Workplace Health and Safety

TEACHER'S INTRODUCTION

Why discuss workplace health and safety in a science class?

Many teens hold jobs while attending school, and nearly all will work eventually. In the workplace, they will encounter numerous applications of the science and technology principles they learned in school. One way to develop and apply their science knowledge is to analyze the health and safety hazards at work.

Purpose and Teaching Methods

This unit teaches scientific methodology, scientific data gathering skills, and specific health and safety information. It can be used at the beginning of a science course, or at any time thereafter. Students will conduct a survey of other teens. The survey will address both

knowledge and opinions about workplace health and safety. Before conducting the survey, students will work in groups to formulate hypotheses about the results. After completing the survey, these student groups will tabulate, analyze, and graph the data relevant to their hypotheses.

These activities particularly support Chapter 6, Section F (Science, Technology, and Society) and Chapter 6, Sections H 2–4 (High School Science: Science and Technology— Independent Investigation and Science Communication) in the *Science Framework for California Public Schools* (1990). The activities reinforce core skills in categorizing, inferring, applying, and communicating (Chapter 6, Section A).

This unit would also be appropriate in a math class, or as a way to introduce sampling and statistics in a social science class.

Contents and Time

This unit takes approximately five hours to complete. It consists of five lessons, each designed to be presented during one 50-minute class session:

- ✔ **1.** Danger on the Job!
- ✔ **2.** Introduction to Scientific Methodology
- ✔ **3.** Survey Assignment
- ✔ **4.** Survey Analysis
- ✔ **5.** Presenting Your Results.

Objectives–Scientific Methodology

Students will be able to:

- formulate hypotheses
- gather scientific data
- analyze data
- test hypotheses
- present results clearly.

Objectives–Workplace Health and Safety

Students will be able to:

- Identify teen workers in their community—how many teens work and in what kinds of jobs?
- Describe workplace issues faced by teens—health and safety, work hours, and working conditions.

Materials for the Teacher

The following materials are supplied for the teacher:

- **Lesson Plan** and **Detailed Teacher's Instructions** for each class session (Lessons 1–5).
- **Overheads** to show the class. (Masters are at the end of the unit, following Lesson 5.)
  - Overhead #1—*Where Do U.S. Teens Work?*
  - Overhead #2—*Thousands of Teens Are Injured on the Job*
  - Overhead #3—*Where Are Teens Injured?*
  - Overhead #4—*How Are Teens Injured?*

Materials for Students

To present this unit, the teacher will need the following materials to distribute to students:

- **Handouts.** (Masters are at the end of the unit, following Lesson 5.)
  - Handout #1—*Are You a Working Teen?* (make one copy per student)
  - Handout #2—*Check Your Understanding* (make one copy per student)
  - Handout #3—*Work and Safety Survey Form* (make five copies per student)

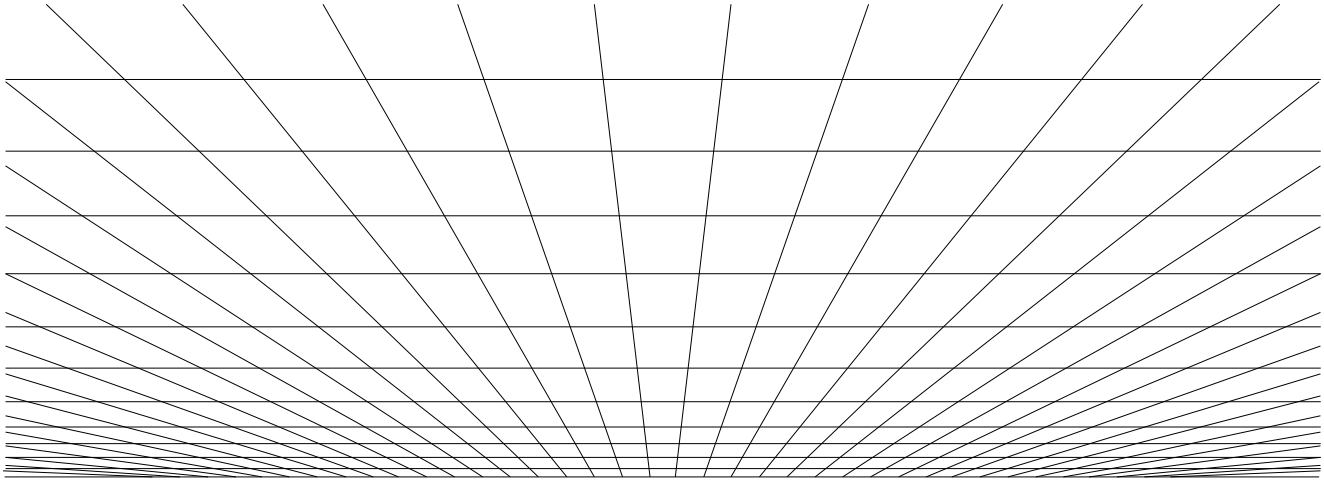
- Handout #4—*Survey Instructions* (make one copy per student)
- Handout #5—*Test Your Hypothesis* (make one copy per student).

Teacher Preparation

- Read all five lessons and decide how to adapt them to meet the needs of your class.
- Read the "General Unit" curriculum in this binder for additional introductory health and safety activities that you may want to use.
- Obtain an overhead projector to show the transparencies that are included with this unit.
- Obtain a VCR to show the video that is included with this curriculum. (This 12-minute video, *Your Work—Keepin' It Safe*, was produced by UCLA's Labor Occupational Safety and Health Program.)
- Make enough copies of all Student Handouts (see section above).

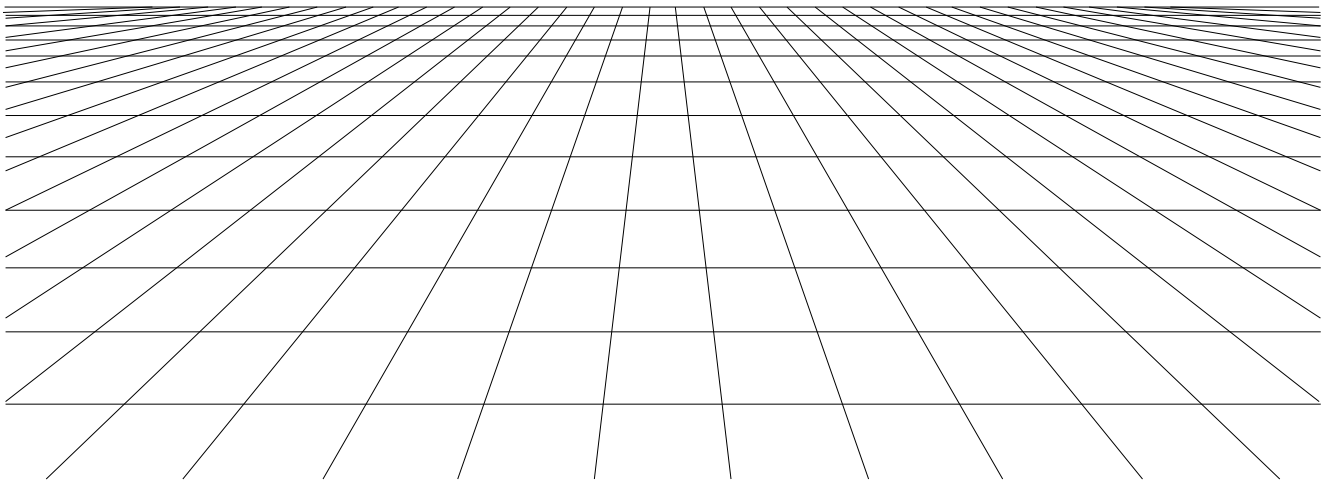
Tips From Teachers Who Have Used This Unit

- "I assigned research objectives to each group to ensure that a variety of topics were addressed."
- "I asked several other teachers to administer the survey to their students, instead of having my students do the interviews themselves."
- "In my class we used computers and spreadsheet software to create the tables and charts."
- "Be as organized and clear as possible when you show students how to tabulate the data."
- "Scientific methodology has always been boring for my students. I saw it come alive for the first time when we used this unit."



1 LESSON ONE

Danger on the Job!



Lesson Plan One

Activity	Grouping	Time	Materials
A. Video. Students watch a video, *Your Work—Keepin' It Safe,* and discuss the issues it raises.	Class	25 minutes	● Video and VCR.
B. Health and safety issues for working teens. Teacher presents national statistics on teen workers and job injuries.	Class	20 minutes	● Overheads #1–4.
C. Homework. Students answer a set of questions about the factsheet, *Are You a Working Teen*.	Individual	5 minutes *(for explanation)*	● Handouts #1–2.

Total Class Time: 50 minutes

DETAILED TEACHER'S INSTRUCTIONS

A. Video.

(25 minutes)

First, as a "warm-up" discussion, ask the class:

- How many of you have jobs?
- Do you think your job is dangerous?

