



Dear Colleague,

This document contains:

- 8 station pages
- Graphing Notes
- Student worksheet pages
- Teacher key
- Station number placards

Materials needed: copy of graphing notes for each student, student handout for each student, pencil

- Station 1: graphing notes
- Station 2: ruler, graphing notes
- Station 3: ruler, graphing notes
- Station 4: ruler, red and blue colored pencil, graphing notes
- Station 5: ruler and calculator, graphing notes
- Station 6: graphing notes
- Station 7: compass or ability to trace a circle, graphing notes
- Station 8: graphing notes

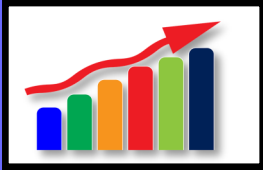
Teacher notes:

These graphing stations are a great way to get students to interact with the different forms of data. The graphing notes are a great resource for students to refer to as they work through the station activities. Students will answer questions based on graphs, create line, bar and circle graphs, and create data tables from different sources. Each station should take approximately 15 minutes depending on the level of experience of graphing.

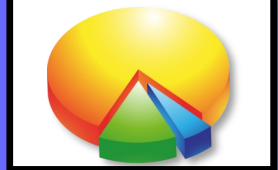
Sincerely,

Mrs. P at Instructomania

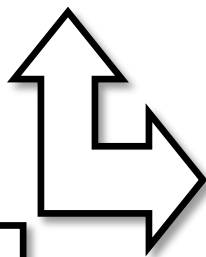
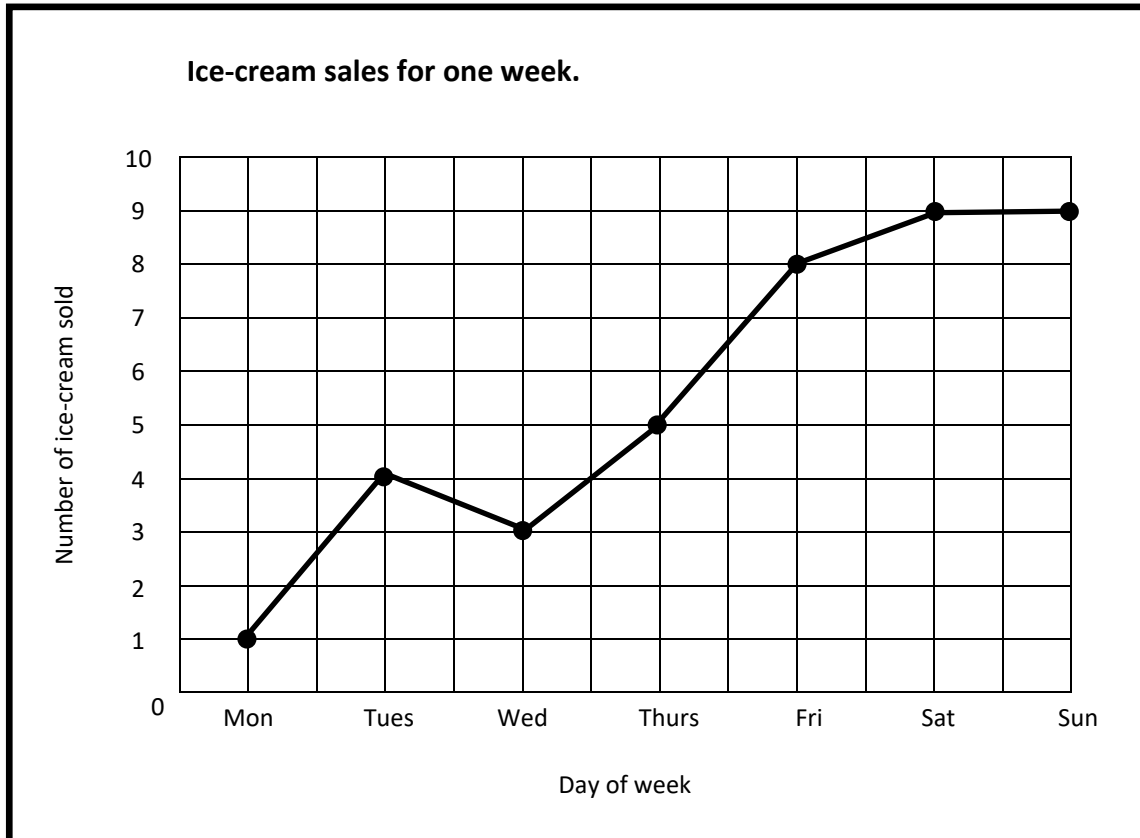




STATION 1



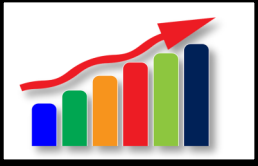
Directions: Use the line graph and data table below to answer the questions on the student handout. Use the graphing notes as a resource.



