DISPLAY DATA – CREATING GRAPHS BY HAND

Once survey data is collected, it needs to be _____Organized_____ in a meaningful way so that it can be easily _____analyzed_____ and _____interpreted_____.

THE BAR GRAPH

Suppose we would like to know what sport the favourite is amongst our classmates. Survey your class to determine the most popular sport.

SPORT	TALLY	FREQUENCY	PERCENTAGE
Baseball		0	
Basketball	I	1	
Football		0	
Hockey	III	3	
Soccer	I	1	
Tennis		0	
Other	⊥⊥⊥⊥ I	6	
TOTAL			

Tally – put a tick for each person counted.

Frequency – count the number of ticks in the tally column and express as a number

Percentage – calculate Frequency ÷ Total x 100

Create a bar graph. Remember to fully label your graph (title, axes, etc.)

Favourite Sport Survey
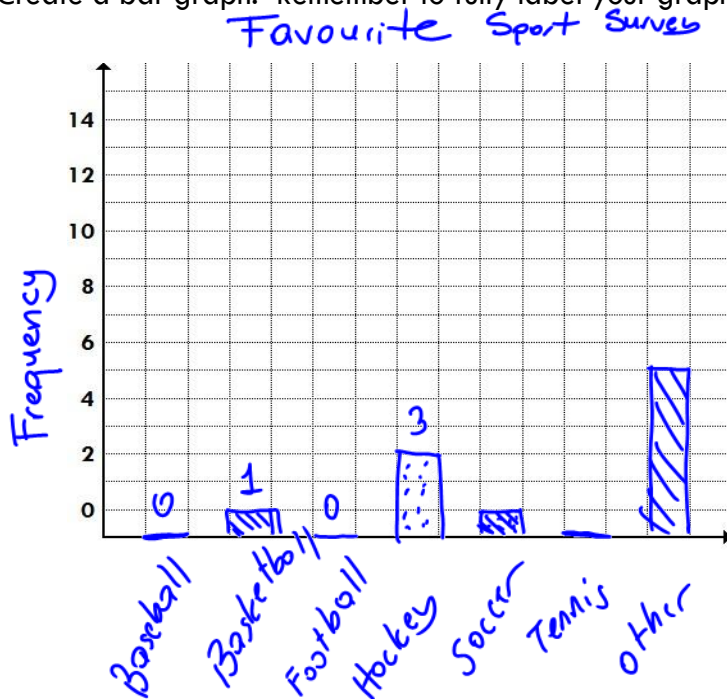
The numbers on the left side indicate the frequency.

Label the bottom of the bar graph with the category (sport).

Categorical Data – data that are types rather than numbers. For example, sports: Baseball, Basketball, Football, soccer …
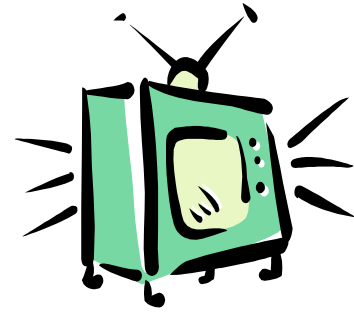
Write a statement about your findings.

It appears hockey is the most popular sport. However, there are 6 people voted for other.
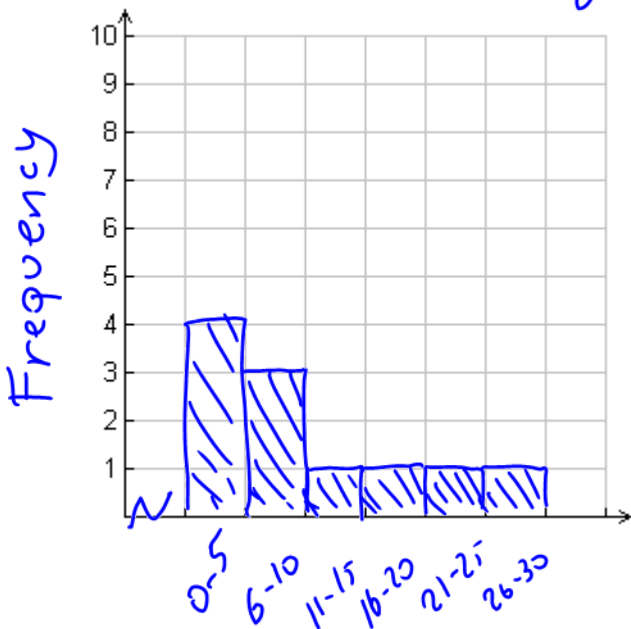
THE HISTOGRAM

