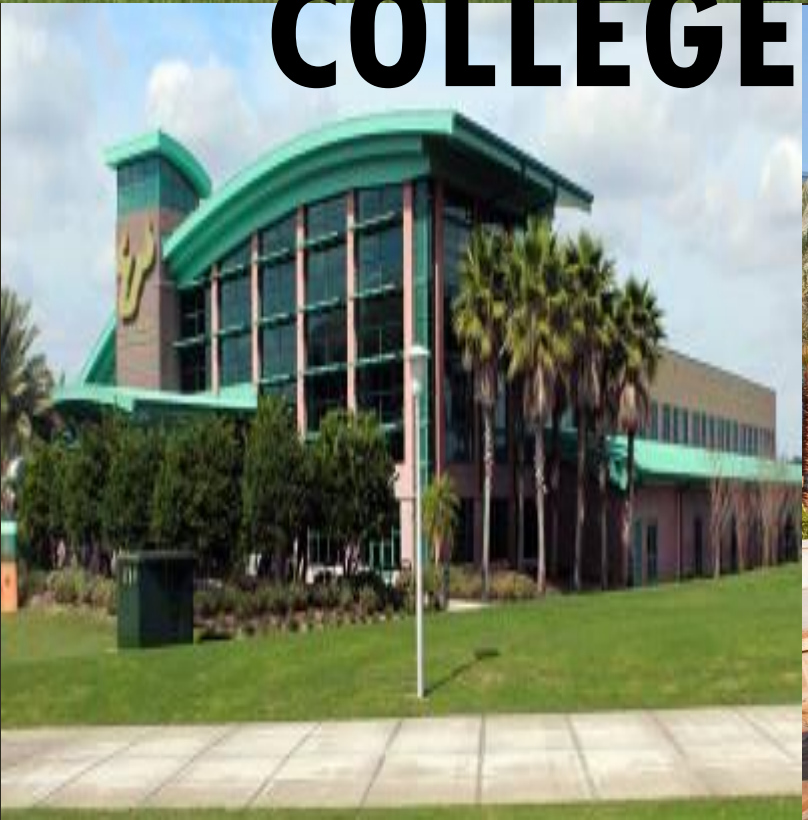
CHAPTER 1 DO NOW #3

A student wants to study the effects that different color light has on plant growth. The student places 10 plants under a standard white light. He also places 10 plants under red light, 10 under blue light, 10 under green light, and 10 under black light. After the experiment was completed he noticed the following results.

	White Light	Red Light	Blue Light	Green Light	Black Light
Plant Growth	12cm	9cm	8cm	5cm	3cm

1. What is the control group in this study?
2. What is the independent (manipulated) variable?
3. What is the dependent (responding) variable?
4. What is the conclusion?

COLLEGE OF THE WEEK



UNIVERSITY OF SOUTH FLORIDA

1. Location? (City & State) Campus Setting? (City, Urban, Rural)
2. What year was this college/university founded? By Whom?
3. What are the school colors and mascot of this college/university?
4. What is the total school enrollment for this college/university?
5. What is this college/university's website?
6. What are the admission requirements for this college/university? (GPA, Test Scores, Essay, Letters of Recommendation, Application Fee, Transcripts, Deadlines, etc.)
7. On average, how much does it cost to attend this college/university?

SCIENTIFIC DATA

ORGANIZING DATA

Scientists can organize their data by using data tables and graphs.

Makes it easier to spot patterns or trends in the data that can support or disprove a hypothesis.

Simplest way to organize data is to present them in a table.

ORGANIZING DATA (CONT.)

Line Graphs

- Useful for showing changes that occur in related variables.
- Manipulated variable is usually plotted on the horizontal (**x**) axis. Responding variable is plotted on the vertical (**y**) axis.
- Slope (steepness) is the ratio of vertical change to the corresponding horizontal change.
  - **Slope = Rise/Run**

ORGANIZING DATA (CONT.)