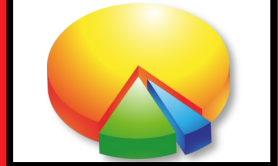
This line graph and data table display the same information but in two different formats.

Ice-cream sales for one week.

Day of Week	# of ice-creams sold
Monday	1
Tuesday	4
Wednesday	3
Thursday	5
Friday	8
Saturday	9
Sunday	9

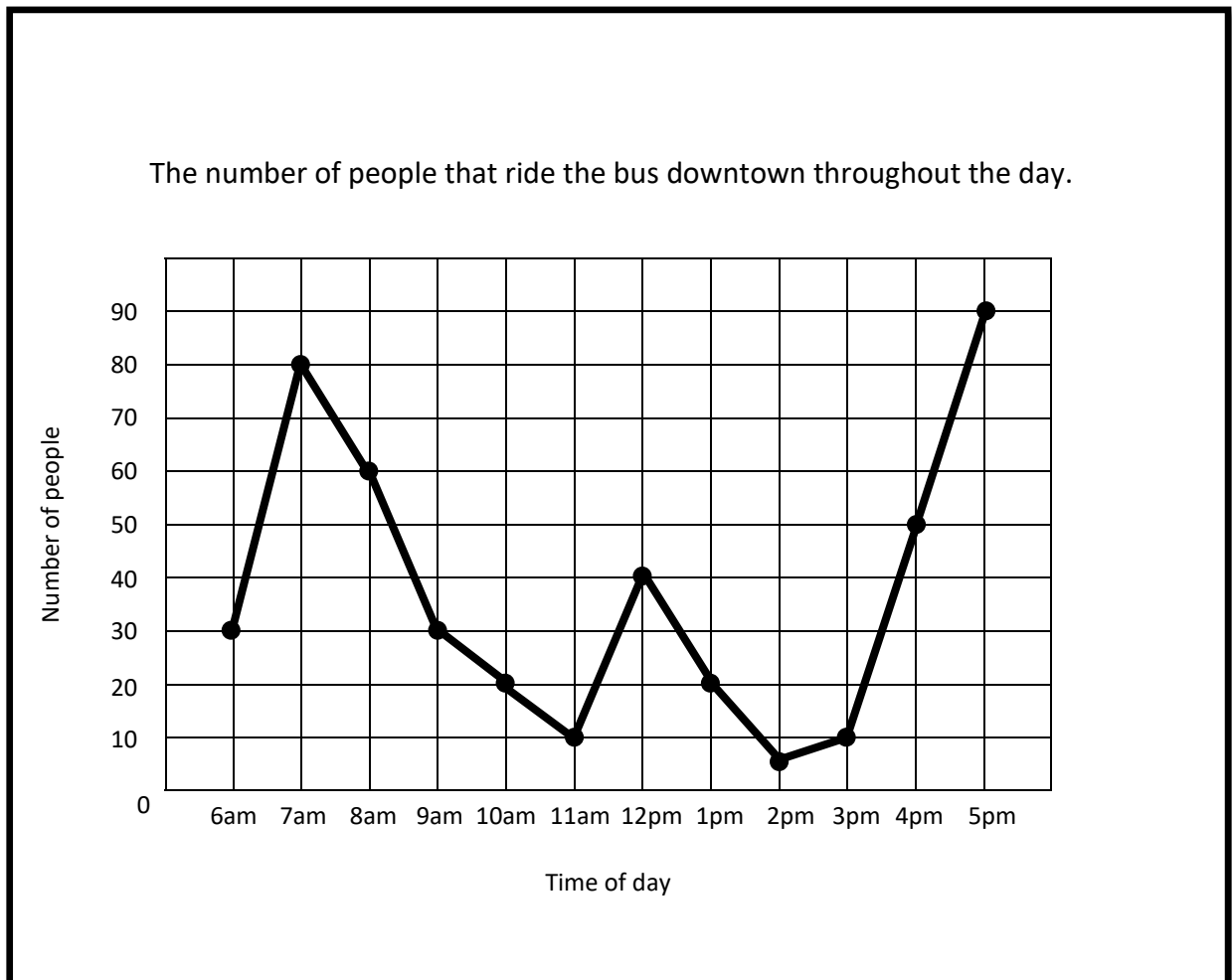


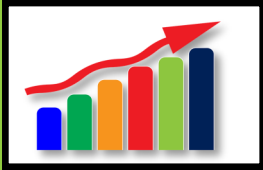
STATION 2



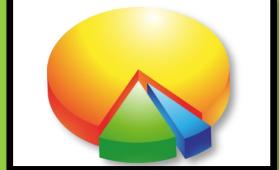
Directions: Use the line graph below and create a data table on the student handout. Use the graphing notes as a resource.

