

# Confident Commute: Increasing Safety for Teen Drivers

by

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This lesson is designed for a high school biology course addressing science in personal and social perspectives by investigating the factors that impact teen driving. Students will be introduced to survey development and design by generating a survey to assess the specific risks impacting teen driving. Students will also be introduced to national teen driving data and asked to develop awareness materials to influence positive teen driving behavior. Teachers should be aware of the sensitivity of this topic for students who have been personally affected by a motor vehicle crash (or possibly among family members or close friends).

*Disclaimer: The findings and conclusions in this report are those of the authors and do not necessarily represent the official views of the Centers for Disease Control and Prevention.*

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## Summary

This lesson is designed for a high school biology course addressing science in personal and social perspectives by investigating the factors that impact teen driving. Students will be introduced to survey development and design by generating a survey to assess the specific risks that impact teen driving. Students will also be introduced to national teen driving data and asked to develop awareness materials to influence positive teen driving behavior. Teachers should be aware of the sensitivity of this topic for students who have been personally affected by a motor vehicle crash when implementing this lesson plan.

## Learning Outcomes

- Students will be able to list three common risk behaviors impacting teen driving.
- Students will be able to cite one example of national data regarding driving behaviors among youth.
- Students will be able to identify the leading cause of death among teens.
- Students will be able to list two elements in survey design and administration that illustrate the complexities involved.
- Students will provide five key summary points from the lesson to develop awareness materials (e.g. poster, pod cast, public service announcement [PSA]).

## Materials

1. Photocopies of the handout Predicting the Leading Causes of Death — one per student
2. Photocopies of the handout Leading Causes of Death — one per student
3. Photocopies of the handout Leading Causes of Unintentional Death — one per student
4. Photocopies of the handout Public Communication — one per pair of students
5. Photocopy of the handout Predicting the Leading Causes of Death — Key (for teacher's reference)
6. Photocopy of Possible Brainstormed Ideas on Driving Factors Contributing to Motor Vehicle Fatalities for 15-24 Year Olds (for teacher's reference)
7. Photocopies of the handout Question Pool — one per student
8. Photocopies of the research report Driving: Through the Eyes of Teens — one for each group of 4 students

## Other Considerations

Based on the content of this lesson, the teacher is advised to notify school administration, parents, and students before starting the lesson. For students that have had experiences related to motor vehicle crashes, this may be a sensitive topic. The teacher should encourage all students to be respectful of their peers in studying this topic.

## Total Duration

2 hours, 15 minutes

## Procedures

### Teacher Preparation

This lesson plan involves the discussion of leading causes of death by age, particularly motor vehicular deaths. It is important for the teacher to handle these discussions, brainstorming, and surveys with sensitivity to students who may have been affected by a motor vehicle fatality or serious injury.

Prior to the start of this lesson, make a copy of the following handouts for each of your students

- Predicting the Leading Causes of Death (Introduction)
- Leading Causes of Death (Introduction)
- Public Communication Rubric

Make one copy for every **four** students of the research report

- Driving: Through the Eyes of Teens

Make one copy **for yourself** of the following handouts

- Predicting the Leading Causes of Death — Key
- Possible Brainstormed Ideas on Driving Factors Contributing to Motor Vehicle Fatalities for 15-24 Year Olds
- Question Pool

### Web Resource

Title: Driving: Through the Eyes of Teens

URL: [http://stokes.chop.edu/programs/injury/files/PCPS\\_Reports/1289teen.pdf](http://stokes.chop.edu/programs/injury/files/PCPS_Reports/1289teen.pdf)

Description: This is a research report from The Children's Hospital of Philadelphia and State Farm® detailing data results from the 2006 National Young Driver Survey.

### Introduction

**Duration: 15 minutes**

#### Step 1

Introduce the topic by distributing the Predicting the Leading Causes of Death handout to each student. Have students fill in their top three predictions in the *Predicted* row of the handout. Remind the students to leave the spaces in the *Actual* row blank to be filled out later. If students begin to discuss the topics with each other, do not discourage this, but explain that each student must make their own predictions. While students are completing the handout, the teacher should look over the Predicting the Leading Causes of Death — Key.

