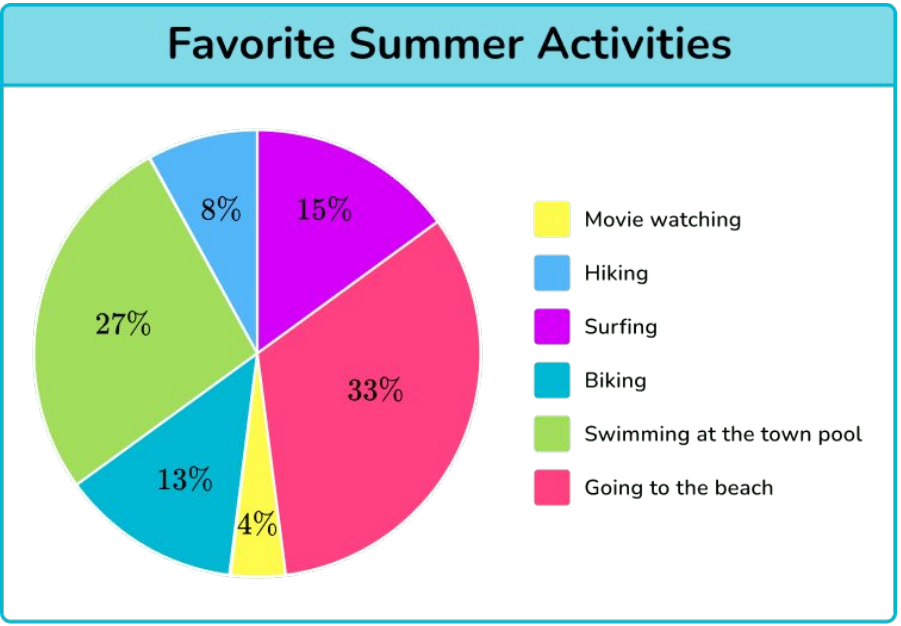
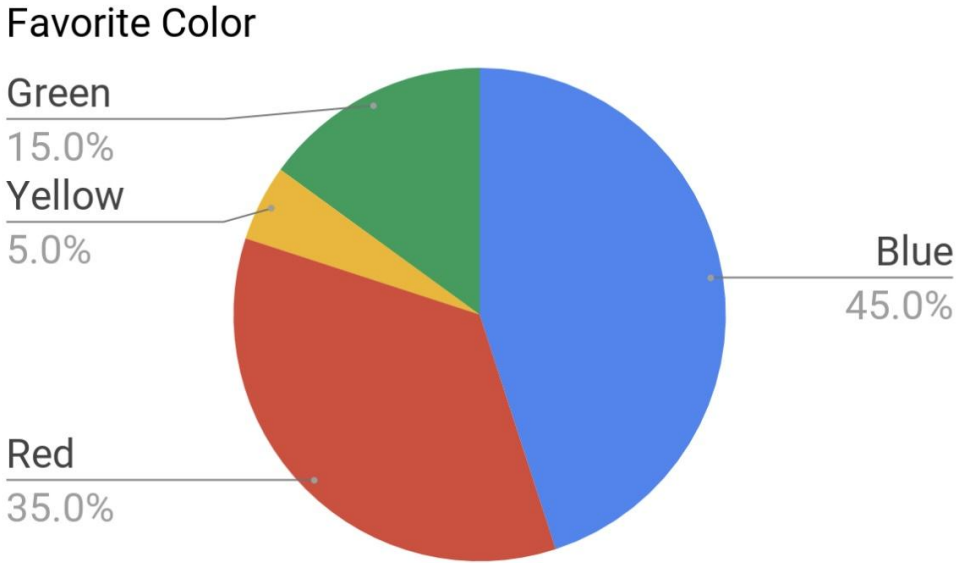
Introducing Graphs & Charts

Exploring the different types and parts

Why are graphs and charts important?

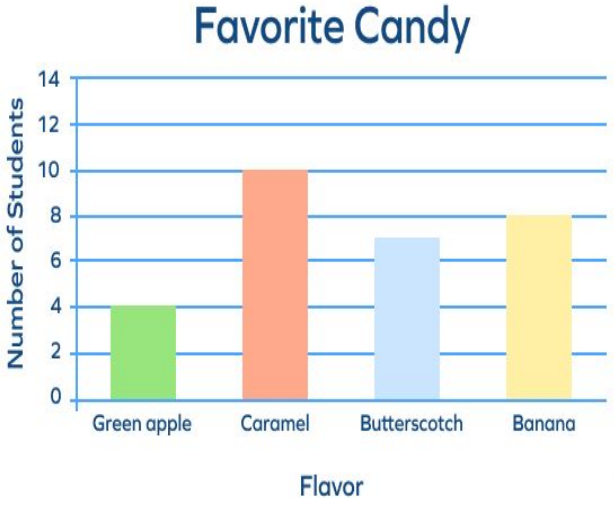
What type of graphs are these?

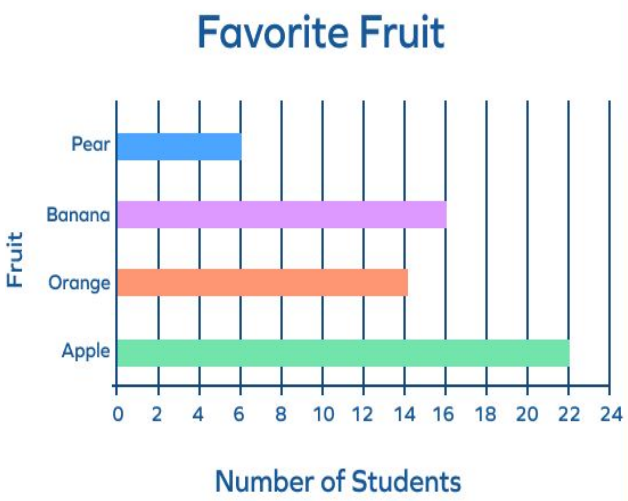


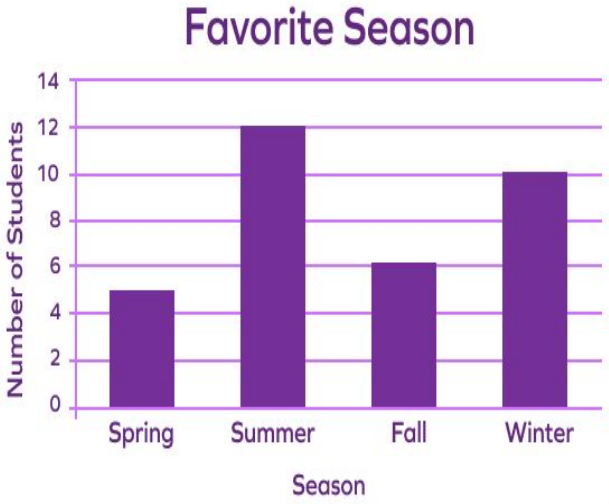


PIE GRAPHS/CHARTS

What type of graphs are these?