Let the class spend a few minutes talking about their answers.

Next, as an introduction to the theme of job health and safety, show the video *Your Work—Keepin' It Safe.* (This 12-minute video is included with this curriculum. See page 7 of the **Introduction** at the beginning of the curriculum for more information.)

After the video, hold a brief class discussion of the issues it raises. Ask the class what hazards these teens face on their jobs.

If you are unable to show the video, see the General Unit curriculum for other activities you might use.

Explain to students that this curriculum will focus on workplace health and safety and teen workers' rights.

B. Health and safety issues for working teens.

(20 minutes)

Use the first four overheads to present key statistical information on where teens work and what kinds of injuries occur. (Overhead masters are provided at the end of this unit, following Lesson 5.)

After showing each overhead, ask the class the related discussion questions. (See section below.) The questions are designed to help students compare the national statistics given in the overheads to their own experiences.

- Overhead # 1, *Where Do U.S. Teens Work?*

  Question: How many students in this class work in a restaurant? grocery store? office? with children? (Calculate the percentage of the class working in various occupations, and write the results on the board. Then compare the class figures to the national statistics in Overhead #1.)

- Overhead #2, *Thousands of Teens Are Injured on the Job*

  Question: How many students in the class have *ever* been injured on *any* job? (Calculate the percentage of the class who have been injured on the job, and write the results on the board. If there is time, you may also want to break down the total by age and gender. Then, in a general way, compare these class figures to the national statistics in Overhead #2.)

- Overhead #3, *Where Are Teens Injured?*

  Question: If you have ever been injured at work, on what kind of job did your injury happen? (Write students' responses on the board, and compare them to the national statistics in Overhead #3.)

- Overhead #4, *How Are Teens Injured?*

  Questions: The overhead shows that a lot of teens get injured on the job when they work late at night, or work alone. How many students in this class work after 10pm on school nights? How many work alone? (Mention that later in this unit, the class will learn about laws that limit the hours teens can work.)

C. Homework.

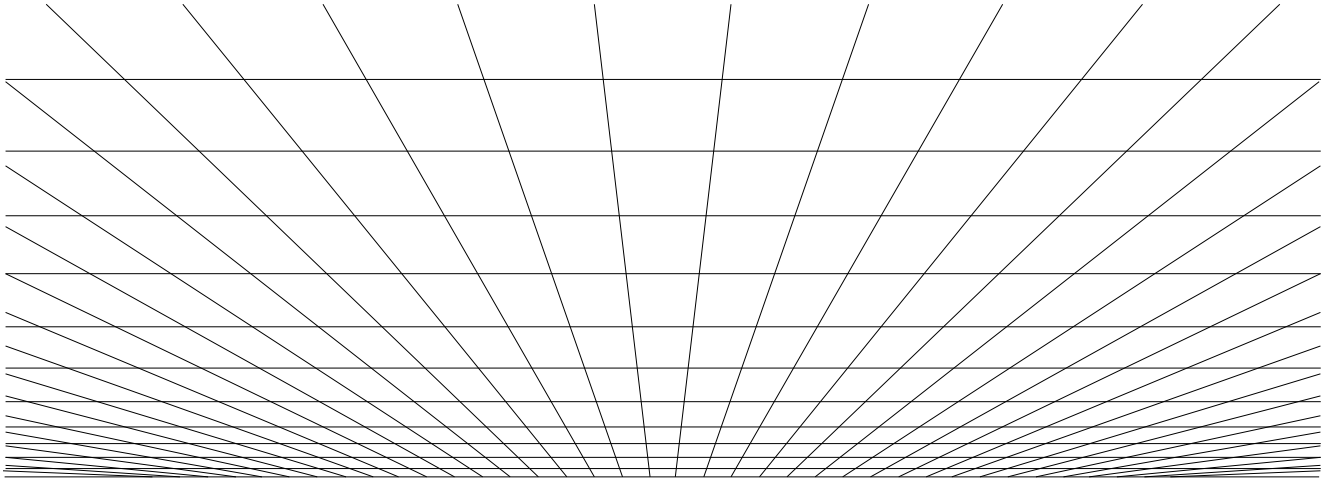
(5 minutes for explanation)

At the end of the class, pass out the four-page factsheet *Are You a Working Teen?* (Handout #1). Also pass out *Check Your Understanding—Questions on the Factsheet* (Handout #2).

Explain that the homework assignment is to read the factsheet and answer the questions. (All the answers can be found in the factsheet.) Also explain that the purpose of the factsheet is to supply background information on teen health and safety. Students should keep the factsheet, because they will need this information later to understand the results of the survey they will conduct.

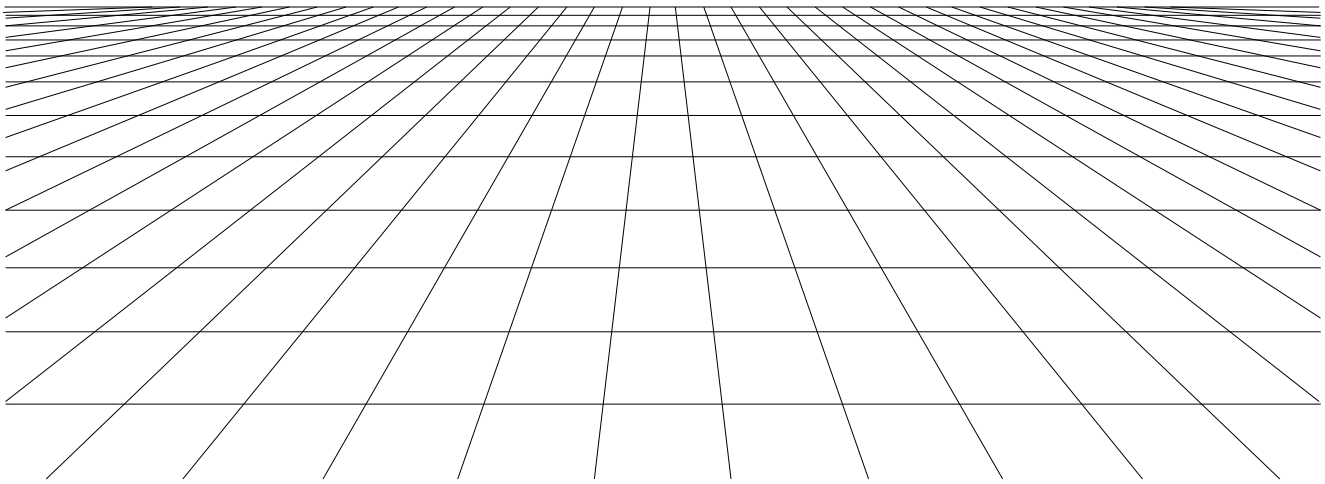
Remind students to bring Handout #2 back to the next class.

The assignment should take no more than 30 minutes.



2 LESSON TWO

Introduction to Scientific Methodology



Lesson Plan Two

Activity	Grouping	Time	Materials
A. "Check Your Understanding" game. Students play a game based on the factsheet, *Are You a Working Teen?*	Small groups & class	20 minutes	● Handouts #1–2. *(Copies used for homework.)*
B. Work and safety survey. Students answer a set of questions on jobs and safety.	Individual *(during class)*	5 minutes	● Handout #3.
C. Formulating a hypothesis. Students learn to define a research objective and develop a hypothesis.	Class	5 minutes	
D. Tabulating and analyzing results. Using survey responses, students: ● Create table. ● Create bar graph. ● Prove or disprove hypothesis.	Class	20 minutes	

Total Class Time: 50 minutes

DETAILED TEACHER'S INSTRUCTIONS

A. 'Check Your Understanding' game.

(20 minutes)

Make sure each person has brought copies of the two handouts used for homework—*Are You a Working Teen?* (Handout #1) and *Check Your Understanding* (Handout #2). Ask students what information was new to them, or surprised them.

Now have the class play a game to review their homework. Divide the class into several teams, with 4 or 5 students per team. Pose the first question from Handout #2 to one team and give them 15 seconds to come up with an answer. Their team gets 10 points if they give the correct answer. If they don't answer correctly, any other team can volunteer an answer, and gets 10 points if it is correct. You may want to discuss the answer briefly.

Continue in the same way with the remaining questions. Rotate questions among the teams so they all have a chance. At the end of the game, the team with the most points wins. You can decide what the prize will be.

The section below provides the correct answers as well as some background information on each question. You may want to introduce some of the background information during the discussion.

✔ Check Your Understanding–Teacher's Discussion Guide

1. **Who is responsible for keeping the workplace safe and healthy?**

   Your employer is ultimately responsible for maintaining a safe and healthful work environment. But you also have a responsibility—you should follow all safety rules and instructions, use safety equipment provided by your employer, and keep work areas clean and neat.

