

INVESTIGATION 1



WHAT DO YOU THINK ABOUT RADON?

INTRODUCTION

Surveys are increasingly becoming an important fixture in American life. Politics, public policy, marketing, and planning are driven largely by surveys of one kind or another. Commercial agencies make a business of conducting sample surveys for clients. Market research keeps manufacturers and retailers continuously informed regarding people's reactions to new products, packaging, and preferences. Surveys can also provide useful and current information regarding people's perceptions about, or knowledge of, relevant social issues. **In this exercise you will conduct two surveys concerning opinions and/or knowledge about radon. The first will be a survey of students and the second a survey of parents/guardians.**

OBJECTIVES

To determine perceptions about radon, including its physical properties and its economic, social, and personal consequences.

MATERIALS

- Radon Survey

PROCEDURE

1. Complete the student survey (Opinion Survey).
2. Take home one or two copies of the survey for your parent(s)/guardian(s) to complete and return to class.
3. Use the tally sheet format illustrated below to determine the mean values for each question from students and parents.

Question	Response					Total	Mean
	1	2	3	4	5		
¹ Total People						11	
Point Value	1x2=2	2x4=8	3x2=6	4x2=8	5x1=5	29	2.64
² Total People	 					11	
Point Value	1x7=7	2x1=2	3x2=6	4x0=0	5x1=5	20	1.82
Continue for all questions in the survey.							

Figure 1. Example showing tally sheet computations

DATA COLLECTION

4. Use a spreadsheet to enter the class' and parents' mean score and difference for each question or tabulate the differences as shown below.

Question	Student Mean	Parent Mean	Difference
1			
2			
3			
4			
5			
6			
7			
8			
9			
10			

5. Plot a graph of your data.

EXAMPLE GRAPHS

LINE GRAPH

PIE CHART GRAPH

BAR GRAPH

In a line graph, data points are plotted on the graph and then connected by a line. The line can either connect each point to the next or approximate the pattern displayed by the data points, as shown above. In a bar graph, the height of each bar corresponds to the values on the y-axis. Bar graphs and pie charts are good when you want to combine a lot of data points into different categories. Each category will then be displayed as one bar or one slice of the pie.

The following guidelines will help you to draw clear, easily-interpreted graphs:

1. Determine which set of numbers will be shown on which axis. If you think that one variable (set of numbers) might be causing the other variable to be affected, then it is best to put the variable suspected of causing the effect on the x-axis (horizontal) and the affected variable on the y-axis (vertical).
2. Choose scales for each axis. They don't have to be the same. They don't have to start at zero, and sometimes can include negative numbers. Choose scales that allow you to clearly show all of your data points without having a lot of empty space.
3. Number the major divisions along each axis, label each axis, and when possible show the units used.

ANALYSIS (Your responses should be complete sentences.)

6. Which question(s) had the least amount of difference in responses between students and parents? To what do you attribute this result?

7. Which question(s) had the greatest amount of difference in responses between students and parents? To what do you attribute this result?

CONCLUSIONS

8. Looking at the data from students and parents, what is your impression of opinions that people have about radon?

9. What questions would you like to know more about as a result of taking this survey?

OPINION SURVEY

Name: _____

Date: _____

Sex (circle one): Male Female

Age status (circle one): Student Parent/Guardian

PROCEDURE: Complete the survey below by circling the response that most closely represents your feeling or perception about the question (1-Strongly Agree, 2-Agree, 3-Neutral, 4-Disagree, and 5-Strongly Disagree).

		Strongly Agree	Agree	Don't know or Neutral	Strongly Disagree	Disagree
1.	Radon is a health hazard.	1	2	3	4	5
2.	Radon causes bone cancer.	1	2	3	4	5
3.	Radon is a naturally occurring radioactive gas.	1	2	3	4	5
4.	Radon enters homes mostly through windows, and cracks in ceilings and roofing.	1	2	3	4	5
5.	At high concentrations, radon can be detected by its smell.	1	2	3	4	5
6.	Cancer is related to DNA and cell division.	1	2	3	4	5
7.	The skin is more sensitive to alpha radiation than the lungs.	1	2	3	4	5
8.	Tests to screen for radon are simple to perform and inexpensive.	1	2	3	4	5
9.	The insides of the air passageways in the lungs are protected from damage by a thick layer of epidermal cells.	1	2	3	4	5
10.	There is natural radiation around us all the time.	1	2	3	4	5

