

Traffic Safety & Service Learning in Our Community



By Megan Gschwender, 5th grade teacher, and edited by Joan Chadde, Michigan Technological University.

Target Grade/Subject: Grade 5, Math or Social Studies

Duration: 3 class periods (one class period to introduce topic and methods, one class period to take field trip, one class period to analyze data and write letter).



Lesson Overview

Students will explore traffic operations and safety in the city of Detroit. Students will be introduced to traffic signs and traffic operations. Next, students will observe a nearby damaged stop sign. Students will collect data to find the number of cars that stop in a safe way and an unsafe way. Students will then convert their data into ratios and fractions. The service learning portion will consist of students writing a persuasive letter to the person in charge of Traffic Engineering at the City Public Works Department, persuading the city to fix the damaged stop sign.

Sources Consulted

Halsey III, Ashley. Dr. Gridlock: Should bike riders stop for stop signs? Washington Post. August 21, 2014. <http://www.washingtonpost.com/blogs/dr-gridlock/wp/2014/08/21/should-bike-riders-stop-for-stop-signs/>
Hummer, Joseph. Department of Civil & Environmental Engineering, Wayne State University. Transportation Workshop: Intersections, held April 18, 2015, coordinated by Michigan Technological University.

Learning Objectives

At the end of this lesson, students will be able to:

- 1) Calculate ratio/fraction for the number of people who do and don't stop safely at a stop sign.
- 2) Write a persuasive letter to the City Public Works Department using the data collected to request that the damaged stop sign be fixed to make the school-community a safer place.

Benchmarks Addressed

CCSS.ELA-LITERACY.W.5.1

Write opinion pieces on topics or texts, supporting a point of view with reasons and information.

CCSS.MATH.CONTENT.5.OA.A.2

Write simple expressions that record calculations with numbers, and interpret numerical expressions without evaluating them.

List Materials & Quantities Needed

Per Class:

KWL Chart (provided)

Camera

Per Student:

Should bike riders stop for stop signs? Dr. Gridlock article (See sources)

Orange safety vests and/or **orange** traffic cones

Clipboards

Pencil

Paper

Data table for car observations (provided)

Persuasive letter rubric (provided)



Advance Preparation

- Arrange for a bus to transport students to their field work site
- 1 teacher/chaperone per 10 students
- All students must wear **orange** safety vests or other bright colors
- If available, put **orange** cones (from Phys. Ed. Dept) along curb where students are working to alert drivers

Vocabulary

City Public Works Department – keeps city infrastructure, such as water, roads, signs, etc. in good working condition.

Fraction - A number usually expressed as a/b. A ratio of algebraic quantities similarly expressed.

Intersection - place where two or more roads cross each other.

Persuade - to prevail on, to do something, as by advising or urging

Ratio - the relation between two similar magnitudes with respect to the number of times the first contains the second

Safety - not causing injury, danger or loss.

Stop sign - a traffic sign to notify drivers that they must stop before proceeding.

Traffic - movement of vehicles, ships, persons, etc. along a street, air lane, or over a water route.

Focus Question(s)

How does traffic operations keep our community safe?

How might a damaged traffic sign affect pedestrian, cyclists' and drivers' safety?

CLASSROOM ACTIVITIES

EXPLORE

Teacher will begin lesson by playing a game of red light, green light on the playground with students to build anticipation. Students will build background knowledge by first completing the K on a KWL (Know-Want to Know-Learned) chart and charting what they already know about traffic safety. Students will be prompted to give real world examples of when they have witnessed safe situations and unsafe situations in traffic. Students will then read an article titled 'Should bike riders stop for stop signs?' Students will discuss new learning and information in the article and add their ideas to the W on the KWL chart for what they want to find out. *What are some questions that students have? What additional information do they need?*

- *How many pedestrians are killed each in year in the City of Detroit?*
Detroit had 28 pedestrians killed in 2012 in traffic crashes. By contrast, the pedestrian fatality rate in Washington, DC was 1.11 per 100,000, Denver 2.84 per 100,000 and Boston 0.79 per 100,000. (Note: Detroit's 2012 population was 700,000) <http://newsinmi.com/detroit-leads-nation-in-pedestrian-deaths/>
- *What is a "safe" legal stop?*
The most common traffic violation associated with traffic control signals and devices is "running" a red light or stop sign—when a driver proceeds through an intersection while a red light is displayed or without coming to a complete stop and following right of way requirements when a "stop" sign is posted.
<http://traffic.findlaw.com/traffic-tickets/running-a-red-light-stop-sign.html>

ENGAGE

Students will go on a field work trip to view a traffic intersection where a stop sign is damaged. Students will use a data table (provided) to record number of vehicles stopping safely and number of vehicles not stopping safely.

