

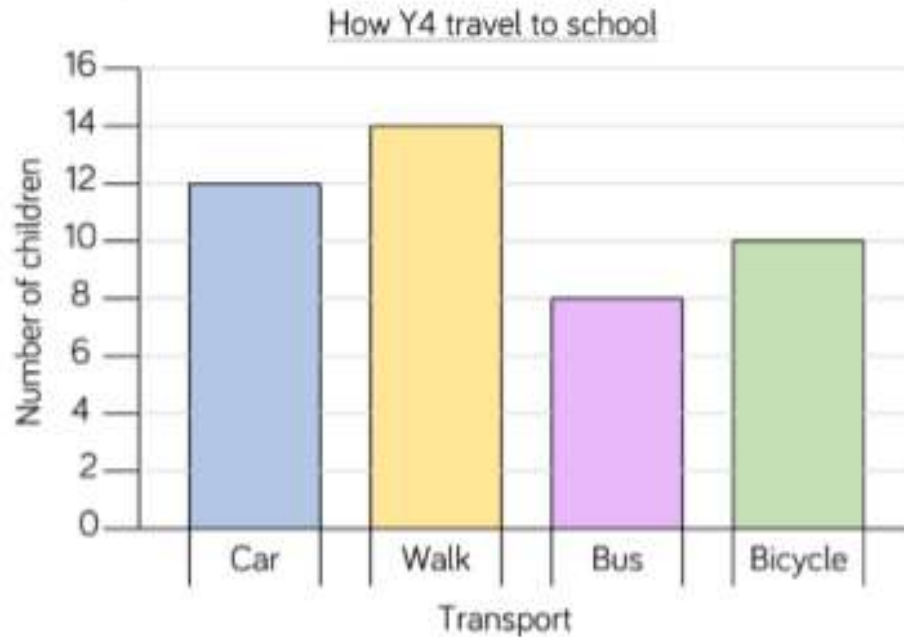
# Monday 6.7.20

One way to represent **discrete** data is to use bar charts.

**Discrete** means separate. The data is organised into separate groups. Eg different types of transport in the bar chart below.



Complete the table using the information in the bar chart.







Transport	Number of children
Car	
Walk	
Bus	
Bicycle	


What is the most/least popular way to get to school?

How many children walk to school?



Represent the data in each table as a bar chart.

Team	Number of house points
Sycamore	
Oak	
Beech	
Ash	

 = 20 points

Day	Number of tickets sold
Monday	55
Tuesday	30
Wednesday	45
Thursday	75
Friday	85

Look carefully at how many, 1 green square represents.

You may like to draw your bar charts using 2Graph in Purple Mash.

## BAR CHARTS 1

**TARGET** To present data in a bar chart.

**Example**

A shop sells the following flavours of ice cream.

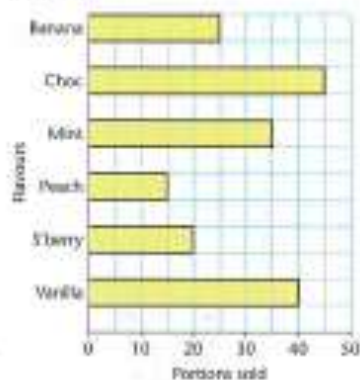
Banana  
Chocolate  
Mint  
Peach  
Strawberry  
Vanilla



This table shows the number of portions of each flavour sold in one day.

Flavour	Portions sold
Banana	25
Chocolate	45
Mint	35
Peach	15
Strawberry	20
Vanilla	40

The data in the table can be presented in a bar chart.



**A**

1 The children in one class voted for their favourite topic from those they had studied in the year. These are the results.

Topic	Number of votes
Space	5
Dinosaurs	9
Romans	7
Jungles	3
Rivers	6

Draw a bar chart to show the results.



2 This table shows the time taken by six children to find their way out of a maze.

Names	Time (minutes)
Kieran	18
Ivan	8
Fionny	24
Delsha	12
Amav	20
Lauren	14

Draw a bar chart to show the results. Label the bar graph in two.



**B**

1 The members of a swimming club were asked to choose one activity each in which they would like individual coaching. These are the results.

