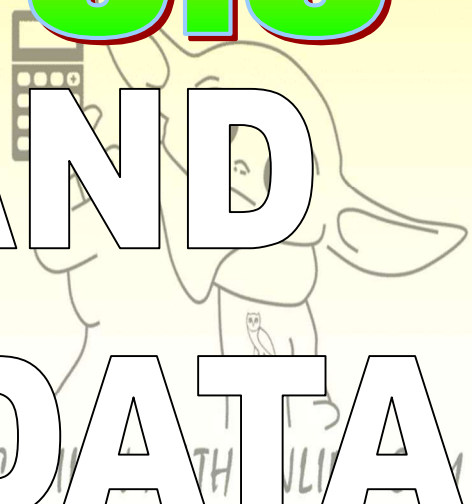
St. Jean de Brebeuf Mathematics

CHAPTER 3.3

COLLECT AND ORGANIZE DATA



CHAPTER 3.3 COLLECT AND ORGANIZE DATA

Primary data is generated by the researcher through *experiments* or *observational* studies

→ Generally better to use this since it is relatively more accurate and trust-worthy

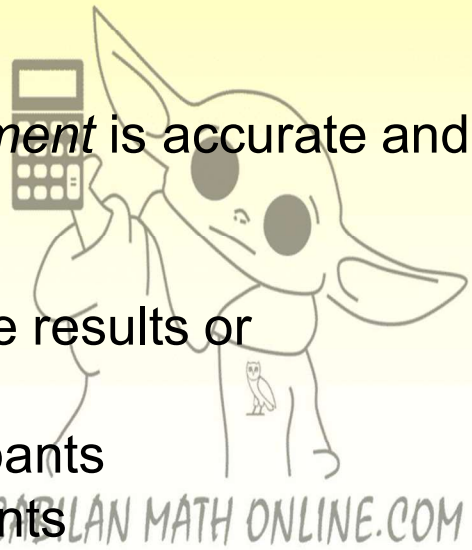
Secondary data is data that is made available by others

→ Important to keep track of all *sources*

Data can also be accessed through **databases** such as E-STAT (provided by Statistics Canada)

The following steps ensure data collected in an *experiment* is accurate and fair:

- Plan and set up the experiment in advance
- Set up a table or recording sheet to record the results or observations
- Use **random sampling** to select your participants
- Keep the conditions the <u>same</u> for all participants



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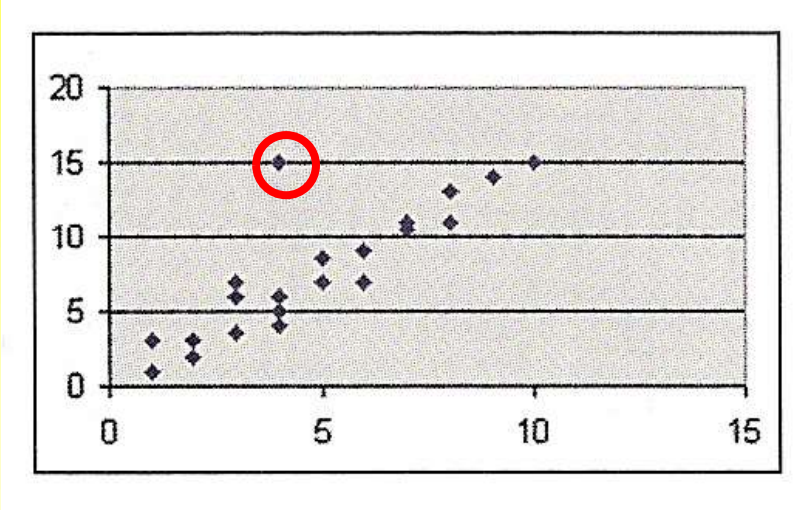
An **outlier** is an extreme value in a set of data which is separated from the main body of the data and does not follow the pattern of the other values in the data set



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CHAPTER 3.3 COLLECT AND ORGANIZE DATA