Tina would like to know the average number of hours her classmates spend watching T.V. during the week (Monday to Friday).

TIME INTERVALS (hrs)	TALLY	FREQUENCY
[0 – 5]	IIII	4
[6 – 10)	III	3
[11 – 15)	I	1
[16 – 20)	I	1
[21 – 25)	I	1
[26 – 30)	I	1
TOTAL	卌 卌 I	11

Create a histogram. Remember to fully label.

# of hours watching TV

(Histogram: y-axis labelled "Frequency" from 1 to 10; x-axis intervals labelled 0-5, 6-10, 11-15, 16-20, 21-25, 26-30. Bars: 0-5 = 4, 6-10 = 3, remaining intervals = 1.)

Write a statement about your findings.

Most people watch 0-5 hours of TV per weeks

What is the difference between a bar graph and a histogram?

① Types of Data
Bar Graph : for categories
Histogram : continuous data

② How the graphs are drawn
Bar graph , Histogram

space   no space

Continuous Data – data that can hold any numerical value

THE CIRCLE GRAPH (PIE CHART)

Sean is curious to know the number of people his classmates had in their family.
The following shows what Shawn recorded in his notebook.

# Of People	Tally	Frequency	Percent (round to 1 decimal)	Measure of Angle (degrees)
2	|||	3	$3 \div 24 \times 100 = 12.5\%$	$3 \div 24 \times 360 = 45°$
3	||||	4	$4 \div 24 \times 100 = 16.7\%$	$4 \div 24 \times 360 = 60°$
4	~~HH HH~~	10	$10 \div 24 \times 100 = 41.7\%$	$10 \div 24 \times 360 = 150°$
5	||||	4	16.7%	60°
6	||	2	8.3%	30°
7		~~0~~	0%	0°
8	|	1	4.2%	15°
TOTAL	24	24	100%	360°

Create a circle graph. Remember to fully label.
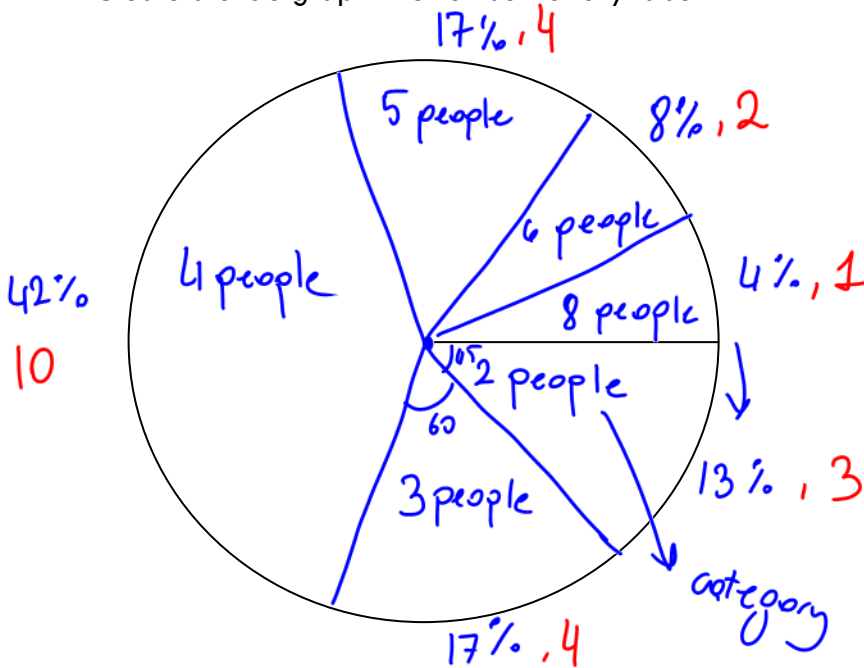
Percent is calculated by:
$$\frac{Frequency}{Total} \times 100 =$$

