WAMC Lab Template

Math Concept(s): Automobile Insurance

Source / Text: Ch 4-3 Financial Algebra Ed. 2 (Cengage)

Developed by: Kari Morgan E-Mail: kmorgan@asd5.org

Date: Summer Conference 2018

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):

After completion of chapter 4, lessons 1-3. Students will compare the value of differing deductible amounts and liability coverages.

Lab Plan

Lab Title: Auto Insurance Deductible and Coverage Comparison

Prerequisite skills: Understanding of key terms and formulas from 1-1, 4-1, 4-2

Lab objective: Ability to calculate and evaluate information in order to make a financial decision on the various options for auto insurance.

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

Mathematics K–12 Learning Standards:

- 9-12

Standards for Mathematical Practice:

- Practice 5, S.MD.A.2, 4, 5

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

- RST.9-10.2, 10.4, 10.7, 10.10

K-12 Science Standards

- n/a

Technology

- 1.3.1- 4, 2.2.2

Engineering

- n/a

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	INFORMATION, MEDIA & TECHNOLOGY SKILLS	LIFE & CAREER SKILLS	Productivity and Accountability
Creativity and Innovation	Information Literacy	Flexibility and Adaptability	☐ Manage Projects
☒ Think Creatively	☒ Access and Evaluate Information	☐ Adapt to Change	☒ Produce Results
☒ Work Creatively with Others	☒ Use and manage Information	☐ Be Flexible	Initiative and Self-Direction
☐ Implement Innovations	Media Literacy	☒ Manage Goals and Time	Leadership and Responsibility
Critical Thinking and Problem Solving			

☒ Reason Effectively	☐ Analyze Media	☒ Work Independently	☐ Guide and Lead Others
☒ Use Systems Thinking	☐ Create Media Products	☐ Be Self-Directed Learners	
☒ Make Judgments and Decisions	Information, Communications and Technology (ICT Literacy)	Social and Cross-Cultural	☐ Be Responsible to Others
☒ Solve Problems	☒ Apply Technology Effectively	☒ Interact Effectively with Others	
Communication and Collaboration		☒ Work Effectively in Diverse Teams	
☒ Communicate Clearly			
☒ Collaborate with Others			

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

Materials

- Student Handout, pencil, calculator, computer or smart phone

Set-Up Required:

- Copies of handouts, laptop cart

Lab Organization Strategies:

Leadership (Connect to 21st Century Skills selected):

-

Cooperative Learning:

- Students can do this lab individually or with a partner. The last question is a Pair and Share activity.

Expectations:

- Students will evaluate the difference in cost, coverages and value with a comparison of two similar policies.

Timeline:

- 1 class period, including discussion time.

Post Lab Follow-Up/Conclusions:

Discuss real world application of learning from lab

- Students' and parents' insurance coverages and experience with claims.

Career Applications

- Insurance industry, auto dealerships, financial institutions

Optional or Extension Activities

- Get 1-2 online quotes for student's (or parent's) current vehicle or a dream vehicle.
- Pull valuation of vehicles and compare insurance coverage values.

Name _____ **Date** _____

Ch 4-3 Auto Insurance LAB (Answers in red) (NOTE: add more on comp vs collis & needs)

Directions: Using the table below, answer the following questions. Use the back of the page for calculations.

$500 Deductible

Table A	**100/300/100**
PIP – Personal Injury Protection $10,000 coverage	$ 76
Bodily Injury Liability $100K per pers / $300K per occ	$ 210
Property Damage Liability $100 per occurrence	$ 150
Uninsured / Underinsured Motorist Protection 50/100/25	$ 105
Comprehensive Insurance	$ 30
Collision Insurance	$ 215
Emergency Roadside Assistance	$ 10
1) Calculate the Total Annual Premium	$ 796

$1000 Deductible

Table B	**100/300/100**
PIP – Personal Injury Protection $10,000 coverage	$ 69
Bodily Injury Liability $100K per pers / $300K per occ	$ 189
Property Damage Liability $100 per occurrence	$ 135
Uninsured / Underinsured Motorist Protection 50/100/25	$ 94
Comprehensive Insurance	$ 27
Collision Insurance	$ 194
Emergency Roadside Assistance	$ 9
2) Calculate the Total Annual Premium	$ 717

3) If you want to pay your premium in monthly installments, there is a $2 per month processing fee. Calculate the monthly premium payment amounts for both Table A ($500 Deductible) AND Table B ($1000 Deductible)

