

## WAMC Lesson Plan

Name(s): Bennett Kling

Lesson Title: 5-4 Automobile Insurance

Date: Created June 25, 2014

Text: Cengage Financial Algebra

Lesson Length: one period (55 mins)

Domain: Interpreting Functions, Interpreting categorical and quantitative data	
Big Idea (Cluster): Analyze functions using different representations, interpret linear models	
Common Core State Standards: F-IF7a, S-ID7	
Mathematical Practice(s):MP2, MP4, MP8	
<p>Content Objectives: Learn about different types of auto insurance coverage. Compute insurance costs. Compute payments on insurance claims.</p>	<p>Language Objectives:</p> <ul style="list-style-type: none"> <li>• Compare the different types of car insurance.</li> <li>• Describe and interpret what would and wouldn't be covered under types of insurance.</li> <li>• Interpret vocabulary into math sentences.</li> <li>• Define the target vocabulary words.</li> </ul>
<p>Vocabulary:</p> <ul style="list-style-type: none"> <li>• liable</li> <li>• negligent</li> <li>• automobile insurance</li> <li>• premium</li> <li>• claim</li> <li>• liability insurance</li> <li>• bodily injury liability (BI)</li> <li>• property damage liability (PD)</li> <li>• uninsured/underinsured motorist protection (UMP)</li> <li>• personal injury protection (PIP)</li> <li>• no-fault insurance</li> <li>• comprehensive insurance</li> <li>• collision insurance</li> <li>• car-rental insurance</li> <li>• emergency road service insurance</li> <li>• actuary</li> <li>• surcharge</li> <li>• deductible</li> </ul>	<p>Connections Prior to Learning:</p> <ul style="list-style-type: none"> <li>• The chapter so far had built upon itself pretty sequentially, however this section is quite a departure for two reasons. First: the math content switches from basically statistics and measure of center to number sense. Students need to know how to add multiple sums, subtract multiple sums, deal with negatives, use order of operations, and divide in context. Second: The application had been building up to purchasing a car. However, this section switches to assume that the student owns the car and now wants to insure. As you can see in the box to the left, there is an overwhelming amount of new vocabulary.</li> </ul> <p>Because of the strong departure in content and application, as a prerequisite, I would spend a day's lesson on reinforcing the number sense needed for this lesson.</p>
<p>Questions to Develop Mathematical Thinking:</p> <ul style="list-style-type: none"> <li>• Which coverages should be legally required of all drivers?</li> <li>• Which coverages would a wealthy person want more of?</li> <li>• Which coverages would a low income person want more of?</li> <li>• If you have a \$4k emergency fund, what deductible level should you choose?</li> </ul>	<p>Common Misconceptions:</p> <ul style="list-style-type: none"> <li>• the slash in "bodily injury and property damage" would likely be misinterpreted as a fraction.</li> <li>• property damage liability insurance does not cover damage you do to your own car in an accident.</li> <li>• Per person coverages limits versus per accident limits.</li> <li>• No-fault is another name for PIP, and it never covers physical damage to property.</li> <li>• PIP vs bodily insurance is a strong</li> </ul>

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misconception.

### Assessment (Formative and Summative):

- Formative assessment: Pre test: matching game at beginning of lesson. Student participation in group work, students written answers in math journals, vocabulary poster, notes in journal, students responses, and entry task.
- Summative: Homework problems, exit task, and quiz.

### Materials:

- Vocabulary word and definition cards, poster materials, journals, overhead/doc cam, textbook

### Instruction Plan:

Launch: Bring in an insurance brochure from USAA, showing all the different options, terms, and numbers. Explain the objective and that we will start with a vocabulary game.

#### Explore:

- Arrange into groups of four, empty tables in front of them.
- Hand out vocabulary cards and explain that groups are to make their best guess using only their own knowledge – not graded. Match the blue vocabulary words with the green definitions, and glue them onto the poster. This should take about 10 minutes and the included vocabulary words are: liability insurance, bodily injury liability (BI), property damage liability (PD), uninsured/underinsured motorist protection (UMP), personal injury protection (PIP), no-fault insurance, comprehensive insurance, collision insurance, car-rental insurance, emergency road service insurance. Use <http://www.progressive.com/customer-service/car-insurance-definitions/> as a source for definitions.
- Have a short gallery walk where three members view other group's posters while one member stays behind to explain their own work. Once the gallery walk is over, select one group's work to use as a base for providing the correct definitions. Have students copy down these definitions in their journals.
- Read the first two paragraphs of pg 238, and define these terms on the side white board.
- Go through examples 2 and 3. For each, have groups use their posters to work together to answer. Once they are done, have students individually answer the "check your understanding" in their math journals.
- Explain the slash use for BI and PD insurance, reading the first paragraph of pg 241 as a class.
- Have students complete example 4 and 5, working in groups again.
- The check your understandings on pg 241 will be turned in as the exit slip for the day.
- Homework is: pg 242, #'s 1,2,4,5,6,7,8,10,12.