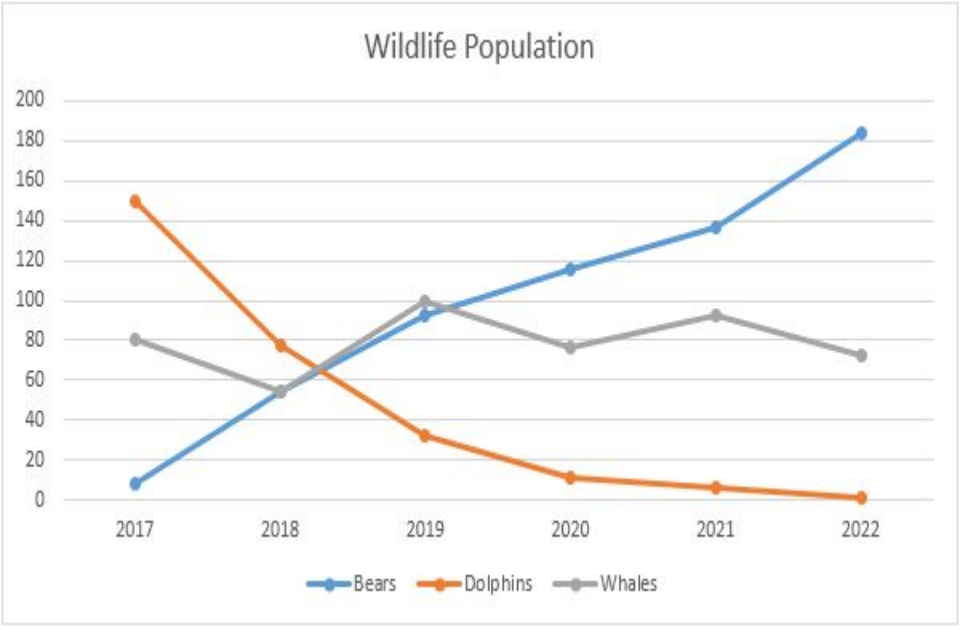


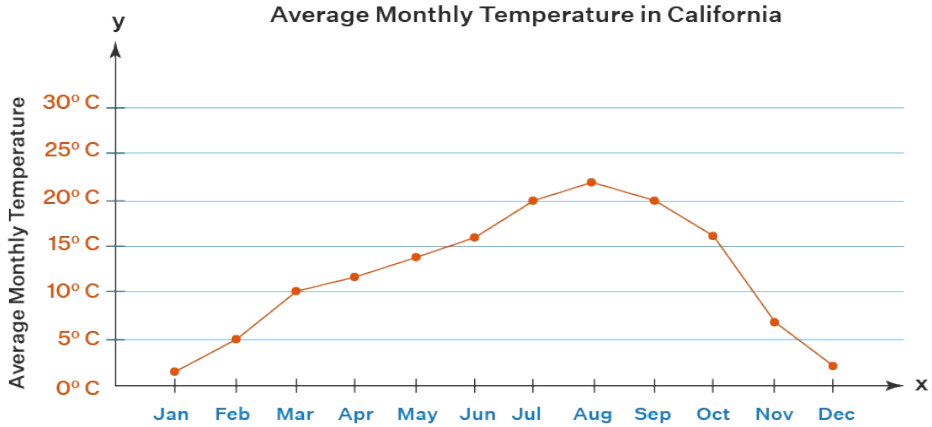




VERTICAL OR HORIZONTAL BAR GRAPHS

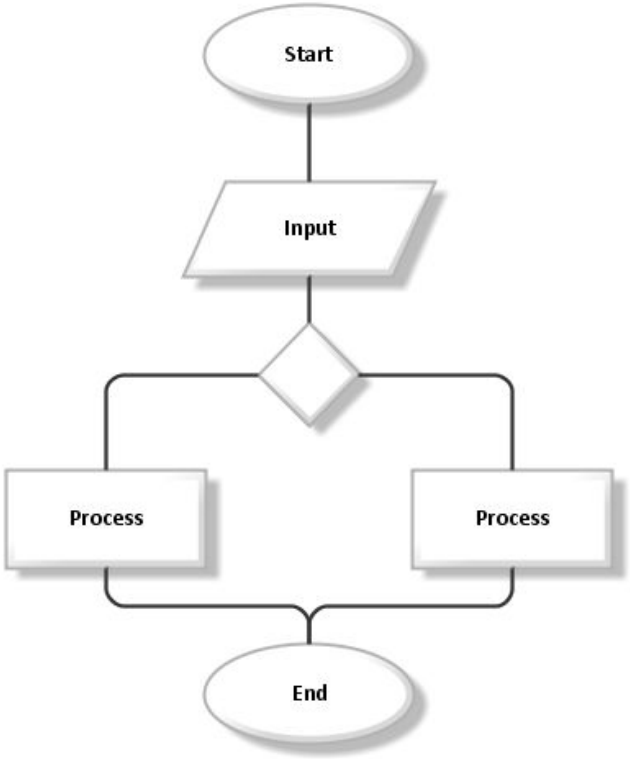
What type of graphs are these?