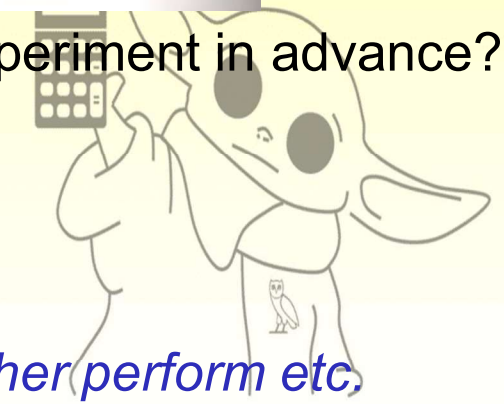
EXAMPLE 1 *Designing and Conducting an Experiment*

A group of rock climbers want to investigate the effects of practice and the time it takes to climb a wall. The results of the experiment are provided.

	Time (min)					
Participant	Trial 1	Trial 2	Trial 3	Trial 4	Trial 5	Trial 6
A	15.3	12.4	9.1	8.4	8.2	8.5
B	16.9	15.3	10.7	8.0	7.7	7.6
C	19.2	16.3	16.5	13.8	12.5	12.4
D	15.2	16.0	12.1	8.1	7.9	7.4
E	17.6	15.1	14.0	13.5	13.2	12.8

(1) What steps are required to plan and set up the experiment in advance?

- *Call rock climbing facility*
- *Prepare data tables for recording times*
- *Have proper rock climbing equipment*
- *Make sure participants are not watching each other perform etc.*



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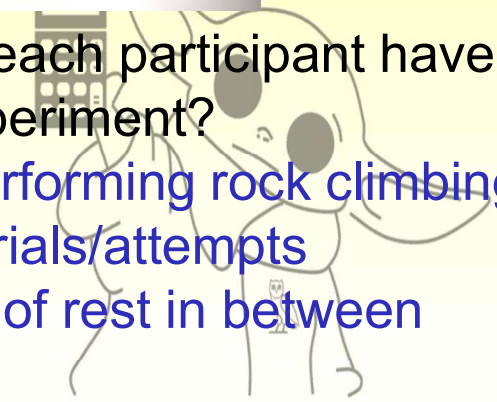
(2) What conditions should be considered when selecting a **sample** for this experiment?

- Select even # of males and females within same age range
- Each participant should have same experience with rock climbing (prevent someone having an advantage over another)

(3) What would each participant have to do for this experiment?

- Participants performing rock climbing on six different trials/attempts
- Ample amount of rest in between trials/attempts



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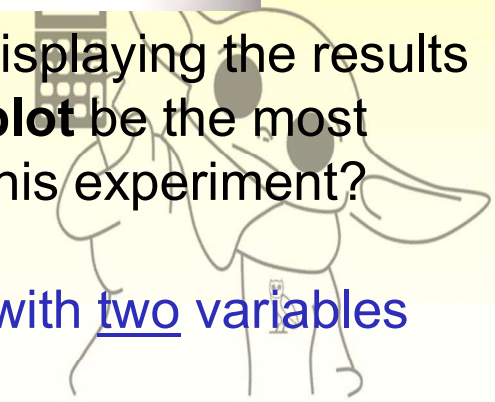
(4) When *organizing* the results, what would be the variable

There are <u>two</u> variables
- Trial number
- Time

(5) Why would displaying the results using a **scatterplot** be the most appropriate for this experiment?