Activity	Number of choices
Diving	40
Backstroke	15
Breaststroke	30
Front crawl	35
Life saving	55

Draw an horizontal bar chart labelled in five to show the results.



2 This table shows the flowers used to make a floral display.

Colour	Number of flowers
Blue	70
Mauve	55
Orange	40
Red	30
White	100
Yellow	75

Draw a vertical bar chart labelled in tens to show the information.



**C**

1 This table shows the names used for roads in a town.

Name of road	Frequency
Avonlea	130
Crescent	50
Drive	80
Road	160
Street	190
Terrace	90
Others	70

Draw an horizontal bar chart labelled in 20s to show the information.



2 This table shows the number of bottles of milk sold each day in a supermarket.

Day of week	Number of bottles
Monday	850
Tuesday	700
Wednesday	550
Thursday	450
Friday	900
Saturday	1050
Sunday	400

Draw a vertical bar chart labelled in 100s to show the data.




Halifax City Football Club sold the following number of season tickets:

- Male adults – 6,382
- Female adults – 5,850
- Boys – 3,209
- Girls – 5,057

Would you use a bar chart, table or pictogram to represent this data? Explain why.

Alex wants to use a pictogram to represent the favourite drinks of everyone in her class.



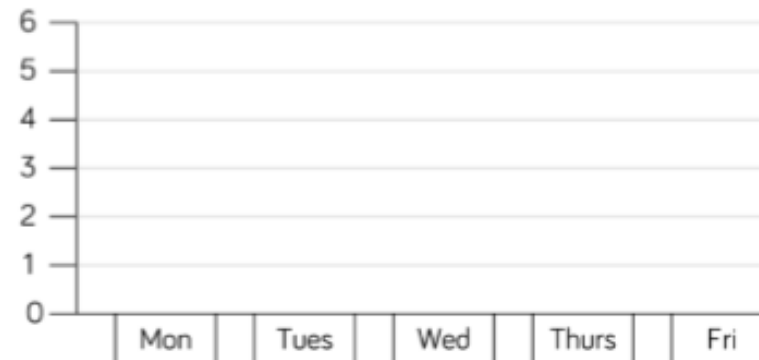
I will use this image  to represent 5 children.

Explain why this is not a good idea.

Here is some information about the number of tickets sold for a concert.

Day	Number of tickets sold
Monday	55
Tuesday	30
Wednesday	45
Thursday	75
Friday	85

Jack starts to create a bar chart to represent the number of concert tickets sold during the week.



What advice would you give Jack about the scale he has chosen?

What would be a better scale to use?

Is there anything else missing from the bar chart?

## Tuesday 7.7.20

Discrete data can also be represented using pictograms.

These have pictures which represent a given amount eg the circle opposite, represents 20 points.

So half a circle will represent 10 points and a quarter of a circle will represent 5 points.



Team	Number of house points
Sycamore	
Oak	
Beech	
Ash	

= 20 points

How many more points does the Sycamore team have than the Ash team?

How many points do Beech and Oak teams have altogether?

How many more points do Ash need to be equal to Oak?



Activity	Number of votes
Bowling	9
Cinema	10
Swimming	7
Ice-skating	14

How many people voted in total?

$\frac{1}{4}$  of the votes were for \_\_\_\_\_.

7 more people voted for \_\_\_\_\_ than \_\_\_\_\_.

**TARGET** To solve problems using information presented in pictograms.

**Example:** This pictogram shows the number of T-shirts of different sizes sold in a large department store in one month.

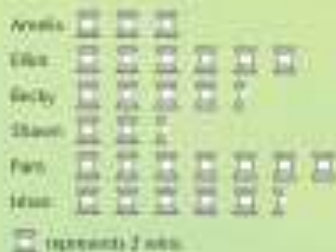


- Which size sold the fewest shirts? XXL
- How many medium size shirts were sold? 400
- How many more large shirts were sold than extra large? 200 (500 - 300)
- How many fewer extra small shirts were sold than small? 150 (400 - 250)
- How many shirts smaller than a medium were sold? 600 (250 + 400)
- How many shirts larger than a medium were sold? 950 (500 + 300 + 150)



**A**

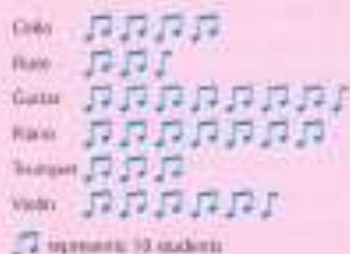
This pictogram shows the number of chess matches won by 6 children from one school taking part in a week-long chess tournament.



