Lesson Plan 3 Template

Content Area: Math Lesson Title: Supply and Demand Time Frame: 1 class period

Lesson Components

21st Century Themes

- ☐ Global Awareness ☒ Financial, Economic, Business and Entrepreneurial Literacy
☐ Civic Literacy ☐ Health Literacy

21st Century Skills

- ☐ Creativity and Innovation ☐ Critical Thinking and Problem Solving ☐ Information Literacy
☒ Life and Career Skills ☐ Communication and Collaboration ☐ Media Literacy ☐ ICT Literacy

Interdisciplinary Connections:

Finance, Technology and Mathematics

Integration of Technology:

Students will access Cengage online student learning portal to access online glossary and application problems. Desmos activity.

Equipment Needed:

Laptops with internet access.

Goals/Objectives	Learning Activities/ Instructional Strategies	Formative Assessment Tasks
Students will: - Be able to understand all vocabulary terms in Chapter 2-3 Supply and Demand - Compute wholesale price, retail price and markup - Interpret supply and demand graphs to be able to predict what will happen given a certain price or quantity - Create a linear regression equation using a graphing calculator	Lesson Sequence - Students will use online glossary to define vocabulary in Chapter 2-3 "Supply and Demand" - Teacher will model computing wholesale price and have students develop a method to find the markup using guided notes - In groups, students will evaluate supply and demand charts. Given a certain price, they will determine whether supply is increasing or decreasing as demand is increasing or decreasing - Independently, students will use "How To: Linear	- Students will respond to verbal prompts regarding vocabulary - Discuss with students how to manipulate the modeled problem to develop a method to find the markup or retail price - Circulate through the classroom to assist and prompt students in their determinations of supply and demand directions - Circulate through classroom to assist students as they create linear regression equations (while using "How To" worksheets) on the graphing calculator if necessary



SPRINGFIELD PUBLIC SCHOOLS

ENGAGING STUDENTS • FOSTERING ACHIEVEMENT • CULTIVATING 21ST CENTURY GLOBAL SKILLS

	Regression on the Graphing Calculator" worksheet to create a linear regression equation. 5. Students will be assessed on the application problem set which is located at the end of Chapter 2-3 in the textbook. 6. In groups, students will then decide how to adjust the path of a mock company based on supply and demand data.	• Collect application problems to assess student mastery
Differentiation: Group students together with different skill levels to allow students to assist each other. Modify application problems to accommodate students' skill levels via Desmos. Supply and demand charts can be modified to include notes and starting points for analysis.		
Resources Provided: • Guided Notes including "How To: Linear Regression on the Graphing Calculator" Sheet • Access to online textbook • Graphing Calculator • Supply and Demand Charts for example problems • Desmos		



SPRINGFIELD PUBLIC SCHOOLS
ENGAGING STUDENTS • FOSTERING ACHIEVEMENT • CULTIVATING 21ST CENTURY GLOBAL SKILLS

Lesson Reflection

Reflect on the lesson you have developed and rate the degree to which the lesson *Strongly, Moderately* or *Weakly* meets the criteria below.

Lesson Activities	Strongly	Moderately	Weakly
Are challenging Strongly and require higher order thinking and problem solving skills	☐	☒	☐
Allow for student choice	☐	☒	☐
Provide scaffolding for acquiring targeted knowledge/skills	☐	☒	☐
Integrate global perspectives	☒	☐	☐
Integrate 21st century skills	☒	☐	☐
Provide opportunities for interdisciplinary connection and transfer of knowledge and skills	☒	☐	☐
Foster student use of technology as a tool to develop critical thinking, creativity and innovation skills	☒	☐	☐
Are varied to address different student learning styles and preferences	☐	☒	☐
Are differentiated based on student needs	☒	☐	☐
Are student-centered with teacher acting as a facilitator and co-learner during the teaching and learning process	☐	☒	☐
Provide means for students to demonstrate knowledge and skills and progress in meeting learning goals and objectives	☐	☐	☐
Provide opportunities for student reflection and self- assessment	☐	☒	☐
Provide data to inform and adjust instruction to better meet the varying needs of learners	☐	☐	☐

Curriculum Design Template

Content Area: Math **Grade Level:** 11-12 **Course Title:** Financial Algebra

Created: 2024

Board Approved on:



Unit Overview Template

Content Area: Math

Grade Level: 11-12

Unit Title: Banking Services

Unit Summary: Students will study banking services in the third chapter of Financial Algebra. They will study different checking and savings accounts and discover what types of accounts banks currently offer. Students will learn to calculate interest on accounts and decide which types of accounts will benefit them given different life scenarios and situations. Students will also learn the security of today's bank accounts, online banking systems and joint accounts. Finally, they will calculate the future and present values of investments.

Primary Interdisciplinary Connections: *Material from this unit is fundamental in financial planning and mathematics.*

21st Century Themes ☐ Creativity and Innovation ☒ Critical Thinking and Problem Solving ☐ ICT Literacy
☒ Information Literacy ☐ Life and Career Skills ☐ Communication and Collaboration ☐ Media Literacy

Unit Rationale: This unit will serve as an introduction to financial planning and banking. This will be a part of the foundation for future units such as consumer credit, automobile ownership, employment basics, income taxes and independent living.

Career Readiness (Standard 9):

9.1.12.CDM.8: Compare and compute interest and compound interest and develop an amortization table using business tools.

9.1.12.PB.2: Prioritize financial decisions by considering alternatives and possible consequences.

9.1.12.PB.6: Describe and calculate interest and fees that are applied to various forms of spending, debt and saving.

9.1.12.CFR.4: Demonstrate an understanding of the interrelationships among attitudes, assumptions, and patterns of behavior regarding money, saving, investing, and work across cultures.

9.1.12.EG.3: Explain how individuals and businesses influence government policies.

9.1.12.EG.4: Explain the relationship between your personal financial situation and the broader economic and governmental policies.

9.1.12.EG.5: Relate a country's economic system of production and consumption to building personal wealth, the mindset of social comparison, and achieving societal responsibilities.

9.1.12.EG.6: Analyze the rights and responsibilities of buyers and sellers under consumer protection laws.

9.1.12.FP.3: Relate the concept of delayed gratification (i.e., psychological distance) to meeting financial goals, investing and building wealth over time.

9.1.12.PB.1: Explain the difference between saving and investing.

9.2.12.CAP.3: Investigate how continuing education contributes to one's career and personal growth.

9.2.12.CAP.4: Evaluate different careers and develop various plans (e.g., costs of public, private, training schools) and timetables for achieving them, including educational/training requirements, costs, loans, and debt repayment.

9.4.12.IML.3: Analyze data using tools and models to make valid and reliable claims, or to determine optimal design solutions.

9.4.12.IML.4: Assess and critique the appropriateness and impact of existing data visualizations for an intended audience.



9.4.12.TL.1: Assess digital tools based on features such as accessibility options, capacities, and utility for accomplishing a specified task

9.4.12.TL.2: Generate data using formula-based calculations in a spreadsheet and draw conclusions about the data.

Learning Targets

Standards: A.REI; F.IF

Content Statements: Solve equations and inequalities in one variable; Analyze functions using different representations.