Once students have completed the handout, explain that the class will now compare their data with the 2005 national statistics from CDC. Distribute to each student the Leading Causes of Death handout. Have students place the actual causes in the spaces in the Actual row of the Predicting the Leading Causes of Death handout. Facilitate the discussion of these statistics by asking the students the following:

- How accurate were you in your predictions?
- Were you able to get one of the top three correct? If so, for what age group?
- What surprised you most about the 2005 data?

### Web Resource

Title: Web-based Injury Statistics Query and Reporting System (WISQARS) Leading Causes of Death Reports, 2005

URL: <http://webappa.cdc.gov/sasweb/ncipc/leadcaus10.html>

Description: This Centers for Disease Control and Prevention website provides statistics on leading causes of death for various age groups.

### **Supplemental Documents**

Title: Predicting the Leading Causes of Death

Description: This is an open grid where students can predict the top three causes of death in the United States for age groups from <1 to 65+.

Title: Predicting the Leading Causes of Death — Key

Description: This completed grid contains a sample of possible student answers and the actual answers from the 2005 national statistics.

Title: Leading Causes of Death

Description: This document displays the top three causes of death for age groups <1 – 65+.

## **Step 2**

**Duration: 15 minutes**

After reviewing the actual causes of death for each age group, point out to your students that according to the CDC 2005 national data *unintentional injury* is the cause of death in their age group.<sup>1</sup> Students will now brainstorm possible causes of these unintentional injuries resulting in deaths for persons in the U.S. ages 15–24. Write all student responses on the board or overhead projector. Once students have listed 10–15 ideas, hand out the Leading Causes of Unintentional Death handout to each student. Like the introductory discussion, lead a short discussion comparing this data.

### **Web Resource**

Title: Web-based Injury Statistics Query and Reporting System (WISQARS) Leading Causes of Death Reports, 2004

URL: <http://webappa.cdc.gov/sasweb/ncipc/leadcaus10.html>

Description: This Centers for Disease Control and Prevention website provides statistics on leading causes of death for various age groups.

### **Supplemental Document**

Title: Leading Causes of Unintentional Death

Description: This document displays the top three causes of accidental death for age groups <1-65+.

## **Step 3**

**Duration: 45 minutes**

Following this discussion, you will point out that motor vehicle crashes are the leading cause of unintentional deaths among teenagers.<sup>1</sup> Lead a brainstorming session with students to develop a list of characteristics of teen driving habits that may contribute to this statistic. The teacher needs to be sensitive to the possibility that one or more of the students may have been affected by a motor vehicle injury and therefore needs to ensure that the brainstorming is done in a serious manner. These characteristics will then provide the structure for a student-generated survey. Once this brainstorming is done, help students to group their ideas under natural headings such as driver behavior, alcohol and drug use, use of technology (e.g. text messaging), passenger distractions, environmental conditions, vehicle defects, roads, and miscellaneous. See the handout Possible Brainstormed Ideas

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<sup>1</sup> National Center for Injury Prevention and Control. CDC WISQARS Leading Causes of Death Reports, 1999-2004 [online]. 2005. [cited 2008 August 22]. Available from URL: <http://webappa.cdc.gov/sasweb/ncipc/leadcaus10.html>

on Driving Factors Contributing to Motor Vehicle Fatalities for 15–24 Year Olds, as a guide for likely student responses.

The teacher should now pass out copies of the Question Pool. As a class, have students choose 1 to 5 survey questions under each topic heading. Be sure to point out to students that *italicized* questions must be selected. The selected questions should be returned to the teacher so that the survey can be reviewed and typed. The teacher will then distribute copies of the class-generated survey. The teacher will follow by leading the students in a discussion about the questions they selected to help students understand survey development. Possible questions could include

- What were the criteria for choosing one question over another?
- Is the survey too long; why are demographic questions so important?
- Are there multiple interpretations of the same question?

### **Supplemental Documents**

Title: Possible Brainstormed Ideas on Driving Factors Contributing to Motor Vehicle Fatalities for 15–24 Year Olds

Description: This is a list of possible factors that students might generate during the motor vehicle discussion and the possible headings under which they might be grouped.

Title: Question Pool

Description: This document contains the questions students must select from to produce their survey.

### **Conclusion**

**Duration: 60 minutes**

Now that students have been introduced to survey development they will review data obtained from the 2006 National Young Driver Survey. Teachers will provide one copy of the Driving: Through the Eyes of Teens research report for each group of four students.

