WAMC Lesson Plan

Name(s): Financial Algebra
Lesson Title: Automobile stopping distance. Driver reaction times. Cpt 5 sec. 5.8
Date: 6/24/14
Text: Financial Algebra
Lesson Length: 45 min.

Domain: Algebra	
Big Idea (Cluster): Automobile ownership	
Common Core State Standards: A-SSE1b, A-SSE3	
Mathematical Practice(s): Finding distance traveled in terms of time.	
Content Objectives: Calculate reaction time and distance in the English standard system. Calculate and use the braking distance in both the English standard and metric system, Calculate and use the total stopping distance in both the English stand and metric system.	Language Objectives:
Vocabulary: Reaction time, reaction distance, braking distance, total stopping distance.	Connections Prior to Learning. Prior knowledge will be through whole class discussion on what it takes to stop a vehicle. There are many different vehicles and many different drivers.
Questions to Develop Mathematical Thinking: How can we determine how far a vehicle travels once a driver decides that he or she needs to stop the vehicle? ●	Common Misconceptions: Stopping distance and reaction time is typically a concept that most students take for granted. Considering that most of the students that we will be working with do not yet drive a vehicle , giving them the knowledge that a vehicle will take longer to stop depending on speed and reaction time will be a valuable lesson. ●

Assessment (Formative and Summative):

- Formative assessment with short quiz covering subject matter from section 5.8

Materials:

- Worksheet and pencil and calculator.

Instruction Plan:

Launch: I would introduce the lesson by asking students if they know how long it takes to stop a vehicle traveling at 60 miles per hour.
Explore: Discussion with students about road trips. Why would there be different reaction times?
When I observe students: While observing I will watch for understanding and redirect those who need further scaffolding.
Questions to Develop Mathematical Thinking as you observe: How can you convert kilometers per hour into miles per hour? Why do you think that reaction times are different on each question?
Answers: There are .62 miles in every kilometer. Reaction times are different because drivers are many different ages, physical conditions and experiences.

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Summarize: At the end of this lesson the students will be able to determine the stopping distance of a given vehicle traveling at a given speed, in either the standard English measuring system or the metric system.

Career Application(s):

- Insurance agent. Police officer, accident investigator. Professional driver.

21st Century Skills and Interdisciplinary Themes:

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

Financial Math
Reaction Times and Distances
Chapter 5 section 5.8

Name:

Date:

1. Alex was going 55 MPH. Her reaction time was .75 of a second. How far did she go before she hit her brakes?

2. Chris was going 65 MPH. His reaction time was 1.25 seconds. How far did he go before he hit her brakes?

3. Dylan was going 35 MPH. His reaction time was 1.5 seconds. How far did he go before she hit her brakes?

4. Doug was going 47 MPH. His reaction time was .85 of a second. How far did he go before he hit her brakes?

5. Cody was going 56 MPH. His reaction time was 1.3 seconds. How many feet did he go after he hit her brakes?

6. Riley was going 70 MPH. His reaction time was 1 second. How many feet did he go after he hit her brakes?

7. Chris was going 45 kmh. His reaction time was .95 of a second. How many feet did he go after he hit her brakes?
    Note: remember that there is .62 miles per kilometer.

8. Driving impaired or texting can multiply these reaction times by 3-4 fold. Do you think it is safe to text, talk, eat, or drink while you drive?

Answer Key for chapter 5 section 5.8 quiz

1. 60.5 ft
2. 119.2 ft
3. 77 ft
4. 58.6 ft
5. 212.8 ft
6. 315 ft
7. 66,8 ft
8. open ended answer