CPI#:	Cumulative Progress Indicator (CPI):
A.REI.B.3	Solve linear equations and inequalities in one variable, including equations with coefficients represented by letters.
F.IF.C.7	Graph functions expressed symbolically and show key features of the graph, by hand in simple cases and using technology for more complicated cases. a. Graph linear and quadratic functions and show intercepts, maxima, and minima. b. Graph square root, cube root, and piecewise-defined functions, including step functions and absolute value functions. c. Graph polynomial functions, identifying zeros when suitable factorizations are available, and showing end behavior. d. (+) Graph rational functions, identifying zeros and asymptotes when suitable factorizations are available, and showing end behavior. e. Graph exponential and logarithmic functions, showing intercepts and end behavior. f. (+) Graph trigonometric functions, showing period, midline, and amplitude.
F.IF.C.8	Write a function defined by an expression in different but equivalent forms to reveal and explain different properties of the function. a. Use the process of factoring and completing the square in a quadratic function to show zeros, extreme values, and symmetry of the graph, and interpret these in terms of a context. b. Use the properties of exponents to interpret expressions for exponential functions. For example, identify percent rate of change in functions such as $y = (1.02)^t$, $y = (0.97)^t$, $y = (1.01)^{12t}$, $y = (1.2)^{t/10}$, and classify them as representing exponential growth or decay.
8.1.12.DA.6	Create and refine computational models to better represent the relationships among different elements of data collected from a phenomenon or process.
8.1.12.AP.1	Design algorithms to solve computational problems using a combination of original and existing algorithms.
SEL.PK-12.4.1	Develop, implement and model effective problem-solving, and critical thinking skills
SEL.PK-12.4.2	Identify the consequences associated with one's actions in order to make constructive choices



SPRINGFIELD PUBLIC SCHOOLS

ENGAGING STUDENTS • FOSTERING ACHIEVEMENT • CULTIVATING 21ST CENTURY GLOBAL SKILLS

SEL.PK-12.4.3

Evaluate personal, ethical, safety, and civic impact of decisions

Unit Essential Questions:

- What is a checking account?
- What are fees associated with a checking and savings account?
- How can you reconcile your checking account?
- What is a savings account?
- What is interest? How interest be calculated for a checking or savings account?
- What is compound interest? How can compound interest be calculated?
- What is continuous interest? How can continuous interest be calculated?
- What is the future and present value of an investment?
- How can future and present value be calculated?

Unit Enduring Understandings:

- Writing a check, reconciling an account using a check register, electronic fund transfers and fees associated with EFT's.
- Calculating starting and ending balances of statement periods including accounting for outstanding checks or deposits.
- Calculating simple interest and compound interest while establishing how many times per year an account is being compounded.
- Minimum balance of a certificate of deposit and a money market account.
- Using the exponential base, e , to calculate continuous interest.
- Graphing exponential and functions that represent growth or decline of money in an account or how much money is necessary to save in order to meet a certain financial goal.

Unit Learning Targets:

Students will gain foundational knowledge of banking services, and then go into depth analyze the impacts on their lives.



Evidence of Learning

Summative Assessment: 16 days

Equipment Needed: Teacher laptops, student laptops, textbook, internet access and calculator

Teacher Resources:

Textbook: Financial Algebra, Cengage Learning, 2011

Notes on Chapter 3

Workbook Worksheets

Cengage Online Student Portal

ExamView Test Generator

Formative Assessments:

- Students will be assessed on classwork/workbook assignments.
- Students will be assessed on group and individual projects.
- Students will be assessed on quizzes and tests.
- Students will be assessed on homework assignments.
- Students will be assessed on exit/entry tickets.
- Students will be assessed on answers within Desmos



SPRINGFIELD PUBLIC SCHOOLS
ENGAGING STUDENTS • FOSTERING ACHIEVEMENT • CULTIVATING 21ST CENTURY GLOBAL SKILLS

Lesson Plans

Lesson	Time Frame
Lesson 1 Checking Accounts	2 class periods
Lesson 2 Reconciling a Bank Statement	1 class period
Lesson 3 Savings Account	1class period

Teacher Notes:

Emphasize the applications of Google Sheets for larger analysis.

Curriculum Development Resources/Technology Resources:

Click the links below to access additional resources used to design this unit:

http://www.cengage.com/cgi-wadsworth/course_products_wp.pl?fid=M20b&product_isbn_issn=9780538449670&token=5503649ED981F116634603149CBB2620164E955C7DD6D16285BAB123ECC2098C3DDA1999476FE1CC7D3E65B60241A515EC6C07766539880061A99B557CC97714F2BBCFF142AB3A7A

<http://finance.yahoo.com>

<http://www.desmos.com>



Lesson Plan 1 Template

Content Area: Math Lesson Title: Checking Accounts Time Frame: 2 Class Periods

Lesson Components

21st Century Themes

- ☐ Global Awareness ☒ Financial, Economic, Business and Entrepreneurial Literacy
☐ Civic Literacy ☐ Health Literacy

21st Century Skills

- ☐ Creativity and Innovation ☒ Critical Thinking and Problem Solving ☐ Information Literacy
☐ Life and Career Skills ☐ Communication and Collaboration ☐ Media Literacy ☐ ICT Literacy

Interdisciplinary Connections:

Finance, Technology and Mathematics

Integration of Technology:

Students will access the Cengage student learning portal for access of online textbook, online glossary and supplemental resources. Use of Desmos.

Equipment Needed:

Laptops with internet access.

Goals/Objectives	Learning Activities/ Instructional Strategies	Formative Assessment Tasks
Students will: - Be able to understand all vocabulary terms in Chapter 3-1 Checking Accounts. - Be able to compute a balance in a checking account given a starting balance, electronic fund transfers, checks written and deposits made. - Be able to read check registers and deposit tickets. - Be able to write checks payable from a checking account.	Lesson Sequence - Students will use an online glossary to define vocabulary in Chapter 3-1 "Checking Accounts." - Students will complete practice problems independently after the teacher models example problems on guided notes. - In pairs, students will be given 5 financial scenarios and write checks with their partner for each financial scenario. - Students will be assessed on completion of the application problem set	- Students will respond to verbal prompts during discussion while completing guided notes. - Circulate through the room as students complete independent practice problems. - Talk to each group of students regarding the five checks that they wrote for their financial scenarios. - Have students discuss solutions to practice problems. - Collect application problems to assess mastery.



SPRINGFIELD PUBLIC SCHOOLS

ENGAGING STUDENTS • FOSTERING ACHIEVEMENT • CULTIVATING 21ST CENTURY GLOBAL SKILLS

located in the textbook at the end of Chapter 3-1.

5. Students will create their own checking account analysis based on either their current lives or a future they imagine. Students will share via Google Sheets with their group and make suggestions on how to improve.

Differentiation:

Students will be paired so they are working with partners at a similar ability level. Model example problems for students who need assistance while other students can continue on guided notes independently. Application problems may be modified to fit a student's abilities.

Resources Provided:

- Guided notes
- Blank sample checks
- Access to online textbooks for application problem access.



Lesson Plan 2 Template

Content Area: Math Lesson Title: Reconcile a Bank Statement Time Frame: 1 Class Period

Lesson Components

21st Century Themes

- ☐ Global Awareness ☒ Financial, Economic, Business and Entrepreneurial Literacy
☐ Civic Literacy ☐ Health Literacy

21st Century Skills

- ☐ Creativity and Innovation ☒ Critical Thinking and Problem Solving ☐ Information Literacy
☒ Life and Career Skills ☐ Communication and Collaboration ☐ Media Literacy ☐ ICT Literacy

Interdisciplinary Connections:

Finance, Technology and Mathematics

Integration of Technology:

Students will access Cengage online student learning portal for online glossary and students will use Google Sheets as well as Desmos

Equipment Needed:

Laptops with internet access.

