

## **WAMC Lab Template**

Math Concept(s): Proportions

Source / Text:

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### **Attach the following documents:**

- Lab Instructions
- Student Handout(s)
- Rubric and/or Assessment Tool

### **Short Description (Be sure to include where in your instruction this lab takes place):**

#### **Lab Plan**

Lab Title: Investing in the Stock Market

Prerequisite skills: Students should have a basic understanding of what a variable is.

Lab objective: The objective of this lab is to help students gain a practical understanding on how variables can be used in a 21st century career.

#### **Standards: (Note SPECIFIC relationship to Science, Technology, and/or Engineering)**

Mathematics K–12 Learning Standards:

- HSA-REI.A.1 Understand solving equations as a process of reasoning and explain the reasoning

Standards for Mathematical Practice:

- HSA-SSE.1. Make sense of problems and persevere in solving them
- HSA-SSE.4. Model with mathematics
- HSA-SSE.6. Attend to precision
- HSA-SSE.7. Look for and make use of structure

K-12 Learning Standards-ELA (Reading, Writing, Speaking & Listening):

- HS-SL-1-A Speaking and listening. Comprehension and Collaboration
- HS-SL-1-B. work with peers to set rules for collegial decisions and decision making
- HS-SL-1-C. Propel conversations by posing and responding to questions that relate to the current information

K-12 Science Standards

- HS-LS2: Scale, Proportional, Quantity: In considering phenomena, it is critical to recognize what is relevant at different size, time, and energy scales, and to recognize proportional relationships between different quantities as scales change.

Technology

- HS-T-5A. Computational Thinker. Students develop and employ strategies for understanding problems in ways that leverage the power of technology

- HS-T-5B Students collect data or identify relevant data sets, use digital tools to analyze them and represent data in various ways to facilitate problem solving and decision making.

Engineering

- MS-ETS1-3 Analyze data from tests to determine similarities and differences among several design solutions to identify the best characteristics of each that can be combined into a new solution to better meet the criteria for success.

Leadership/21st Century Skills:

<u>21st Century Interdisciplinary themes</u> (Check those that apply to the above activity.)			
<input type="checkbox"/> Global Awareness	<input checked="" type="checkbox"/> Financial/Economic/Business/Entrepreneurial Literacy	<input type="checkbox"/> Civic Literacy	
<input type="checkbox"/> Health/Safety Literacy	<input type="checkbox"/> Environmental Literacy		
<u>21st Century Skills</u> (Check those that students will demonstrate in the above activity.)			
<b>LEARNING AND INNOVATION</b>	<b>INFORMATION, MEDIA &amp; TECHNOLOGY SKILLS</b>	<b>LIFE &amp; CAREER SKILLS</b>	<b>Productivity and Accountability</b>
<u>Creativity and Innovation</u>	<u>Information Literacy</u>	<u>Flexibility and Adaptability</u>	<input type="checkbox"/> Manage Projects
<input checked="" type="checkbox"/> Think Creatively	<input type="checkbox"/> Access and Evaluate Information	<input checked="" type="checkbox"/> Adapt to Change	<input checked="" type="checkbox"/> Produce Results
<input type="checkbox"/> Work Creatively with Others	<input checked="" type="checkbox"/> Use and manage Information	<input checked="" type="checkbox"/> Be Flexible	<input checked="" type="checkbox"/> Manage Goals and Time
<input type="checkbox"/> Implement Innovations	<u>Media Literacy</u>	<u>Initiative and Self-Direction</u>	<input type="checkbox"/> Work Independently
<u>Critical Thinking and Problem Solving</u>	<input checked="" type="checkbox"/> Analyze Media	<input type="checkbox"/> Be Self-Directed Learners	<u>Leadership and Responsibility</u>
<input type="checkbox"/> Reason Effectively	<input type="checkbox"/> Create Media Products	<u>Social and Cross-Cultural</u>	<input type="checkbox"/> Guide and Lead Others
<input checked="" type="checkbox"/> Use Systems Thinking	<u>Information, Communications and Technology (ICT Literacy)</u>	<input type="checkbox"/> Interact Effectively with Others	<input type="checkbox"/> Be Responsible to Others
<input type="checkbox"/> Make Judgments and Decisions	<input type="checkbox"/> Apply Technology Effectively	<input type="checkbox"/> Work Effectively in Diverse Teams	
<input type="checkbox"/> Solve Problems			
<u>Communication and Collaboration</u>			
<input type="checkbox"/> Communicate Clearly			
<input type="checkbox"/> Collaborate with Others			

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### **Teacher Preparation: (What materials and set-up are required for this lab?)**

#### Materials

- Student Chromebook

#### Set-Up Required:

- 

### **Lab Organization Strategies:**

Leadership (Connect to 21<sup>st</sup> Century Skills selected):

- Problem Solving: Students will need to be able to recognize good choices and bad choices, and be able to determine when a solution (stock needs to be changed)

Cooperative Learning:

- Students are working against one another, however they collaborate to try and predict what is going to be happening to stock prices over the next 24 hours

Expectations:

- It is expected that students will gain an understanding on how when a variable changes in values, it impacts the entire system.