Hints: What is the graph about? How many variables are there? Which is the dependent and independent variable? From these answers create a two column data table, x versus y.





STATION 3



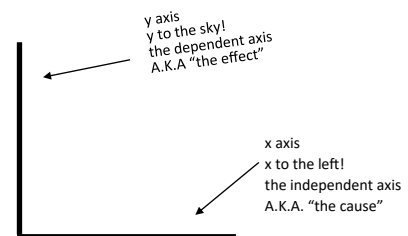
Directions: Create a bar graph on the student handout showing the milligrams of each energy drink by beverage type from the data table below. Use the graphing notes as a resource.

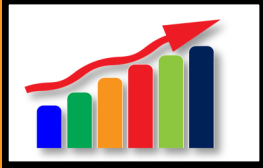
Data Table:

AMOUNT OF CAFFEINE CONTAINED IN COMMON BEVERAGES.

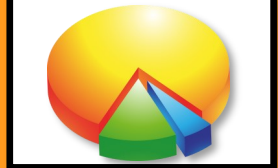
Caffeine in Drinks	Amount in energy drinks (mg)
Coke 12oz	34mg
Mountain Dew 12oz	55mg
Chocolate milk 8oz	5mg
Monster Energy 16oz	160mg
Rockstar Energy 8oz	80mg
Red Bull 8.3oz	80mg

GRAPHING REMINDERS!





STATION 4



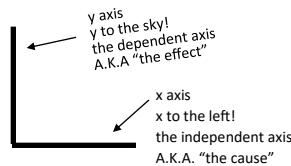
Directions: Create a line graph on the student handout that shows a comparison of low and high average temperatures by month for San Diego. Make the high in red and the low in blue. Use the graphing notes as a resource.

Data Table:

AVERAGE TEMPERATURE IN SAN DIEGO

Month	Low °F	High °F
January	49 °F	66 °F
February	52 °F	66 °F
March	54 °F	66 °F
April	56 °F	68 °F
May	60 °F	69 °F
June	63 °F	72 °F
July	66 °F	76 °F
August	67 °F	78 °F
September	66 °F	77 °F
October	61 °F	74 °F
November	54 °F	70 °F
December	50 °F	66 °F

GRAPHING REMINDERS!





STATION 5



Directions: Create a data table on the student handout based on the information given below. Use the graphing notes as a resource.

All of the science teachers have a guinea pig. Which of the guinea pigs ate the most food based on two days on food consumption. On day 1, Mrs. Garcia's ate 65 gm, Mrs. Brody's ate 105 gm, Mr. Smith's ate 85 gm, Mrs. Nguyen's ate 93 gm, Mr. Black's ate 150gm, and Mrs. Miller's ate 97 gm. On day 2, Mrs. Garcia's ate 85 gm, Mrs. Brody's ate 90 gm, Mr. Smith's ate 100 gm, Mrs. Nguyen's ate 150 gm, Mr. Black's ate 85 gm, and Mrs. Miller's ate 125 gm.

Consider the data and how many columns and rows you will need to display it.