Goals/Objectives	Learning Activities/ Instructional Strategies	Formative Assessment Tasks
Students will: - Be able to understand all vocabulary terms in Chapter 3-2 Reconcile a Bank Account. - Be able to input check register data into Google Sheets and reconcile account data using Google Sheets. - Be able to reconcile a checking account given a check register. - Be able to use the ending balance and some transactions on a check register to fill in missing transactions on the check register.	Lesson Sequence - Students will use online glossary to define vocabulary in Chapter 3-2 "Reconcile a Bank Account." - Students will complete practice problems on guided notes reconciling a bank account given a check register. - In groups, students will follow a step-by-step "How To" worksheet to reconcile a checking account using Google Sheets. - Students will discuss, in groups, using Google Sheets. Students will create a brief	- Students will respond to verbal prompts regarding vocabulary. - Circulate through the room while students work in groups using Google Sheets. - Display solutions to practice problems on the projector so students can check and correct their work. - Collect workbook problems to assess student mastery.



SPRINGFIELD PUBLIC SCHOOLS

ENGAGING STUDENTS • FOSTERING ACHIEVEMENT • CULTIVATING 21ST CENTURY GLOBAL SKILLS

	presentation to share with other groups on Google Sheets, then make comments on other groups' work. 5. Students will independently complete problems from the workbook to fill in missing transactions on a check register.	
Differentiation: Group students together with different skill levels to allow students to assist each other. Modify workbook problems to accommodate students' skill levels e.g. by modifying a Desmos activity to aid the group work.		
Resources Provided: • Guided Notes • "How To: Google Sheets" Sheet • Workbook practice problems • Access to online textbook • Desmos activity		



Lesson Plan 3 Template

Content Area: Math Lesson Title: Savings Accounts Time Frame: 1 Class Period

Lesson Components

21st Century Themes

- ☐ Global Awareness ☒ Financial, Economic, Business and Entrepreneurial Literacy
☐ Civic Literacy ☐ Health Literacy

21st Century Skills

- ☐ Creativity and Innovation ☒ Critical Thinking and Problem Solving ☐ Information Literacy
☒ Life and Career Skills ☐ Communication and Collaboration ☐ Media Literacy ☐ ICT Literacy

Interdisciplinary Connections:

Finance, Technology, and Mathematics

Integration of Technology:

Students will access cengage online student learning portal to access online glossary. Students will use Desmos for lesson notes.

Equipment Needed:

Laptops with internet access

Goals/Objectives	Learning Activities/ Instructional Strategies	Formative Assessment Tasks
Students will: • Be able to understand all vocabulary terms in Chapter 3-3 Savings Accounts. • Be able to compute simple interest. • Students will be able to compute whole numbers and mixed number percentages to decimals. • Create algebraic expressions to represent account balance. • Solve literal equations for a specific variable in the simple interest formula. • Apply these concepts to their own financial situation (or made up situation).	Lesson Sequence 1. Students will use online glossary to define vocabulary in Chapter 3-2 "Reconcile a Bank Account." 2. Practice converting mixed number fractions to decimals on the introductory part of guided notes, provide link to Khan Academy video to refresh students on this skill if necessary. 3. Students will complete practice problems on guided notes after the teacher models an example problem computing simple interest.	• Students will discuss in groups the vocabulary. • Circulate through the room while students complete practice problems on guided notes to answer questions and assist students. • Display solutions on the board for literal equation problems so students can check and correct their work. • Collect application set to assess student mastery



SPRINGFIELD PUBLIC SCHOOLS

ENGAGING STUDENTS • FOSTERING ACHIEVEMENT • CULTIVATING 21ST CENTURY GLOBAL SKILLS

4. Work in pairs to solve literal equations and then compute interest, principal or rate in a simple interest problem.
5. Complete application problem set.
6. Students will create their own savings account presentation based on either their current lives or a future they imagine. Students will share via Google Sheets with their group and make suggestions on how to improve.

Differentiation:

Provide Khan Academy video for changing percentages to decimal. Group students with similar skill ability and model example problems for students who need assistance while other students can continue on in guided notes independently. Modify application problems if necessary.

Resources Provided:

- Guided notes
- Access to online textbook
- Desmos



SPRINGFIELD PUBLIC SCHOOLS
ENGAGING STUDENTS • FOSTERING ACHIEVEMENT • CULTIVATING 21ST CENTURY GLOBAL SKILLS

Lesson Reflection

Reflect on the lesson you have developed and rate the degree to which the lesson *Strongly, Moderately* or *Weakly* meets the criteria below.

Lesson Activities	Strongly	Moderately	Weakly
Are challenging Strongly and require higher-order thinking and problem-solving skills	☐	☒	☐
Allow for student choice	☐	☒	☐
Provide scaffolding for acquiring targeted knowledge/skills	☐	☒	☐
Integrate global perspectives	☒	☐	☐
Integrate 21st-century skills	☒	☐	☐
Provide opportunities for interdisciplinary connection and transfer of knowledge and skills	☒	☐	☐
Foster student use of technology as a tool to develop critical thinking, creativity and innovation skills	☒	☐	☐
Are varied to address different student learning styles and preferences	☐	☒	☐
Are differentiated based on student needs	☒	☐	☐
Are student-centered with the teacher acting as a facilitator and co-learner during the teaching and learning process	☐	☒	☐
Provide means for students to demonstrate knowledge and skills and progress in meeting learning goals and objectives	☐	☒	☐
Provide opportunities for student reflection and self- assessment	☐	☒	☐
Provide data to inform and adjust instruction to better meet the varying needs of learners	☒	☐	☐

Curriculum Design Template

Content Area: Math	Grade Level: 11-12	Course Title: Financial Algebra
Created: 2024	Board Approved on:	



Unit Overview Template

Content Area: Math

Grade Level: 11-12

Unit Title: Consumer Credit

Unit Summary: Students will study consumer credit, becoming familiar with different lending institutions and finances associated with those institutions. They will be able to read monthly loan statements and compute payments and finance charges. The students will be able to calculate the present value of a single deposit investment and a periodic deposit investment. They will understand the use of self-assessment of interest rates associated with credit cards, the students will also be able to compute an average daily balance of a credit card. Students will be able to read and interpret credit card statements, identifying various entries. They will also be able to calculate the average daily balance and finance charge both using the credit calendar.

Primary Interdisciplinary Connections: *Material in this unit is fundamental in being able to understand all financial aspects involving consumer credit.*

21st Century Themes ☐ Creativity and Innovation ☒ Critical Thinking and Problem Solving ☐ ICT Literacy
☐ Information Literacy ☒ Life and Career Skills ☐ Communication and Collaboration ☐ Media Literacy

Unit Rationale: This unit uses pre-requisite skills learned in the Banking Services unit. Students will begin to understand the honesty, responsibility and obligations associated with credit. They will further understand loans and credit cards which both can involve interest. We will further develop calculating interest in this unit.

Career Readiness (Standard 9):

9.1.12.CDM.1: Identify the purposes, advantages, and disadvantages of debt.

9.1.12.CDM.3: Determine ways to leverage debt beneficially.

9.1.12.CDM.5: Identify the types of characteristics of predatory lending practices and the importance of collateral (e.g., payday loans, car title loans, high-risk mortgages).

9.1.12.CDM.6: Compute and assess the accumulating effect of interest paid over time when using a variety of sources of credit. (e.g., student loans, credit cards, auto loans, mortgages, etc.).

9.1.12.CDM.7: Calculate a mortgage payment based on type of loan, down payment, credit score, and loan interest rate.

9.1.12.CDM.8: Compare and compute interest and compound interest and develop an amortization table using business tools.

9.1.12.CP.1: Summarize how one's credit history can affect finances, including loan terms, employment, and qualifying for loans.

9.1.12.CP.2: Identify the advantages of maintaining a positive credit history.

9.1.12.CP.3: Summarize factors that affect a positive credit rating, including on-time payments, debt versus available credit, length of open credit, and how often you apply for credit.

9.1.12.CP.4: Identify the skill sets needed to build and maintain a positive credit profile.