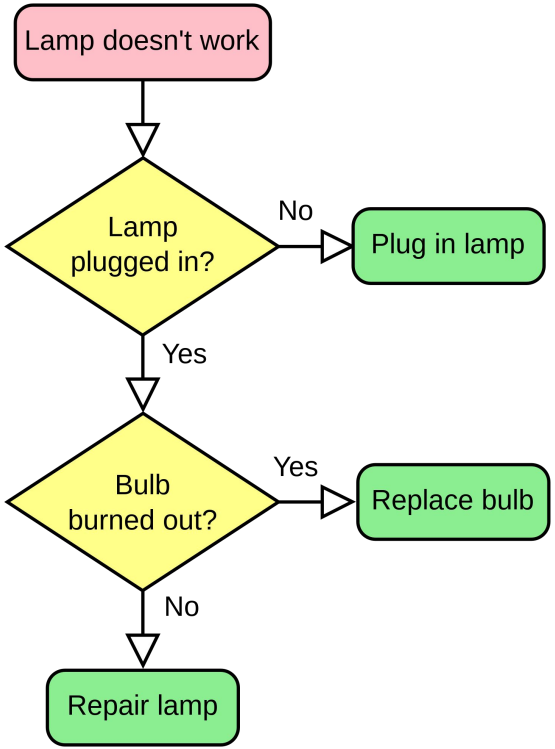


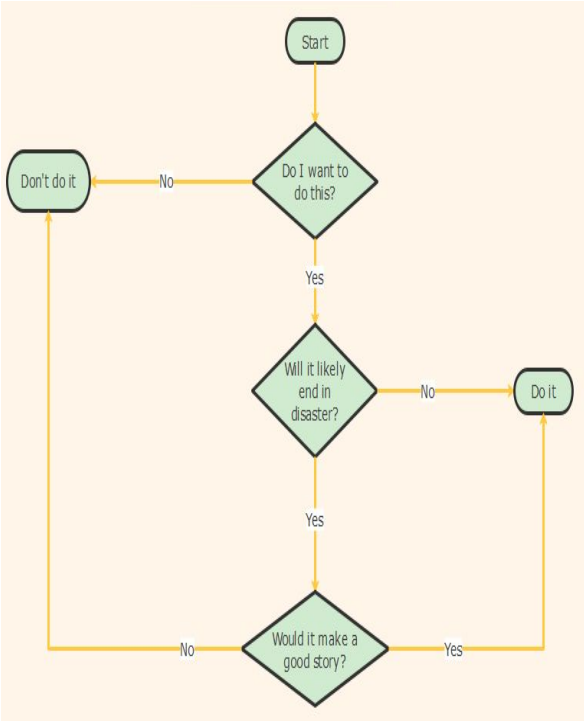


LINE GRAPHS/CHARTS

What type of charts are these?







FLOW CHARTS

What type of charts are these?

Property	France	Germany	Italy	UK
Coastline	4,853	2,389	7,600	12,429
Life Expectancy	81.8	80.7	82.2	80.7
Elevation	375	263	538	162
Population	66,836,154	80,722,792	62,007,540	64,430,428
Age	41.2	46.8	45.1	40.5

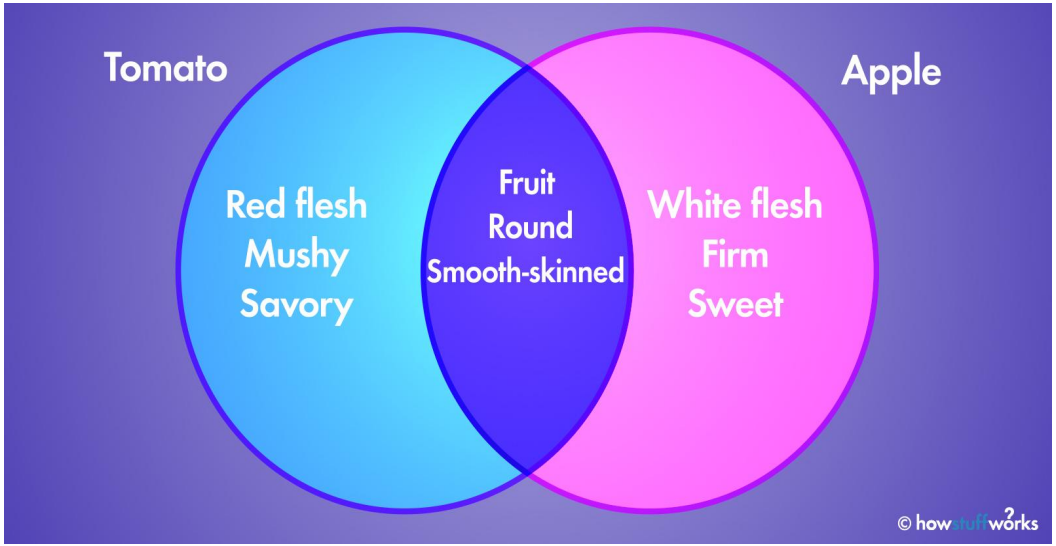
Participation in cultural activities, by age

	16-24	*25-44*	*45-74*	*All aged 16 and over*
	%	%	%	%
Any performance*	**35**	**22**	**17**	**22**
Undertaking any crafts	**11**	**17**	**22**	**19**
Cultural purchases	**11**	**17**	**18**	**16**
Any visual arts	**30**	**16**	**11**	**15**
Any writing	**17**	**6**	**5**	**7**
Computer based	**10**	**9**	**5**	**6**

* Dancing, singing, playing musical instruments and acting

TABLES

What type of charts are these?

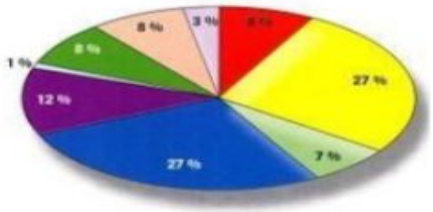


DIAGRAMS


line
bar
circle

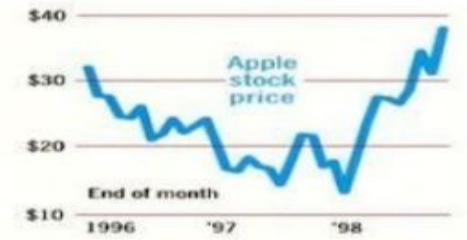
A **flow chart** is a diagram showing progress through the ***steps*** of a ***process*** or of a complex activity.

A **pie chart** displays the ***size*** of each part as a percentage of a ***whole***.



A (vertical or horizontal) **bar chart** is used to compare *different* items.

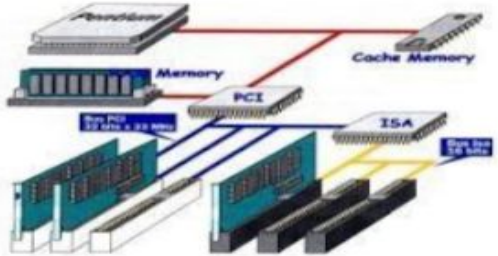
A **line chart** depicts changes over a period of time, showing data and trends.



A **table** is a convenient way to show large amounts of ***data*** in a small space.

30 Jan 2003	AUST Sch	BELG Fr	DAN Kr	GER Dm	NETH Fl	FIN Markka	FR Fr	GREC Drach
AUSTRIA Schilling	-	0.341	1.835	7.036	6.270	2.355	2.085	0.044
BELGIUM Franc	2.929	-	5.387	20.61	18.36	6.897	6.107	0.130
DENMARK Krone	0.544	0.186	-	3.825	3.409	1.280	1.134	0.024
GERMANY Deutschmark	0.142	0.049	0.261	-	0.891	0.335	0.296	0.006
NETHERLANDS Guilder	0.159	0.054	0.293	1.122	-	0.376	0.333	0.007
FINLAND Markka	0.425	0.145	0.781	2.988	2.663	-	0.885	0.019
FRANCE Franc	0.480	0.164	0.882	3.374	3.007	1.129	-	0.021
GREECE Drachma	22.49	7.679	41.37	158.2	141.0	52.96	46.90	-

A **diagram** is a drawing showing arrangements and situations, such as ***networks,*** distribution, fluctuation...