Degrees is calculated by:
$$\frac{Frequency}{Total} \times 360 =$$

In order to label / colour the different portions of the circle, a **compass** or **protractor** must be used.

Write a statement about your findings.

Most people in Sean's class (42%) have 4 people in their family.

Discrete Data – data that is distinct and can be counted. i.e. family members, marks on a test

# DISPLAY DATA – GRAPHING BY HAND PRACTICE

BAR GRAPHS

Paulina spent Saturday at the Vaughan Mills mall. She wanted to know which type of food was most popular at the food court in the mall. She waited for 2 hours during lunch and recorded the type of food each person ordered and recorded her results below.

FOOD TYPE	Tally	FREQUENCY
Chicken	~~HHH~~ III	8
Hamburgers	HHH HHH	10
Pizza	IIII	4
Subs	HHH I	6
Stir-Fry	HHH II	7
TOTAL		35
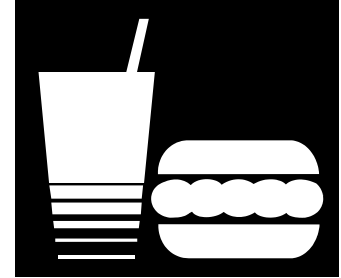
Create a bar graph. Remember to fully label.
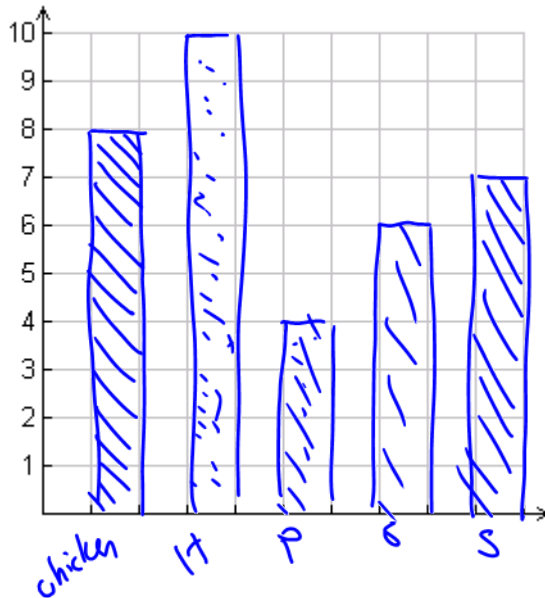
Write a statement about your findings.

Hamburger is the most popular food.

Is the data Categorical, Continuous, or Discrete?