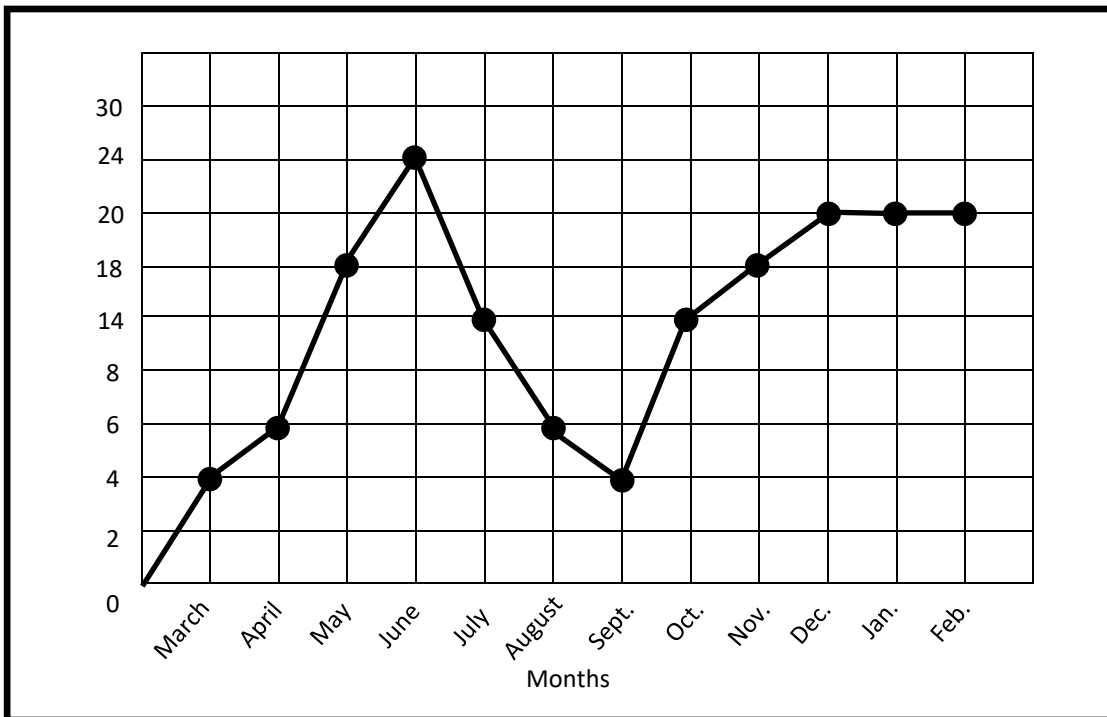


STATION 6

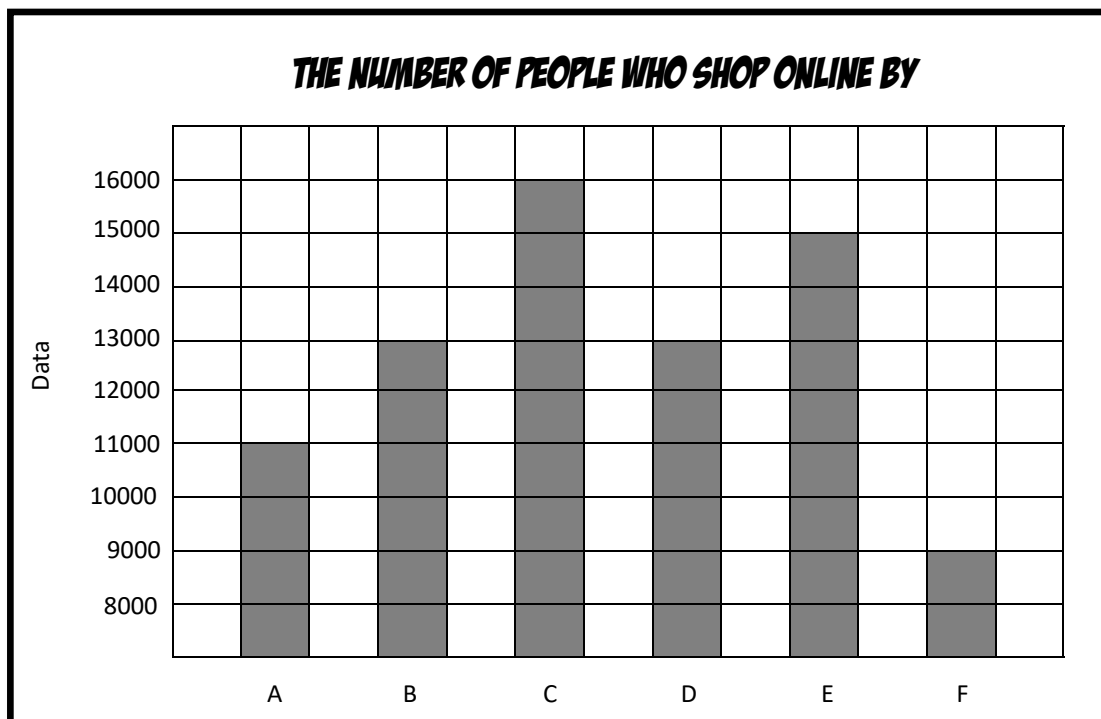


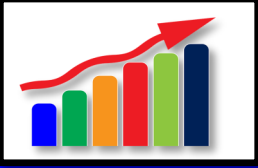
Directions: Analyze the graphs below using the SULTAN notes as a reference. Find the missing components and list them on the student handout.

1)

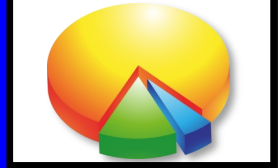


2)





STATION 7



Directions: Create two pie charts on the student handout based on the information below. Use the graphing notes as a resource.

PIE CHART 1:

In Albert's science class his grade is broken down into the following:

50% homework

25% tests & quizzes

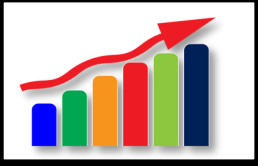
25% projects

PIE CHART 2:

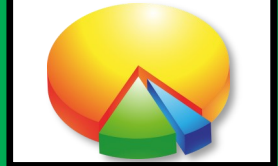
A survey shows that:

$\frac{3}{4}$ of people prefer driving during the day.

$\frac{1}{4}$ prefer driving at night time.