9.1.12.CP.5: Create a plan to improve and maintain an excellent credit rating.

9.1.12.CP.7: Summarize factors that affect a particular credit scoring system.

9.1.12.CP.8: Identify different ways you can protect your credit.

9.1.12.CP.9: Analyze the information contained in a credit report, how scores are calculated and used, and explain the importance of disputing inaccurate entries.



- 9.1.12.CFR.4: Demonstrate an understanding of the interrelationships among attitudes, assumptions, and patterns of behavior regarding money, saving, investing, and work across cultures.
- 9.1.12.EG.3: Explain how individuals and businesses influence government policies.
- 9.1.12.EG.4: Explain the relationship between your personal financial situation and the broader economic and governmental policies.
- 9.1.12.EG.5: Relate a country's economic system of production and consumption to building personal wealth, the mindset of social comparison, and achieving societal responsibilities.
- 9.1.12.EG.6: Analyze the rights and responsibilities of buyers and sellers under consumer protection laws.
- 9.1.12.FP.3: Relate the concept of delayed gratification (i.e., psychological distance) to meeting financial goals, investing and building wealth over time.
- 9.1.12.PB.1: Explain the difference between saving and investing.
- 9.2.12.CAP.3: Investigate how continuing education contributes to one's career and personal growth.
- 9.2.12.CAP.4: Evaluate different careers and develop various plans (e.g., costs of public, private, training schools) and timetables for achieving them, including educational/training requirements, costs, loans, and debt repayment.
- 9.4.12.IML.3: Analyze data using tools and models to make valid and reliable claims, or to determine optimal design solutions.
- 9.4.12.IML.4: Assess and critique the appropriateness and impact of existing data visualizations for an intended audience.
- 9.4.12.TL.1: Assess digital tools based on features such as accessibility options, capacities, and utility for accomplishing a specified task
- 9.4.12.TL.2: Generate data using formula-based calculations in a spreadsheet and draw conclusions about the data.

Learning Targets

Standards: A.SSE; A.CED; F.BF; S.ID

Content Statements: Write expressions in equivalent forms to solve problems; Create equations that describe numbers or relationships; Build new functions from existing functions; Summarize, represent, and interpret data on a single count or measurement variable.

CPI#:	Cumulative Progress Indicator (CPI):
A.SSE.B.3	Choose and produce an equivalent form of an expression to reveal and explain properties of the quantity represented by the expression. a. Factor a quadratic expression to reveal the zeros of the function it defines. b. Complete the square in a quadratic expression to reveal the maximum or minimum value of the function it defines. c. Use the properties of exponents to transform expressions for exponential functions. For example the expression $1.15t$ can be rewritten as $(1.151/12)^{12t}$ $\approx 1.01^{12t}$ to reveal the approximate equivalent monthly interest rate if the annual rate is 15%.
A.CED.A.1	Create equations and inequalities in one variable and use them to solve problems.



SPRINGFIELD PUBLIC SCHOOLS
 ENGAGING STUDENTS • FOSTERING ACHIEVEMENT • CULTIVATING 21ST CENTURY GLOBAL SKILLS

	Include equations arising from linear and quadratic functions, and simple rational and exponential functions.
F.BF.B.5	Use the inverse relationship between exponents and logarithms to solve problems involving logarithms and exponents.
S.ID.A.2	Use statistics appropriate to the shape of the data distribution to compare center (median, mean) and spread (interquartile range, standard deviation) of two or more different data sets.
8.1.12.DA.6	Create and refine computational models to better represent the relationships among different elements of data collected from a phenomenon or process.
8.1.12.AP.1	Design algorithms to solve computational problems using a combination of original and existing algorithms.
SEL.PK-12.4.1	Develop, implement and model effective problem-solving, and critical thinking skills
SEL.PK-12.4.2	Identify the consequences associated with one's actions in order to make constructive choices
SEL.PK-12.4.3	Evaluate personal, ethical, safety, and civic impact of decisions

Unit Essential Questions:

- How are finance charges computed for installment purchases?
- How are monthly payments computed?
- How are loan finance charges computed?
- What is the difference between calculating the present value of a single deposit investment and periodic deposit investment?
- What is a credit card?
- How is an average daily balance computed?
- What is shown on a credit card statement?
- How can the average daily balance and a finance charge be calculated using the credit calendar?

Unit Enduring Understandings:

- Calculate the time it will take to save for a purchase
- Calculate the finance charge of an installment plan
- Distinguish what makes a credit score good, moderate or a risk.
- Calculating monthly payments of a loan
- Calculating monthly payments of a loan with an annual percentage rate
- Utilize the monthly payment formula to calculate monthly payments
- Utilize the loan length formula to find the time it will take to pay off a loan
- Calculate credit card balance when credit card is lost or stolen
- Calculate monthly interest rates
- Read and interpret a credit card statement
- Use a credit calendar to calculate the average daily balance



SPRINGFIELD PUBLIC SCHOOLS

ENGAGING STUDENTS • FOSTERING ACHIEVEMENT • CULTIVATING 21ST CENTURY GLOBAL SKILLS

Unit Learning Targets:

Students will understand the honesty, responsibility and obligations associated with credit. Students will further understand loans and credit cards which both can involve interest.

Climate Change Example: Students may create equations and/or inequalities to represent the economic impact of climate change.



Evidence of Learning

Summative Assessment: 15 days

Equipment Needed: Teacher laptop, student laptops, internet access, Google Sheets, graphing calculators

Teacher Resources:

Textbook: Financial Algebra, Cengage Learning, 2011

Notes on Chapter 4

Workbook Worksheets

Cengage Online Student Portal

ExamView Test Generator

Desmos

Formative Assessments:

- Students will be assessed on classwork/workbook assignments.
- Students will be assessed on group and individual projects.
- Students will be assessed on quizzes and tests
- Students will be assessed on homework assignments.
- Students will be assessed on exit/entry tickets.
- Students will be assessed on answers within Desmos



SPRINGFIELD PUBLIC SCHOOLS
ENGAGING STUDENTS • FOSTERING ACHIEVEMENT • CULTIVATING 21ST CENTURY GLOBAL SKILLS

Lesson Plans

Lesson	Time Frame
Lesson 1 Introduction to Consumer Credit	1 class period
Lesson 2 Loans	2 class periods
Lesson 3 Loan Calculations and Regression	2 class periods

Teacher Notes:

Emphasize the applications of Google Sheets for larger analysis.

Curriculum Development Resources/Technology Resources:

Click the links below to access additional resources used to design this unit:

http://www.cengage.com/cgi-wadsworth/course_products_wp.pl?fid=M2ob&product_isbn_issn=9780538449670&token=5503649ED981F116634603149CBB2620164E955C7DD6D16285BAB123ECC2098C3DDA1999476FE1CC7D3E65B60241A515EC6C07766539880061A99B557CC97714F2BBCFF142AB3A7A

<http://finance.yahoo.com>

<http://www.desmos.com>



Lesson Plan 1 Template

Content Area: Math Lesson Title: Introduction to Consumer Credit Time Frame: 1 class period

Lesson Components

21st Century Themes

- ☐ Global Awareness ☒ Financial, Economic, Business and Entrepreneurial Literacy
☐ Civic Literacy ☐ Health Literacy

21st Century Skills

- ☐ Creativity and Innovation ☒ Critical Thinking and Problem Solving ☐ Information Literacy
☒ Life and Career Skills ☐ Communication and Collaboration ☐ Media Literacy ☐ ICT Literacy

Interdisciplinary Connections:

Finance, Technology and Mathematics

Integration of Technology:

Students will access the cengage student learning portal for access of online textbook, online glossary and supplemental resources as well as the use of Desmos

Equipment Needed:

Laptops with internet access

Goals/Objectives	Learning Activities/ Instructional Strategies	Formative Assessment Tasks
Students will: - Be able to understand all vocabulary in Chapter 4-1 Introduction to Consumer Credit - Be able to compute time it takes to save for a purchase - Be able to compute the finance charge of a loan - Understand different types of installment plans with and without interest - Understand what credit reporting agencies are and how they determine a credit score - Be able to interpret a credit score as a risk, fair, good, or excellent	Lesson Sequence - Students will use the online glossary to define and discuss vocabulary in Chapter 4-1 Introduction to Consumer Credit - Students will complete guided notes in which they compute different elements involving loans such as finance charges or time it will take to pay off a purchase. Teacher will model examples for students who may need additional assistance - Students will work in groups, each group will be assigned a fictional character with details about their financial	- Students will respond to verbal prompts during discussion of vocabulary and guided notes - Circulate through the room to assist in facilitating group discussions so that students can assist group members in discussing their character. - Collect application problems to assess mastery.