Bar Graphs

- Used to compare a set of measurements, amounts, or changes.

Circle Graphs

- Divided circle that shows how a part or share of something relates to the whole.

DATA TABLES

"What sport do you play?"

Sport	People
Soccer	106
Tennis	45
Gymnastics	54
Swimming	82
Track	68

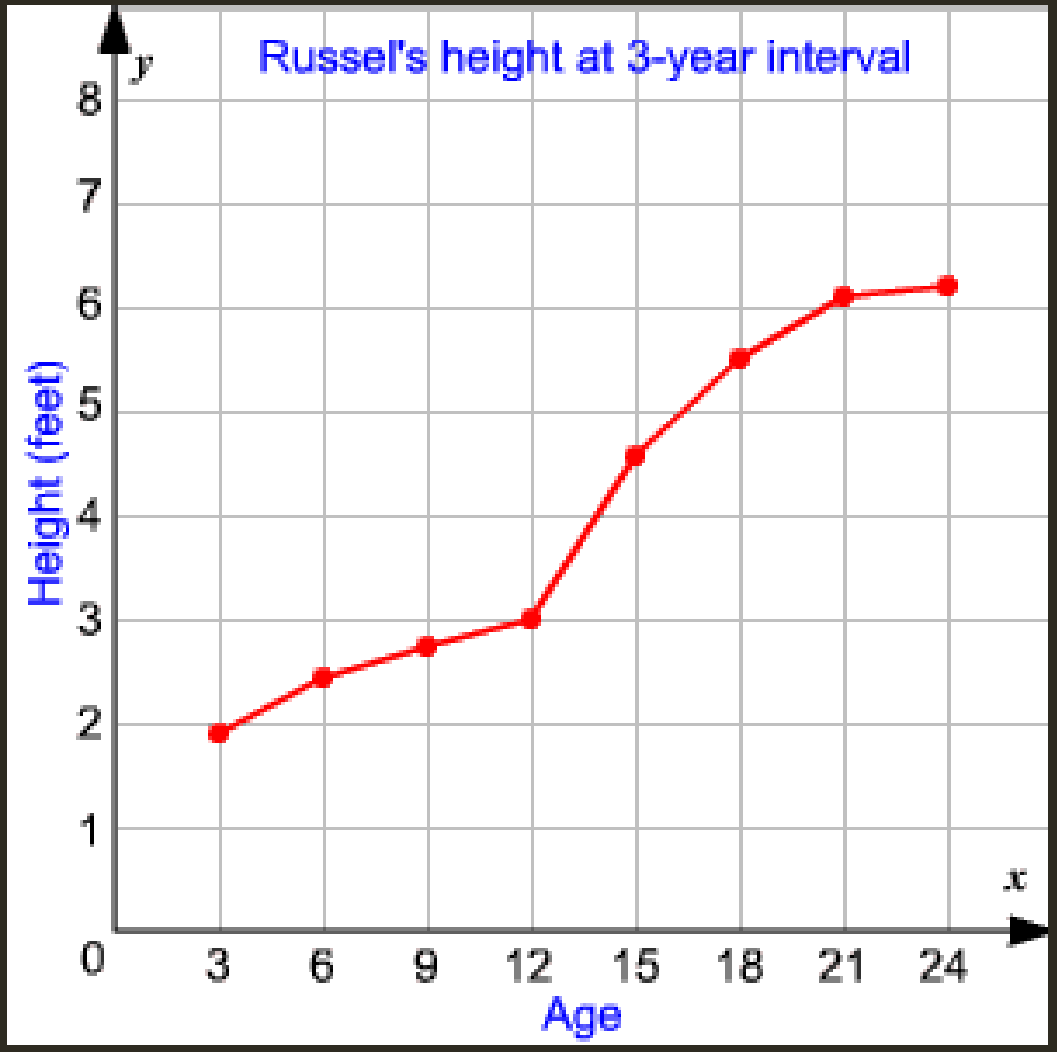
DATA TABLES

1. Mr. Williams asked his 3rd Period Algebra II class to list their favorite college football team. Eight (8) students listed Florida State as their favorite team. Eleven (11) students listed Florida as their favorite team. Five (5) students listed Alabama as their favorite team. Three (3) students listed Oregon as their favorite team. Create a Data Table that represents Mr. Williams class.