STATION 8



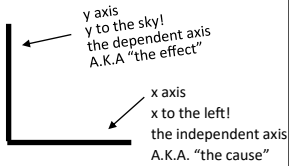
Directions: Using knowledge of the types of graphs and the SULTAN method, answer the questions on the student handout based on the information below. Use the graphing notes as a resource.

**CONSIDER
THIS!**

- 1) What is the purpose of a graph?
- 2) What are the three types of graphs?
- 3) What goes across the top of a graph?
- 4) How do you demonstrate neatness when making a graph?
- 5) Give two examples of units that can be used on a graph?
- 6) Which graph would you most likely use to show fractions? Why?
- 7) Explain why each of these are important when making graphs.
 - Scale
 - Units
 - Label
 - Title
 - Accuracy
 - Neatness
- 8) What kind of graph would use for this data? The months of the year and the amount of rainfall.

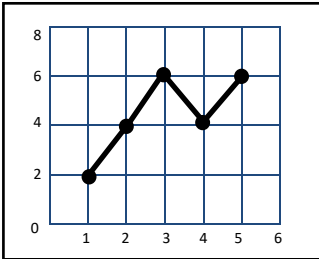
GRAPHING NOTES

GRAPHING REMINDERS!

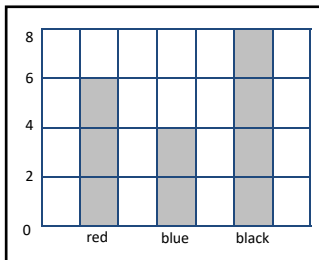


The purpose of a graph is to show a visual representation of relationships between various quantities, parameters or variables.

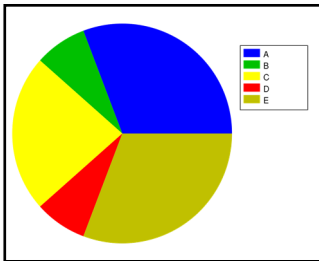
3 TYPES OF GRAPHS



1. Line graph: A graph that uses points that are connected by lines. This graph is to be drawn so that the independent data are on the horizontal x-axis and the dependent data are on the vertical y-axis. Line graphs are used to track changes over short and long periods.



2. Bar Graph: A graph that uses bars to show comparisons between categories of data. A bar graph will have two axes and is a way to visually represent a set of data. Bar graphs are useful for data that is easy to categorize. The category is traditionally placed on the x-axis, and the values are put on the y-axis.



3. Pie Chart: A chart (or a circle chart) is a circular graphic divided into slices to display data, information, and statistics in an easy-to-read 'pie-slice' format. A pie chart with varying slice sizes will show how much of one data element exists, hence the bigger the slice, the more of that particular data was gathered. Good for percentages and fractions.

DATA TABLE

A collection of related data that is presented in columns and rows.

Data Table

x	y

ELEMENTS OF A GOOD GRAPH FOLLOW THE SULTAN METHOD

S	scale	Number the axes on the graph Common numbers (0,2,4,6,8) Clearly written, neat and easy to read
U	units	Relays what the numbers stand for Written in parenthesis Examples: (m), (s), (cm), (mL)
L	labels	Describes what is being measured on each axis
T	title	Place across top of graph Clearly states purpose of the graph Includes information about the x & y axes
A	accuracy	Plots points are precise Lines are drawn with a ruler
N	neatness	Written clearly Ruler used for lines

GRAPHING STATIONS

Name: _____

Period: _____

STATION 1:

- 1) What is the title of the this graph? _____
- 2) What variable is on the x axis? _____
- 3) What variable is on the y axis? _____
- 4) What can be inferred from this graph? _____

(hint what can you tell me about the data in this graph)

- 5) Refer to the line graph and data table. Do they represent the same information?

Why or why not?

- 6) Referring to the data table which column would be the x axis _____
and which would be the y axis _____

STATION 2: Using a ruler, create a data table to reflect the information provided on the line graph in the box below. Refer to the graphing notes to recall what a data table should look like.

Table:

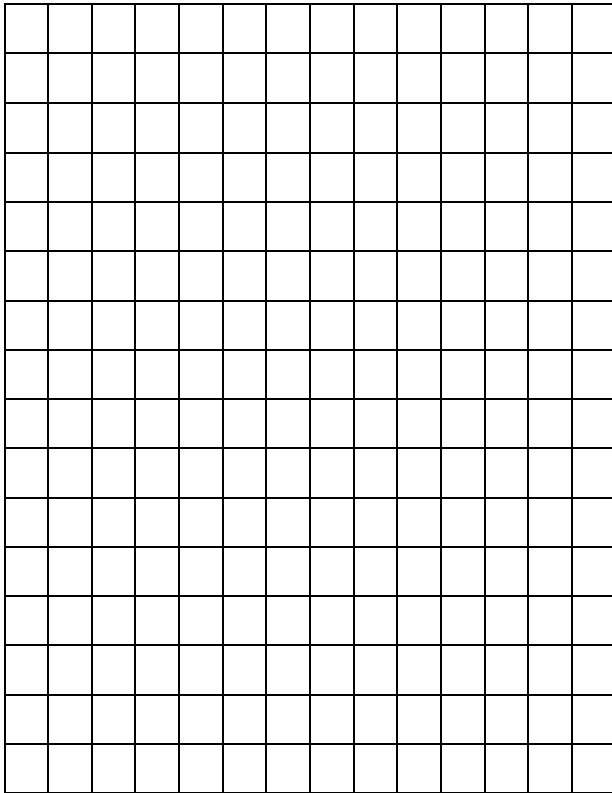
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ARE YOU FINISHED?

