

## Lab Framework

**Text:** CORD

**Unit number and title:** 15 Using Formulas to Solve Problems

**Short Description:** Are Hybrid Cars Really Worth Buying?

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### Lab Title

**To Buy or Not to Buy? That is the question!**

### LAB PLAN

**TEACHER:** Teacher Prep/ Lesson Plan

#### **Lab Objective**

Students will be able to write an equation to represent various formulas used to calculate vehicle cost and make comparisons.

**Statement of pre-requisite skills needed:** Operations with decimals and problem solving with monetary values

#### **Vocabulary**

Equation, Formula, Difference, Calculate, Justification, Variables

#### **Materials List**

Paper, Pencil, Lab Handout, Calculator

#### **State Standards addressed**

Math: A1.2B, A1.2C, A1.4A

#### **Leadership Skills**

Cooperative group work-3 students per group:  
Scribe, Reader, The DC (double-checker)

#### **SCAN Skills/Workplace Skills**

Business, marketing, and skills

#### **Set-up information**

Have extra pencils and paper handy :) Calculators too!

**Lab organization:** Flexible, but suggest groups of 3. See leadership section for suggested roles.

**Teacher Assessment of student learning:** 40 points, 5 point scale for each problem. 5-exceeds standards thru 1-not meeting standard

#### **Summary of learning** (to be finished after student completes lab)

-Ask students how they can see this affecting them in real-life, possibly when they have families and are budgeting for a car. Discuss their groups choices, did their results change their opinion on car options? Have students explain their reasoning.

-Extend to environmental concerns, hybrid vs. non-hybrid...is the cost worth it. What are the students moral opinions? Survey? Graphs? Data collection?

**Optional activities** - Use your imagination! Students could look at ads on the web for cars, how are Hybrids advertised vs. Regular Cars. Research more in regards to gas mileage and “green” technology. Data collection and surveys to cross standards.

**Career Applications**

Business, Sales, Marketing, *Homemaker* :) (does that exist anymore?)

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**LAB TITLE:** \_\_\_\_\_

**STUDENT INSTRUCTIONS:**

**Statement of problem addressed by lab**

Are Hybrid cars really worth buying?

**Grouping instructions and roles**

Cooperative group work-3 students per group:

Scribe, Reader, The DC (double-checker)

**Procedures** – As a group complete labsheet, be sure to show all work and display evidence of meeting the standards. All members of the group must complete their own labsheet.

**Assessment instructions:** 40 points, 5 point scale for each problem. 5-exceeds standards thru 1-not meeting standard

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## Are Hybrid Cars *REALLY* Worth Buying?

Hybrid	Standard	Cost	Model	MPG	Cost	Model	MPG																				
								\$23,650																			
	Civic	33 City	\$15,505	Civic	33 City		\$27,270	Fusion	33 City	\$19,270	Fusion	33 City		\$29,750	Mariner	33 City	\$22,310	Mariner	33 City		\$26,150	Camry	33 City	\$19,145	Camry	33 City	

Use the above table to make the calculations necessary to complete the following exercises. Be sure to show **all** work and **label** each solution appropriately. Use a separate sheet of paper for your work.

Write an equation to find the difference in vehicle cost for each model of vehicle. Use variables where appropriate.

Using the formula that you created in #1, calculate the difference in vehicle cost.

Write an equation to find the difference in miles per gallon from the Hybrid to the Standard model vehicle. Use variables where appropriate.

Using the formula that you created in #3, calculate the difference in miles per gallon.

Write an equation to calculate the cost per mile savings when buying a Hybrid over the Standard model vehicle. Use variables where appropriate.

Using the formula that you created in #5, calculate how much money you would save per mile from buying a Hybrid.

How many miles would you have to travel to make you the cost difference between the Standard vehicle and the Hybrid?

Which is a better buy? Write a paragraph justifying your answer using the math you performed and the vocabulary you've learned throughout this unit.