DATA TABLES (CONT.)

2. The Jones family is planning a family reunion for next Summer. The location with the most votes will be the destination. Ten (10) members of the family voted for Las Vegas. Seven (7) members of the family voted for New Orleans. Thirteen (13) members of the family voted for Washington, D.C. Sixteen (16) members of the family voted from New York City. Create a Data Table that represents the Jones family vote.

LINE GRAPHS


Russel's height at 3-year interval
y
x
Height (feet)
Age
0
1
2
3
4
5
6
7
8
3
6
9
12
15
18
21
24

LINE GRAPHS

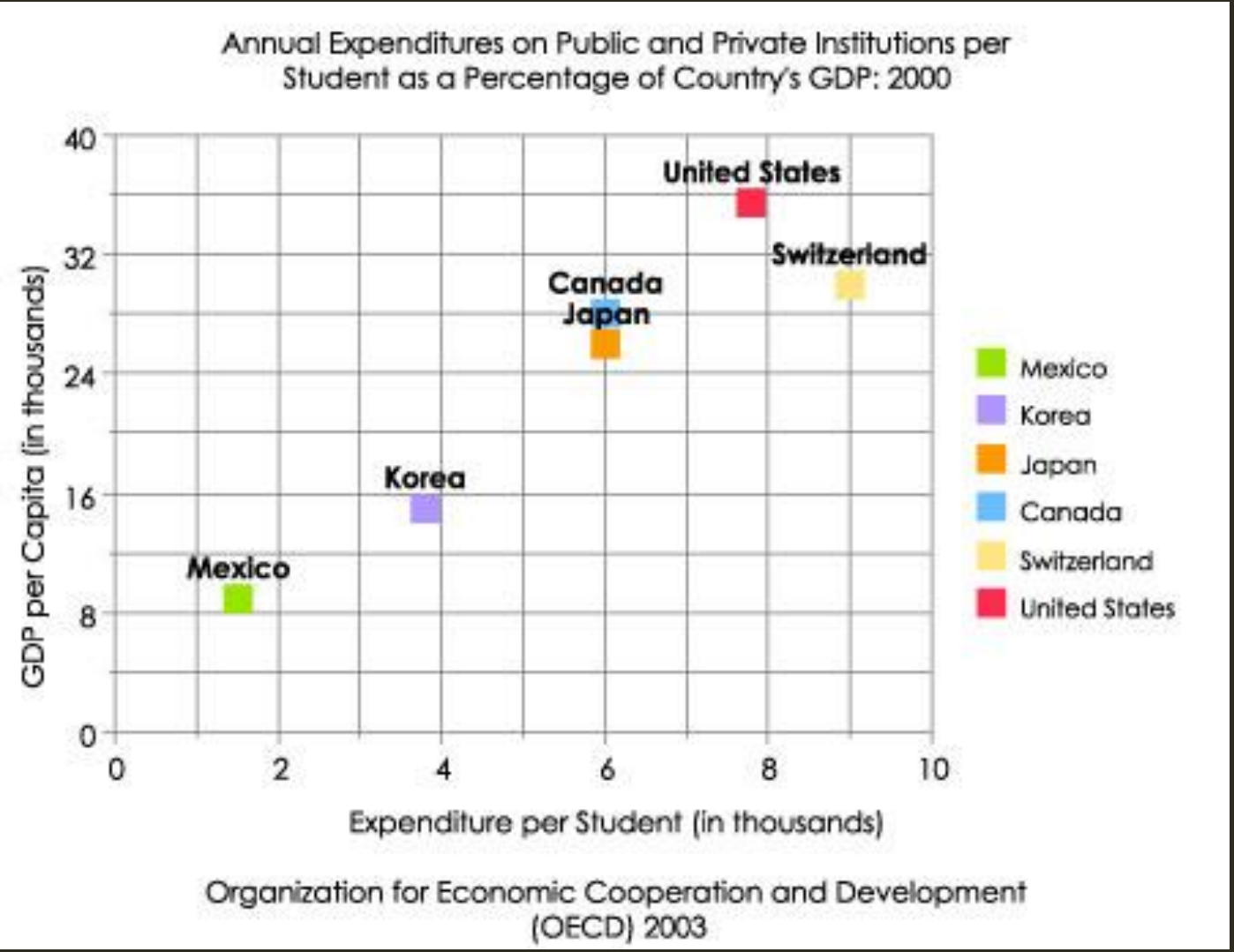
1. Residents of Seattle, Washington are in the midst of a historic rainy season. On Saturday they received 2.5 inches of rain. Sunday they received 1.5 inches of rain. Monday they received 0.75 inches of rain. Tuesday they received 1 inch of rain. Finally, on Wednesday they received 3.25 inches of rain. Create a line graph that accurately reflects this information.

