

One and Two Variable Data

Learning Goals

- make a distinction between data types

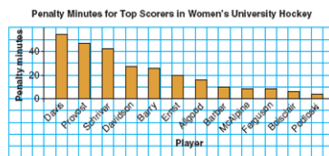
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Interpreting and Comparing Data

The graphs and table below contain information from the Canadian Women's University Hockey League from 2006-2007. Write a question that could be answered by using the:

BAR GRAPH:

Which player spent the most in the penalty box?



SCATTER PLOT:

Is there a relationship between penalty and # of goals?



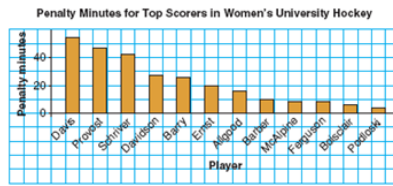
TABLE:

Who is the point leader?

Player	Games played	Goals	Assists	Points	Penalty minutes
Lindsay McAlpine	24	27	30	57	8
Tarin Podloski	22	19	31	50	4
Marieke Provost	21	26	21	47	47
Valerie Boisclair	21	20	21	41	6
Jenna Barber	24	20	20	40	10
Courtney Schriver	21	19	16	35	42
Christina Davis	20	16	17	33	54
Candice Ernst	18	9	24	33	20
Kate Allgood	24	11	20	31	16
Brayden Ferguson	19	17	14	31	27
Vanessa Davidson	17	15	16	31	27
Taryn Barry	24	11	19	30	26

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Which of these graphs display(s) two variable data? How do you know?



2 different things are compared

Player	Games played	Goals	Assists	Points	Penalty minutes
Lindsay McAlpine	24	27	30	57	8
Tarin Podloski	22	19	31	50	4
Mariève Provost	21	26	21	47	47
Valerie Boisclair	21	20	21	41	6
Jenna Barber	24	20	20	40	10
Courtney Schriver	21	19	16	35	42
Christina Davis	20	16	17	33	54
Candice Ernst	18	9	24	33	20
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One Variable vs. Two Variable Data

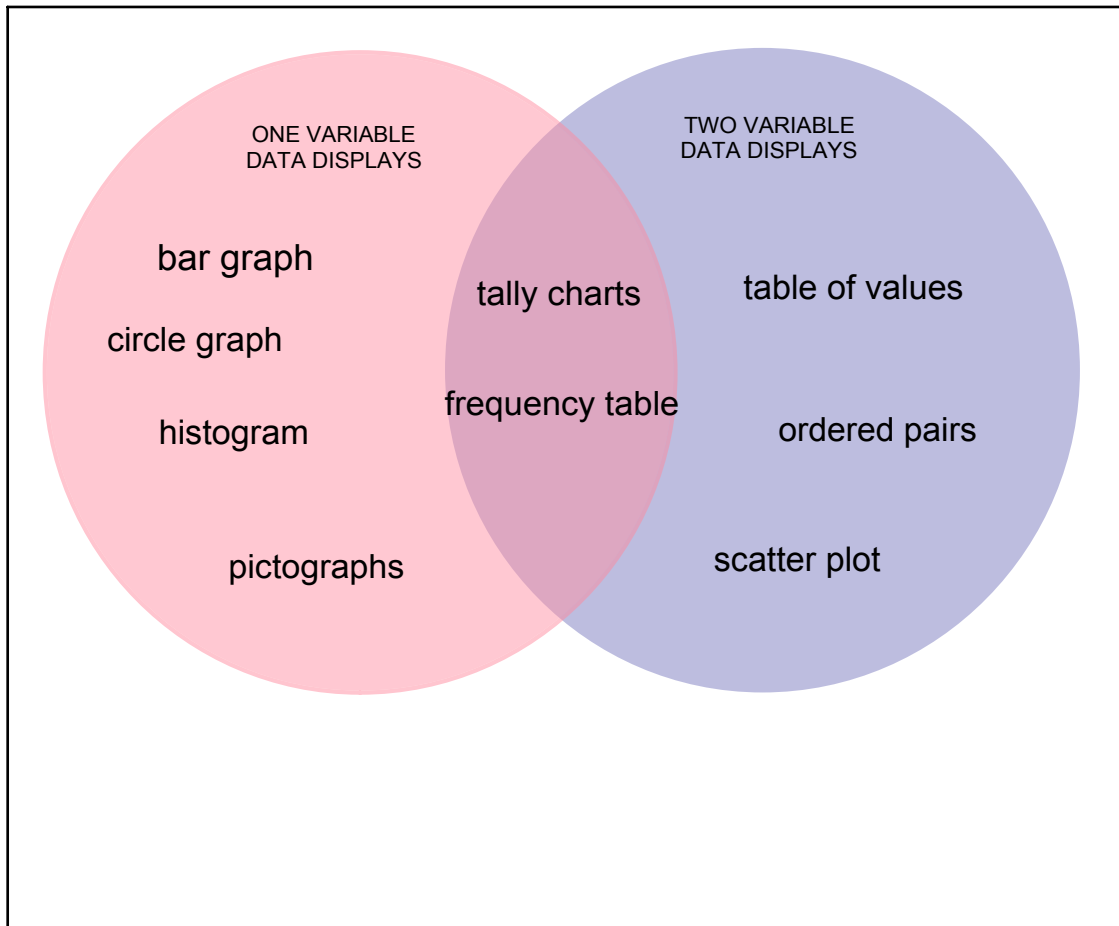
Variable: an attribute that can be **measured**.