Consult the graphing notes and apply SULTAN to your data table. Check them off for completion.

- S- scale
- U- units
- L- labels
- T- title
- A- accuracy
- N- neatness

STATION 3: Create a bar graph showing the milligrams of each energy drink by beverage type.

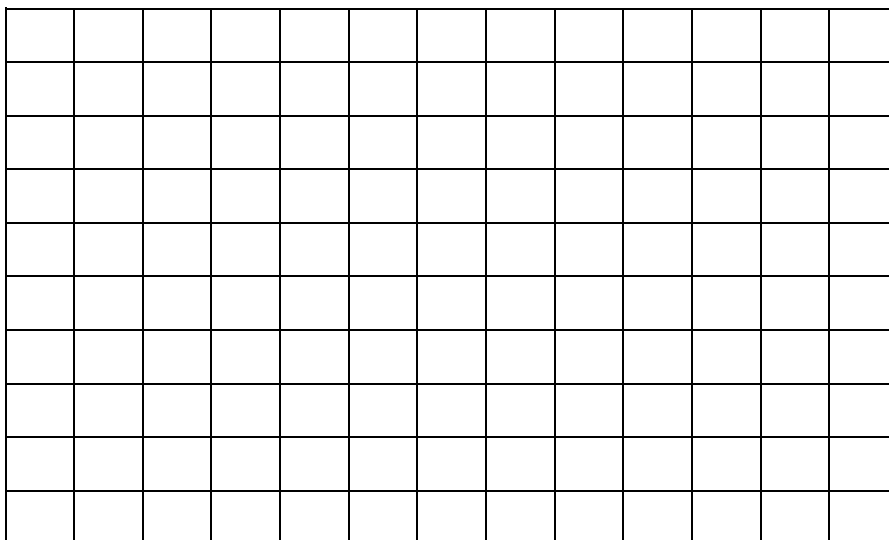


ARE YOU FINISHED?

Consult the graphing notes and apply SULTAN to your graph. Check them off for completion.

- S- scale
- U- units
- L- labels
- T- title
- A- accuracy
- N- neatness

STATION 4: Create a line graph that shows a comparison of low and high average temperatures by month for San Diego. Make the high in red and the low in blue.



ARE YOU FINISHED?

Consult the graphing notes and apply SULTAN to your graph. Check them off for completion.

- S- scale
- U- units
- L- labels
- T- title
- A- accuracy
- N- neatness

STATION 5: Using a ruler create a data table based on the information given for science teachers guinea pigs.

Which guinea pig ate the most?

STATION 6: List the missing parts of each graph. Use the SULTAN notes as a reference.

1) Line graph:

2) Bar graph:

STATION 7: Create two pie charts from the information provided at the station. Use a compass and a ruler.

Pie Chart 1

Title:

Pie Chart 2

Title:

ARE YOU FINISHED? Consult the graphing notes and apply SULTAN to your graph. Check them off for completion.

S– scale U– units L– labels T– title A– accuracy N– neatness

STATION 8: Answer the questions from this station in complete sentences on the lines below.

1) _____

2) _____

3) _____

4) _____

5) _____

6) _____

7) Scale: _____

Units: _____

Label: _____

Title: _____

Accuracy: _____

Neatness: _____

8) Line graph or bar graph.

GRAPHING STATIONS

TEACHER KEY

STATION 1:

1) What is the title of the this graph? Ice-cream sales for one week.

2) What variable is on the x axis? Day of the week.

3) What variable is on the y axis? Number of ice-cream sold.

4) What can be inferred from this graph? As the week progresses ice-cream sales increase, with the highest sales being on the weekend.

(hint what can you tell me about the data in this graph)

5) Refer to the line graph and data table. Do they represent the same information?

Why or why not? The line graph and data table represent the same information but in different formats.

6) Referring to the data table which column would be the x axis the days of the week.

and which would be the y axis number of ice-creams sold.

STATION 2: Using a ruler, create a data table to reflect the information provided on the line graph in the box below. Refer to the graphing notes to recall what a data table should look like.

Table:

The number of people that ride the bus downtown throughout the day.