Using graphs in everyday situations

- Homeowners use graphs to plan their monthly budgets.
  - First, they can create a graph projecting their expected expenses and savings.
  - Then, when they fail to hit their targets, they can check their graphs to reassess their strategies.
- In healthcare, graph databases help revolutionize research and even the treatment of deadly diseases
  - . As a result, patients can receive the most effective drugs at the soonest possible time.
- The real-time recommendations you get online are also a product of graph use.
  - For example, Amazon's "You may also like..." feature that suggests personalized content, services, and products.
- The entertainment industry measures TV ratings and assesses viewers' responses.
  - For example, AC Nielsen is a research company that measure TV ratings through a combination of panel data and census data to estimate streaming viewership numbers.
- Accountants benefit by using graphs to convey financial information to their clients.
  - A graph can be very handy in collecting data and storing it in one place.
- For those in a Marketing position, the use of graphs can be useful to measure website traffic.
- A graph can be a very effective tool in presenting visual information quickly
  - Monthly/quarterly/yearly targets
  - Sales figures and calculations
  - Consumer data
  - Trends and relationships

Graph parts and functions

- Graphs have different looks and forms, and are made up of lines and points on a grid.
- Graphs all include the following basic parts: the x and y axes, the ordered pairs or points and their coordinates, the four areas that the axes created called quadrants, and the plane where the axes are laid out, called the cartesian plane.
- Graphs paint a picture of what the data is all about, the relationship of the variables to each other, and their behavior over time.
- Graphs also determine the precise location of points.

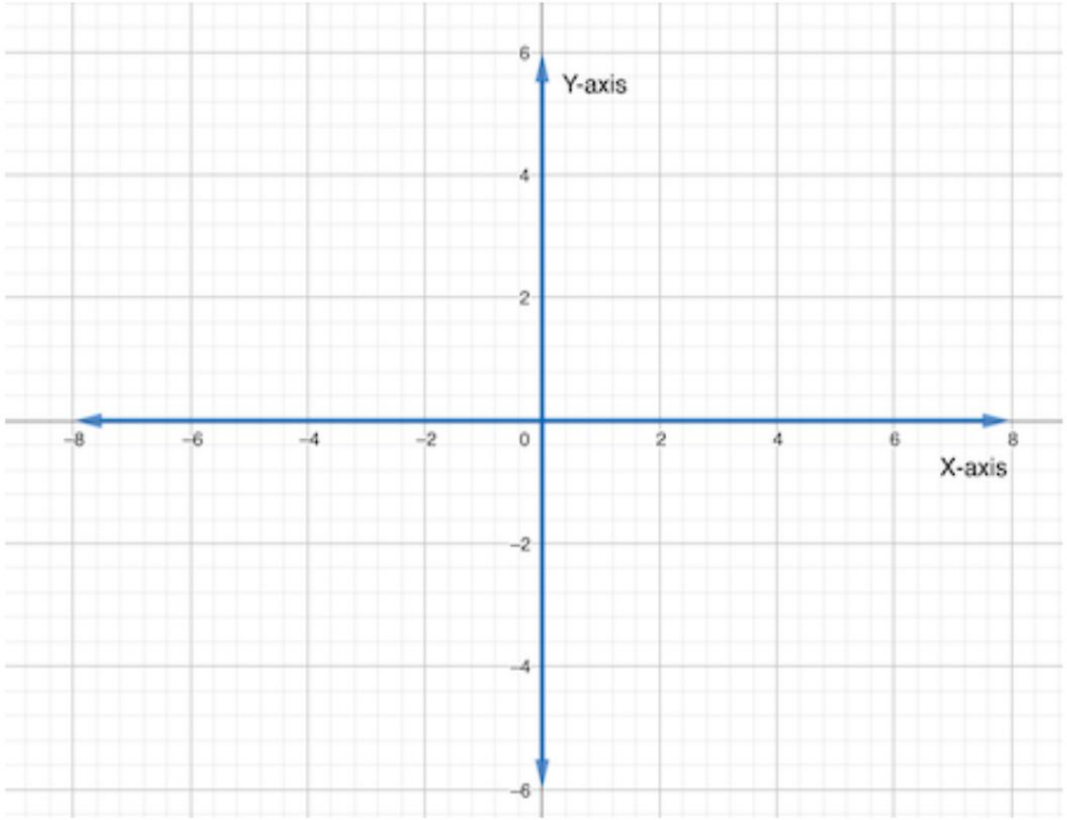


Fig. 1 Cartesian plane showing x and y axes

- A cartesian/coordinate plane is a two-dimensional plane where two perpendicular lines intersect.
  - These lines are called the x and y axes.
- The point of intersection is called the point of origin.
  - This is designated with the coordinates (0,0).
- The cartesian plane is the space where points are plotted, and graphs are drawn or created.