LINE GRAPHS

2. Create a line graph using the table below.

Sheila's Running Record	
Distance Run (Meters)	**Time (Seconds)**
50	20
70	45
90	55
110	70
120	75
150	90

LINE GRAPHS

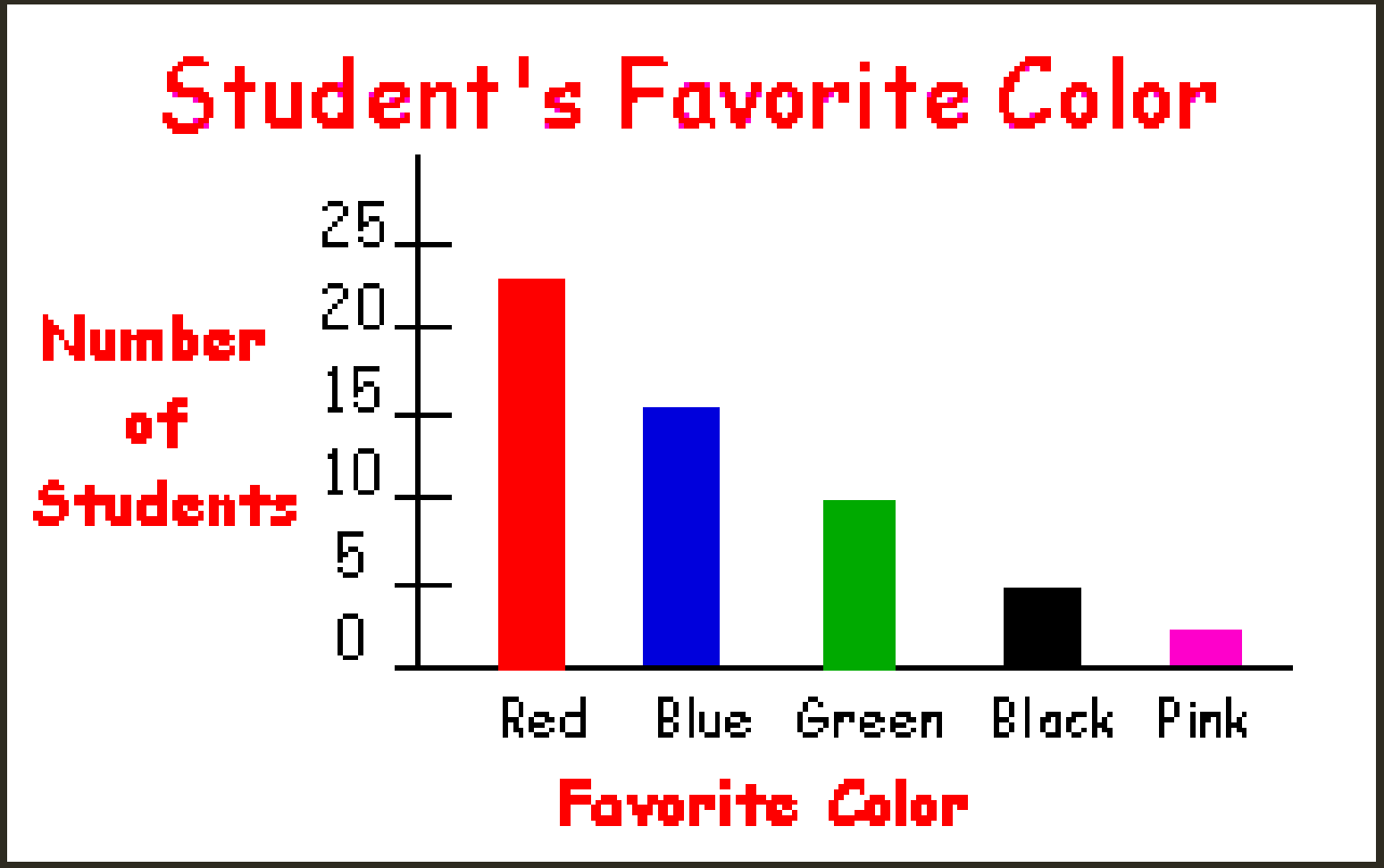

Annual Expenditures on Public and Private Institutions per Student as a Percentage of Country's GDP: 2000
GDP per Capita (in thousands)
40
32
24
16
8
0
0
2
4
6
8
10
Expenditure per Student (in thousands)
United States
Switzerland
Canada
Japan
Korea
Mexico
Mexico
Korea
Japan
Canada
Switzerland
United States
Organization for Economic Cooperation and Development (OECD) 2003

LINE GRAPHS

3. Create a line graph using the table below.

High School Running Team		
Person	**Time (min.)**	**Distance (miles)**
Michael	30	4
Lisa	45	3
Paul	55	6
Amber	60	5
Kevin	20	2

BAR GRAPHS


Student's Favorite Color
Number of Students
25
20
15
10
5
0
Red
Blue
Green
Black
Pink
Favorite Color