Time of day	# of people
6am	30
7am	80
8am	60
9am	30
10am	20
11am	10
12pm	40
1pm	20
2pm	5
3pm	10
4pm	50
5pm	90

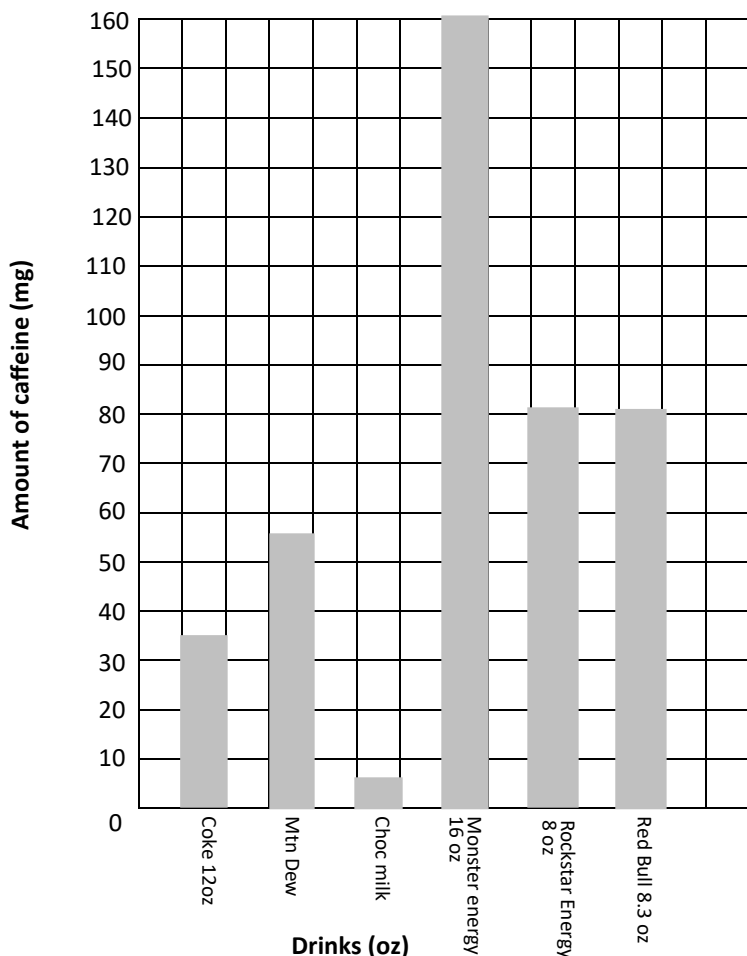
ARE YOU FINISHED?

Consult the graphing notes and apply SULTAN to your data table. Check them off for completion.

- S- scale
- U- units
- L- labels
- T- title
- A- accuracy
- N- neatness

STATION 3: Create a bar graph showing the milligrams of each energy drink by beverage type.

Amount of caffeine contained in common beverages.



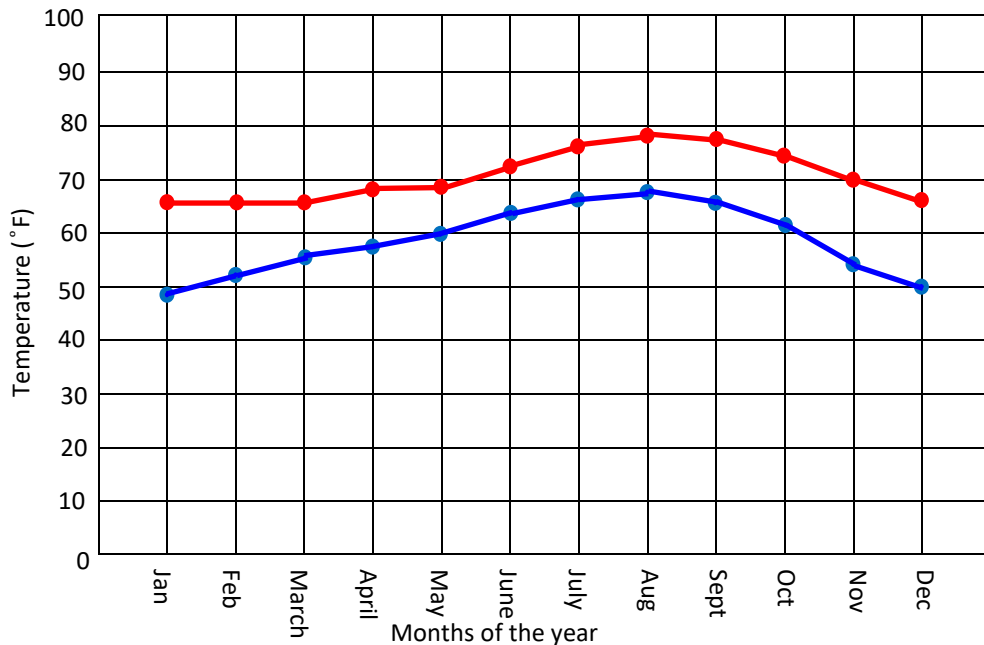
ARE YOU FINISHED?