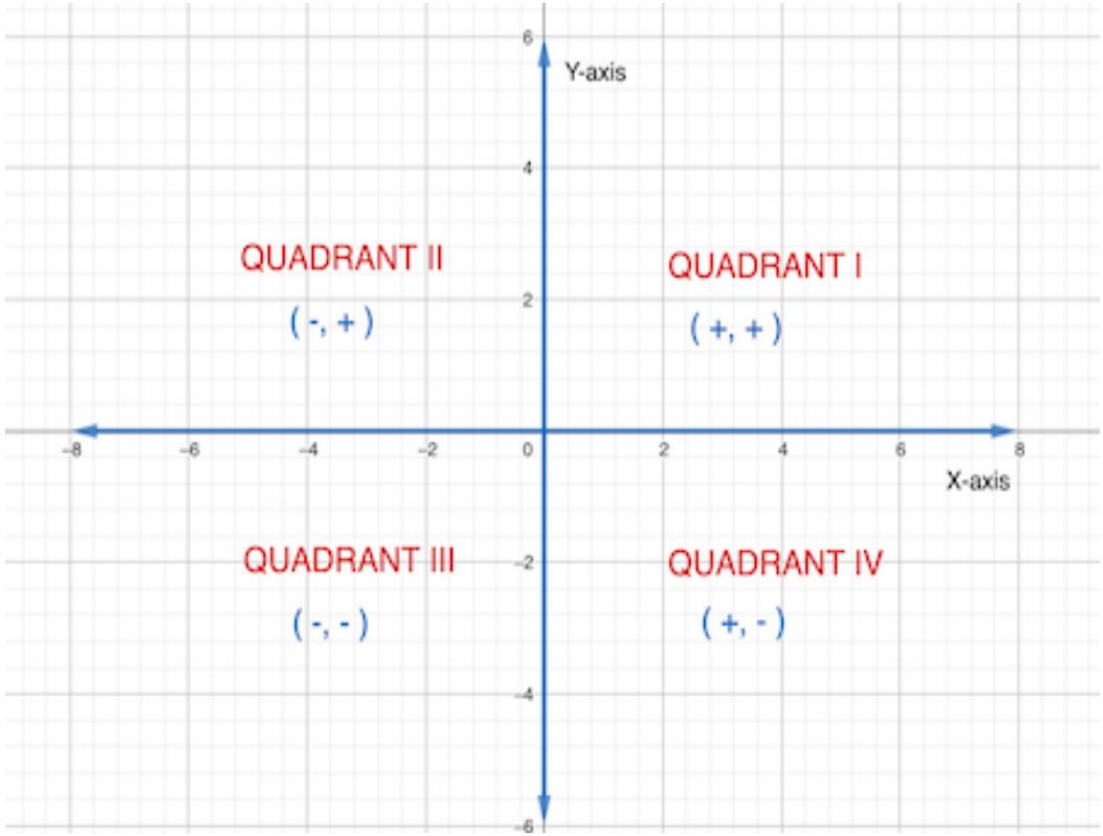


Fig. 2 The axes divide the cartesian plane into four quadrants

- We start with the first quadrant at the top right and go counter-clockwise.
- Each of these quadrants has specific assignments of the positive or negative signs of the number coordinates of points.
  - Quadrant 1: Both x and y coordinates are positive.
  - Quadrant 2: The x-coordinate is negative while the y-coordinate is positive.
  - Quadrant 3: Both the x and y coordinates are negative.
  - Quadrant 4: The x-coordinate is positive while the y-coordinate is negative.

Introduction

Coordinate Plane

Simplify Middle

Parts of a graph

The Title
The title offers a short explanation of what is in your graph. This helps the reader identify what they are about to look at. It can be creative or simple as long as it tells what is in the graph.

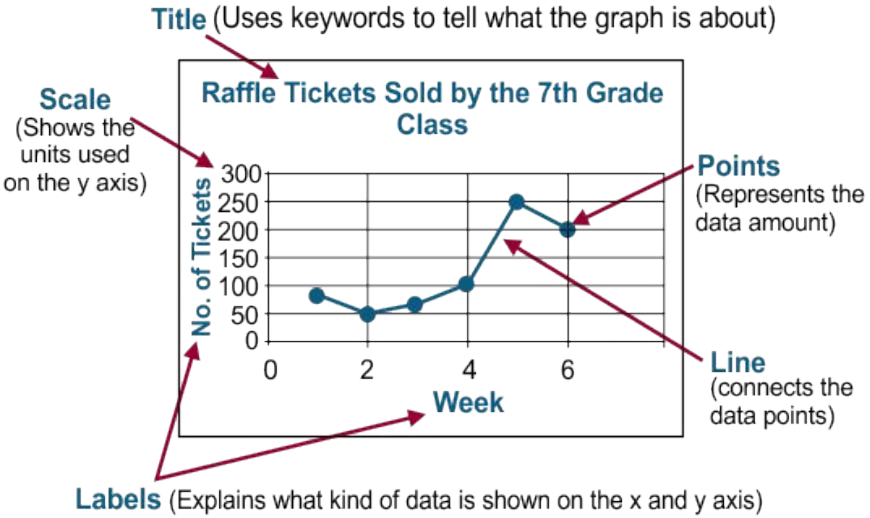
The Legend
The legend tells what each line, bar, or slice represents. Just like on a map, the legend helps the reader understand what they are looking at.

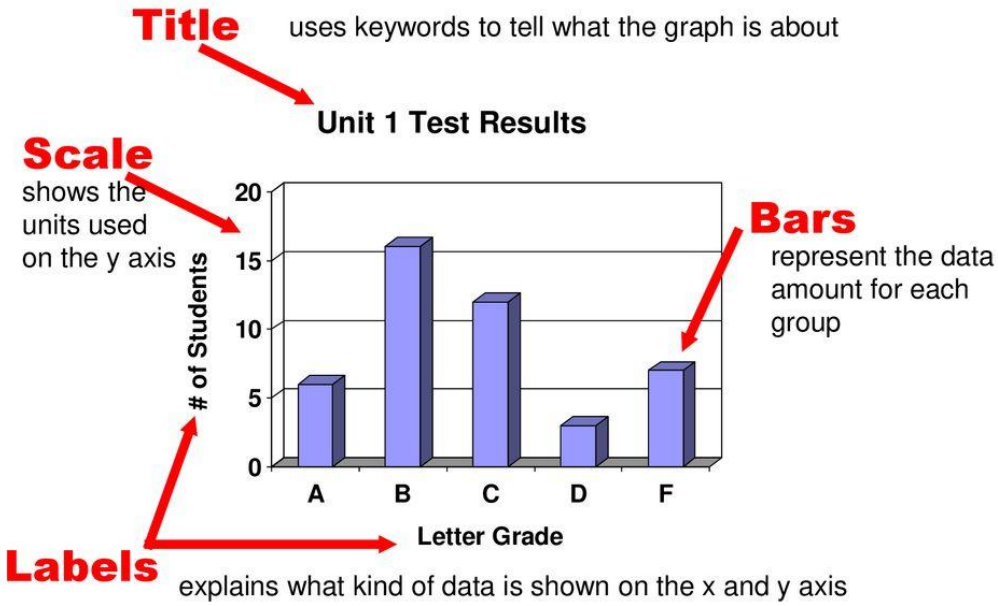
The Source
The source explains where you found the information that is in your graph.

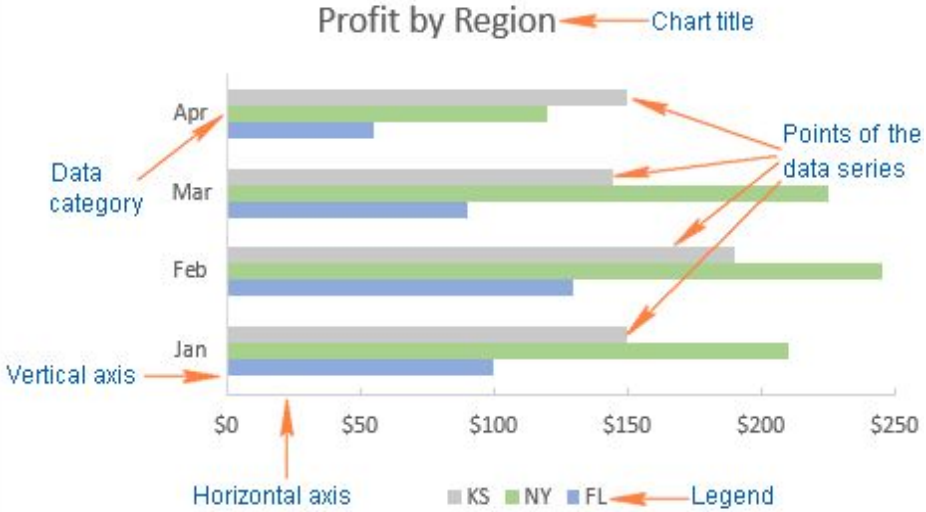
X-Axis (LINE/BAR GRAPHS)
The x-axis runs horizontally (flat). Sometimes bar graphs are made so that the bars are sidewise. In this case, the x-axis has numbers representing different time periods or names of things being compared.