When I observe students: During the poster session, make notes of if groups are generally correct or incorrect. Which definitions are the most commonly missed? Pick a group that got the majority of definitions correct to use as an example. When students are copying down definitions, float around to make sure everyone is getting the needed info down. As students are working in groups, check for low status students and try and include them more. Monitor for the language goals, pushing students to achieve these.

Questions to Develop Mathematical Thinking as you observe:

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- Which coverages should be legally required of all drivers?
- Which coverages would a wealthy person want more of?
- Which coverages would a low income person want more of?
- If you have a \$4k emergency fund, what deductible level should you choose?

Answers:

- Which coverages should be legally required of all drivers?  
This answer depends on your politics, ethical beliefs, and personal experience. But, most of all it requires that you back up your claim by demonstrating an understanding on the vocabulary terms.
- Which coverages would a wealthy person want more of?  
Because wealthy individuals are more at risk for lawsuits and larger settlements, they would in general want more of everything, but with an emphasis on all forms of liability, especially bodily injury. PIP would be equally important.
- Which coverages would a low income person want more of?  
Comprehensive and collision would be good to get more of since a low income person is less likely to have funds to repair their own car if they get in an accident or incur damage.
- If you have a \$4k emergency fund, what deductible level should you choose?  
You have to be careful because one accident could rack up a few deductibles if you do damage to people's health as well as property. Also, don't choose a level that would max out your emergency fund since you could have additional costs above the deductibles.

Summarize: To conclude this lesson, I will log into USAA and show students my personal costs to insure my Hyundai. I will then manipulate the deductible and maximum coverage amounts and show how much that will change my premium.

Career Application(s):

- Actuary, any occupation where transportation is required (industry, taxi and towncar service, merchandiser,

21<sup>st</sup> Century Skills and Interdisciplinary Themes:

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 checked="" 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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5-4 Automobile Insurance

**Quiz 5-4 Automobile Insurance**

Name: \_\_\_\_\_

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

Period: \_\_\_\_\_

1. What is the difference between PIP (personal injury protection) and Bodily Injury Liability? Give one accident example that would be covered by each.

2. What are the legally required coverages in Washington State?

3. Juan has \$10,000 worth of property damage insurance and a \$500 deductible collision insurance policy. He had a brake failure and ran into a barricade. There was \$1,800 in damages to his car and \$1,200 in damages to the barricade.

- a. Which insurance covers the damage to the barricade?
- b. How much will the insurance company pay for the damage to the car?
- c. How much will the insurance company pay for the barricade?
- d. Which insurance covers the damage to the car?

4. Renata has comprehensive insurance with a \$1,000 deductible on her car. The car is vandalized one night and damages total \$1,800.

- a. How much must Renata pay for the repair?
- b. How much must the insurance company pay?

## Quiz 5-4 Automobile Insurance – Answer key and rubric

Name: \_\_\_\_\_

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

Period: \_\_\_\_\_

1. What is the difference between PIP (personal injury protection) and Bodily Injury Liability? Give one accident example that would be covered by each.

**4 points: 2 for describing the difference and 1 each for examples.**

Answer: BI covers medical costs of accidents for which you are at fault. PIP covers medical costs of people in your car regardless of who is at fault. Example: you rear end a car with a family, your BI will cover the medical costs of the family while the PIP will cover any medical costs for you and your passengers.

2. What are the legally required coverages in Washington State?

**Bodily Injury Liability Coverage:** \$25,000 per person and \$50,000 per accident.

**Property Damage Liability Coverage:** \$10,000.

**4 points: two points for the correct insurance types and 2 points for the correct amounts.**

3. Juan has \$10,000 worth of property damage insurance and a \$500 deductible collision insurance policy. He had a brake failure and ran into a barricade. There was \$1,800 in damages to his car and \$1,200 in damages to the barricade.

a. Which insurance covers the damage to the barricade?

Property Damage

**2 points**

b. How much will the insurance company pay for the damage to the car?

\$1,300

**2 points – with work shown**

c. How much will the insurance company pay for the barricade?

\$1,200

**2 points – with work shown**

d. Which insurance covers the damage to the car?

Collision

**2 points**

4. Renata has comprehensive insurance with a \$1,000 deductible on her car. The car is vandalized one night and damages total \$1,800.

a. How much must Renata pay for the repair?

\$1,000

2 points

b. How much must the insurance company pay?

\$800

2 points – for work shown.

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