SPRINGFIELD PUBLIC SCHOOLS

ENGAGING STUDENTS • FOSTERING ACHIEVEMENT • CULTIVATING 21ST CENTURY GLOBAL SKILLS

history and credit score. Groups will discuss why the individual may have attained that credit score and what their credit score is considered (a risk, fair, good or excellent).

4. Students will be assessed on completion of the application problem set located in the textbook at the end of Chapter 4-1.
5. Students will begin a month-long process of tracking a credit based purchase of their choosing. Examples are ARM loans, car loans, traditional mortgages, and student loans. Students will analyze their scenarios and prepare a presentation for their small groups.

Differentiation:

Students will be grouped so they are working with other students at different ability levels. Model example problems to students who may need assistance however students who have a firm understanding can continue onto guided notes examples independently. Assist groups as needed with prompting group discussion regarding their characters. Application problems may be modified to fit a student's abilities.

Resources Provided:

- Guided Notes
- Fictional Character Description
- Access to online textbook
- Worksheets
- Desmos



SPRINGFIELD PUBLIC SCHOOLS
 ENGAGING STUDENTS • FOSTERING ACHIEVEMENT • CULTIVATING 21ST CENTURY GLOBAL SKILLS

Lesson Plan 2 Template

Content Area: Math Lesson Title: Loans Time Frame: 2 class periods

Lesson Components

21st Century Themes

- ☐ Global Awareness ☒ Financial, Economic, Business and Entrepreneurial Literacy
☐ Civic Literacy ☐ Health Literacy

21st Century Skills

- ☐ Creativity and Innovation ☒ Critical Thinking and Problem Solving ☐ Information Literacy
☒ Life and Career Skills ☐ Communication and Collaboration ☐ Media Literacy ☐ ICT Literacy

Interdisciplinary Connections:

Finance, Technology and Mathematics

Integration of Technology:

Students will access cengage online student learning portal to access online glossary and application problems. Students will need graphing calculators or Desmos

Equipment Needed:

Laptops with internet access and TI SmartView to display graphing calculators or Desmos through the projector.

Goals/Objectives	Learning Activities/ Instructional Strategies	Formative Assessment Tasks
Students will: - Be able to understand all vocabulary terms in Chapter 4-2 Loans - Use a table to compute monthly payment for a loan with interest - Use a table to compute total monthly payments for a loan with interest. - Compute the finance charge of a loan given the principal, loan length and interest rate - Use the monthly payment formula to compute the monthly payment of a loan	Lesson Sequence - Students will use online glossary to define vocabulary in Chapter 4-2 "Loans" - Teacher will model computing a single and total monthly payments using a chart. Students will practice with example problems on guided notes - In pairs, students will develop a way to manipulate given information regarding a loan to compute a finance charge of a loan - Students will complete workbook practice problems. Students will	- Students will respond to verbal prompts regarding vocabulary - Discuss with students how to manipulate the modeled problem to develop a method to find the finance charge - Mini Lesson on using the graphing calculator for the monthly payment formula - Circulate through the classroom to assist students completing workbook problems in pairs and find mini lessons unnecessary.



SPRINGFIELD PUBLIC SCHOOLS

ENGAGING STUDENTS • FOSTERING ACHIEVEMENT • CULTIVATING 21ST CENTURY GLOBAL SKILLS

use "How To: Use the Monthly Payment Formula" to compute monthly payments using the monthly payment formula on graphing calculators. Teacher will hold a mini-lesson for any students who may need additional assistance with the formula by projecting the calculator on the whiteboard and showing students how to input the formula into the calculator.

5. Students will be assessed on the application problem set located at the end of Chapter 4-2 in the textbook.
6. Students will continue to analyze their long-term loan project.

- Collect application problems to assess student mastery

Differentiation:

Group students together with different skill levels to allow students to assist each other. Modify application problems to accommodate students' skill levels. The teacher can meet one-on-one with students to review their long-term loan project to review basic concepts and assign extensions if necessary.

Resources Provided:

- Guided Notes including "How To: Use Monthly Payment Formula" Sheet
- Access to online textbook
- Graphing Calculator
- Workbook Practice Problems
- Desmos



Lesson Plan 3 Template

Content Area: Math Lesson Title: Loan Calculations and Regression Time Frame: 2 class periods

Lesson Components

21st Century Themes

- ☐ Global Awareness ☐ Financial, Economic, Business and Entrepreneurial Literacy
☐ Civic Literacy ☐ Health Literacy

21st Century Skills

- ☐ Creativity and Innovation ☒ Critical Thinking and Problem Solving ☐ Information Literacy
☒ Life and Career Skills ☐ Communication and Collaboration ☐ Media Literacy ☐ ICT Literacy

Interdisciplinary Connections:

Finance, Technology and Mathematics

Integration of Technology:

Students will access cengage online student learning portal to access online glossary and application problems. Students will also need graphing calculators or Desmos.

Equipment Needed:

Laptops with internet access and TI SmartView to display graphing calculators or Desmos through the projector.

Goals/Objectives	Learning Activities/ Instructional Strategies	Formative Assessment Tasks
Students will: - Be able to understand all vocabulary terms in Chapter 4-3 Loan Calculations and Regression - Calculate monthly payments - Calculate loan length using the loan length formula - Use graphing calculators to find line or curve of best fit to data	Lesson Sequence - Students will use online glossary to define vocabulary in Chapter 4-3 "Loan Calculations and Regression" - Students will complete "Entry Ticket: Monthly Payment Formula" by calculating the monthly payment of a loan using the graphing calculator and the monthly payment formula - Teacher will model computing loan length using the loan length formula. Students will complete example problems on guided notes	- Students will respond to verbal prompts regarding vocabulary - Circulate through the room as students complete "Entry Ticket" to assess students understanding of the monthly payment formula - Circulate through the room after modeling loan length examples as students complete example problems on guided notes, assisting students as necessary.



SPRINGFIELD PUBLIC SCHOOLS

ENGAGING STUDENTS • FOSTERING ACHIEVEMENT • CULTIVATING 21ST CENTURY GLOBAL SKILLS

- | | | |
|--|---|--|
| | <ol style="list-style-type: none">4. In pairs, students will use a graphing calculator to fit a line or curve to data using the graphing calculator. Teacher will model examples by projecting the calculator onto the whiteboard and students will work together to fit data to a line or curve and write the equation of the curve or line.5. Students will be assessed on the application problem set which is located at the end of Chapter 4-3 in the textbook.6. Desmos may be used instead of a graphing calculator.7. Students will then begin to complete an analysis of their long term financial projects for the year. Students will ultimately combine these analyses into a mock financial portfolio to analyze with other students. | <ul style="list-style-type: none">• Collect application problems to assess student mastery |
|--|---|--|

Differentiation:

Group students together with different skill levels to allow students to assist each other. Modify application problems set to accommodate students' skill levels. Meet with students to review their financial portfolio reviewing any necessary skills.