BAR GRAPHS

1. Create a bar graph using information from the table below.

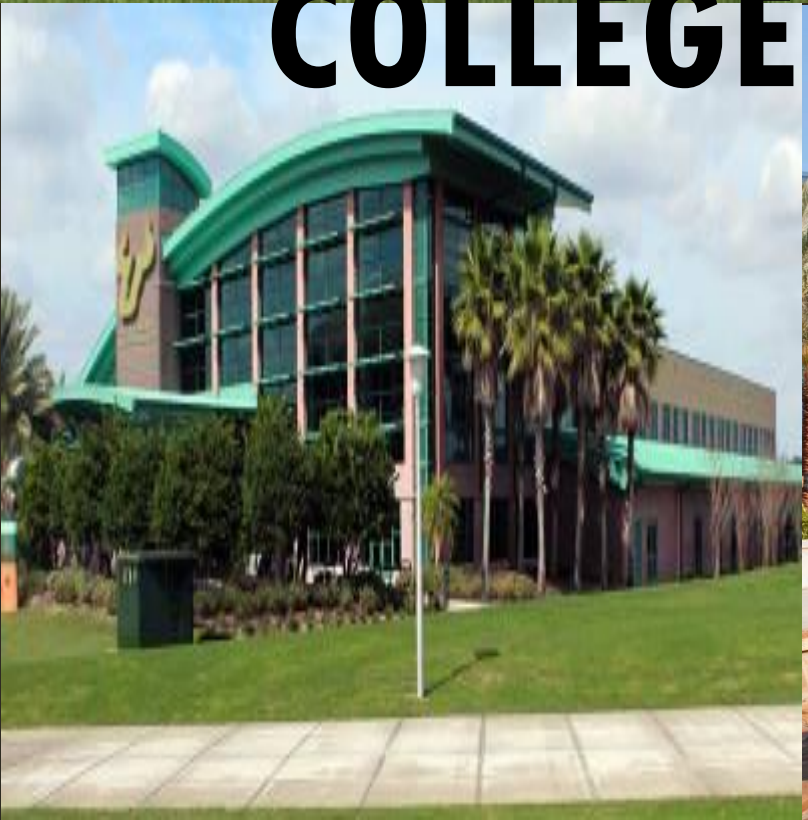
Average Number of Days without Sunshine

City	Number of Days
Buffalo, NY	30
Seattle, WA	120
Gainesville, FL	55
San Francisco, CA	110
Phoenix, AZ	90
Atlanta, GA	70