- Who won the most games? Fan
- Who won the least games? Shawn
- How many games did Shawn win? 4
- Who won nine games? Fan
- How many more games did Elliot win than Becky? 1
- How many fewer games did Shawn win than Fan? 6
- How many games were won by the three girls altogether? 20
- How many games were won by the three boys altogether? 16

**B**

This pictogram shows the number of students learning to play different instruments at a music college. Each student chose one instrument only.



- Which instrument was being studied by more students than any other? Guitar
- Which instrument was being studied by the fewest students? Trumpet
- How many students were learning: a) the violin b) the cello? a) 30 b) 30
- Which instrument was being studied by a) 75 students b) 30 students? a) Guitar b) Piano
- How many more students were learning the cello than the flute? 10
- How many more students were learning the piano than the violin? 10
- How many students were studying either of the wind instruments? 60
- How many students were studying an instrument played with a bow? 20
- Altogether how many students were studying an instrument? 200
- Which instrument would you learn to play?

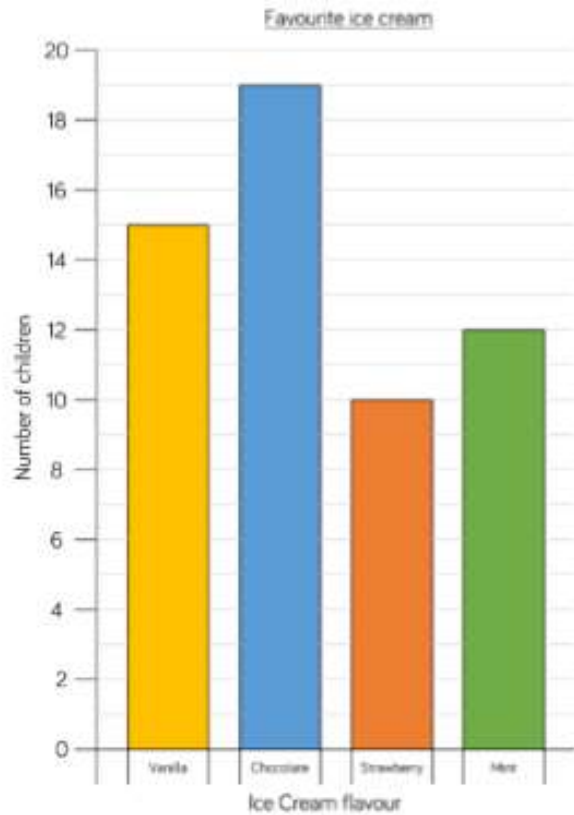
**C**

This pictogram shows the number of crates of apples of different types sold in a supermarket in six weeks.



- Of which type of apple were 200 crates sold? Braeburn
- How many Cox's apples were sold? 150
- Of which type of apple were 325 crates sold? Gala
- How many pink lady apples were sold? 50
- How many more Gala apples were sold than Delicious? 50
- How many fewer Cox's than Braeburn were sold? 50
- How many crates were sold of the two best selling varieties combined? 550
- Jazz and Pink Lady had combined sales which were the same as which other variety? Cox's
- How many crates of apples were sold altogether? 1100





Rosie says,



We asked 54 people altogether.

Can you spot Rosie's mistake?  
How many people were asked altogether?

Attraction	Number of visitors on Saturday	Number of visitors on Sunday
Animal World Zoo	1,282	2,564
Maltings Castle	2,045	1,820
Primrose Park	1,952	1,325
Film Land Cinema	2,054	1,595

## True or false?

- The same number of people visited Maltings Castle as Film Land Cinema on Saturday.
- Double the number of people visited Animal World Zoo on Sunday than Saturday.
- The least popular attraction of the weekend was Primrose Park.