Consult the graphing notes and apply SULTAN to your graph. Check them off for completion.

- S- scale
- U- units
- L- labels
- T- title
- A- accuracy
- N- neatness

STATION 4: Create a line graph that shows a comparison of low and high average temperatures by month for San Diego. Make the high in red and the low in blue.

Average temperature in San Diego.



ARE YOU FINISHED?

Consult the graphing notes and apply SULTAN to your graph. Check them off for completion.

- S- scale
- U- units
- L- labels
- T- title
- A- accuracy
- N- neatness

STATION 5: Using a ruler create a data table based on the information given for science teachers guinea pigs.

Teachers	Day 1	Day 2	Total
Mrs. Garcia	65 gm	85 gm	150
Mrs. Brody	105 gm	90 gm	195
Mr. Smith	85 gm	100 gm	185
Mrs. Nguyen	93 gm	150 gm	243
Mr. Black	150 gm	85 gm	235
Mrs. Miller	97 gm	125 gm	222

Which guinea pig ate the most?

Mrs. Nguyen

STATION 6: List the missing parts of each graph. Use the SULTAN notes as a reference.

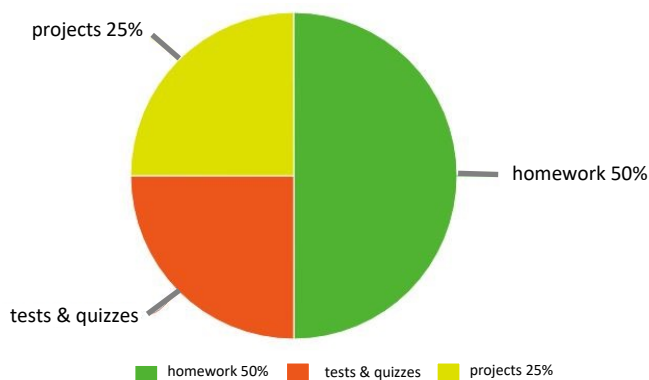
1) Line graph: **Scale**
 Units
 Labels
 Title

2) Bar graph: **Scale**
 Units
 Label

STATION 7: Create two pie charts from the information provided at the station. Use a compass and a ruler.

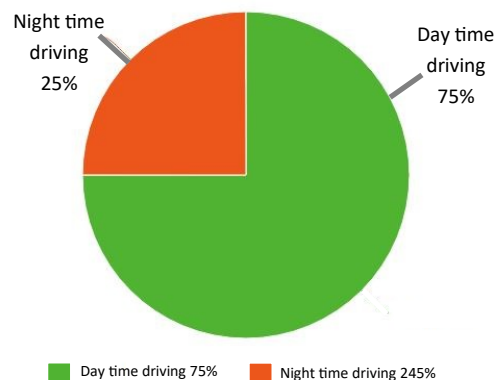
Pie Chart 1

Title: Albert's science grade breakdown.



Pie Chart 2

Title: Peoples preference of driving time.



ARE YOU FINISHED? Consult the graphing notes and apply SULTAN to your graph. Check them off for completion.

- S- scale
 U- units
 L- labels
 T- title
 A- accuracy
 N- neatness

STATION 8: Answer the questions from this station in complete sentences on the lines below.

- 1) The purpose of a graph is to show a visual representation of relationships between various quantities, parameters or variables.
- 2) The three types of graphs include line graphs, bar graphs, and pie charts.
- 3) The title goes across the top of a graph.
- 4) One can demonstrate neatness while making a graph by using a ruler and writing neatly.
- 5) Two types of units that can be used on a graph are cm or seconds. (measurement, time)
- 6) A pie chart would be the best graph to use to show fractions because it is divided into slices and is very easy to read.
- 7)
 - Scale: It is important because starting with zero in the corner & equally spacing the numbers will give a good representation of the data.
 - Units: These are important because it states what the number stand for.
 - Label: These are important because it describes what is being measured on each axis.
 - Title: This is important because it clearly states what the graph is about.
 - Accuracy: This is important because the data can be clearly read and is accurate.
 - Neatness: This is very important because being clear, concise, & neat will make the graph easy to read by others.
- 8) A line or bar graph could be used.

STATION 1

fold

STATION 1

STATION 2

fold

STATION 2

STATION 3

fold

STATION 3

STATION 4

fold

STATION 4

STATION 5

fold

STATION 5

STATION 6

fold

STATION 6

STATION 7

fold

STATION 7

8 STATION 8

fold

STATION 8