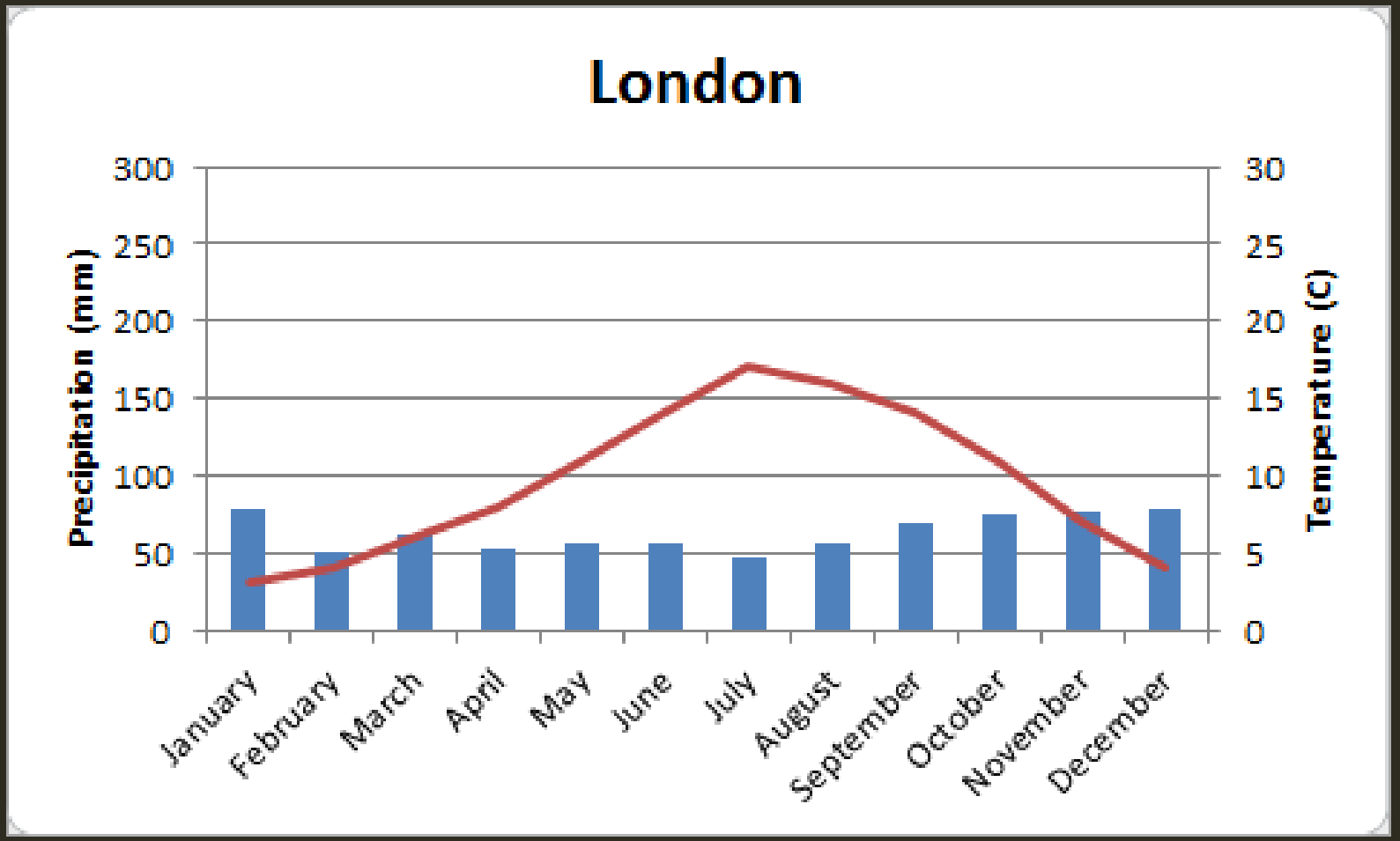
BAR GRAPHS

2. There are four (4) talk-radio stations in Austin, Texas. KBIF plays 10 minutes of commercials for every hour. KTLV plays 8 minutes of commercials for every hour. KMAL plays 12 minutes of commercials for every hour. KBTV plays 15 minutes of commercials for every hour. Create a bar graph that reflects this information.

COLLEGE OF THE WEEK



TWO AXIS GRAPHS



TWO AXIS GRAPHS

2017 Gainesville, FL Monthly Temperature & Rainfall			
Month:	**Temp. (°F)**	**Month:**	**Rainfall (in.)**
January	61	January	1.45
February	63	February	0.39
March	63	March	0.67
April	70	April	2.74
May	76	May	4.45

#1

#2

#3

#4

1. Sit with your tables and graphs partner from yesterday.

2. Get a large dry erase board from the back of the room.

3. Get a dry erase marker and a paper towel from the front of the room.

DO NOW

1. There are four (4) talk-radio stations in Austin, Texas. KBIF plays 10 minutes of commercials for every hour. KTLV plays 8 minutes of commercials for every hour. KMAL plays 12 minutes of commercials for every hour. KBTV plays 15 minutes of commercials for every hour. Create a bar graph that reflects this information.

HYPOTHESIS

How to write a Hypothesis
(the ***If*** ... ***then*** hypothesis statement)

In writing hypothesis, a tentative relationship is stated. If you always ask yourself if one thing is related to another, then you should be able to test it.

HYPOTHESIS

The manipulated (independent variable), or the variable that you will change (or control), should follow the "***If***" in the statement.

The effect on the responding (dependent) variable (the prediction about what will happen) should follow the "**then**" in the statement.

HYPOTHESIS