EXPLAIN

Students will then put their data into ratios, fractions and compare the two sets of data. Students will do a quick write to explain their interpretation of the data (approximately one paragraph). For example: I believe many cars did not stop because the damaged stop sign makes the traffic sign unclear and difficult to see.

EXTEND

Students will write a letter to a city representative to persuade them to fix the damaged stop sign. In their letter, students will incorporate the data collected, as well as safety concerns that they have identified through their research, that could occur from not fixing the stop. Students will use a rubric to write their persuasive letter.

EVALUATE

Students will read their letters to a partner and peer revise their letters using the rubric provided. Students will submit their letters to the City of Detroit Traffic Engineer (Jose Abraham, 313- 224-3932; abrahamj@detroitmi.gov) for the City of Detroit Public Works Department.

Assessment

The assessment tool I will use is the persuasive letter writing rubric. The assessment will consist of 3 parts: i) The student will first use the persuasive letter writing tool rubric to assess their own work. ii) Next, a peer will use the tool to assess another student's letter. iii) the teacher will use the assessment tool. Giving students a rubric for their writing, lets them know exactly what is expected of them and will help them synthesize what they have learned and make sure they have included all components.

KWL Chart

K (Know)	W (Want to know)	L (Learned)

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Rubric for a Persuasive Letter Fifth Grade

FAR BELOW/BELOW BASIC	BASIC	PROFICIENT	ADVANCED
Writes a persuasive letter with little and no use of required elements (example: states a clear position, supports the position with relevant evidence, and addresses the readers concerns)	Writes a persuasive letter that includes some of the required elements (example: states a clear position, supports the position with relevant evidence, and addresses the readers concerns)	Writes a persuasive that states a clear positions, supports the position with relevant evidence, and addresses the reader's concerns	Writes a persuasive letter that states a clear position, supports the position with relevant evidence, and anticipates the readers concerns or counterarguments.
Little or no use of correct form or organization including omission of some or all of the following area: a) mailing address, b) return address, c) greeting, d) body of the letter, e) closing, f) signature.	Writes a multi-paragraph with some of the elements of a business letter: a) mailing address, b) return address, c) greeting, d) body of the letter, e) closing, f) signature.	Writes a multi-paragraph letter using correct format of a business letter: a) mailing address, b) return address, c) greeting, d) body of the letter, e) closing, f) signature.	Writes a multiple-paragraph letter that includes all form and organizational structure requirements. The letter is engaging, states a clear purpose, paints a visual image in the mind of the reader, and uses precise vocabulary.
Little of no use of simple compound sentences with prepositional phrase. Little or no use of transitions and conjunctions to connect ideas.	Some use of simple and compound sentences with prepositional phrases. Some use of transitions and conjunctions to connect ideas.	Uses simple and compound sentences with prepositional phrases. Uses transitions and conjunctions to connect ideas.	Uses simple, compound, and complex sentences with prepositional phrases. Uses transitions and conjunctions to connect ideas.
Little or no correct use of grade level spelling, punctuation, and grammar.	Some correct use of grade level spelling, punctuation, capitalization, and grammar.	Uses grade level spelling, punctuation, capitalization, and grammar most of the time	Uses grade level spelling, punctuation, capitalization, and grammar consistently throughout writing.

Observers' Names _____ Date _____ Time _____

Location (name streets at intersection): _____

DATA TABLE

Record the number of cars that stop safely and number of cars that do not stop unsafely.

# of Cars	Car Stops Safely	Car Does Not Stop Safely	Explain Why Unsafe
1			
2			
3			
4			
5			
6			
7			
8			
9			
10			
11			
12			
13			
14			
15			
16			
17			
18			
19			
20			
TOTAL	Stopped =	Did Not Stop =	