Lab Template

Text: Financial Algebra
Volume: _____   Chapter: _Automobile Ownershhip_
Unit number: _5-4_   Title of unit: _Automobile Insurance__
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Attach the Following Documents:
1. **Lab Instructions**
2. **Student Handout(s)**
3. **Rubric and/or Assessment Tool**

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

Student will research for insurance quotes and find one that they can afford within the parameters given. They will then calculate the monthly cost and how many hours they will need to work to pay for their monthly premium. Students will present to a small group their findings and as a group present the best poster to class.

Auto Insurance
How Much Does It REALLY Cost?

LAB PLAN

TEACHER: *(Teacher Prep/Lab Plan)*
- ⚖ **Lab Objective**
  To research insurance plans based on numerous factors, find an applicable policy, and determine the number of hours of work it takes to pay for automobile insurance
- ⚖ **Statement of prerequisite skills needed** *(Vocabulary, Measurement Techniques, Formulas, etc.)*
  Understand how to calculate Income Earned. *(Hours worked * Wage/hour)*
  Understand minimum wage and how income tax affects Take Home Pay *(You must deduct 15% (or set income tax) from income earned to get Take Home Pay.)*
  Problem solving skills in choosing best policy for money spent
  Research skills
- ⚖ **Vocabulary**
  - ⚖ Annual premium
  - ⚖ Monthly premium
  - ⚖ Wage
  - ⚖ Hours Worked
  - ⚖ Income tax withheld
  - ⚖ Net Earnings (Take Home Pay)
  - ⚖ Earnings

- ⚼ **State Standards addressed:** *(Highlight "Green" Standards, you may use your District's Power Standards if applicable)*
  - ⚼ **Math:** A1.1.A,Select and justify functions and equations to model and solve problems
  - ⚼ A1.1.B, Solve problems that can be represented by linear functions, equations, and inequalities
  - ⚼ A1.3.A, Determine whether a relationship is a function and identify the domain, range roots, and independent an independent variables
  - ⚼ A1.6.B, Use and evaluate the accuracy of summary statistics to describe and compare data sets
  - ⚼ A1.8.A, Analyze a problem situation and represent it mathematically
  - ⚼ M1.1.A, M1.1B, M1.2.A, M1.5C, M1.1B
  - ⚼ **Reading:**
  - ⚼ **Writing:**
  - ⚼ **Leadership:**
  - ⚼ **SCAN Skills/Workplace Skills:**
  - ***Mathematics***
    - o Approaches practical problems by choosing appropriately from a variety of mathematical techniques.
    - o Uses quantitative data to construct logical explanations for real world situations
    - o Expresses mathematical ideas and concepts orally and in writing
- • ***Speaking***
  - o Organizes ideas and communicates oral messages appropriate to listeners and situations
  - o Understands and responds to listener feedback

- ⚼ **Teacher Preparation:** *(What materials and set-up are required for this lesson?)*
  - ⚼ Computer
  - ⚼ Internet Access
  - ⚼ Calculator
  - ⚼ Poster board and Markers

- ⚼ **Lab Organizational Strategies:**
  - ⚼ Grouping/Leadership/Presentation Opportunities:
    - ⚼ Students will start with group discussion about what types of insurance are required, and which are optional. Then break out of individual work and return to groups to present to class. Groups can be determined at teacher's discretion.

  - ⚼ Cooperative Learning:
    - ⚼ Student will need to have feedback from 2 other members in class for accuracy and clarity

  - ⚼ Expectations:
    - ⚼ Student will be able to discuss and answer questions from other groups to demonstrate understanding of topic.

  - ⚼ Time-line: 60-75 minutes

Automobile Ownership
Auto Insurance, How Much Does It REALLY Cost?

Student Handout
Vocabulary
Annual premium
Monthly premium
Wage
Hours Worked
Income tax withheld
Net Earnings (Take home pay)
Earnings

John is 17 years old and wants to buy a car to so he doesn't need to depend on his parents for transportation. His parents tell him he is not old enough or responsible enough to pay for his own vehicle. He wants to convince them he can take on the responsibility. He will need to research the cost of the vehicle, insurance costs, and maintenance/gas. Use the information from the car you found in unit 5-1, as well as the minimum wage for an entry level job for the information in this Lab.