2. **Are teens allowed to drive a motor vehicle on the job?**

   For most occupations, California law says that you must be at least 18 years old to drive a motor vehicle on the job. (Teens working in agriculture are allowed to begin driving at age 16.)

3. **Who pays for your medical care if you get hurt or sick because of your job?**

   Every California employer must carry workers' compensation insurance. This covers medical care if you get hurt or sick on the job (even if it's your own fault). In many cases, you are also entitled to payments that make up for wages you lost because of the injury. Because you can get these workers' compensation benefits, you usually are not allowed to sue your employer for a job injury.

4. **Can 16 year olds work on ladders or scaffolds?**

   In California, you can work in some types of construction beginning at age 16. This includes working on a ladder or scaffold. For more dangerous construction work, like roofing or demolition, you must be 18.

5. **Are teens allowed to work with restaurant equipment like slicers or bakery machines?**

   In California, you must be at least 18 years old to work with any power machinery like a slicer or bakery machine.

6. **Who is responsible for *supplying* safety equipment and protective clothing?**

   Your employer is required to provide any safety equipment you need. Your employer must also give you any necessary protective clothing (like gloves, aprons, or ear plugs). Your employer must train you in how to use this equipment.

7. **Who is responsible for *using* safety equipment and protective clothing?**

   It is your responsibility to use the safety equipment and protective clothing you are given, as instructed by your employer.

8. **If you are over 18 years old but still in high school, do you need a work permit?**

   No. In California, only students under 18 need to get a work permit before taking a job.

9. If you graduated from high school but are still under 18, do you need a work permit?

No. Only *students* under 18 need a work permit.

10. If you are 15 years old, how late in the evening can you work during the school year?

California teens who are 14 or 15 are not allowed to work after 7pm during the school year.

11. What are four things you can do if you need help with a problem at work?

- Talk to a supervisor about the problem.
- Talk to a parent or teacher.
- Talk to co-workers or friends.
- Call the appropriate government agency.

12. Who can you call to complain about a health and safety problem at work?

Cal/OSHA is the California government agency responsible for health and safety in the workplace. There are Cal/OSHA offices throughout the state. Your local office is listed in the "State Government" pages of the phone book under "Industrial Relations Dept., Occupational Safety and Health." (You may want to bring a phone book to class and show students how to find the listing.)

13. Can you be fired for reporting a health and safety problem at work?

No—it's against the law. Still, some employers may *try* to fire you for this reason. In this case, you can file a complaint with the California Labor Commissioner, and you may be able to get your job back. (You may also get back pay.) See the "State Government" pages of the phone book under "Labor Commissioner."

14. Can your employer pay you less than the minimum wage?

If you're under 18, your employer can sometimes pay you less than minimum wage for the first 90 days of employment. After the 90 days, you must get at least the minimum wage.

15. **Who can you call if your employer doesn't pay you the minimum wage or makes you work too many hours?**

    The California Labor Commissioner is responsible for wage and hour laws. See the "State Government" pages of the phone book under "Labor Commissioner." The California minimum wage is $5.75 an hour as of March, 1998.

16. **Who should you call if you are a victim of sexual harassment or discrimination on the job?**

    Call the California Fair Employment and Housing Department. See the "State Government" pages of the phone book under "Fair Employment and Housing Department."

B. Work and safety survey.

(5 minutes)

Next, pass out the *Work and Safety Survey Form* (Handout #3). Have each student fill it out. Students should feel free to ask questions about anything they don't understand.

Explain that students will be using the same form later to survey other teens in their school and community.

C. Formulating a hypothesis.

(5 minutes)

Ask the class:

> *"Do you think there is a difference in the percent of teens who work depending on (a) their age or (b) their sex?"*

Have students make "educated guesses" about the answer. Write one or two of their guesses on the board. For example, someone might guess that more 16 year olds work than 15 year olds, or more females work than males.

Explain that asking a question and guessing its answer are basic steps that every scientist takes before trying to prove or disprove a theory. The question is called your **research objective** and the educated guess is called your **hypothesis**.

D. Tabulating and analyzing results.

(20 minutes)

Refer to the survey forms that students just filled out (Handout #3). Show how to tabulate the class's overall results for the three items related to age, gender, and employment (questions #1, 2, and 5).

To tabulate the results, ask for a show of hands on each of the three questions. Then make a table on the chalkboard to record the totals. Also calculate percentages and put them in the table.

Example: Suppose that a class of 33 students consists entirely of 15 and 16 year olds, both male and female. Your "sample size" is 33.

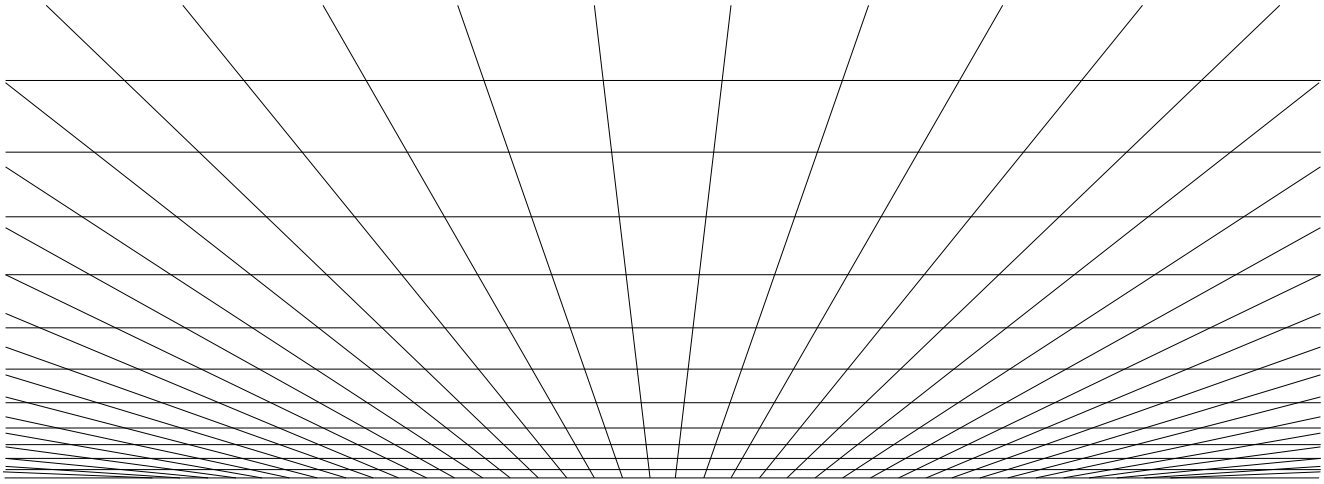
Your table might look like this:

Sample Size=33	TOTAL	Number who work	Percent who work	Number who don't work	Percent who don't work
Males—15	8	4	50%	4	50%
Females—15	8	5	62.5%	3	37.5%
Males—16	9	7	78%	2	22%
Females—16	8	6	75%	2	25%

This means, for example, that 50% of 15 year old boys in the class are working as compared to 62.5% of 15 year old girls.

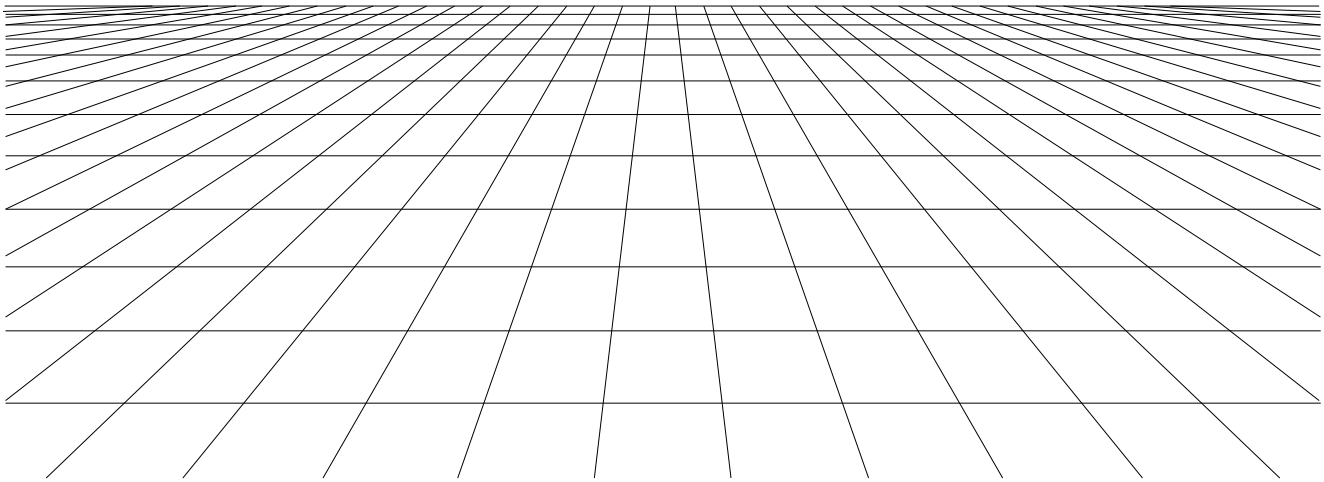
Next, use the data in the table to create a **bar graph** by age and gender. For example:

Finally, refer back to the hypotheses ("educated guesses") that the class suggested earlier and that you wrote on the board. (See Step C.) Using the table and bar graph you created, have the class try to prove or disprove each hypothesis.



