

## Packet 10: Bivariate Data

Dear Parents/Guardians,

In Packet 10, students explore two variable statistics. They organize and display their results in tables, visual organizers, and graphs, as well as interpret the data. Students connect what they learned about linear functions to statistics and draw and interpret lines of best fit.

### Frequency Tables

A frequency table is a table that lists items and the number of times they occur in a data set. Students will use their categorical data to complete two-way frequency tables for two variables.

Example (using the data from Student Page 5):

	Students with Curfew	Students with No Curfew	TOTAL
Students with Chores	4	2	$4+2 = 6$
Students with No Chores	1	3	$1+3 = 4$
TOTAL	$4+1 = 5$	$2+3 = 5$	10

Students will separate the data to explore relative frequency tables. For example, we could construct a frequency table relative to students who did/did not do chores:

	Curfew	No Curfew	TOTAL
Chores ( $n = 6$ )	$\frac{4}{6} \approx 67\%$	$\frac{2}{6} \approx 33\%$	100%
No Chores ( $n = 4$ )	$\frac{1}{4} = 25\%$	$\frac{3}{4} = 75\%$	100%

Students will interpret the frequency table data.

Example: Of all the students who have chores (6), how many do not have a curfew (2)?  $\frac{2}{6} = \frac{1}{3} \approx 0.33 \approx 33\%$

Note that we could also construct a similar, but different table relative to students who do/do not have curfew and we would get different results.

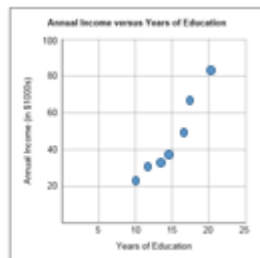
	Curfew ( $n = 5$ )	No Curfew ( $n = 5$ )
Chores	$\frac{4}{5} = 80\%$	$\frac{2}{5} = 40\%$
No Chores	$\frac{1}{5} = 20\%$	$\frac{3}{5} = 60\%$
TOTAL	100%	100%

Example: Of all the students who did not have a curfew (5), what percent have chores (2)?  $\frac{2}{5} = 40\%$

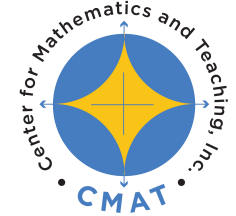
### Numerical Data

Numerical data is data consisting of numbers. Students will graph their data and interpret the results.

Level of Education	Average Years of Education	Average Annual Income (in \$1000s)
Not a High School Graduate	10	23
High School Graduate	12	32
Some College, No Degree	13	36
Associate Degree	14	38
Bachelor Degree	16	53
Master Degree	17	63
Doctorate Degree	20	81



The graph is non-linear but indicates a positive association. Based on the data, the more education one completes, the more money one will likely make. Students might estimate a line that roughly fits this data, and use it as a predictive tool.



**Mathlinks 8**

**By the end of the packet, your student should know...**

How to construct two-way frequency tables and relative frequency tables [Lesson 10.1](#)

How to construct scatter plots [Lesson 10.2](#)

How to draw lines of best fit and use linear models to make predictions [Lesson 10.3](#)

How to interpret and draw conclusions from their data results [Lessons 10.1, 10.2, and 10.3](#)

### Additional Resources

Resource Guide (RG)  
Part 2, pages 53-60