After students have read and discussed the findings, inform students that each group will highlight positive aspects of this data (e.g., 75% of students wear seat belts) and present these statistics in a public communication project (e.g. public service announcement (PSA), podcast, brochure, or poster) targeting a particular audience (e.g., students, parents, legislators, or the general public). This message should include specific facts gathered from the survey and should encourage others to join the students to take steps that have potential to decrease injuries and deaths among teens by motor vehicles incidents. Provide each student with the Public Communication Rubric so students are aware of criteria on which they will be assessed.

### **Web Resource**

Title: Driving: Through the Eyes of Teens

URL: [http://stokes.chop.edu/programs/injury/files/PCPS\\_Reports/1289teen.pdf](http://stokes.chop.edu/programs/injury/files/PCPS_Reports/1289teen.pdf)

Description: A research report of The Children's Hospital of Philadelphia and State Farm® detailing data results from the National Young Driver Survey in 2006.

### **Supplemental Document**

Title: Public Communication Rubric

Description: This rubric is used to assess the form of public communication the students choose to use.

### **Assessment**

The students will be evaluated on their group's public communication project using the Public Communication Rubric in the conclusion.

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### **Modifications**

## Extensions

With the appropriate permission from school administration and parents, students may administer the student-generated survey developed in **Step 3**. They can then collect, analyze and compare their data to the results from the National Youth Driver survey summarized in the Driving: Through the Eyes of Teens report.

The teacher can invite parents to an evening presentation of the students' survey data to provide a forum for students to communicate their public communication projects to interested adults. At the same time, the teacher can administer a parent questionnaire of typical parental controls, or rules concerning their teen driver. The same questionnaire can be administered to students. This will allow students to compare perceptions of these rules with the parental perceptions. Follow-up meetings can disseminate the results of these control comparisons, convey important facts from the national survey, and explore ways parents can become more involved in the driving choices their teens make.

Teachers may also use the accompanying Sample Survey Data handout that provides data from a population of 10<sup>th</sup> to 12<sup>th</sup> grade students. The data contained in the handout is similar to the data collected in the Driving: Through the Eyes of Teens report. The teacher could have students select certain information, graph the information, and then compare the sample survey data to the data found in the report: Driving: Through the Eyes of Teens.

For more information on the general topic of teen driving and specific ways that have been developed or proposed to influence positive teen driving behaviors, teachers may review the Web resources below.

### Supplemental Documents

Title: Sample Survey Data

Description: This handout provides data on the driving characteristics and habits of a population of 10<sup>th</sup>–12<sup>th</sup> grade students.

Title: Graphing Rubric

Description: This handout contains the criteria teachers could use to assess students' work.

### Web Resources

Title: Plan and Learn

URL: [http://www.encompassinsurance.com/consumer/cc/plan\\_and\\_learn/teen\\_drivers/teen\\_drivers.asp](http://www.encompassinsurance.com/consumer/cc/plan_and_learn/teen_drivers/teen_drivers.asp)

Description: This Encompass Insurance website provides resources for parents of teens including tips for driving with your teen, what you should know about graduated licensing, a safe driving contract for your teen, and a teen parent contract.

Title: Teen Driver: A Family Guide to Teen Driver Safety

URL: [http://www.gm.com/explore/education/9-12/drivers\\_education/index.html](http://www.gm.com/explore/education/9-12/drivers_education/index.html)

Description: The Family Guide explains the elements of the Graduated Driver License System, so that new drivers and their families may use these steps in transitioning from beginner to independent driver.

Title: Council of State Governments (CSG) Healthy States Web site

URL: <http://www.healthystates.csq.org/>

Description: This CSG website provides a wealth of resources for parents including a Graduated Driver Licensing Tool Kit describing the policy overview, what works, passenger restrictions, nighttime driving restrictions, parental enforcement issues, alcohol restrictions, safety belt restrictions, and talking points for state legislators.

