



Nuclear Science Week

Perception of Risk

OBJECTIVE:

To explore the fears and the perception of risk associated with different activities.

Grade: 6-12

Intended Learning Outcome:

- Make predictions
- Collect and record data
- Create tables and graphs to describe and summarize data

Subjects: Math, Science, Statistics, Social Studies

Materials:

- Risk Ranking Table Sheet (attached)

Teaching Time: 20-30 minutes

Number of Players/Students: suitable for all size groups

Teacher Information: Everything we do in life, each decision we make carries a certain amount of risk with it. However, if we decide on a course of action, then we have decided, either consciously or unconsciously, that the benefits of the action outweigh the risks. Different individuals often perceive risks of varying types differently. In this activity, students have the opportunity to identify their perception of the risk associated with an activity, the opportunity to compare their ideas with their classmates, and then with actual accident data on these activities. This activity helps the students understand some of the factors (e.g., emotion, knowledge) that go into their perception of risk.

Procedure:

- Each student will be asked to rate the activities and technologies in terms of perceived risk. A ranking of 1 indicates the highest risk while a ranking of 10 is the lowest risk.
- Before comparing the students ratings with actual statistical causes of death, have the students provide their

ratings and determine a class average.

Analysis and Results:

- How do individual rankings match with the class averages?
- Were the rankings for any activity widely scattered?
- Have the students discuss their rationale for ranking each activity.
- Were the rankings affected by the emotional reaction to the activity? In other words, if the person liked the activity did it get a lower risk ranking?

Assessment: Have the students write a paragraph on how easily they think it would be to change a person's perception of risk through education. That is, if a person believes an activity to have a high risk factor, how easily could that perception be reduced by educating the person about the actual risks and benefits of the activity?

Risk Ranking Table

RISK	Your Ranking	Class Average Ranking	Actual Ranking
Aviation			
Motor Vehicle			
Motorcycle			
Firearm Discharge			
Firearm Assault			
Fireworks			
Hornets, Wasps, Bees			
Lightning			
Nuclear Power/Radiation			
Skiing			
Smoking			
Surgery			
Bicycle			
Swimming			
Asteroid Impact			

Risk Ranking Table

**Risks shown below show your likelihood of death from activity listed in one year.*

	RISK	Actual Ranking	Source
11	Aviation	1 in 2,067,000	U.S. Department of Transportation
2	Motor Vehicle	1 in 7,700	U.S. Department of Transportation
5	Motorcycle	1 in 91,500	U.S. Department of Transportation
8	Firearm Discharge	1 in 514,147	The Economist
3	Firearm Assault	1 in 24,974	The Economist
14	Fireworks	1 in 50,729,141	The Economist
13	Hornets, Wasps, Bees	1 in 25,364,571	The Economist
12	Lightning	1 in 10,495,684	The Economist
9	Nuclear Power/Radiation (3 mrem exposure)	1 in 1,000,000	U.S. Nuclear Regulatory Commission
10	Skiing	1 in 1,556,757	Bandolier
1	Smoking	1 in 5	Center for Disease Control & Prevention
6	Post – Surgery Complications	1 in 117,519	The Economist
7	Bicycle	1 in 410,000	U.S. Department of Transportation
4	Swimming	1 in 56,587	Risk Communication Institute
15	Asteroid Impact	1 in 74,817,414	The Economist

*The risk of death from 3 mrem radiation exposure (1 in 1,000,000) has approximately the same risk as...

- Spending two days in New York City (due to air quality)
- Riding 1 mile on a motorcycle or 300 miles in a car (risk of collision)
- Eating 40 tablespoons of peanut butter or 10 charbroiled steaks (due to aflatoxin)
- Smoking 1 cigarette