3 LESSON THREE

Survey Assignment



Lesson Plan Three

Activity	Grouping	Time	Materials
A. Introduction to the survey assignment. Explain that students will survey other teens about work and safety. Assign everyone to a small group (3 to 5 students per group).	Class	10 minutes	
B. Survey methodology. Discuss how many people to survey and how to choose them.	Class	10 minutes	● Handout #3. *(5 copies per student.)*
C. Selecting a question. Assign each small group a question to investigate after collecting survey data.	Class	10 minutes	
D. Formulating a hypothesis. Students in each small group propose a hypothesis based on their assigned question.	Small groups	15 minutes	● Handout #4.
E. Homework. Students conduct the survey.	Individual	5 minutes *(for explanation)*	

Total Class Time: 50 minutes

DETAILED TEACHER'S INSTRUCTIONS

A. Introduction to the survey assignment.

(10 minutes)

Tell the class that, for the next exercise, everyone will work as a member of a small group. Assign each student to a group. Ideally, each group should have from 3 to 5 students, although this is flexible.

Before the groups meet, explain to the whole class that their assignment is to survey other teens in the school or community about jobs and safety. To do this, students will use the *Work and Safety Survey Form* (Handout #3; the same form that they filled out themselves at the previous class). Every student will survey five people.

Explain that each small group will be assigned (or will choose) a question to investigate, related in some way to certain items on the survey form. The question is the group's **research objective**. Later during today's class, each small group will meet to develop its **hypothesis** (an "educated guess" about the answer to the group's question).

Tell the class that each individual in each group will then conduct the assigned number of surveys as homework. Everyone should bring his or her survey results to the next class. Then each group will analyze all its data and try to prove its hypothesis.

B. Survey methodology.

(10 minutes)

Pass out five copies of the *Work and Safety Survey Form* (Handout #3) to each student for use in the homework assignment.

Explain how students should choose the people they will survey. The primary purpose of this assignment is to survey other teens in school and in the community who are under 18. Try to survey roughly equal numbers of males and females. It is preferable to choose teens who are not in this class.

C. Selecting a question.

(10 minutes)

Each group will need a **research objective** (the question they will try to answer with their survey results). These may either be assigned by the teacher or chosen by the small groups themselves. If they are assigned, you should try to structure them to suit the level and interests of the class. If groups choose their own, you may want to specify a certain level of complexity, or may ask to review and approve the questions they select before the survey is carried out.

Some possible research objectives (questions) are suggested below. Note that some deal with facts and others with attitudes. They also vary in complexity—some require tabulating responses to a single item on the survey form, while others include multiple items.

Questions suggested below do *not* indicate relevant item numbers on the survey form. Determining which survey items are relevant, and why, will be part of the students' assignment.

One-item questions

- What percentage of teens in our sample work?
- What jobs do teens have in our community?
- What percentage of teens have been hurt on the job?
- What percentage know another teen who has been hurt?

Two-item questions

- Are employers assigning teens hours which are not allowed by law?
- Do recent immigrants know less about their rights?
- Do male and female teens work for different reasons?

Attitude questions

- If a person knows someone who was hurt on the job, do they have a different attitude toward work safety?
- Does someone's age affect their attitude toward work safety?

- Which items on the survey most affect attitudes toward work safety?

(For attitude questions like the three above, groups should decide which survey responses should be considered "safety-positive" and which responses "safety-negative.")

D. Formulating a hypothesis.

(15 minutes)

Give each student a copy of the *Survey Instructions* (Handout #4). Explain that the small groups you assigned will now meet for about 15 minutes. By the end of that time, each group should:

- Read Handout #4, which explains the steps the group should follow today.

- Decide what question the group wants to answer (if they have not already been assigned one).

- Decide which items on the *Work and Safety Survey Form* are related to their question. It is this data that the group will need to analyze at the next class meeting, after doing the survey.

- Develop a **hypothesis** based on their assigned question. This is an "educated guess" about what the survey results will be. Each group should come up with just *one* hypothesis.

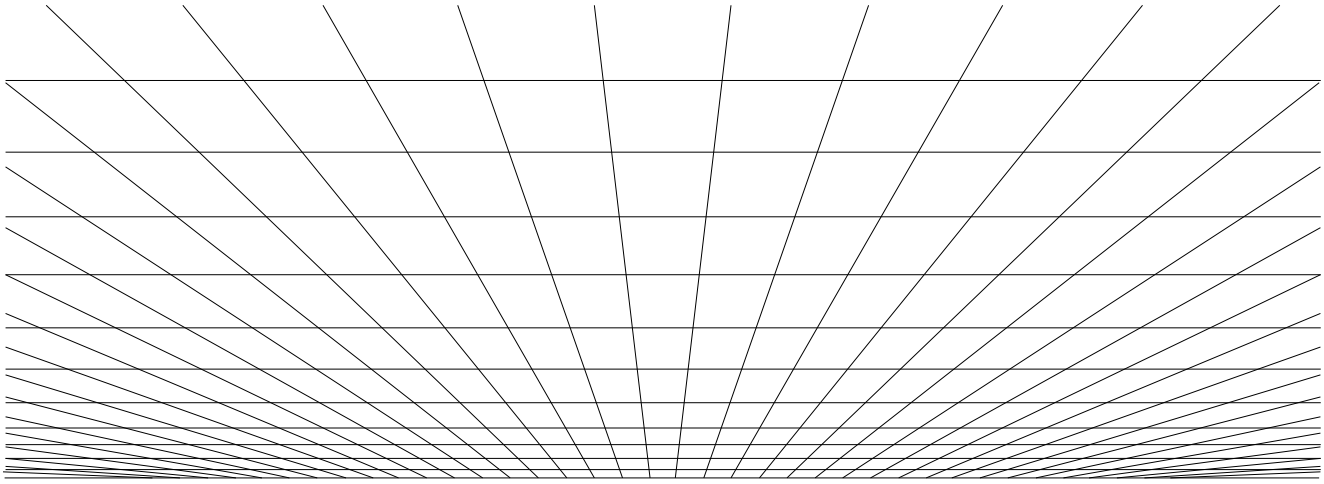
While the groups are meeting, you should circulate among them, giving any help that may be needed. Students may need the most help in deciding which items on the survey form are relevant to their question.

E. Homework.

(5 minutes for explanation)

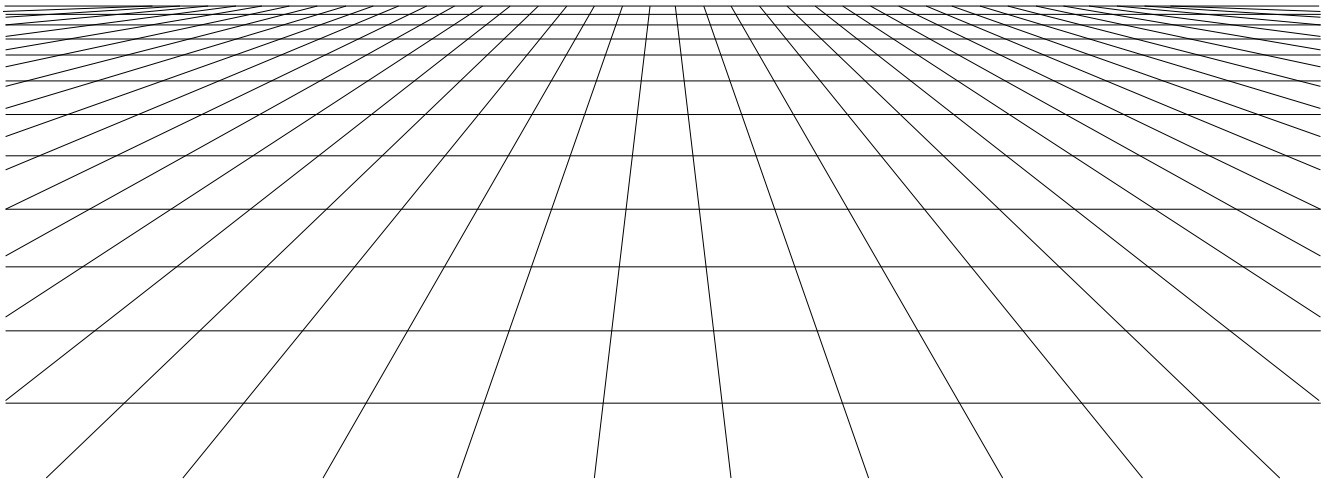
After the groups have met, bring the whole class back together. Ask if each group has developed a hypothesis. Reiterate that the homework assignment is for each student to complete five surveys. Students should have people fill out the *entire* survey, even though their own group is just concerned with one or two items on the form. (Groups will share their data at the next class.)