Timeline:

- This should be a five hour lab. One hour for the initial set up, then four hours of student research and decision making to collect and analyze data.

### **Post Lab Follow-Up/Conclusions:**

Discuss real world application of learning from lab

- Career applications for this lab could be used in engineering, problem solving

Career Applications

- Any work in finance, business

Optional or Extension Activities

- This lab is diverse, any manipulation of the markets or choices students are allowed to do would change/extend the lab

## Lab Instructions

### Day 1:

- 1) You are working individually in the lab: You ARE allowed to collaborate with each other. However, IT IS a competition
- 2) Your goal is to have the most money by the end of the week!
- 3) You have \$1,000 to invest into the stock market:
- 4) Go to <https://www.marketwatch.com/market-data/us?mod=market-data-center>
- 5) Choose at least 3 Stocks that you are going to invest in! (You can invest as much or little into each stock).
- 6) They have to be stocks, NOT markets (Dow Jones, NASDAQ, S&P 500, etc.)
- 7) Record how many stocks you are investing in for today. Record the number of stocks and their value in the table for day 1

### Day 2-5:

- 1) Look at how your stocks are doing today. Record their CURRENT value.
- 2) Calculate the amount of money you now have!
- 3) Now it's time to reinvest! You MUST reinvest at least 2 stocks!
- 4) Repeat the steps that you did on day 1 to showcase the value of your stocks.
- 5) Your goal is to earn the most money for the week

### Day 5-6:

- 1) Create a 1 page ppt slide that showcases your overall earnings for the week! This is your summative grade.
- 2) DON'T show all your transactions, just the major changes and money makers/losers

Student Handouts

Day 1:

Stocks	Value of Stock	Number of Stocks	Total value of Investments
Stock # 1			
Stock # 2			
Stock # 3			
Total Value			

Day 2:

TIME TO SELL: HIGHLIGHT THE STOCKS THAT YOU ARE SELLING

Stocks	Value of Stock	Number of Stocks	Total Value of Stocks from Day 1
Stock # 1			
Stock # 2			
Stock # 3			
Total Value			

TIME TO REINVEST

Stocks	Value of Stock	Number of Stocks	Total Value of Stocks fat the end of Day 2
Stock # 1			
Stock # 2			
Stock # 3			
Total Value			

Day 3:

TIME TO SELL: HIGHLIGHT THE STOCKS THAT YOU ARE SELLING

Stocks	Value of Stock	Number of Stocks	Total Value of Stocks from Day 2
Stock # 1			
Stock # 2			
Stock # 3			
Total Value			

TIME TO REINVEST

Stocks	Value of Stock	Number of Stocks	Total Value of Stocks fat the end of Day 3
Stock # 1			
Stock # 2			
Stock # 3			
Total Value			

Day 4:

TIME TO SELL: HIGHLIGHT THE STOCKS THAT YOU ARE SELLING

Stocks	Value of Stock	Number of Stocks	Total Value of Stocks from Day 3
Stock # 1			
Stock # 2			
Stock # 3			
Total Value			

TIME TO REINVEST

Stocks	Value of Stock	Number of Stocks	Total Value of Stocks fat the end of Day 4
Stock # 1			
Stock # 2			
Stock # 3			
Total Value			



Day 5:

TIME TO SELL: HIGHLIGHT THE STOCKS THAT YOU ARE SELLING

Stocks	Value of Stock	Number of Stocks	Total Value of Stocks from Day 4
Stock # 1			
Stock # 2			
Stock # 3			
Total Value			

TIME TO REINVEST

Stocks	Value of Stock	Number of Stocks	Total Value of Stocks fat the end of Day 5
Stock # 1			
Stock # 2			
Stock # 3			
Total Value			

Day 6:  
HOW MUCH MONEY DID YOU MAKE??

Stocks	Value of Stock	Number of Stocks	Total Value of Stocks from Day 5
Stock # 1			
Stock # 2			
Stock # 3			
Total Value			

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Rubric/ Assessment Tools

	5	3	1
Student Participation	Student was actively participating all week, all data tables are complete and student followed directions	Student was actively engaged most of the time OR parts of the data table are missing.	Student was not actively participating, major gaps in data tables exist. Student doesn't follow directions
Money Earned	Student Earned money this week	Student broke even	Student lost money
Correct use of variables	Student used all variables correctly to calculate net earnings	Student made less than 3 mathematical errors	Students made more than 3 mathematical errors