We are dealing with <u>two</u> variables



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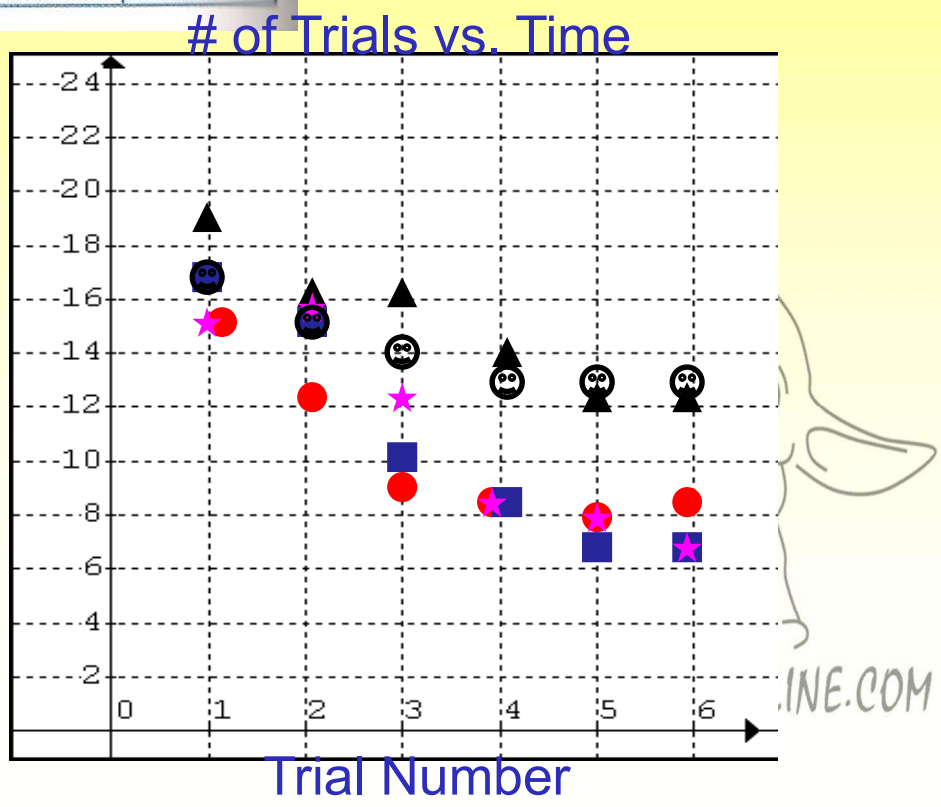
(6) Display the data on a *scatterplot*



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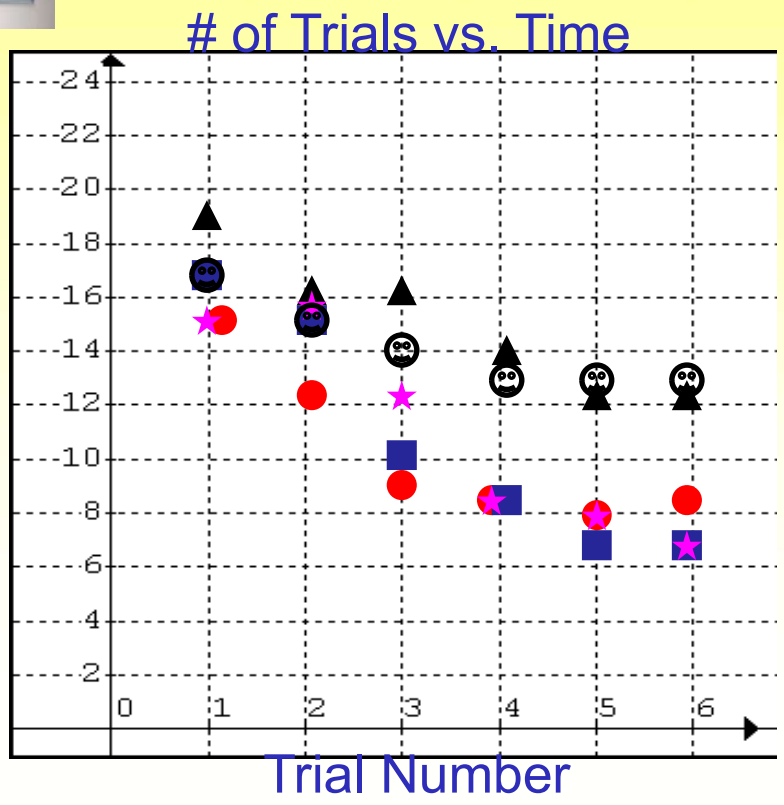
(7) Analyse the data.
What can you conclude about the data collected?
As the participants had more practice, their times were faster
→ Improved performance



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HOMEWORK / SEATWORK

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Optional: #9 – 13