Answer any questions the students may have. Make sure students understand who they should survey and how many surveys they need to do. Tell them to have their data collected and ready for analysis by the next class meeting.



4 LESSON FOUR

Survey Analysis



Lesson Plan Four

Activity	Grouping	Time	Materials
A. Gather completed surveys. Groups inform the teacher how many completed surveys they collected.	Small groups	15 minutes	● Completed survey forms.
B. Tabulate results. Each group will: ● Tabulate relevant items from their own surveys. ● Tabulate the same data from other groups' surveys. ● Record results in a table and bar graph.	Small groups	25 minutes	● Handout #5. ● Graph paper.
C. Analyze results. Each group compares its results to its original hypothesis.	Small groups	10 minutes	

Total Class Time: 50 minutes

DETAILED TEACHER'S INSTRUCTIONS

A. Gather completed surveys.

(15 minutes)

Have students break into the same small groups they were in at the previous class. Assign a "Group ID Number" to each group (#1, #2, #3, #4, #5, etc.).

Each group should staple together (in **one** packet) all the completed surveys they collected. On the front of the packet they should write their Group ID Number and the number of surveys in the packet.

For example, one group might write prominently on the front of its packet, "Group #3—20 surveys."

B. Tabulate results.

(25 minutes)

Pass out *Test Your Hypothesis* (Handout #5) to each student in each small group. Tell the groups to take a few minutes to read it. Also give each group a few sheets of graph paper.

Handout #5 has complete instructions on how the groups should proceed. Each group should:

- Review (from the previous class) their research objectives, their hypothesis, and which items on the survey form they decided were relevant to their hypothesis.

- Make a table to record the resulting data (following the instructions in the handout). Make the boxes in the table large, because by the end of the exercise, students will tally the surveys from the entire class.

The object is to tabulate responses to the survey questions. Each group will begin by tabulating their own packet of surveys, then exchange packets with other groups. Each group should follow these steps. See Handout #5 for more details on the procedure.

1. Using their own packet of surveys, tabulate all the responses to the survey items that are **relevant** to their hypothesis. Use hash marks to count the various possible responses to each item: 

2. When finished with the packet, make a record of the "Group ID Number" and the total number of surveys (written on the front of the packet). Since groups will trade packets, the ID Number helps to make sure no group gets the same packet twice.

3. Trade packets with another group, and tabulate the relevant responses from the new packet. Remember to record the ID Number and the number of surveys in the new packet.

4. Continue trading packets until the group has tabulated them all.

5. Add up the totals (for all the packets combined) for each possible response to each survey item being analyzed. Do this by counting the hash marks. Put the totals in the table.

6. Calculate the percentage of people giving each response. Write these percents in the table.

7. Finally, make a bar graph showing the data (following the instructions in the handout).

While the groups are working, you should circulate among them to answer any questions. Also make sure all groups are clear on their hypothesis, which survey items to analyze, how to construct tables, and how to create bar graphs.

You may also want to explain to the groups why it is important to trade survey packets. This allows every group to analyze **all** the surveys from the class. Every group then has a larger **sample size** from which to draw its data. The larger the sample size, the more accurate the results.

C. Analyze results.

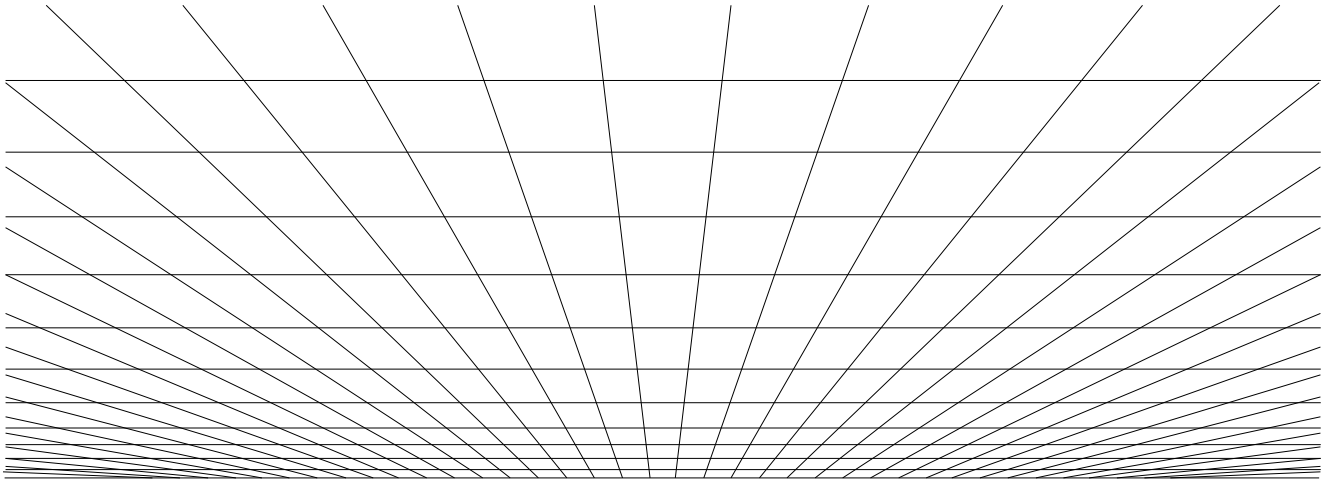
(10 minutes)

Next, each group should use their table and bar graph to compare the survey results to their original hypothesis. Are the results what the group expected? If they are not what was expected, the group should discuss the possible reasons.

Some students may feel disappointed if the data fails to support their hypothesis. Explain that disproving a hypothesis also provides important scientific information.

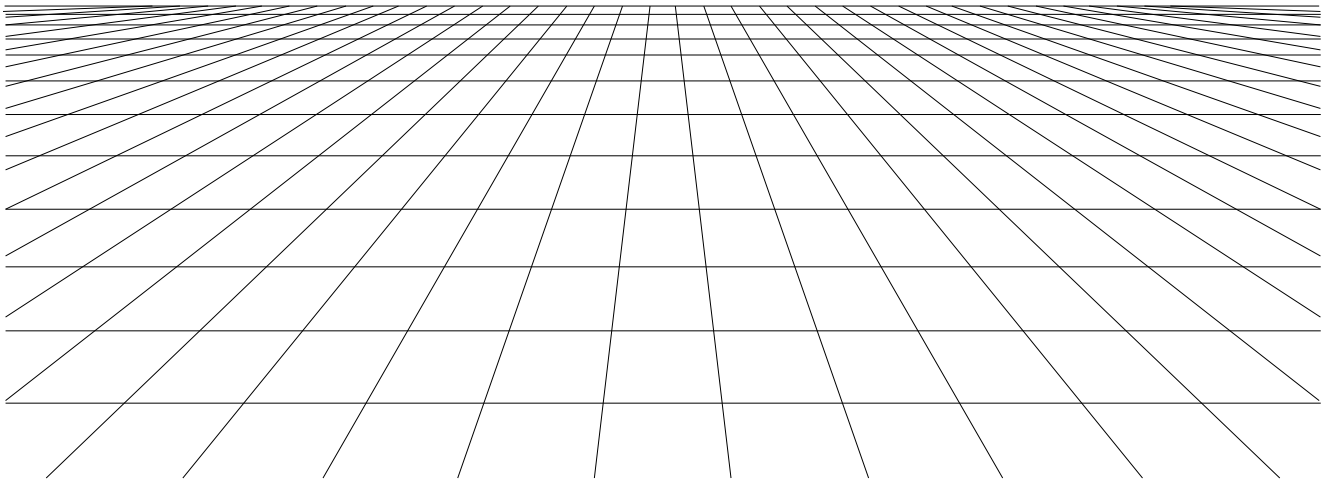
Groups should now begin to prepare for the next class, where they will give presentations about their results. First, groups should talk about the "Points for Discussion" in Handout #5, which was distributed earlier.

Finally, ask everyone to read the "Student Presentation Guidelines" at the end of Handout #5 prior to the next class. It explains what information should be included in the group's final presentation.