A good hypothesis has a few key characteristics.

- Keep it simple and concise, not too broad.
- A hypothesis should be written in one or two sentences.

Avoid using words like I, think, believe, all, never, and sometimes.

Avoid using words such as “prove” and “significant” in a hypothesis.

HYPOTHESIS

Please look at the following examples of how to write a hypothesis. In the hypotheses below the manipulated (independent) variable is red and the responding (dependent) variable is blue.

(***If*** *I do this*[1]***, then*** *this will happen*[2])

[1] *independent (manipulated) variable*
[2] *dependent (responding) variable*

If *you open a faucet,* ***then*** *it will increase the flow of water.*
You observe that the water flow increases.

HYPOTHESIS

Other examples:

If *the temperature of a cup of water is increased*, ***then*** it will *increase the amount of sugar that dissolves in the water.*

If *the temperature of a gas is increased*, ***then*** *the volume will increase.*

If a plant receives *fertilizer*, ***then*** it will *grow to be bigger* than a plant that does not receive fertilizer.

HYPOTHESIS

You can also write a hypothesis in the form of an "If . . . , then . . . because . ." statement.

- They contain an manipulated (independent) variable, a prediction about what will happen to your responding (dependent) variable, and a reason why you predicted this.

If candy bars in a store are *displayed at eye level*, ***then*** they will *sell better* than those at the bottom of the display case, ***because*** people are more likely to notice them.

If *a tablet is placed into water and the water is stirred*, ***then*** the tablet will *dissolve faster* ***because*** stirring increases solution rate.