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## Education Standards

### **National Science Education Standards**

#### **SCIENCE AS INQUIRY, CONTENT STANDARD A**

As a result of activities in grades 9–12, all students should develop understanding of

- Abilities necessary to do a scientific inquiry
- Understandings about a scientific inquiry

#### **SCIENCE IN PERSONAL AND SOCIAL PERSPECTIVES, CONTENT STANDARD F**

As a result of activities in grades 9–12, all students should develop understanding of

- Personal and community health
- Population growth
- Natural resources
- Environmental quality
- Risks and benefits
- Natural and human-induced hazards
- Science and technology in local, national, and global challenges

## Predicting the Leading Cause of Death

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Lyn Countryman and Mable Hurtault, CDC's 2007 Science Ambassador Program

Use the list of **Possible Causes of Death** below to predict the top three causes of death for each of the age groups. Place the letter indicating each of the three causes in the blanks in the **Predicted** row. The **Possible Causes of Death** may be used more than once or not used at all.

Age Group	Predicted	Actual
<1	---	
1-4	---	
5-9	---	
10-14	---	
15-24	---	
25-34	---	
35-44	---	
45-54	---	
55-64	---	
65+	---	

Possible Cause of Death

- |  |  |
|--|--|
| <ul style="list-style-type: none"> <li>A Malignant Neoplasms (Tumors and/or Cancer)</li> <li>B Short Gestation (Premature Birth)</li> <li>C Heart Disease</li> <li>D Congenital Abnormalities (Fetal Defects)</li> <li>E Unintentional Injury (Accidental Death)</li> <li>F Sudden Infant Death Syndrome (SIDS)</li> <li>G Homicide</li> </ul> | <ul style="list-style-type: none"> <li>H Suicide</li> <li>I HIV</li> <li>J Respiratory Diseases</li> <li>H Influenza and Pneumonia</li> <li>J Diabetes Mellitus</li> <li>K Cerebro-vascular (Stroke)</li> <li>L Liver Disease</li> </ul> |
|--|--|

## Predicting the Leading Cause of Death — Key

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Use the list of **Possible Causes of Death** below to predict the top three causes of death for each of the age groups. Place the letter indicating each of the three causes in the blanks in the **Predicted** row. The **Possible Causes of Death** may be used more than once or not used at all.

Age Group	Predicted	Actual
<1	<u>B</u> <u>D</u> <u>F</u>	D
1-4	<u>D</u> <u>F</u> <u>A</u>	E
5-9	<u>E</u> <u>A</u> <u>D</u>	E
10-14	<u>E</u> <u>C</u> <u>D</u>	E
15-24	<u>H</u> <u>G</u> <u>E</u>	E
25-34	<u>I</u> <u>E</u> <u>G</u>	E
35-44	<u>L</u> <u>N</u> <u>C</u>	E
45-54	<u>A</u> <u>J</u> <u>H</u>	A
55-64	<u>L</u> <u>N</u> <u>C</u>	A
65+	<u>K</u> <u>J</u> <u>M</u>	C

Possible Cause of Death

- |   |  |   |                           |
|---|--|---|---------------------------|
| A | Malignant Neoplasms (Tumors and/or Cancer) | H | Suicide                   |
| B | Short Gestation (Premature Birth)          | I | HIV                       |
| C | Heart Disease                              | J | Respiratory Diseases      |
| D | Congenital Abnormalities (Fetal Defects)   | H | Influenza and Pneumonia   |
| E | Unintentional Injury (Accidental Death)    | J | Diabetes Mellitus         |
| F | Sudden Infant Death Syndrome (SIDS)        | K | Cerebro-vascular (Stroke) |
| G | Homicide                                   | L | Liver Disease             |

### Reference

Centers for Disease Control and Prevention (CDC) Injury Center — Scientific Data, Statistics, and Surveillance. Web-based Injury Statistics Query and Reporting System (WISQARS) [online]. 2004. [cited 2007 June 6]. Available from URL: <http://webappa.cdc.gov/sasweb/ncipc/leadcaus10.html>.