Resources Provided:

- Guided Notes
- Access to online textbook
- Graphing calculator
- Entry Ticket
- Desmos



SPRINGFIELD PUBLIC SCHOOLS
ENGAGING STUDENTS • FOSTERING ACHIEVEMENT • CULTIVATING 21ST CENTURY GLOBAL SKILLS

Lesson Reflection

Reflect on the lesson you have developed and rate the degree to which the lesson *Strongly, Moderately* or *Weakly* meets the criteria below.

Lesson Activities	Strongly	Moderately	Weakly
Are challenging Strongly and require higher-order thinking and problem-solving skills	☐	☒	☐
Allow for student choice	☐	☒	☐
Provide scaffolding for acquiring targeted knowledge/skills	☐	☒	☐
Integrate global perspectives	☒	☐	☐
Integrate 21st-century skills	☒	☐	☐
Provide opportunities for interdisciplinary connection and transfer of knowledge and skills	☒	☐	☐
Foster student use of technology as a tool to develop critical thinking, creativity and innovation skills	☒	☐	☐
Are varied to address different student learning styles and preferences	☐	☒	☐
Are differentiated based on student needs	☒	☐	☐
Are student-centered, with the teacher acting as a facilitator and co-learner during the teaching and learning process	☐	☒	☐
The teacher means for students to demonstrate knowledge and skills and progress in meeting learning goals and objectives	☐	☒	☐
Provide opportunities for student reflection and self-assessment	☐	☒	☐
Provide data to inform and adjust instruction to better meet the varying needs of learners	☒	☐	☐

Curriculum Design Template

Content Area: Math	Grade Level: 11-12	Course Title: Financial Algebra
Created: 2024	Board Approved on:	



SPRINGFIELD PUBLIC SCHOOLS

**ENGAGING STUDENTS • FOSTERING ACHIEVEMENT • CULTIVATING 21ST CENTURY
GLOBAL SKILLS**

IEP AND 504 ACCOMMODATIONS AND MODIFICATIONS FOR EARLY CHILDHOOD AND ELEMENTARY SCHOOL STUDENTS:

Large print textbooks
Textbooks for at-home use
Additional time for assignments
Review of directions
Use of mnemonics
Have student restate information
Concrete examples
Adaptive writing utensils
Support auditory presentations with visuals
Use of a study carrel
Assistance in maintaining uncluttered space
Weekly home-school communication tools (notebook, daily log, phone calls or email messages)
Space for movement or breaks
Study sheets and teacher outlines
Extra visual and verbal cues and prompts
Math sheets with highlighted instructions
Graph paper to assist in organizing or lining up math problems
Use of computers and calculators
Books on tape
Graphic organizers
Quiet corner or room to calm down and relax when anxious
Preferential seating
Alteration of the classroom arrangement
Reduction of distractions
Answers to be dictated
Hands-on activities
Use of manipulatives
No penalty for spelling errors or sloppy handwriting
Follow a routine/schedule
Alternate quiet and active time
Teach time management skills
Rest breaks
Verbal and visual cues regarding directions and staying on task
Agenda book and checklists
Adjusted assignment timelines
Visual daily schedule



SPRINGFIELD PUBLIC SCHOOLS

**ENGAGING STUDENTS • FOSTERING ACHIEVEMENT • CULTIVATING 21ST CENTURY
GLOBAL SKILLS**

Varied reinforcement procedures
Immediate feedback
Work-in-progress check
Personalized examples

TESTING AND ASSESSMENT ACCOMMODATIONS AND MODIFICATIONS:

Answers to be dictated
Frequent rest breaks
Additional time
Oral testing
Untimed tests
Choice of test format (multiple-choice, essay, true-false)
Alternate ways to evaluate (projects or oral presentations instead of written tests)
Accept short answers
Open-book tests
Read test and directions to student
Provide study outline prior to tests
Highlight key directions
Test in alternative site
Use of calculator
Extra credit option
Preview test procedures
Simplified test wording; rephrased test questions and/or directions

GENERAL ACCOMMODATIONS AND MODIFICATIONS:

Use of alternative books or materials on the topic being studied
Computerized spell-check support
Word bank of choices for answers to test questions
Provision of calculator and/or number line for math tests
Reworded questions in simpler language
Projects instead of written reports
Highlighting important words or phrases in reading assignments
Modified workload or length of assignments/tests
Modified time demands
Modified grades based on IEP

BEHAVIOR ACCOMMODATIONS MODIFICATIONS:



SPRINGFIELD PUBLIC SCHOOLS

**ENGAGING STUDENTS • FOSTERING ACHIEVEMENT • CULTIVATING 21ST CENTURY
GLOBAL SKILLS**

Breaks between tasks
Cue expected behavior
Daily feedback to student
Have contingency plans
Use de-escalating strategies
Use positive reinforcement
Use proximity/touch control
Use peer supports and mentoring
Model expected behavior by adults
Have parent sign homework
Have parent sign behavior chart
Set and post class rules
Chart progress and maintain data



SPRINGFIELD PUBLIC SCHOOLS

ENGAGING STUDENTS • FOSTERING ACHIEVEMENT • CULTIVATING 21ST CENTURY
GLOBAL SKILLS

IEP AND 504 ACCOMODATIONS AND MODIFICATIONS FOR MIDDLE AND HIGH SCHOOL STUDENTS:

Large print textbooks
Textbooks for at-home use
Additional time for assignments
A locker with adapted lock
Review of directions
Review sessions
Use of mnemonics
Have student restate information
Provision of notes or outlines
Concrete examples
Adaptive writing utensils
Support auditory presentations with visuals
Weekly or bi-weekly home-school communication
Space for movement or breaks
Study sheets and teacher outlines
Extra visual and verbal cues and prompts
Lab and math sheets with highlighted instructions
Graph paper to assist in organizing or lining up math problems
Use of tape recorder for lectures
Use of Interactive notebook
Use of a scribe
Use of computers and calculators
Books on tape
Graphic organizers
Quiet corner or room to calm down and relax when anxious
Preferential seating
Alteration of the classroom arrangement
Reduction of distractions
Answers to be dictated
Hands-on activities
Ability to type all assignments
Follow a routine/schedule
Teach time management and organizational skills
Rest breaks
Verbal and visual cues regarding directions and staying on task
Agenda book and checklists
Daily check-in with case manager or special education teacher
Adjusted assignment timelines
Visual daily schedule



SPRINGFIELD PUBLIC SCHOOLS

**ENGAGING STUDENTS • FOSTERING ACHIEVEMENT • CULTIVATING 21ST CENTURY
GLOBAL SKILLS**

Varied reinforcement procedures
Immediate feedback
Work-in-progress check
Personalized examples

TESTING AND ASSESSMENT ACCOMMODATIONS AND MODIFICATIONS:

Answers to be dictated
Frequent rest breaks
Additional time
Oral testing
Choice of test format (multiple-choice, essay, true-false)
Alternate ways to evaluate (projects or oral presentations instead of written tests)
Accept short answers
Open-book or open-note tests
Read test and directions to student
Provide study guides prior to tests
Highlight key directions
Test in alternative site
Use of calculator
Extra credit option
Pace long-term projects
Preview test procedures
Simplified test wording; rephrased test questions and/or directions

GENERAL ACCOMMODATIONS AND MODIFICATIONS:

Allow outlining, instead of writing for an essay or major project
Use of alternative books or materials on the topic being studied
Computerized spell-check support
Word bank of choices for answers to test questions
Provision of calculator for math tests
Film or video supplements in place of reading text
Reworded questions in simpler language
Projects instead of written reports
Highlighting important words or phrases in reading assignments
Modified workload or length of assignments/tests
Modified time demands