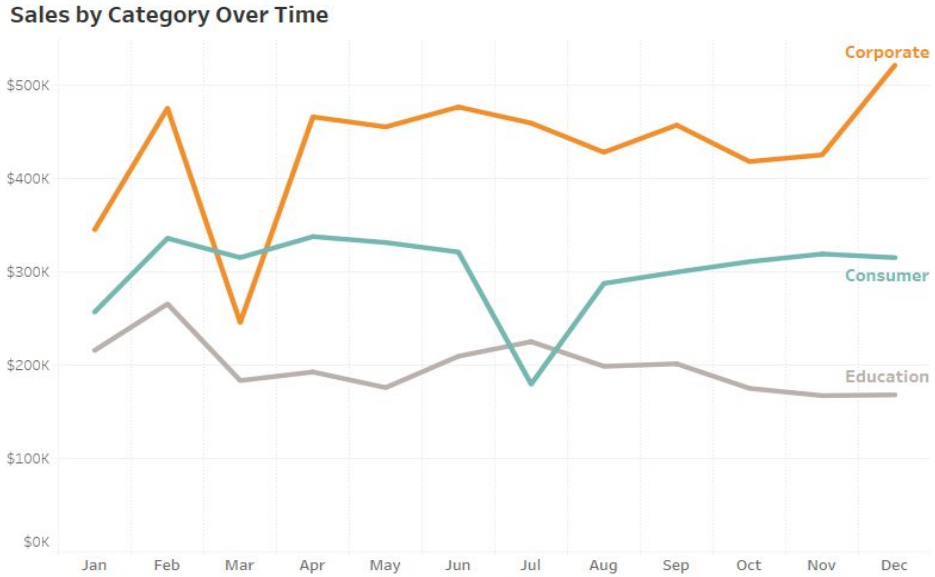
Y-Axis (LINE/BAR GRAPHS)
The y-axis runs vertically (up and down). Typically, the y-axis has numbers for the amount of stuff being measured. The y-axis usually starts counting at 0 and can be divided into as many equal parts as you want to.

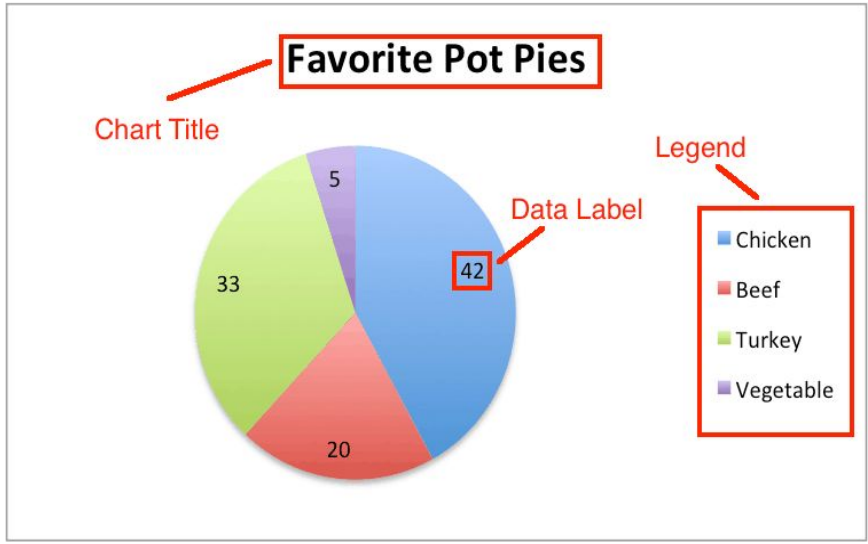
The Data
The most important part of your graph is the information, or data, it contains. Line graphs and bar graphs can present more than one group of data at a time. Pie charts represent data as part of 100 (a percentage). Each slice represents a different piece of data.


Title (Uses keywords to tell what the graph is about)
Raffle Tickets Sold by the 7th Grade Class
Scale
(Shows the units used on the y axis)
No. of Tickets
300
250
200
150
100
50
0
0
2
4
6
Week
Points
(Represents the data amount)
Line
(connects the data points)
Labels (Explains what kind of data is shown on the x and y axis)


Title
uses keywords to tell what the graph is about
Unit 1 Test Results
Scale
shows the units used on the y axis
# of Students
20
15
10
5
0
A
B
C
D
F
Letter Grade
Bars
represent the data amount for each group
Labels
explains what kind of data is shown on the x and y axis


Profit by Region
Chart title
Apr
Mar
Feb
Jan
Data category
Points of the data series
Vertical axis
$0
$50
$100
$150
$200
$250
Horizontal axis
KS
NY
FL
Legend


Sales by Category Over Time
Corporate
Consumer
Education
$500K
$400K
$300K
$200K
$100K
$0K
Jan
Feb
Mar
Apr
May
Jun
Jul
Aug
Sep
Oct
Nov
Dec


Favorite Pot Pies
Chart Title
Legend
Data Label
5
42
33
20
Chicken
Beef
Turkey
Vegetable