5 LESSON FIVE

Presenting Your Results



Lesson Plan Five

Activity	Grouping	Time	Materials
A. Student presentations. Small groups present their data and analysis to the class.	Class	30–40 minutes	
B. Summing up. Students discuss their reactions to the project and ask any questions they have. If there is time, the teacher can also pose some broader related issues.	Class	10–20 minutes	

Total Class Time: 50 minutes

DETAILED TEACHER'S INSTRUCTIONS

A. Student presentations.

(30–40 minutes, depending on the number of groups)

Ask each small group to present its results to the class. Each presentation should be limited to five minutes or less. A group may choose one spokesperson to give its presentation, or several group members may give the presentation together. Every group should:

- State its research objective and its hypothesis.
- Explain which items on the *Work and Safety Survey Form* were relevant.
- Show the class its table and bar graph, and explain the figures.
- Compare the results to its hypothesis.
- Discuss what group members learned from the results:
  - What was expected or unexpected?
  - What are some possible reasons for any unexpected results?
  - What was especially interesting about the results?

Evaluate each group as it makes its presentation. Consider the complexity of the topic, the appropriateness of the survey items chosen, the accuracy and quality of the table and bar graph, and the clarity of the overall presentation and conclusions.

B. Summing up.

(10–20 minutes)

Ask students to share their reactions to the entire project, and answer any questions they have. Involve the whole class in this discussion.

If there is time, you may want to pose some broader related issues (either on scientific method or on workplace safety). Let the whole class discuss them. For example:

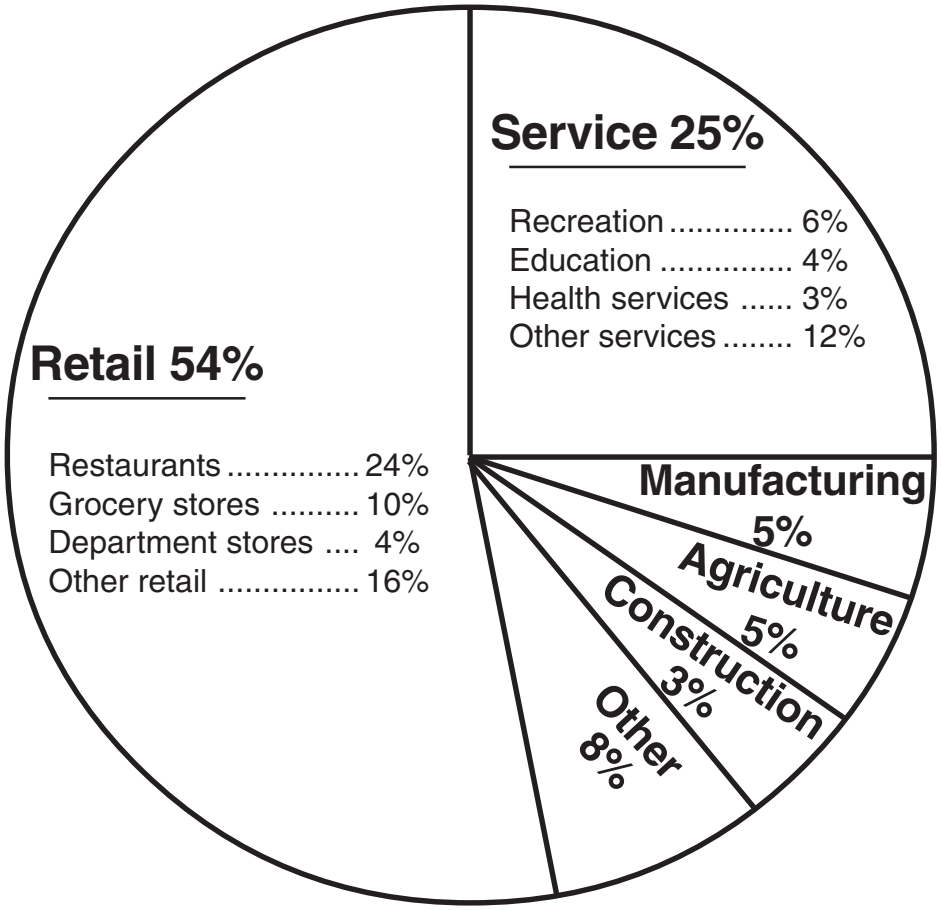
- Were the sample sizes adequate? What is an adequate sample size?
- Do you think the teens who were surveyed are typical of teens nationwide? Why or why not?
- What's the biggest problem that teens face on the job?

Overheads

Science Overhead #1

Where Do U.S. Teens Work?

- Most teen jobs are part-time, temporary, and low-paying.
- Many teens work in industries that have high injury rates. Examples: grocery stores, health services, and recreation.
- This chart shows where U.S. teens work:



Source: *Protecting Working Teens: A Public Health Resource Guide,* Children's Safety Network, 1995.

Science Overhead #2

Thousands of Teens Are Injured on the Job

- Millions of U.S. teens work, and thousands are injured on the job every year.

- About 64,000 U.S. teens (ages 14–17) went to hospital emergency rooms with job injuries in 1992.*

- Teen job injury rates:
  - are higher for males than for females.
  - are higher for older teens than for younger ones.

- Common teen job injuries include cuts, sprains, strains, burns and fractures.

- About 70 U.S. teens (ages 16–17) died from job injuries every year during the 1980s.* Leading causes of death were motor vehicles, farm machinery, other machines, electrocution, and homicides.

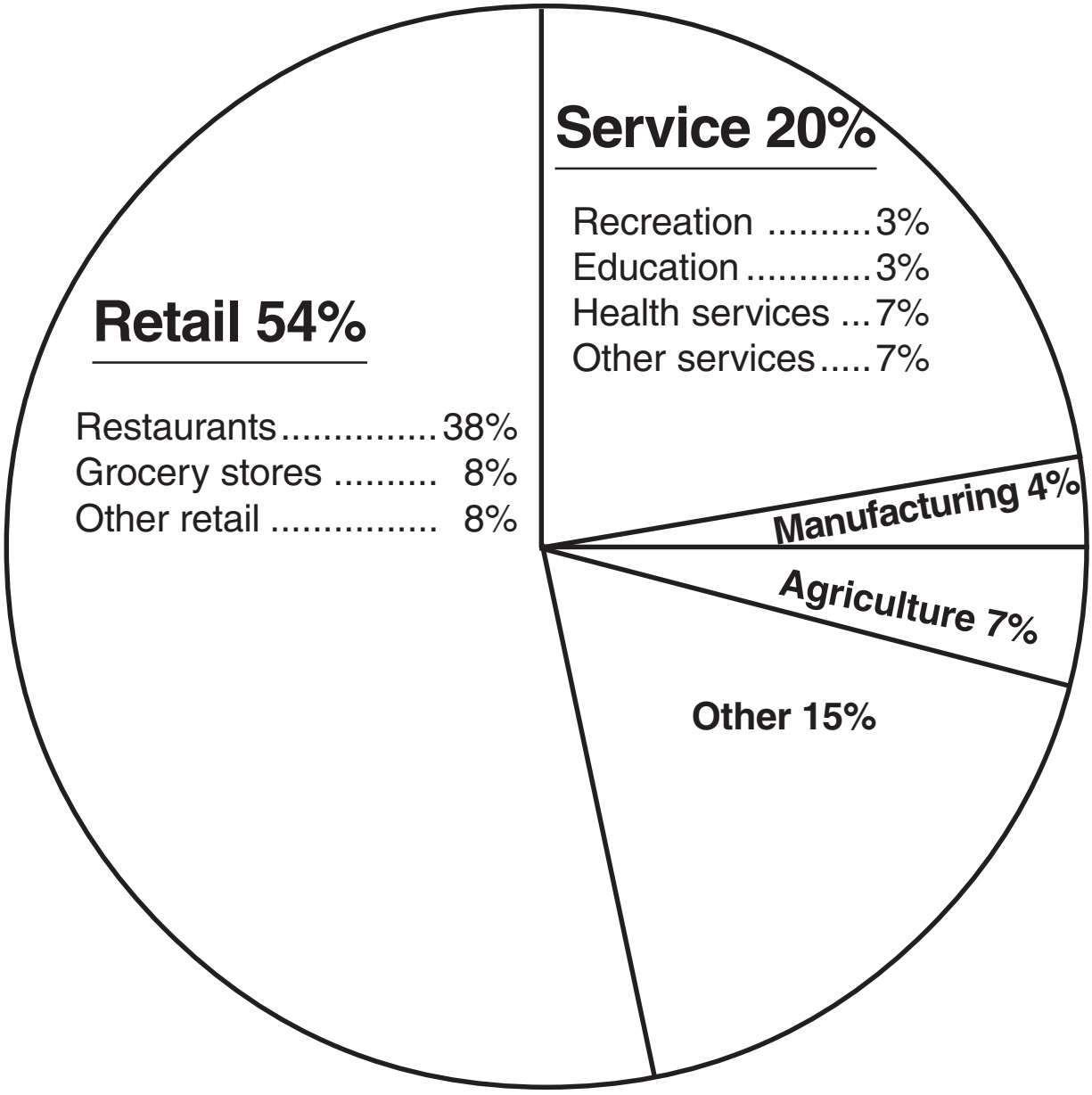
** These are the latest figures available.*

Source: *Protecting Working Teens: A Public Health Resource Guide,* Children's Safety Network, 1995.