SPRINGFIELD PUBLIC SCHOOLS

**ENGAGING STUDENTS • FOSTERING ACHIEVEMENT • CULTIVATING 21ST CENTURY
GLOBAL SKILLS**

Pass/no pass option

Modified grades based on IEP

BEHAVIOR ACCOMMODATIONS FOR STUDENTS:

- Breaks between tasks
- Cue expected behavior
- Daily feedback to student
- Have contingency plans
- Use de-escalating strategies
- Use positive reinforcement
- Use proximity/touch control
- Use peer supports and mentoring
- Model expected behavior by adults
- Have parent sign homework
- Set and post class rules
- Chart progress and maintain data



SPRINGFIELD PUBLIC SCHOOLS

ENGAGING STUDENTS • FOSTERING ACHIEVEMENT • CULTIVATING 21ST CENTURY
GLOBAL SKILLS

Accommodations and Modifications for ESL Students

- Give tests orally
- Give instructions/directions in writing and orally
- Assign a peer tutor, same language or English speaking
- Allow use of bilingual/translation dictionary
- Provide summaries of text or study guides of particular chapters
- Allow errors in speaking
- Allow errors in writing
- Accept writing in first language
- Highlight key vocabulary
- Reduce amount of work required
- Assess comprehension through demonstration or other alternative means (gestures, drawings)
- Rephrase questions, directions, and explanations
- Reduce multiple choices on assessments
- Provide study guides and/ or outlines
- Shorten reading assignments
- Allow extended time for test/project completion
- Use of audio books
- Use of graphic organizers
- Use reduced text, so that print is not dense
- Use visuals/pictures throughout lesson/unit/assignment
- Adapt homework to reflect language proficiency/home support
- Adapt homework to reflect home support
- Provide hands-on activities and explanations
- Allow extended time to answer questions, and permit drawing, as an explanation
- Use of translation dictionaries to locate words in the native language
- Use anecdotal records and portfolio of work as forms of assessment
- Use story retellings to assess comprehension

What Does the Gifted and Talented Experience Look Like? *Springfield Public Schools*

Mission Statement

The Gifted and Talented Program of the Springfield Public Schools aims to provide a meaningful and rigorous education that instills the value of lifelong learning and empowers all students to reach their full potential and become self-fulfilled creative leaders in accordance with the comprehensive standards of our state. We accomplish this by offering challenging, real-world experiences in a student-centered environment.

We recognize that students come from diverse socioeconomic, cultural, and ethnic backgrounds, and the mission of the gifted and talented program is to provide opportunities for students to explore their intellectual, creative, and artistic gifts and talents within the classroom and with beyond-the-classroom experiences. It is essential to provide diverse, appropriate, and ongoing learning experiences and environments that incorporate students' academic, psychological, and social needs. Our responsibility is to provide students with educational alternatives that teach, challenge, and expand their knowledge, while simultaneously stressing the development of independent and self-directed learners who continuously generate questions, analyze, synthesize, and evaluate information and ideas.

New Jersey Administrative Code 6A:8-3.1 defines students who are gifted and talented as those students who possess or demonstrate high levels of ability in one or more content areas when compared to their chronological peers in the local district and who require modification of their educational program if they are to achieve in accordance with their capabilities.

Goals:

To support our mission, we have established the following goals to guide our work:

- To infuse into the general education program a broad range of activities for high-level learning that will challenge all students to perform at advanced levels, and provide extended opportunities, resources, and support in particular areas where student interest or talent is demonstrated.
- To provide a continuum of gifted education services that will strengthen the total school program, offer enriching and challenging learning opportunities for all students, and provide specialized learning experiences
- To promote achievement of students' best potentials and increased ability.

Through a productive and collaborative relationship among the building principals, classroom teachers, and the Gifted and Talented teacher, our schools can create programming that will enhance the learning experience for every student and serve the unique and specialized needs of students currently demonstrating gifted behaviors.

Elements of the Schoolwide Enrichment Model, W.I.N (What I Need), differentiated instruction, advanced classes, or individual programs into a student's regular instruction program are integral to this overarching framework for gifted education in the Springfield School District.

Reference Board Policy and Regulation 2464 – Gifted and Talented Pupils (M)

Early Childhood Center **Edward V. Walton**

Schoolwide Virtual Enrichment

All first and second grade students have access to the [Gifted and Talented Virtual Classroom](#). This virtual classroom is a space for students to complete various challenges and enrichment opportunities at their own pace. Students can receive feedback and additional adaptable resources to meet their individual learning needs. The virtual classroom design expands accessibility to enrichment resources and allows students to choose learning activities according to their unique interests and abilities. The purpose of the activities is to encourage problem-solving, develop critical thinking

skills, and expand curiosity and imagination. Activities are aligned to the New Jersey Student Learning Standards.

Gifted and Talented Teacher as a Resource

The Gifted and Talented teacher serves as a resource to all teachers within Edward V. Walton School. Teachers seeking resources for their high-ability learners will receive additional support from the Gifted and Talented teacher in various ways. This support may include additional units of study, challenging resources, and student projects.

Elementary Schools **James Caldwell** **Thelma L. Sandmeier**

The goal is to engage small groups of students in intensive learning experiences through standards-based, rigorous, and relevant units of study that supplement, not supplant, the grade-level curriculum and support students' unique learning needs.

Enrichment Experience Grade 3

Beginning in third grade, the G&T teacher will cycle through all classrooms to work on problem-solving and enrichment tasks with students. Driven by assessment data, academic performance, student interest, and teacher observation, small groups of students will meet with the G&T teacher during W.I.N. (What I Need) periods throughout the week that the teacher is assigned to their classroom teacher. Groupings will be flexible and monitored to best meet each student's needs throughout the school year. Activities will include brain teasers, puzzles, strategic thinking, problem-solving, and STEM challenges.

Targeted Gifted and Talented Programing Grades 4-5

Students may become identified as Gifted and Talented in fourth grade. Students that are identified may receive support from the G&T Teacher for up to five periods (200 minutes) a week during W.I.N. (What I Need) periods. Identified students will meet to explore grade-level content while incorporating depth and complexity in a student-centered, problem-based environment. The Gifted and Talented Program aims to provide students with various advanced and challenging learning experiences across content areas to promote independent thinking skills, refine critical thinking and communication skills, cultivate joy in learning, and expand student interests through problem-solving. The instruction that students receive incorporates 21st Century Skills and advanced content that is challenging, hands-on, and relevant to the real world.

Strategies and Practices that Support Gifted and Talented Students

- Adjusted Pace of Lessons
- Inquiry-Based Instruction
- Higher-Order Thinking Activities
- Interest-Based Content
- Real World Problem Solving/Problem Based Learning
- Independent Study/Passion Projects
- Units of Study with Like-Minded Peers

Schoolwide Virtual Enrichment

All JCS and TLS students have access to grade level-specific [Gifted and Talented Virtual Classrooms](#). These virtual classrooms are a space for students to complete various challenges and enrichment opportunities at their own pace. Students are able to receive feedback and additional opportunities based on their needs. The virtual classrooms have expanded the accessibility of enrichment resources directly to the students and allows for students to choose opportunities according to their interests and abilities. The purpose of the activities is to encourage problem solving, develop critical thinking skills, and expand curiosity and imagination in conjunction with the New Jersey Student Learning Standards.

Gifted and Talented Teacher as a Resource

In addition to classroom support, the Gifted and Talented teacher also serves as a resource to all teachers in the building. Teachers that are seeking resources for their high ability learners will receive additional support from the Gifted and Talented teacher in various ways. This may include additional units of study, challenging resources, student projects, and meeting with the G&T teacher as needed.