## Leading Causes of Death

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Rank	Age Groups									
	<1	1-4	5-9	10-14	15-24	25-34	35-44	45-54	55-64	65+
1	Congenital Anomalies 5,622	Unintentional Injury 1,641	Unintentional Injury 1,126	Unintentional Injury 1,540	Unintentional Injury 15,449	Unintentional Injury 13,032	Unintentional Injury 16,471	Malignant Neoplasms (cancer) 49,520	Malignant Neoplasms (cancer) 96,956	Heart Disease 533,302
2	Short Gestation 4,642	Congenital Anomalies 569	Malignant Neoplasms 526	Malignant Neoplasms 493	Homicide 5,085	Suicide 5,074	Malignant Neoplasms 14,723	Heart Disease 69,613	Malignant Neoplasms (Cancer) 385,847	Malignant Neoplasms (Cancer) 553,888
3	SIDS 2,246	Malignant Neoplasms (Cancer) 399	Congenital Anomalies 205	Suicide 283	Suicide 4,316	Homicide 4,495	Heart Disease 12,925	Unintentional Injury 16,942	Chronic Low Respiratory Disease* 11,754	Cerebro-vascular 130,538

\* Chronic Low Respiratory Disease = bronchitis, emphysema, asthma

### Reference

Centers for Disease Control and Prevention (CDC) Injury Center – Scientific Data, Statistics, and Surveillance. Web-based Injury Statistics Query and Reporting System (WISQARS) 10 Leading Causes of Death, United States 2005 [online]. 2005. [cited 2007 June 6]. Available from URL: <http://webappa.cdc.gov/sasweb/ncipc/leadcaus10.html>.

## **Possible Brainstormed Ideas on Factors Contributing to Motor Vehicle Crashes, Injuries, and Fatalities for 15–24 year olds**

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1. Demographics (mandatory questions)
  - Age
  - Grade level
  - Gender
  - Driving status
  - Estimated hours of driving done weekly
  
2. Technology distractions
  - Cell phone use
  - Tuning the MP3 player
  - Tuning the radio
  - Loud music
  
3. Passenger distractions
  - Singing in the car
  - Loud passengers in the car
  - Passengers daring the driver
  
4. Environmental conditions
  - Rain
  - Snow
  - Ice
  - Pot holes
  - Soft shoulders
  - High winds
  - Avoiding hitting an animal
  
5. Driver behaviors
  - Inattention to traffic signs
  - Reaction time
  - Fatigue and sleepiness
  - Reaching out to pick something up that has fallen
  - Speeding
  - Racing other cars
  - In a hurry
  - Involved in previous crashes
  - Over-compensating to avoid collision
  - Risky passing
  - Drinking and driving
  - Smoking
  - Anger at other drivers
  - Non use of seat belt
  - Following to closely
  - Eating

## 6. Vehicle Factors

- Vehicle condition
- Age of car driven
- Stability control
- Anti-lock brakes
- Air bags
- Tire pressure and tread

## 7. Miscellaneous

- Age of car driven

## Question Pool

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These are suggested questions, but you may design your own questions (in addition to selecting ones from below). If you design your own questions, please use one of the formats below. All demographic questions must be included in your survey. Also, questions in *italics* must be used to allow a comparison to the national data.

### 1. Demographics (mandatory questions)

Circle your current age.

- 13 14 15 16 17 18 19

Circle your grade level.

- 9<sup>th</sup> 10<sup>th</sup> 11<sup>th</sup> 12<sup>th</sup>

Circle your gender.

- Male Female

Circle your current driving status.

Note: Make sure to use options that are appropriate to your student population and state or come up with your own. The below options are from the State of Iowa.

- I don't drive
- I drive with an adult
- I drive with a school permit\*<sup>1</sup>
- I drive under a graduated driver licensing system\*<sup>2</sup>
- I am fully licensed (no restrictions)

\*<sup>1</sup> Iowa Minor School License (<http://www.dot.state.ia.us/mvd/ods/msl.htm>):

Individuals must have a driver's permit and must have permission from the school (signature by the school superintendent). It allows those who are not old enough (must be 14.5 years old) to get a provisional driver's license to drive to and from school ONLY. This was designed for students living on farms or in athletic practice before or after school.

\*<sup>2</sup> Graduated Driver Licensing systems are designed to slowly phase young drivers to full driving privileges as they gain age and gain driving experience.

Circle your estimated average driving time on a weekly basis.

- 0 hours
- 1–2 hours
- 3–5 hours
- 6 or more hours

Circle your seat belt use as a passenger.

- Rarely/never
- Sometimes
- Frequently

Circle your seat belt use as a driver.

- Rarely/never

- Sometimes
- Frequently

Indicate how many times in the past week that you have not worn a seat belt, while driving or riding in a vehicle.

0 1 2 3 4 5 6 or more

2. Technology distractions

Have you observed a teen driver operating one of the following devices while driving?