One Variable Data Sets: give measures of **one** attribute (ex. Eye colour, height, or grade).

Two Variable Data Sets:

- give measures of **two** attributes for each item in a sample (ex. Eye colour and hair colour, height and weight, or grade and gender).

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Two data sets

Note: One-variable data sets can be analyzed using [mean](#), [median](#) or [mode](#).

Mean - average

Median - the middle of the data when the numbers are in increasing or decreasing order

Mode - most often occurring data

Distiguishing Between One and Two Variable Data

To distinguish between situations involving One and Two-Variable Data:

- Determine how many variables are mentioned.
- If more than one variable is mentioned, ask yourself whether each variable could be measured separately or not.

To decide which type of graph to use to represent a set of data:

- Determine if the data set is **one-variable** or **two-variable**.
- Use Bar Graphs, Circle Graphs, or Pictograms for one-variable **discrete** or **categorical** data.
- Use Histograms for **continuous one-variable** data.
- Use scatter plots for **two-variable** data.

can have decimals
ex. height

can't have decimals
ex. # of people

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Example: Circle the correct type of variable data for each situation. Then write how you would represent this type of data (ie. what type of table or chart you would use).

- a) Lenny collects information on hours students work in a week and rate of pay for each student.
 One-Variable Two-Variable scatter plot
- b) Norma asks the students in her law class whether they believe in capital punishment or not.
 One-Variable Two-Variable circle / bar
- c) Regis collects statistics on how many hours contestants of Who Wants to be a Millionaire spend reading, and how many minutes it takes them to answer a question.
 One-Variable Two-Variable scatter plot
- d) Zutroy collects information on his overall averages and how much water he drinks in a day.
 One-Variable Two-Variable scatter plot
- e) Garth catalogues how many minutes of music are on each of his CD's.
 One-Variable Two-Variable continuous histogram
- f) Mickey investigates how many hours each of his friends spend playing outside each day.
 One-Variable Two-Variable bar / histogram
- g) A physicist measures the gravitational pull of each planet and the mass of each planet.
 One-Variable Two-Variable scatter plot
- h) Pat collects information on gender from a group at a conference on civil rights.
 One-Variable Two-Variable bar / circle
- i) Norm measures how much beer each of his friends drinks and how often they go the bathroom a day.
 One-Variable Two-Variable scatter plot
- j) Kelsey weighs each of her textbooks in kilograms.
 One-Variable Two-Variable continuous histogram

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Example

For a class project, you are surveying students about their part-time jobs.

STUDENT	Hours Spent at Part-Time Job	
	During the week (h)	On the weekend (h)
Adil	0.0	18.0
Anya	5.0	12.5
Ellen	8.0	12.0
Fiona	17.0	8.0
Aaron	0.0	16.5
Leila	10.0	16.0
Mason	9.5	8.0
Petra	15.0	6.0

What type of graph would you use to show how many hours each student worked during the week in the best possible way? Explain your choice.

circle / bar \Rightarrow 1 variable only

What type of graph would best show a possible relationship between weekday and weekend hours worked? Explain your choice.

scatter plot \Rightarrow 2 variable data

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Seatwork

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