Additional Enrichment Opportunities

Across all grade levels 3-5, as recommended by the classroom teacher, students exhibiting a need for additional enrichment may have the opportunity to meet with the G&T teacher as the schedule allows. Groupings will be flexible and monitored to best meet the students' needs throughout the school year. Activities will include, brain teasers, puzzles, strategic thinking activities, problem-solving challenges, and STEM challenges. Students engage in an extended process of asking questions, using resources, and developing answers that lead to thinking about what and how they are learning. Students are held accountable for how they work and use their time by demonstrating their learning through products or presentations.

Students self-select to participate in individual and/or group projects based on interest and commitment. The classroom teacher and/or the enrichment teacher will help guide and monitor student exploration of chosen topics, facilitating their learning with resources and teaching of needed skills.

Secondary Schools
Florence M. Gaudineer Middle School
Jonathan Dayton High School

Grades 6-12: Access to specific content programs with higher levels of academic challenges (i.e. Pre-Algebra, Accelerated Communication Arts, and Advanced Placement Classes)

Dual Credit Courses provide students the opportunity to obtain high school credit, and college credit, simultaneously through partnerships with several institutions.

Project Lead the Way (PLTW) students become builders of technology by engaging in real world activities. Students are empowered as design thinkers collaborating on real world projects.

Gifted and Talented Identification Criteria

The Springfield Schools Gifted and Talented Program recognizes that students require differentiated learning experiences beyond the core curriculum being taught because of their advanced abilities in one or more content areas. These students may also have other cognitive qualities such as curiosity, creativity, motivation, leadership, and passion that require modifications to their academic experience.

Multiple Measures of Eligibility

Kindergarten through grade twelve identification process for gifted and talented students includes multiple measures. Multiple measures may include but are not limited to: achievement test scores; grades; student performance or products; intelligence testing; parent, student, and/or teacher recommendation; and other appropriate measures. The identification methodology is developmentally appropriate, non-discriminatory, and related to the programs and services offered by the Springfield School District. The identification procedures are reviewed annually.

According to N.J.A.C. 6A:8-3.1, all public school districts must have a board-approved gifted and talented identification process and provide services for identified students enrolled in the grades of that school district. The regulations require that identification and services be made available to students in grades K-12.

When students are recommended for the Gifted and Talented Program there are multiple measures that are considered to determine if services are necessary and appropriate. The assessments used are as follows:

- Cognitive Abilities Test (CogAT)
- Classroom Performance/Student Portfolios
- DRA2 Level
- iReady Diagnostic Scores
- Gifted Indicators Checklist
- Start Strong/NJSLA Assessment Data

The N.J.A.C. requires that students be compared to their chronological peers in the local school district. The New Jersey Department of Education has not established state-level criteria for identifying students who are gifted, such as mandated tests or assessments, grade point averages, or IQ scores. Local school districts must use multiple measures to identify students.

Procedures

<https://www.straussesmay.com/seportal/Public/DistrictPolicy.aspx?policyid=2464&id=b8a33a9f505e4998a6db3fb8e1de778b>

Gifted and Talented Program Identification Matrix

Minimum Score Required for Consideration: 14 Points

1 Point	2 Points	3 Points
Cogat Assessment Overall Stanine Score of a 7	Cogat Assessment Overall Stanine Score of an 8	Cogat Assessment Overall Stanine Score of a 9
iReady Math Assessment Just Below Current Grade Level	iReady Math Assessment On Grade Level	iReady Math Assessment ½ Year + Above Current Level
iReady ELA On Grade Level	iReady ELA ½ Year Above Current Level	iReady ELA One Full Grade Level + Above Current Level
NJSLA Math Approaching Expectations	NJSLA Math Met Expectations	NJSLA Math Exceed Expectations
NJSLA ELA Approaching Expectations	NJSLA ELA Met Expectations	NJSLA ELA Exceed Expectations
HOPE Teacher Rating Scale Raw Score: 11 - 29	HOPE Teacher Rating Scale Raw Score: 30 - 49	HOPE Teacher Rating Scale Raw Score: 50-66

Team meetings present the opportunity to review data and assess the educational needs of all students. Teacher provides examples of student work exhibiting above and beyond grade level expectations, creativity, leadership, critical and abstract thinking. Programs for gifted and talented students will be periodically evaluated for their continuing efficacy and adjusted accordingly. The parent of any student identified as gifted or talented shall be consulted regarding any program designed to address the student's particular needs.

Resource Links

https://riversideinsights.com/cognitive_abilities_test

<https://www.curriculumassociates.com/programs/i-ready-learning>

<https://www.nj.gov/education/assessment/resources/>

<https://www.routledge.com/HOPE-Teacher-Rating-Scale-Involving-Teachers-in-Equitable-Identification/Gentry-Pereira-Peters-McIntosh-Fugate/p/book/9781618214522#:~:text=The%20HOPE%20Teacher%20Rating%20Scale,making%20it%20easy%20to%20use.>

Gifted and talented student: The “*[Strengthening Gifted and Talented Education Act](#)*” defines a gifted and talented student as a “student who possesses or demonstrates a high level of ability in one or more content areas when compared to their chronological peers in the school district and who require modifications of their educational program if they are to achieve in accordance with their capabilities.”

Twice-exceptional (2E) students: A twice-exceptional (2E) student is defined as “a student who is both gifted and a student with a disability. These students may also be referred to as having dual exceptionalities or as being gifted with learning disabilities (GT/LD). This also applies to students who are gifted with ADHD or gifted with autism” (New Jersey Association for Gifted Children, www.nagc.org).

Instructional adaptation: An adjustment or modification to instruction enabling a student who is gifted and talented to participate in, benefit from, and demonstrate knowledge and application of the New Jersey Student Learning Standards in one or more content areas at the instructional level of the student, not just the student's grade level.

Identifying gifted and talented students: The focus of identification is to provide programming and services in which students' specific learning needs and potential are appropriately addressed and met. In every New Jersey school district, there are students who require modifications to the general education curriculum if they are to achieve in accordance with their abilities. By identifying a student's general intellectual ability, creativity, or specific academic area aptitudes, we are acknowledging that they need programming and services outside of the general education/grade level curriculum to advance their learning.

NJDOE Fast Facts

<https://www.nj.gov/education/standards/gifted/>

<https://www.nj.gov/education/standards/gifted/legislation.shtml>

Supplemental Resources/Programming for Gifted Students

Edward V. Walton

- PETS Program – Primary Education Thinking Skills
- Group Solutions/Group Solutions 2 – Cooperative Logic Activities
- Lollipop Logic
- Beginning Thinking Skills
- AIMS Education Programming

James Caldwell and Thelma L. Sandmeier

Math/ELA

- Project M3: Mentoring Mathematical Minds
- Junior Great Books
- AIMS Education Programming
- Borenson Hands on Equations
- BizWorld
- Perplexors
- Advanced Math Explorations grade 3-5
- Challenging Units for Gifted Learners (ELA and Math)
- Creative Curriculum Extenders
- Differentiated Lessons & Projects
- Challenge Math Grades 4+
- Differentiating Instruction with Menus (All Content Areas)
- Jacob's Ladder
- Genius Hour/Passion Project
- Spatial Reasoning
- Logic Puzzles, Brain Games, Analogies

STEM

- Engineering is Elementary
- Engineer Throughout the Year
- PBS Design Squad
- DefinedSTEM
- Project Lead the Way (PLTW)

Enrichment Events

Experience for all students to be enriched through events related to the curricular or extracurricular activities. Examples include after school clubs, PTA-sponsored events, leadership opportunities, visual and performing arts, and community service opportunities.