Part 1: Find an insurance policy for John.

- Start in groups and discuss types of insurance and what is required. What factors effect cost of insurance
- Research independently and find 2-3 policies that include required coverage (and any optional coverage) that will cover John
- On your own compare the policies and choose one to work with
- Students will get into groups of 3 and present their findings to each other and choose 3 policies to present as a group to the class.
- Each group will create a poster to present to class and be able to answer questions from class about policy coverage and calculations.

Part 2: John gets an interview at Burger World for a job that pays minimum wage. How many hours will he have to work to pay for the monthly premium? Use the insurance quote from Part 1. Show all your work. Prepare a PowerPoint for John to present to his parents to convince them to let him buy a car.

- **Post Lab Follow-Up/Conclusions** *(to be covered after student completes lab)*
  - Discuss real world application of learning from lab:
  - Career Applications:
  - Optional or Extension Activities:

Additional Activity:

Using the car you bought in Unit 5-1, determine the cost of insurance and estimate gas and maintenance for 1 month. Find a quote for insurance for yourself, determine if there is an additional fee for paying monthly and calculate your monthly payment. Total the car payment, insurance, and gas and maintenance you need to own a car.   Calculate the number of hours you will need to work at A-Z Sandwich Shoppe to own your own car. The A-Z Sandwich Shoppe pays minimum wage. Don't forget about taxes. Show all your work.

Automobile Insurance
Assessment Rubric

Students will be assessed on

Provide 2-3 quotes for insurance policy for John

Ability to work together to determine best policy for circumstances

Presentation to class of poster
        Includes all relevant information
        Each group member has part of presentation
        Poster is neat and easy to read

Calculate monthly premium, and number of hours needed to pay for insurance
        Is monthly premium reasonable?
        Are number of hours required to work reasonable?

PowerPoint presentation to parents.

Automobile Insurance Worksheet 1

Define the following terms

1. Liable *Responsible for*

2. Negligent *at fault*

3. Claim *a request for money*

4. Premium *fee policy holder pays to have coverage*

5. Deductible *the amount the policy holder is responsible for before the insurance policy pays any money.*

Define the following terms and include an example of that coverage.
Answers will vary but should include a definition and realistic example.

6. Liability Insurance

7. Property Damage Liability

8. Collision Insurance

9. Bodily Injury

10. Personal Injury Protection

Automobile Insurance Worksheet 1

Define the following terms

1. Liable

2. Negligent

3. Claim

4. Premium

5. Deductible

Define the following terms and include an example of that coverage .

6. Liability Insurance

7. Property Damage Liability

8. Collision Insurance

9. Comprehensive Insurance

10. Bodily Injury

11.Personal Injury Protection

Washington Applied Math Council

Automobile Insurance Worksheet 2

Vocabulary

Annual premium	Hours Worked	Earnings
Monthly premium	Income tax withheld	
Wage	Net Earnings (Take home pay)	

Ronald works for minimum wage for 12 hours in 2 weeks. He has found insurance for $1326 per year.

1. How much did he earn? *$108.48 ($9.04*12 = $108.48)*

2. How much was withheld for taxes? *$16.28   ($108.45*.15=$16.28)*

3. What is his Net Earning? *$92.17* $*(108.45-($108.45*.10) = $92.17)*

4. *How many hours does he average per week? 6 hours (12/2 = 6)*

5. *How much does he take home per week? $46.09 per week ($92.17/2 = $46.09)*

6. *What is his Monthly Premium? $110.50 (1326/12 = 110.50)*

7. Will he earn enough to make his payment? If not, how many hours does he need to work to take home enough to pay his monthly premium? *No, he will need to earn another $10.33 so he will need to work at least 1 hour 20 minutes each week. ($110.50-$92.17 = $10.33 which is more than 1 hour but not as much as 2. If he takes home 7.68 for every hour (9.04 less 15%) then $10.33/$7.68 – 1.3 hours, which is 1 hour 20 minutes.*

8. Ivan wants to pay for his insurance semiannually. How can he determine how much he needs to save monthly? Write an equation using algebraic symbols, define your terms. *(A/2)/T=H   or S/T=H*

A(Annual premium) / 2 = S(semiannual premium). S(Semannual premium) / T(Take home pay) = H(hours per month). That can then be divided into 4 weekly hours if desired.