Table A __$68.33_____ Table B __$61.75_____

4) What is the overall percentage of premium savings with the higher deductible? _____.09_____

5) If you were to take the difference between the two monthly premiums and stash it in a cookie jar, how long would it take to save $500? ___76 months_____

6) Brent hydroplanes during a rainstorm and hits the guard rail, causing a significant amount of damage to his vehicle, totaling it. Brent has collision coverage and the vehicle is valued at $2500 by the insurance company. How much will Brent receive from the insurance company to repair or replace his vehicle if he has a $500 deductible? _$2000__

7) Do you think the cost of the collision coverage was worth the value he received when he had to claim a total loss? Please explain why. (answers will vary)

8) With a partner, research and discuss other options that a young driver may consider to keep their insurance costs low while still providing themselves with liability coverage in the event of an at fault accident. Be prepared to share with the class. (possible answers: lower coverage amounts, drop collision and/or comprehensive if the value of vehicle is low, save money to be able to increase the deductible amount, etc)

Name _____ **Date** _____

Ch 4-3 Auto Insurance LAB RUBRIC

	N	1	2	3	4
Calculations are correct (# 1 – 6)					
Complete answers with justification (# 7)					
Participation in discussion (# 8)					
Total Score					

4 = Shows evidence of exceeding standard
3 = Shows evidence of meeting standard
2 = Show some evidence of meeting standard
1 = Show little evidence of meeting standard
N = Shows no evidence of meeting standard

Name _____ **Date** _____

Ch 4-3 Auto Insurance LAB RUBRIC

	N	1	2	3	4
Calculations are correct (# 1 – 6)					
Complete answers with justification (# 7)					
Participation in discussion (# 8)					
Total Score					

4 = Shows evidence of exceeding standard
3 = Shows evidence of meeting standard
2 = Show some evidence of meeting standard
1 = Show little evidence of meeting standard
N = Shows no evidence of meeting standard

WAMC Lesson Plan

Name(s): Kari Morgan
Email Address: kmorgan@asd5.org
Lesson Title: Automobile Insurance
Date: 6.26.18
Text: Financial Algebra Edition 2 (Cengage) STEM Correlation: Technology & Math
Lesson Length: 2 days

Big Idea (Cluster): Risk Management & Insurance	
Mathematics K–12 Learning Standards: S.MD.A.2, 4, 5	
Mathematical Practice(s): 5	
Content Objectives: Identify different types of auto insurance, Compute insurance costs, compute payments on insurance	Language Objectives (ELL): RST.9-10.2, 10.4, 10.7, 10.10
Vocabulary: liable, negligent, automobile insurance, premium, claim, liability insurance, (BI) bodily injury liability, (PD) property damage liability, (UMP) uninsured/underinsured motorist protection, (PIP) personal injury protection, no-fault insurance, comprehensive insurance, collision insurance, car-rental insurance, emergency road service, surcharge, deductible	Connections to Prior Learning: 1-1 Discretionary and Essential Expenses 4-1 Automobile Ads 4-2 Automobile Transactions
Questions to Develop Mathematical Thinking: • How can this process be used in the real world?	Common Misconceptions: • If you have a large amount of per accident coverage, everything should be paid for, regardless of type of liability incurred. • It is too expensive to carry insurance as long as I (the student) is a good driver.

Assessment (Formative and Summative):

- Formative: discussion, check for understanding, classroom individual lab
- Summative: chapter test with calculations

Materials:

- Textbook, pencil, paper, computer or cell phone for comparison research, calculator

Instruction Plan:

Introduction: Discuss the various ways an auto accident can cause monetary damages and ask who pays for what.
Explore: vehicle and personal coverages for financial protection, affordability of coverages
When I observe students: discussing and working on calculations I believe they are developing an understanding of the concepts
Questions to Develop Mathematical Thinking as you observe: • Your annual premium is X amount and you want to pay it monthly instead of all at once. There is an additional $2 fee to do so… how would you write that as an equation to

determine your actual monthly payment?
- Based on the 25/100/50 model, how many people would be covered in a single accident for their bodily injury?

Answers:
- x/12 + 2 = y
- 4

Summarize: class discussions, learning how to calculate coverages based on specific scenarios

Career Application(s):

- Insurance industry, financial, all others as a consumer

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