

## **WAMC Lab Template**

Math Concept(s): Finding the measures of central tendency (Mean, Median and Mode)

Source / Text: Financial Algebra section 5-1 & 5-2

Developed by: Rick McLaughlin

E-Mail: [rmclaughlin@finleysd.org](mailto:rmclaughlin@finleysd.org)

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

- Lab Instructions: Attached
- Student Handout(s): Auto Cost Comparison
- Rubric: See Attached: Rubric for Measures of Central Tendency 1

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

Students will work in small groups to determine the median price of a car as well as the cost of fuel in the regular use of that vehicle.

### **Lab Plan**

Lab Title: Measure of Central Tendency and Average Cost of fuel.

Prerequisite skills: Be able to find the mean, median, mode and Average.

Lab objective: Understanding the cost of a vehicle and the cost of gas. They will learn how to use the Measures of Central Tendency to discover the average cost of a vehicle as well as understand how those three measurements can be used in a discussion of the purchase of a vehicle. In addition, we will find the average cost of gas for a year with each vehicle and discuss the idea of cost of ownership.

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

Mathematics K–12 Learning Standards:

- SID-2

Standards for Mathematical Practice:

- Make sense of problems and persevere in solving them.
- Look for and make use of structure

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

- Comprehension and Collaboration:
- Key Ideas and Details

Technology:

1.2.1 Communicate and collaborate to learn with others.

1.3.2 Locate and organize information from a variety of sources and media.

Leadership/21st Century Skills:

21st Century Interdisciplinary themes (Check those that apply to the above activity.)

- Global Awareness       Financial/Economic/Business/Entrepreneurial Literacy       Civic Literacy  
 Health/Safety Literacy       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

- Vehicle Comparison Sheets, Pens, Cars in Parking Lot

### Set-Up Required:

- Make and copy enough Vehicle Comparison Sheets for all students.

### **Lab Organization Strategies:**

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

- Students will decide on vehicles as a group.

### Cooperative Learning:

- Students will work with each other to check each other's math and ask questions.

### Expectations:

- Each student will search car prices and the median cost of cars.

### Timeline:

- This lab should take 50 minutes. This would be best done after a review of the Measures of Central Tendency.

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

Discuss real world application of learning from lab.

- Students have or will be buying cars in the near future. Knowing how to find car values and cost of fuel will help them make good decisions.

### Career Applications

- Many jobs will require the purchase of items. The ability to comparison shop will help in any job.

### Optional or Extension Activities

- Invite a car salesman into class to discuss the process of buying a car and some common mistakes people make when buying a car.

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## Lab Instructions for Measures of Central Tendency 1

You will form into teams of 3-4. Each member must do there on data sheet. Work with you team to gather all the information and do all the math. Be sure to discuss your answers with each other and compare those so that you can make sure you have done the math correctly.

Mr. M will hand out an Auto Cost Comparison sheet to each group member.

Your group will go out into the parking lot and record information on 5 different vehicles. (Caution Do NOT touch any vehicles) You will record the Make and Model of each vehicle.

For the year you will enter 2016. (I hear it was a good year)

Figure the mileage from the average of 12,000 miles per year, enter that number into the Milage Column.

Go to Google and search the Average MPG for each vehicle, use the mean of the city and highway milage.

Go to Google and search the average cost of gas in your zip code and enter that number in the current price of gas box on the Auto Cost Comparison worksheet.

Use your current cost of gas number to calculate the Cost/1000 miles box.

Find the Average MPG from all vehicles.

Search on carguru.com find the cost of each vehicle and enter that on the worksheet.

<https://www.cargurus.com>

Then select the Car Values tab and enter you information.

In the PRICES OF VEHICALS section on the worksheet:

Find the Mean.

Find the Median.

Find the Mode.

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Comparison Shopping - Used Vehicles

	Year	Make	Model	Miles/Gal	Mileage	Price	Notes	Current price of Gas	Cost/1000miles	
Car 1										
Car 2										
Car 3										
Car 4										
Car 5										
<b>PRICES OF VEHICLES</b>										
Average Cost								Mean	Median	Mode
Average Miles/Gal										

Washington

Math Council

#DIV/0! #NUM! #N/A

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# Exit Ticket

Before you leave class today, answer the following questions.

\* Required

1. Name \*

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2. Email

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3. What's one important thing you learned in class today? 1 Minute Write

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Rubric for Measures of Central Tendency: Lesson 1

24 points available

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POINTS	1	2	3	4
Prices for cars entered.	1-2 cars	3 Car	4 cars	5 cars
MPG for cars Entered	1-2 cars	3 Car	4 cars	5 cars
All Three Averages found	None	1	2	3
Cost for 1000 Miles figured	1-2 cars	3 Car	4 cars	5 cars
Mean, Mode and Median listed	None	1	2	3
5 cars identified.	1-2 cars	3 Car	4 cars	5 cars

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