Automobile Insurance Worksheet 2

Vocabulary

Annual premium	Hours Worked	Earnings
Monthly premium	Income tax withheld	
Wage	Net Earnings (Take home pay)	

Ronald works for minimum wage for 12 hours in 2 weeks. He has found insurance for $1326 per year.

1. How much did he earn?

2. How much was withheld for taxes?

3. What is his Net Earning?

4. *How many hours does he average per week?*

5. *How much does he take home per week?*

6. *What is his Monthly Premium?*

7. Will he earn enough to make his payment? If not, how many hours does he need to work to take home enough to pay his monthly premium?

8. Ivan wants to pay for his insurance semiannually. How can he determine how much he needs to save monthly? Write an equation using algebraic symbols, define your terms.

Name 5 areas of insurance coverage.

1.   *Answers will vary but could include property damage, personal injury, bodily injury, comprehensive, collision, no fault, etc.*

2.

3.

4.

5.

6. Write an equation using words to determine your insurance payment quarterly instead of annually.

  a. *Annual premium / 4 = quarterly premium*

7. What is the relationship to deductible vs. cost of insurance coverage?

  a. *As the deductible increases the overall cost decreases*

Look at the following quote and answer the questions

  Personal injury protection $275
  Bodily injury liability $298
  Property damage liability $210
  Uninsured motorist protection $26
  Comprehensive insurance $376
  Collision insurance $425
  Emergency road service $15

8. What is the annual premium?

  a. *$1625.00*

9. What is the semiannual premium if there is $3.00 fee for this option?

  a.   *$815.50 (($1625/2) + 3 = $815.50)*

10. What is the semiannual premium if you get a 10% good student discount?

  a. *$733.95 (815-10%=733.95)*

11. What is the semiannual premium with a $3.00 fee if you dropped the collision insurance?

  a. *$602.50 ($1625-$425)/2 + 3 =$ 602.50)*

12. Maurice has 100/300/50 liability insurance and $50,000 PIP insurance. Explain what that means.

  a. *Maurice has $100,000 Bodily Injury per person and $300,000 maximum Bodily injury insurance per accident. He also has $50,000 property damage insurance and $50,000 personal injury protection coverage.*

13. Maurice (from question 10) slid on the ice and ran into a street light that cost $1700 to replace and $3600 in damage to his car. What insurance will cover this, and how much will the company pay?

    a. *The property damage coverage would cover the street light cost if he has it and collision would pay for the damage to his car. How much the company will pay is determined by how much coverage he has.*

14. Helga hit an elk while driving home from work. What will she have to pay to repair her car?

    a. *Comprehensive coverage*

15. Juan was hit by a car while riding his bike. What type of insurance will the driver need to have to cover his medical expenses?

    a. *Bodily Injury Liability or Personal Injury Protection Protection*

Name _____

Name 5 areas of insurance coverage.

1.
2.
3.
4.
5.
6. Write an equation using words to determine your insurance payment quarterly instead of annually.
7. What is the relationship to deductible vs. cost of insurance coverage?

Look at the following quote and answer the questions

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10. What is the semiannual premium if you get a 10% good student discount?

11. What is the semiannual premium with a $3.00 fee if you dropped the collision insurance?

12. Maurice has 100/300/50 liability insurance and $50,000 PIP insurance. Explain what that means.

13. Maurice (from question 10) slid on the ice and ran into a street light that cost $1700 to replace and $3600 in damage to his car. What insurance will cover this, and how much will the company pay?

14. Helga hit an elk while driving home from work. What will she have to pay to repair her car?

15. Juan was hit by a car while riding his bike. What type of insurance will the driver need to have to cover his medical expenses?