

## **WAMC Lab Template**

Math Concept(s): Box and Whisker Plot

Source / Text: Financial Algebra

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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: Median Car Prices

Prerequisite skills: Calculating median, calculating quartiles, calculating interquartile range, identifying outliers, graphing on a number line

Lab objective: Students will be able to construct a box-and-whisker plot for the prices of 19 used cars of their choosing.

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

#### **Mathematics K–12 Learning Standards:**

- HSS-ID: Summarize, represent, and interpret data on a single count or measurement variable

#### **Standards for Mathematical Practice:**

- 1. Make sense of problems and persevere in solving them
- 4. Model with mathematics

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

- Speaking and Listening: Comprehension and Collaboration
  - Work with peers to set rules for collegial discussions and decision-making
  - Propel conversations by posing and responding to questions that related to the current information

#### **K-12 Science Standards**

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#### **Technology**

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#### **Engineering**

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#### **Leadership/21st Century Skills:**

21st Century Interdisciplinary themes (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  |   |

21st Century Skills (Check those that students will demonstrate in the above activity.)

**LEARNING AND INNOVATION**Creativity and Innovation

- Think Creatively
- Work Creatively with Others
- Implement Innovations

Critical Thinking and Problem Solving

- Reason Effectively
- Use Systems Thinking
- Make Judgments and Decisions
- Solve Problems

Communication and Collaboration

- Communicate Clearly
- Collaborate with Others

**INFORMATION, MEDIA & TECHNOLOGY SKILLS**Information Literacy

- Access and Evaluate Information
- Use and manage Information

Media Literacy

- Analyze Media
- Create Media Products

Information, Communications and Technology (ICT Literacy)

- Apply Technology Effectively

**LIFE & CAREER SKILLS**Flexibility and Adaptability

- Adapt to Change
- Be Flexible

Initiative and Self-Direction

- Manage Goals and Time
- Work Independently
- Be Self-Directed Learners

Social and Cross-Cultural

- Interact Effectively with Others
- Work Effectively in Diverse Teams

**Productivity and Accountability**

- Manage Projects
- Produce Results

Leadership and Responsibility

- Guide and Lead Others
- Be Responsible to Others

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

### Materials

- Scratch paper
- Pen/pencil
- Lab report
- Calculator
- Chromebook/laptop

### Set-Up Required:

- Assign students to their groups and their individual roles
- Clean and clear workspaces with all appropriate materials accessible and available

### **Lab Organization Strategies:**

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

### Cooperative Learning:

- Students will be assigned specific roles in their groups
  - Group leaders will be responsible for leading their group to successful completion of the lab through delegation and constructive support of their group members

### Expectations:

- Students will be able to construct an accurate box and whisker plot for the prices of 19 used vehicles that they will research. Students will be able to produce and answer five (5) thought-provoking questions about their data

### Timeline:

- One 50-minute class period

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

Discuss real world application of learning from lab:

### Career Applications

- Being aware of the cost of a used vehicle and how it relates to other similar vehicles is an essential skill in the management of one's personal finances.

### Optional or Extension Activities

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Names: \_\_\_\_\_

Date: \_\_\_\_\_

Financial Algebra  
Chapter 4 Project

**Objective:** For this project, you will apply your knowledge of box and whisker plots to analyze the spread of the prices of used vehicles. You will first research the prices of 19 used vehicles of your choosing. Next, you will calculate the Five Number Summary and Interquartile Range of your car prices and graph your data in a box and whisker plot. Finally, you will develop and answer five (5) thought-provoking questions using the data from your research and box and whisker plot.

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**Grading Rubric:**

\_\_\_\_\_ 19 used cars with makes, models, years, and prices researched (5 points)

\_\_\_\_\_ Minimum and maximum values correctly identified (2 points)

\_\_\_\_\_ Median correctly calculated (3 points)

\_\_\_\_\_ First and Third Quartiles correctly calculated (5 points)

\_\_\_\_\_ Interquartile Range correctly calculated (2 points)

\_\_\_\_\_ Upper/lower boundaries correctly calculated (4 points)

\_\_\_\_\_ Box and Whisker Plot is accurately graphed and labeled (4 points)

\_\_\_\_\_ 5 thought-provoking questions are present and answered thoroughly (5 points)

Total (30 points) \_\_\_\_\_

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Names: \_\_\_\_\_

Date: \_\_\_\_\_

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Chapter 4 Project

**Five Number Summary:**

Minimum	
First Quartile	
Median	
Third Quartile	
Maximum	
Outliers (if any)	

Interquartile Range = \_\_\_\_\_

Lower boundary = \_\_\_\_\_

Upper boundary = \_\_\_\_\_

**Box and Whisker Plot:**

Names: \_\_\_\_\_

Date: \_\_\_\_\_

Financial Algebra  
Chapter 4 Project

**Questions and Answers:**

1.

2.

3.

4.

5.

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