Categorical

HISTOGRAMS

Mr. Liska wanted to know what his class' math marks looked like on a graph. He has 30 students in his class. Here are the student's final marks:
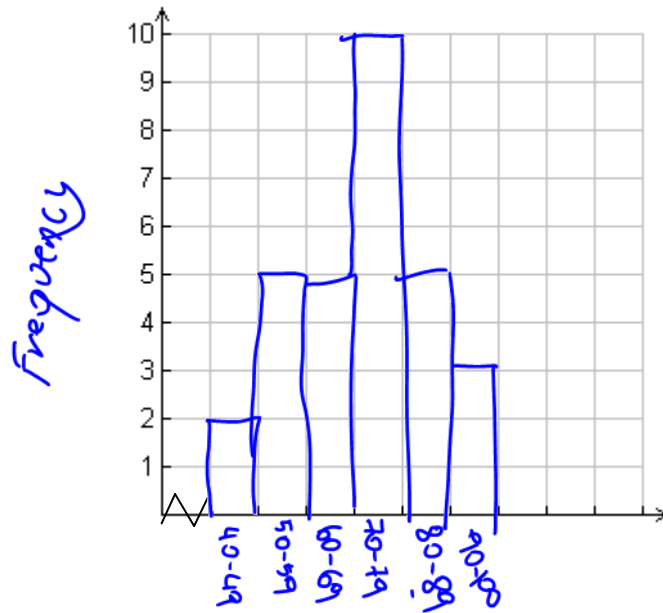
86	79	58	56	79	92	62	90	74	71
65	66	46	48	50	67	90	87	72	68
59	58	70	71	75	77	84	81	73	83

Complete the chart. (hint, use bins of 10%, don't forget the fancy brackets)

MARK BIN	TALLY	FREQUENCY
[40, 49]	II	2
[50, 59]	ﬂﬄ	5
[60, 69]	ﬂﬄ	5
[70, 79]	ﬂﬄ ﬂﬄ	10
[80, 89]	ﬂﬄ	5
[90 - 100]	III	3
TOTAL		29

Create a histogram. Remember to fully label.

Write a statement about your findings.

Most people in Mr. Liska's class got 70-79

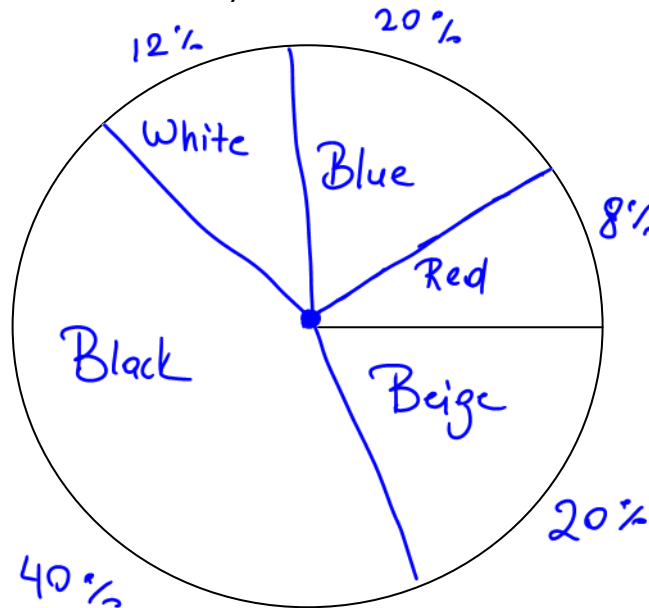Is the data Categorical, Continuous, or Discrete?

It is continuous data

CIRCLE GRAPHS (PIE CHARTS)

On a Tuesday afternoon, Sandra spent three hours recording the colour of each car that made a left hand turn from Rutherford Rd. onto Yonge St.. The following table shows what Sandra recorded in her notebook.

COLOUR OF CAR	FREQUENCY	Percent	NUMBER OF DEGREES
RED	2	$2 \div 25 \times 100 = 8\%$	$\frac{2}{25} \times 360 = 28.8°$
BLUE	5	$5 \div 25 \times 100 = 20\%$	$5 \div 25 \times 360 = 72°$
WHITE	3	$3 \div 25 \times 100 = 12\%$	$3 \div 25 \times 360 = 43.2°$
BLACK	10	$10 \div 25 \times 100 = 40\%$	$10 \div 25 \times 360 = 144°$
BEIGE	5	$5 \div 25 \times 100 = 20\%$	$5 \div 25 \times 360 = 72°$
TOTAL	25	100%	360°

Create a circle graph. Remember to fully label.

Write a statement about your findings.

Most cars that made a left turn is black

Is the data Categorical, Continuous, or Discrete?

It's categorical