	<b>Rarely or Never</b>	<b>Sometimes</b>	<b>Frequently</b>
Text messaging			
Talking on a cell phone			
Tuning MP3 player (e.g., iPod)			
Tuning the radio			
Reaching out to pick something up that has fallen			

3. Passenger distractions

Have you observed the following incidences in the cars of teen drivers?

	<b>Rarely or Never</b>	<b>Sometimes</b>	<b>Frequently</b>
Other teens in the car			
Passengers/driver dancing or singing			
Passengers have been drinking			
Passengers get driver to speed			

4. Environmental conditions

	<b>Rarely or Never</b>	<b>Sometimes</b>	<b>Frequently</b>
In rain			
In icy conditions			
In snowy conditions			
Upon hitting a pot hole or road bump			
Upon hitting a soft shoulder of the road			
Under high winds			
To avoid hitting an animal			

5. Driver Behavior

Have you ever observed a teen driver who has ...?

	<b>Rarely or Never</b>	<b>Sometimes</b>	<b>Frequently</b>
Missed a traffic sign (e.g., run a red light)			
Travelled over the speed limit in town			
Travelled over the speed limit on a highway			
Raced another car			
Over compensated to avoid a collision and lost control (momentarily or totally)			
Had a collision			
Attempted risky passing			
Drank and then drove			
Engaged in smoking while driving			
Exhibited intense anger at other drivers on the road			
Driven when tired			
Tailgated or drove too closely to the vehicle in front			

**Reference**

Driving Through the Eyes of Teens: A Research Report of the Children’s Hospital of Philadelphia and State Farm [online]. 2007. [cited 2007 June 6]. Available from URL: [http://stokes.chop.edu/programs/injury/files/PCPS\\_Reports/1289teen.pdf](http://stokes.chop.edu/programs/injury/files/PCPS_Reports/1289teen.pdf)

## Sample Survey Data

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*Description: The data below was obtained from a survey of 197 10<sup>th</sup> to 12<sup>th</sup> grade students.*

### Demographics

**Table Three: Age of Drivers**

Age (In Years)	Total
15	63
16	43
17	68
18	21
Blank	0

**Table Four: Grade Level**

Grade Level	Total
10th	86
11th	24
12th	87

**Table Five: Gender of Drivers**

Gender	Total
Male	103
Female	94

**Table Six: Driving Status**

Driving License Category	Total
School Permit	10
Learner's Permit	67
Provisional License	116
Suspended Provisional License	2
Blank	2

## Driving Behaviors

**Table One: Driver Distractions**

Have you observed a teen driver operating the following devices while driving?	Rarely/Never	Sometimes	Frequently
Talking on the cell phone	16	71	110
Text messaging	51	69	77
Tuning the MP3 player	16	104	77

**Table Two: Passenger Distractions**

Have you observed the following incidences in the cars of teen drivers?	Rarely/Never	Sometimes	Frequently
Other teens in the car	11	42	144
Loud music in the car	11	72	114
Passengers /driver dancing or singing	18	85	94
Passengers have been drinking	145	32	20

Note: In this state, students who are 14.5 years or older may request a school (driving) permit. This permit requires signatures from the school district, the student's parents, and the Department of Transportation. A person with a school permit may drive only to and from school without an adult present. The learner's permit allows a student to drive with an adult present in the car. A provisional license is issued to students age 16–18 for two years. Students with a perfect driving record can apply for a permanent license when they are 18.

**Table Seven: Hours Driven per Week by Grade Level**

Hours Teens Estimate They Drive Per Week by Grade Level	0	1-2	3-5	6 or more
10	12	21	19	34
11	4	0	10	10
12	4	11	29	43

**Table Eight: General Seat Belt Use**

	<b>Rarely/Never</b>	<b>Sometimes</b>	<b>Frequently</b>	<b>Always</b>
Seat belt usage as a driver	10	40	143	4
Seat belt usage as a passenger	7	19	167	4

**Table Nine: Weekly Seat Belt Use**

	<b>0</b>	<b>1-4</b>	<b>5-8</b>	<b>9 or more</b>
How many times in the past week have you not worn your seat belt	102	76	10	9

