Instructor Notes
The Risks of Everyday Living

In this activity, participants compare their perceptions of risk to the perceptions of scientists and risk professionals. After completing the exercises, participants will have a better understanding of the relative risks they face and how to make informed choices.

➤ *The activity is written for workshop participants and may need modification for classroom use.*

Suggested Background Reading

- A Scientific View of Risk

National Science Education Standards for Grades 5–12

Science as Inquiry

- Understanding about Science Inquiry
  Mathematics is essential in scientific inquiry. Students rank everyday risks, formulate average class rankings, and compare class perceptions to actual probabilities.

Science in Personal and Social Perspectives

- Personal and Community Health
  Hazards and the potential for accidents exist. Students learn that the possibility of injury, illness, disability, or death exist and humans have mechanisms that can reduce and modify environmental and health hazards.

- Natural and Human-Induced Hazards
  Natural and human-induced hazards present the need for humans to assess potential danger and risk. Students learn that humans design changes in the environment that bring benefits to society (including municipal waste cleanup and agricultural pesticides), but some of these changes cause risks to society.

- Risks and Benefits
  Students discuss some of the risks associated with natural, chemical, biological, social, and personal hazards.

  Important personal and social decisions are made based on perceptions of benefits and risks. By comparing their risk perceptions to the perceptions of scientists and risk professionals, students better understand relative risks and how to make informed choices.

Procedure Notes and Outcomes

Break the class into five groups. Have the participants put the daily risks in Table 1 in order from 1 to 10, with 1 being lowest risk and 10 being highest risk. (Each risk should have its own number between 1 and 10.) Explain that they are evaluating risks for the average American on a yearly basis. The participants will first rank the risks on their own pieces of paper. Then as a group they will organize the risks in order of increasing risk. Have an overhead tally sheet so that each group can write in their rankings and compare them with the other groups' rankings.

Show the scientific community's order of daily risks and their probabilities. Compare and discuss the differences between the participants' numbers and the scientists' numbers.

Next, have participants evaluate the environmental risks in Table 2, with 1 being the lowest risk and 3 being the highest risk. As a class, compare and discuss the differences between the participants' opinion and the scientific community's for the environmental risks. Discuss why differences exist between these perceptions.

References

Laudan, L. *The Book of Risks: Fascinating Facts About the Chances We Take Every Day;* John Wiley & Sons: New York, 1994.

Martin, J.A.; Smith, B.L.; Matthews, T.J.; Ventura, S.J. "Births and Deaths: Preliminary Data for 1998," Centers for Disease Control and Prevention, National Center for Health Statistics, National Vital Statistics Report. 1999, *47* (25). (Available at http://www.cdc.gov/nchs/products/pubs/pubd/nvsr/47-pre/47-pre.htm, accessed February 27, 2001.)

Overhead

The Risks of Daily Events for Average Americans* Participant Perception (probability of death occurring per year)						
Event	Group					Average Ranking
	1	2	3	4	5	
From heart disease						
Due to complications from surgery						
In an airplane crash						
As a result of breast cancer (female) As a result of prostate cancer (male)						
From AIDS						
In a motor vehicle						
From food poisoning						
From a fall						
From choking						
From a workplace accident						
*10 is highest risk; 1 is lowest risk.						

Overhead

The Risks of Daily Events for Average Americans Scientific Community Perceptions (probability of death occurring per year)		
Event	Order of Risk*	Level of Risk
From heart disease	10	1:340
Due to complications from surgery	4	1:80,000
In an airplane crash	1	1:250,000
As a result of breast cancer (female) As a result of prostate cancer (male)	8	1:7,000
From AIDS	7	1:19,000
In a motor vehicle	9	1:5,000
From food poisoning	3	1:86,000
From a fall	6	1:20,000
From choking	2	1:160,000
From a workplace accident	5	1:26,000
*10 is highest risk; 1 is lowest risk. Adapted from L. Laudan, *The Book of Risks: Fascinating Facts About the Chances We Take Every Day*, 1994, and J.A. Martin et. al.,"Births and Deaths: Preliminary Data for 1998," 1999.		

Overhead

Environmental Risk* Participant Perception						
Event	Group					Average Ranking
	1	2	3	4	5	
Municipal waste/industrial waste						
Outdoor air pollution						
Indoor air pollution						
Ozone depletion						
Agricultural pesticides						
Radioactive wastes						
Underground storage tanks						
*3 is highest risk; 1 is lowest risk.						

Overhead

Environmental Risk Scientific Community Perception	
Event	Level of Risk*
Municipal waste/industrial waste	1
Outdoor air pollution	3
Indoor air pollution	3
Ozone depletion	3
Agricultural pesticides	3
Radioactive wastes	1
Underground storage tanks	1
*3 is highest risk; 1 is lowest risk.	

Activity Instructions
The Risks of Everyday Living

How do you think your perceptions of everyday risks compares to those of other participants? How about your perceptions of environmental risks? After discussing your perceptions as a group, you'll compare your ideas about risks with the perceptions of the scientific community.

Procedure

1. In Table 1, rank from 1 (lowest) to 10 (highest) the risk of death you think each event represents to the average American on a yearly basis.

Table 1: The Risks of Daily Events for Average Americans (probability of death occurring per year)	
Event	Order of Risk*
From heart disease	
Due to complications from surgery	
In an airplane crash	
As a result of breast cancer (female), or as a result of prostate cancer (male)	
From AIDS	
In a motor vehicle	
From food poisoning	
From a fall	
From choking	
From a workplace accident	
*10 is highest risk; 1 is lowest risk.	

2. After completing your ranking, compare and discuss with those of other members in your group. Revise Table 1 to show a group consensus. Your instructor will then record your group results on an overhead.

3. Evaluate the environmental risks shown in Table 2. Assign each item a number between 1 and 3, where 1 represents a low risk and 3 represents a high risk. Then as a group, come to a consensus on the rankings. Your instructor will record the results on an overhead.

Table 2: Environmental Risk	
Event	Level of Risk*
Municipal waste/industrial waste	
Outdoor air pollution	
Indoor air pollution	
Ozone depletion	
Agricultural pesticides	
Radioactive wastes	
Underground storage tanks	
*3 is highest risk; 1 is lowest risk.	