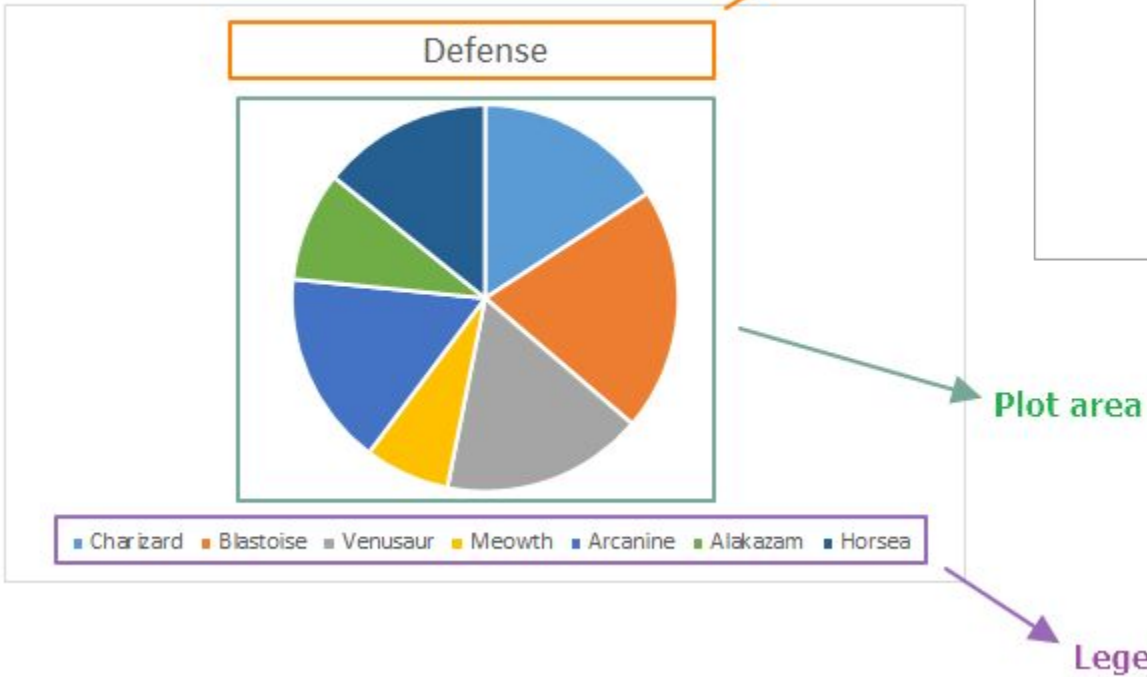
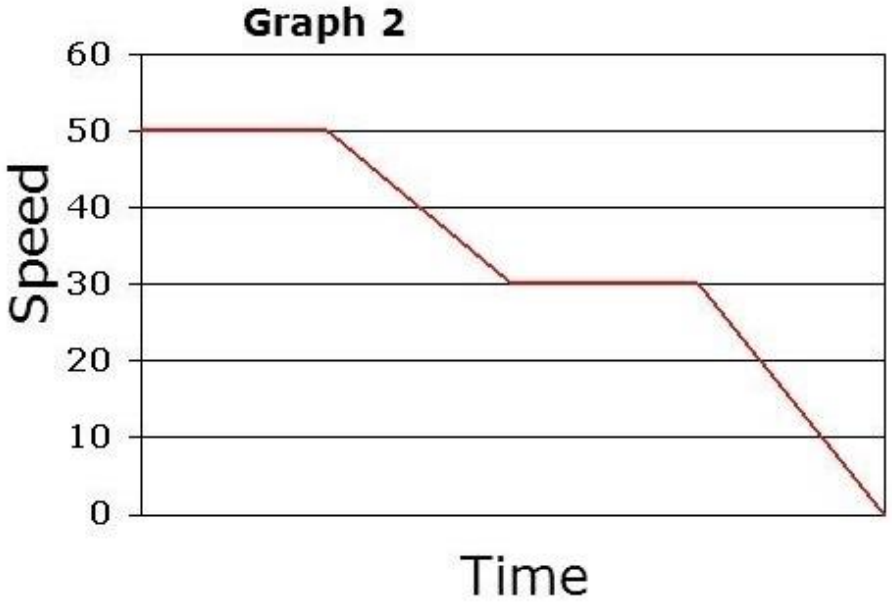
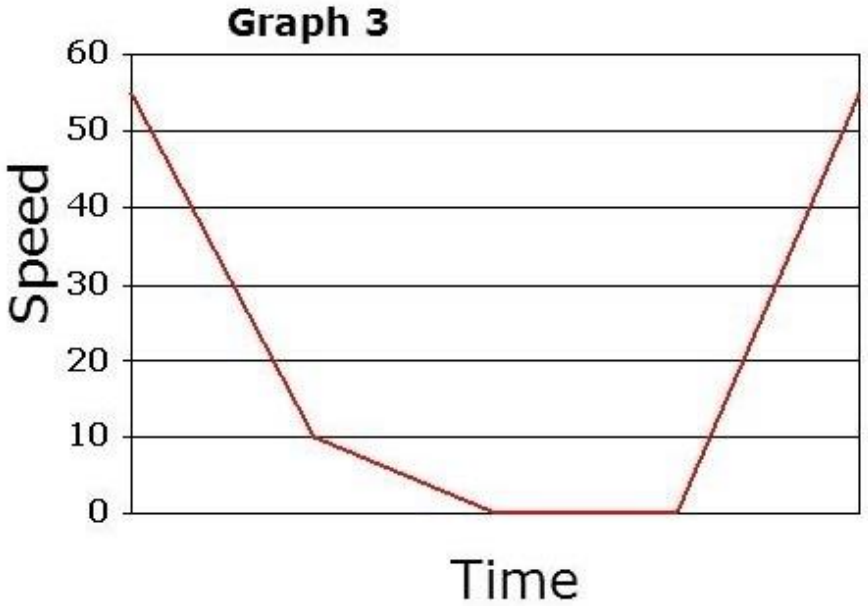


Chart title
Defense
Plot area
Charizard
Blastoise
Venusaur
Meowth
Arcanine
Alakazam
Horsea
Legend

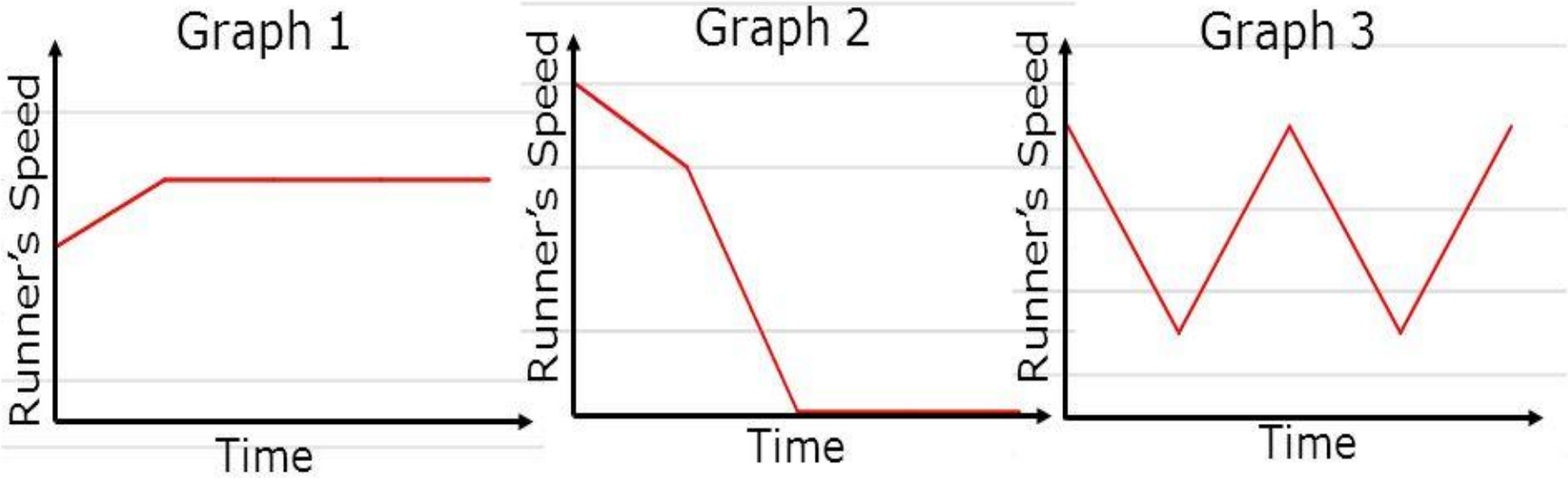
A. The graphs show the speeds of two cars over time. Tell which graph corresponds to each situation.