Science Overhead #3

Where Are Teens Injured?

- This chart shows U.S. teen injuries by industry in 1992:



Source: *American Journal of Public Health, 1994.*

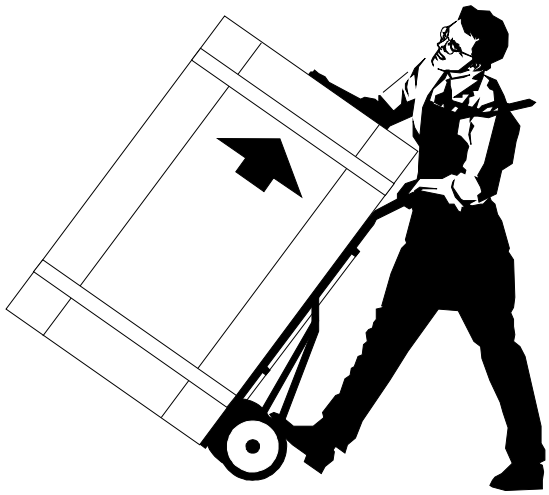
Science Overhead #4

How Are Teens Injured?

- Statistics show that many teen job injuries are caused by:

  - Driving motor vehicles
  - Operating tractors
  - Handling hot liquids and grease
  - Using cutting tools
  - Using non-powered hand tools
  - Lifting heavy objects
  - Working late at night
  - Working alone.

- The law prohibits teens from doing some of these tasks (but not all).



Source: *Protecting Working Teens: A Public Health Resource Guide,* Children's Safety Network, 1995.

Handouts

Are You a Working Teen?

Protect Your Health
Know Your Rights

Labor Occupational Health Program
University of California, Berkeley

1998

Could I Get Hurt or Sick on the Job?

Every year **70 teens die** from work injuries in the United States. Another **64,000 get hurt** badly enough that they go to a hospital emergency room.

Here are the stories of three teens:

- 18-year-old Sylvia caught her hand in an electric cabbage shredder at a fast food restaurant. Her hand is permanently disfigured and she'll never have full use of it again.
- 17-year-old Joe lost his life while working as a construction helper. An electric shock killed him when he climbed a metal ladder to hand an electric drill to another worker.
- 16-year-old Donna was assaulted and robbed at gunpoint at a sandwich shop. She was working alone after 11 p.m.

Why do injuries like these occur? Teens are often injured on the job due to unsafe equipment, stressful conditions, and speed-up. Also they may not receive adequate safety training and supervision. Teens are much more likely to be injured when they work on jobs they are not allowed to do by law.

What Are My Rights on the Job?

By law, your employer must provide:

- ❑ A safe and healthful workplace.
- ❑ Training about health and safety, including information on chemicals that could be harmful to your health.
- ❑ Protective clothing and equipment.
- ❑ Payment for medical care if you get hurt or sick because of your job. You may also be entitled to lost wages.
- ❑ At least the minimum wage, $5.75 an hour as of March, 1998. In some cases, employers can pay less than minimum wage during your first three months, if you are under 18. Call toll-free ☎ 1-888-275-9243 for more information.

You also have a right to:

- ❑ Report safety problems to Cal/OSHA.
- ❑ Work without racial or sexual harassment.
- ❑ Refuse to work if the job is immediately dangerous to your life or health.
- ❑ Join or organize a union.

What Hazards Should I Watch Out For?

Type of Work	Examples of Hazards
Janitor/Clean-up	• Toxic chemicals in cleaning products • Blood on discarded needles
Food Service	• Slippery floors • Hot cooking equipment • Sharp objects
Retail/Sales	• Violent crimes • Heavy lifting
Office/Clerical	• Stress • Harassment • Poor computer work station design

Is It OK to Do Any Kind of Work?

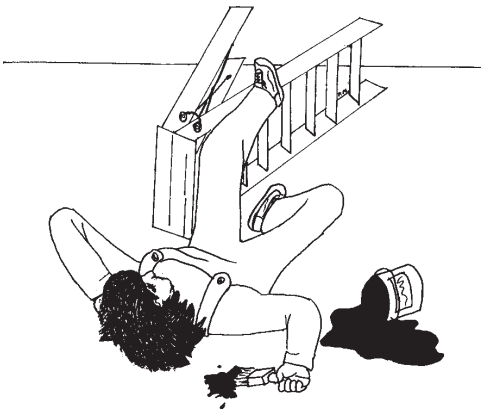
NO! There are laws that protect teens from doing dangerous work.

In California no worker under 18 may:

- ❑ Drive a motor vehicle or forklift on the job
- ❑ Use powered equipment like a circular saw, box crusher, meat slicer, or bakery machine
- ❑ Work in wrecking, demolition, excavation, or roofing
- ❑ Work in logging or a sawmill
- ❑ Handle, serve, or sell alcoholic beverages
- ❑ Work where there is exposure to radiation

***Also*, no one 14 or 15 years old may:**

- ❑ Do baking or cooking on the job (except at a serving counter)
- ❑ Work in dry cleaning or a commercial laundry
- ❑ Work on a ladder or scaffold
- ❑ Do building, construction, or manufacturing work
- ❑ Load or unload a truck, railroad car, or conveyor



Are There Other Things I Can't Do?

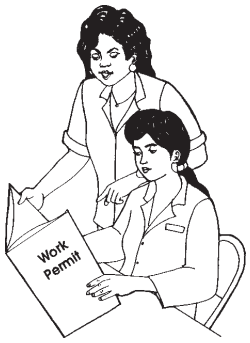
YES! There are many other restrictions regarding the type of work you can and cannot do.

If you are **under 14**, there are even stricter laws to protect your health and safety.

Check with your school counselor or job placement coordinator to make sure the job you are doing is allowed.

Do I Need a Work Permit?

YES! If you are under 18 and plan to work, you must get a work permit from your school (unless you have graduated).



What Are My Safety Responsibilities on the Job?

To work safely you should:

- ❑ Follow all safety rules and instructions
- ❑ Use safety equipment and protective clothing when needed
- ❑ Look out for co-workers
- ❑ Keep work areas clean and neat
- ❑ Know what to do in an emergency
- ❑ Report any health and safety hazard to your supervisor

Should I Be Working This Late or This Long?

Child labor laws protect teens from working too long, too late, or too early.

This table shows the hours teens may work. (There are exceptions for students in work experience programs.)

Work Hours for Teens

	Ages 14 and 15	Ages 16 and 17
Work Hours	• Not before 7 am or after 7 pm during the school year • Not during school hours • 7 am–9 pm during the summer	• Not before 5 am or after 10 pm on school nights • Not before 5 am or after 12:30 am when there is no school the next day
Maximum Hours When School Is in Session	18 hours a week, but not over: • 3 hours a day on school days • 8 hours a day Saturday—Sunday and holidays	48 hours a week, but not over: • 4 hours a day Monday–Thursday • 8 hours a day Friday–Sunday and holidays
Maximum Hours When School Is *not* in Session	• 40 hours a week • 8 hours a day	• 48 hours a week • 8 hours a day

What If I Need Help?

- ❑ Talk to your boss about the problem.
- ❑ Talk to your parents or teachers.
- ❑ For health and safety information and advice, call U.C. Berkeley's Labor Occupational Health Program (LOHP).

  ☎ (510) 642-5507

- ❑ If necessary contact one of these California government agencies: (your local number can be found in the State Government pages.)

  ➤ **Cal/OSHA** (under Industrial Relations Dept.)—to make a health or safety complaint.

  ☎ (415) 972-8500

  ➤ **Labor Standards Enforcement** (under Industrial Relations Dept.) to make a complaint about wages or work hours.

  ☎ (415) 557-7878

  ➤ **Fair Employment and Housing**—to make a complaint about sexual harassment or discrimination.

  ☎ (800) 884-1684

You have a *right* to speak up!

It is illegal for your employer to fire or punish you for reporting a workplace problem.

Check Your Understanding

Questions on the Factsheet

1. Who is responsible for keeping the workplace safe and healthy?

2. Are teens allowed to drive a motor vehicle on the job?

3. Who pays for your medical care if you get hurt or sick because of your job?

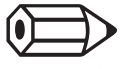
4. Can 16 year olds work on ladders or scaffolds?

