

FST NOTES 1-1

TOPIC: Variables, Tables, and Graphs

GOAL

Introduce some of the basic vocabulary of statistics: population, sample, variable, and review ideas about tables and bar graphs. Interpret these displays of data carefully and with sensitivity to the variables and samples used.

SPUR Objective

F Determine relationships and interpret data presented in a table.

Vocabulary

- statistic(s)
- data, datum
- variable
- population
- sample
- survey
- census
- representative sample
- categorical variable
- numerical variable

We strongly recommend *not* discussing this lesson until students have had an opportunity to read it and try the questions on their own. Reading mathematics may be a new expectation for some students. To be most effective, the reading of mathematics should be an active, not passive, process. Students should read with a pencil in hand and paper to write on, watching for important terms and symbols.

After **READING** the **NOTES**

Answer the following:

- 1) What do I already know?
- 2) What did I learn?
- 3) Where will I use it?

Population *the set of all individuals or objects you want to study*
Sample *a subset (a part) of the population*
Variable *characteristic that can be classified, counted, ordered or measured*

VOCABULARY

In 1 and 2, a situation is given. a. What is the population? b. Are the data based on a sample? c. Is the variable categorical or numerical?

1. The U.S. Census Bureau reports the number of households at various levels of income.

- a. household income b. No c. Numerical

2. The paint on every 15th car produced at a plant is rated as excellent, acceptable, or unsatisfactory.

- a. paint on car b. yes every 15th car c. categorical
excellent
acceptable
unsatisfactory

Skill Level	Amount of Protective Gear Worn			
	No gear	1 piece	2-4 pieces	Total
Beginner	188	294	227	709
Average	314	245	123	682
Advanced	372	242	140	754
Total	874	781	490	2145

Use the data from Example 1. Answer to the nearest tenth of a percent. What percent of average skaters wore less than 2 pieces of protective gear?

$$\frac{314 + 245}{682} = \frac{559}{682} = 82\% = 81.96\%$$

Income of Households by Highest Education Level of Householder in 2005

Highest Level of Education Completed by Householder	Number of Households (thousands)	Percent Distribution by Income Level								Median Income (dollars)
		Under \$10,000	\$10,000-\$14,999	\$15,000-\$24,999	\$25,000-\$34,999	\$35,000-\$49,999	\$50,000-\$74,999	\$75,000-\$99,999	\$100,000 and over	
Less than 9th grade	6,088	21.7	15.6	21.6	14.7	12.0	9.1	3.3	2.2	20,224
Some high school, but no diploma	9,130	17.3	12.8	20.5	15.1	14.4	11.9	4.7	3.4	24,675
High school graduate	32,345	8.8	7.8	15.8	13.3	16.7	18.9	9.4	9.3	38,191
Some college	28,874	5.7	4.8	10.6	11.7	16.8	21.1	13.2	16.1	50,412
Bachelor's degree or higher	31,153	3.0	2.2	5.0	6.5	11.6	19.9	15.6	36.2	77,179

Source: U.S. Census Bureau, Current Population Survey, 2006 Annual Social and Economic Supplement.

How many times as likely was a family to have an income of less than \$15,000 if the head of the household had some high school but no diploma rather than graduated from high school?

HS No Diploma HS Diploma

$$17.3\% + 12.8\% = 30.1\% \text{ likely} \quad 8.8 + 7.8 = 16.6\%$$

2 times to have income below 15,000 w/o Diploma