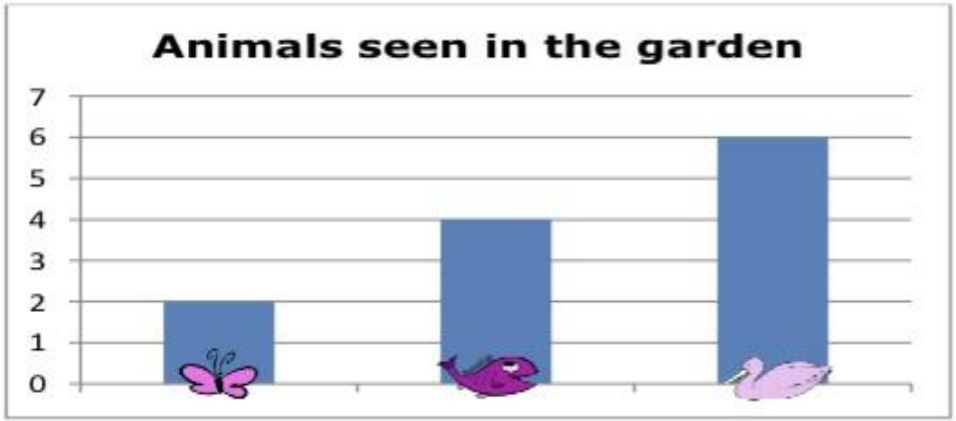
Mr. Lee is traveling on the highway. He pulls over, stops, then accelerates rapidly as he gets back on the highway.

E. Tell which graph corresponds to the situation described below.

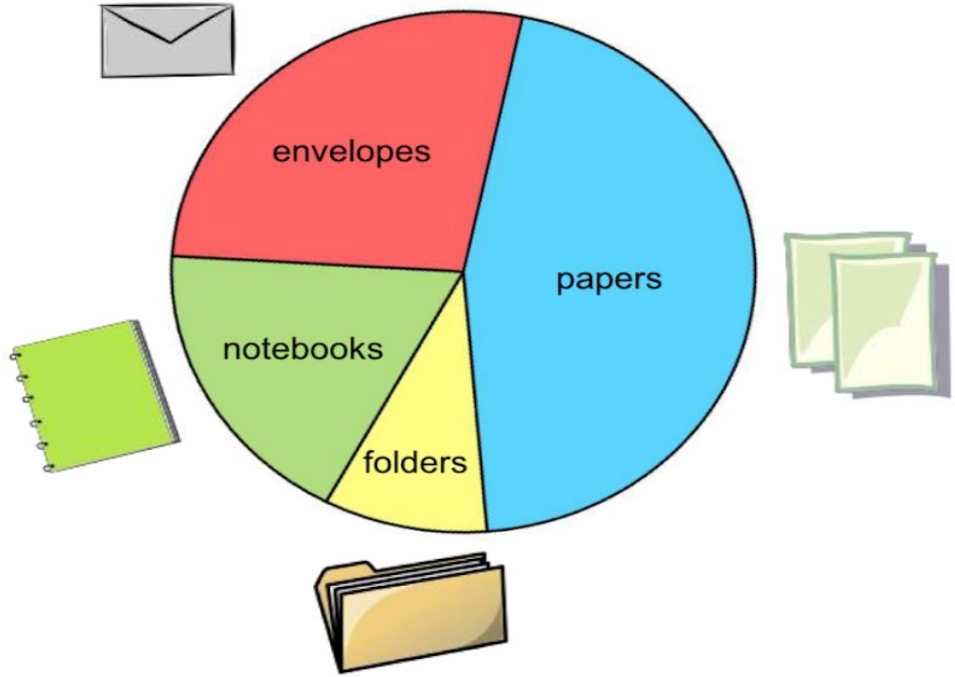


Melissa builds up her speed during the beginning of the race. She maintains her running speed for the remainder of the race.

Katie went to the garden and spotted some fish, ducks, and butterflies. She made a bar graph of the animals at the garden. Look at the bar graph and answer the following question.



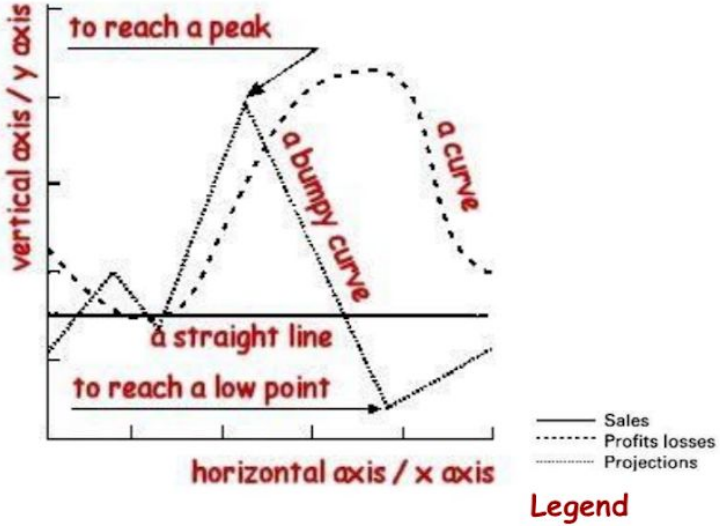
How many ducks did she see?



1. How many types of office items are there? _____
2. What office item do we have the most of? _____
3. What office item do we have the fewest of? _____
4. Which office item do we have more of, notebooks or envelopes? _____
5. Which office item do we have fewer of, papers or notebooks? _____

Introducing a graph

- To introduce the graph, decide which type it is and then explain the topic and the general circumstances.
- Then, you have to describe the elements of the graph, what each axis represents, the colors or types of lines and the legend.
- Then, you have to describe each of the facts that appear.
    - In other words, the trend it is following.



Introduction	Topic	Circumstances
This graph **shows** ...	the results of our products ...	over 10 years.
The diagram **outlines** ...	rates of economic growth ...	between 1990 and 1996.
This table **lists** ...	the top ten agencies ...	in the industrial world.
This pie chart **represents/ accounts for**...	the company's turnover ...	for this year in our sector.
This line chart **depicts** ...	the changes in sales ...	over the past year.
This chart **breaks down** (*ventile*) ...	the sales of each salesman ...	during the past ten weeks.

Introducing a Graph (Activity)

With a partner, take turns discussing the major elements and trends on the graphs. Make sure to include the ***three*** things needed when discussing graphs:

- Introduction
- Topic
- Circumstances

Sample Graphs