5. Are teens allowed to work with restaurant equipment like slicers or bakery machines?

6. Who is responsible for *supplying* safety equipment and protective clothing?

7. Who is responsible for *using* safety equipment and protective clothing?

8. If you are over 18 years old but still in high school, do you need a work permit?



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Science Handout #2

Page 2

9. If you graduated from high school but are still under 18, do you need a work permit?

10. If you are 15 years old, how late in the evening can you work during the school year?

11. What are four things you can do if you need help with a problem at work?

12. Who can you call to complain about a health and safety problem at work?

13. Can you be fired for reporting a health and safety problem at work?

14. Can your employer pay you less than the minimum wage?

15. Who can you call if your employer doesn't pay you the minimum wage or makes you work too many hours?

16. Who should you call if you are a victim of sexual harassment or discrimination on the job?

(For use with Lessons 2–4)

Work and Safety Survey Form

1. Age: _____

2. ❑ Male ❑ Female

3. Were you:

❑ Born in the U.S.? ❑ Born in another country (immigrant)?

4. ❑ YES ❑ NO Have you ever had a job?

5. ❑ YES ❑ NO Do you have a job now?

6. ❑ YES ❑ NO Do you know what OSHA is?

7. ❑ YES ❑ NO Have you heard of laws that say teens can only work certain hours?

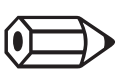
8. ❑ YES ❑ NO Do you know what a work permit is?

9. ❑ YES ❑ NO Do you know at least one teen who has been hurt on the job?

✔ Fill out this section if you have ever worked.

10. Is the job:

❑ in a restaurant? ❑ in a store? ❑ in a factory?
❑ in an office? ❑ in construction? ❑ in health care?
❑ with children? ❑ other? *(Type of job:* _____*)*



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11. ❑ YES ❑ NO Do you ever work after 10pm on school nights?

12. ❑ YES ❑ NO Do you ever work alone (without a supervisor or co-worker present)?

13. Why do you work? *(You may check more than one.)*

- ❑ To support your family
- ❑ To earn spending money
- ❑ To learn new skills
- ❑ To buy something expensive (like a car)
- ❑ Because your friends work
- ❑ To have something to do

14. ❑ YES ❑ NO On *any* job, have you ever been asked to do work that you felt was unsafe?

15. ❑ YES ❑ NO On *any* job, have you ever been injured?
(Type of injury: _____)

✔ Everyone should fill out this section.
–Give your opinion–

16. ❑ AGREE ❑ DISAGREE If teens pay attention to what they are doing, they won't get hurt on the job.

17. ❑ AGREE ❑ DISAGREE I want safety training before I begin any new job.

18. ❑ AGREE ❑ DISAGREE Most teen injuries can't be prevented.

19. ❑ AGREE ❑ DISAGREE I know the hazards on my job and how to protect myself.

20. ❑ AGREE ❑ DISAGREE Most teen jobs are quite safe.

Thank you.

Science Handout #4 *(For use with Lesson 3)*

Survey Instructions

Your group's assignment is to survey other teens using the *Work and Safety Survey Form*. You will do the survey as your homework after today's class.

❶ TODAY

- Meeting with your group, decide what question you want to answer with the survey. This is your ***research objective***. (The teacher may assign you a research objective.)
- Decide which items on the *Work and Safety Survey Form* are related to your research objective. This is the data you will need to analyze after doing the survey. Depending on your research objective, you may need to look at only one survey item, or more than one.
- Make an "educated guess" about the results. This is your ***hypothesis***. Your group should come up with just *one* hypothesis.
- Discuss why you expect these results.

❷ AFTER CLASS

- Each student in your group should survey five people. Bring all the survey data you collect to the next class.

❸ FUTURE CLASSES

- Meeting with your group, tabulate responses to the survey items you decided were relevant.
- Show your data both as a table and as a bar graph.
- Compare your results to your hypothesis.
- Make a group presentation to the whole class, explaining your results.

Test Your Hypothesis

1. Your group will be assigned a "Group ID Number" (#1, #2, #3, #4, #5, etc.). Staple together all the surveys your group collected (in **one** packet). Write your Group ID Number on the front of the packet.

2. Count your group's completed surveys as directed by your teacher. How many completed surveys does your group have? This is called your group's ***sample size***. Write it next to the ID Number on the front of your packet.

3. Review (from the previous class) your group's research objective (question), your hypothesis, and which items on the survey form you decided were relevant.

4. Make a table to record the data. **For example**, suppose your topic is:

Are immigrants less likely to know what OSHA is?

Responses to two items on the survey form will give you information relevant to this research objective:

#3. Were you born in the U.S., or born in another country (immigrant)?

#6. Do you know what OSHA is?

For each of these items, there are only two possible responses. In this example the responses to item #3 should be listed vertically in the table and the responses to #6 horizontally. Show both the number and the percent in each category.

At this point, a blank table may look like this:

	TOTAL	Number Who Know What OSHA Is	Percent Who Know What OSHA Is	Number Who Don't Know What OSHA Is	Percent Who Don't Know What OSHA Is
Immigrants					
Non-Immigrants					

Science Handout #5
Page 2

5. Begin with your own group's packet of completed surveys. Find the survey items that relate to your group's research objective (in the example, #3 and #6). Using hash marks, tally the responses from each survey in your packet. For each survey form, look at Question #3 (about immigrant status). Make a hash mark in the "TOTAL" column next to either "Immigrants" or "Non-Immigrants." Then, on the same survey form, look at Question #6 (about knowledge of OSHA). Make another hash mark in the appropriate column (in the same row where you marked immigrant or non-immigrant).

6. Now trade packets with another group, and tally the relevant responses from the new packet. Continue doing this until you have tallied all the packets. Remember to keep a record of each packet's Group ID Number and total number of surveys. Make sure you don't tally the same packet twice.

After you tally your results, your table may look like this:

	TOTAL	Number Who Know What OSHA Is	Percent Who Know What OSHA Is	Number Who Don't Know What OSHA Is	Percent Who Don't Know What OSHA Is
Immigrants	𝍸 𝍸 𝍸 𝍸	𝍸		𝍸 𝍸 𝍸	
Non-Immigrants	𝍸 𝍸 𝍸 𝍸 𝍸	𝍸 𝍸 𝍸		𝍸 𝍸	

7. Now add up your hash marks and replace them with the actual numbers. From the records you kept as you tallied the packets, figure the total number of surveys you analyzed (from **all** the packets combined). This is your "sample size." Write it at the upper left of your table. Note that you can easily check your work. The sum of the "TOTAL" column (adding down) should equal your sample size, and each entry in the "TOTAL" column should be the sum of the two numbers in the same row (those who know about OSHA, and those who don't.)

Now your table may look like this:

Sample Size=50	TOTAL	Number Who Know What OSHA Is	Percent Who Know What OSHA Is	Number Who Don't Know What OSHA Is	Percent Who Don't Know What OSHA Is
Immigrants	**20**	**5**		**15**	
Non-Immigrants	**30**	**18**		**12**	

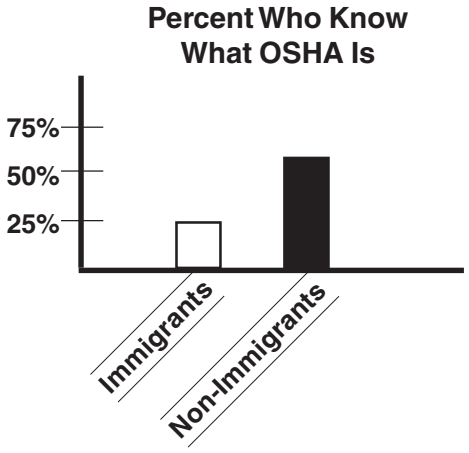
8. To finish your table, calculate the percent in each category. For example, among immigrants, the "Percent Who Know What OSHA Is" will be the "Number Who Know What OSHA Is" divided by the total number of immigrants.

Now your table is complete. It may look like this:

Sample Size=50	TOTAL	Number Who Know What OSHA Is	Percent Who Know What OSHA Is	Number Who Don't Know What OSHA Is	Percent Who Don't Know What OSHA Is
Immigrants	20	5	25%	15	75%
Non-Immigrants	30	18	60%	12	40%

9. On the graph paper supplied by your teacher, make a bar graph to show your results. Include a title, a label for each bar, and a vertical scale showing percentages.

For example:



Points for Discussion

After tabulating and graphing your data, your group should discuss these questions to help you prepare for your group's final report.

- Compare the results with your hypothesis. Did you get the results you expected? How are the results different? Why do you think they are different?

- How might your results be different if you did the same survey in a different place, or with a different group of people? Give some examples.

Student Presentation Guidelines

Limit your group's presentation to five minutes or less. Every group should:

- State your research objective (question).
- State your hypothesis.
- Explain which items on the *Work and Safety Survey Form* were relevant.
- Show the class your table and bar graph, and explain the figures.
- Compare your results to your hypothesis.
- Discuss what your group learned from the results.
    - What was expected or unexpected?
    - What are some possible reasons for any unexpected results?
    - What was especially interesting about your results?