## Graphing Analysis Rubric

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Characteristic Addressed	1 point	2 points	3 points	4 points	Points awarded
Data Table	<ul style="list-style-type: none"> <li>• No data table is included</li> <li>OR</li> <li>• Data table doesn't include all data</li> <li>OR</li> <li>• Data lacks specific labels/units and/or a specific title.</li> </ul>	<ul style="list-style-type: none"> <li>• Data table includes partial labels so that data is understandable</li> <li>• Data includes title and label/units but is poorly organized.</li> <li>OR</li> <li>• Data table lacks a specific title.</li> </ul>	Data table contains all data in an organized fashion AND <ul style="list-style-type: none"> <li>• Data table includes all labels, units and a specific title.</li> </ul>	Data table contains all data in an organized fashion with no redundancies. AND <ul style="list-style-type: none"> <li>• Data table is neat, clear and contains all labels, units, and a specific title.</li> </ul>	
General Characteristics of Summary Graphs of Student Survey Data	<ul style="list-style-type: none"> <li>• No graphs are attempted. OR</li> <li>• Graphs do not include titles, units, or labels.</li> <li>OR</li> <li>• An inappropriate graph type was used.</li> <li>OR</li> <li>• Graphs don't match data.</li> </ul>	<ul style="list-style-type: none"> <li>• The graph shows the comparison of the two items tested, but labeling maybe somewhat incomplete. OR</li> <li>• The graphs have no title or a vague title. OR</li> <li>• Graphs are difficult to interpret..</li> </ul>	<ul style="list-style-type: none"> <li>• The graphs include the needed details such as titles, units, labels and appropriate graph type.</li> <li>AND</li> <li>• The graphs contain descriptive titles.</li> </ul>	<ul style="list-style-type: none"> <li>• Details for the graphs are complete, such as titles, units, and labels.</li> <li>AND</li> <li>• The graphs are neat, provide a key when necessary and are in color.</li> </ul>	
Analysis Component of Summary Graphs of Student Survey Data	<ul style="list-style-type: none"> <li>• Graphs are incomplete in communicating a complete summary of data. OR</li> <li>• Graphs are mainly descriptive.</li> </ul>	<ul style="list-style-type: none"> <li>• Graphs communicate a complete summary of data, although some analysis (realigning of data from different questions) is evident, most of the analysis is limited.</li> </ul>	<ul style="list-style-type: none"> <li>• The graphs communicate a complete summary of the data. An effort to analyze the data by looking at the data in new ways is evident.</li> </ul>	Complete graphs are provided that clearly show a creative and in depth analysis of the summary data of the survey. Interesting and innovative conclusions can be drawn that are not obvious at first glance of the data.	

## Public Communication Rubric

Confident Commute: Increasing Safety for Teen Drivers  
Lyn Countryman and Mable Hurtault, CDC's 2006 Science Ambassador Program

Six Traits of "Writing"	1 point	2 points	3 points	Points Awarded
The content — development and support of a meaningful main idea.	The speaker hasn't developed the presentation in a meaningful way. The topic is underdeveloped.	Ideas are developing, but need to be more personal and specific. The speaker needs to move past the obvious.	The presentation provides insight by providing relevant and telling details in a significant way.	
Organization — ordering ideas in a logical and clear manner	The presentation lacks direction. The ideas are strung together in a random or confusing way.	There is a recognizable structure to the presentation, but some parts are weak or choppy.	The order of the presentation enhances the central idea with logical sequencing of ideas.	
Diction — the words the speaker uses to convey the message.	The words are vague and limiting. Words are used incorrectly and distract from the message of the presentation.	The language is functional, but lacks refinement. The words are correct, but merely adequate.	The words create a lasting picture. The language is precise, powerful, and engaging.	
Fluency — the way sentences flow, individually and together.	Sentences are choppy, incomplete, rambling, and/or awkward. Many sentences use the same, simple structure.	The sentences get the job done, but not a fluid feel. Sentences are constructed correctly, but don't flow well.	Sentences are varied in length and structure. They are creative and well connected. They flow together well.	
Voice — the way the speaker sounds in the presentation.	The speaker seems uninvolved and distant from the topic. S/he appears lifeless and mechanical.	The speaker seems reasonably involved, but is not fully engaged with the topic of the presentation.	The speaker speaks directly to the audience in a way that shows s/he is strongly committed to the topic.	