# Wednesday 8.7.20

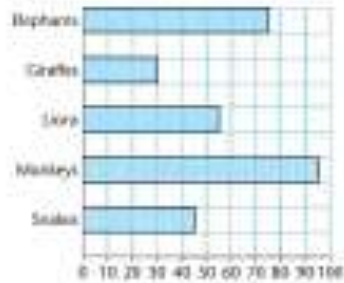
To interpret discrete data represented in a bar chart.

## BAR CHARTS 2

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**TARGET** To interpret data presented in a bar chart.

Visitors to a zoo were asked to choose which of the animals they had found most interesting. These are the results.

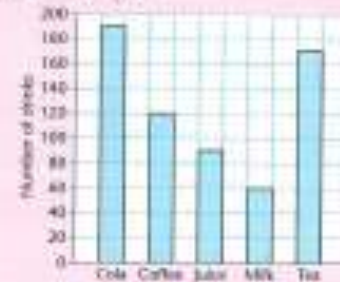


Look at the bar chart.

- What is the value of:
  - one division: 10 visitors
  - half a division? 5 visitors
- How many visitors chose the elephants? 75
- Which animals were chosen by 45 visitors? snakes
- How many more visitors chose the elephants than the giraffes? 45
- How many fewer visitors chose the lions than the monkeys? 40
- How many visitors voted?  $(45 + 95 + 55 + 30 + 75)$  300

**B**

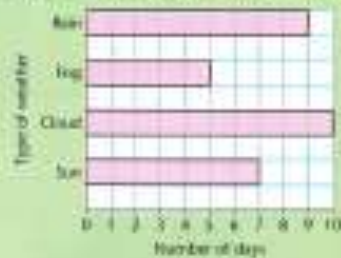
This bar chart shows the number of drinks sold in a cafe in one day.



- Which drink was sold...
  - most often?
  - least often?
- Which drink was bought by 60 people?
- How many fruit juices were sold?
- Which drink was bought by 170 people?
- How many colas were sold?
- How many more teas were bought than coffees?
- How many fewer milks were bought than colas?
- How many hot drinks were sold altogether?
- How many cold drinks were sold altogether?

**A**

This bar chart shows the type of weather recorded for each day of one complete month.



- Which type of weather was recorded least often?
- Which type of weather was recorded most often?
- How many days of the month were sunny?
- Which type of weather was recorded on 9 days?
- How many more days were cloudy than sunny?
- On how many fewer days was there fog than rain?
- How many days were there in the month?
- The name of the month has eight letters. Which month is it?

**C**

This bar chart shows the number of customers using a large shopping mall in one week.



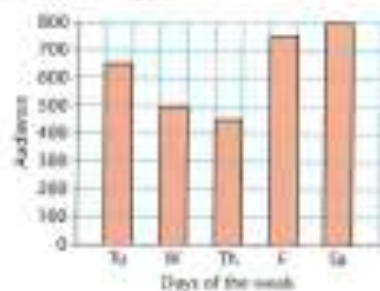
- On which day did 5500 shoppers use the mall?
- Which day had the most shoppers?
- How many people used the mall on Wednesday?
- How many more shoppers were there on Monday than Sunday?
- How many fewer shoppers were there on Friday than Sunday?
- How many more people used the mall on the busiest day of the week than on the least busy?
- How many people used the mall...
  - at the weekend?
  - on the five school days altogether?



**TARGET** To solve problems using information presented in bar charts.

**Example**

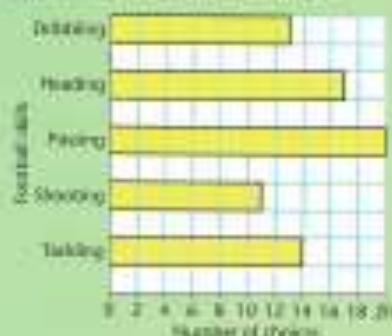
This bar chart shows the size of the audience at each of the five performances of an ice show (Tuesday to Saturday).



- How many people saw the show on Thursday? **450**
- How many more people saw the show on Tuesday than on Wednesday? **150** ( $650 - 500$ )
- How many fewer people saw the show on Friday than Saturday? **50** ( $800 - 750$ )
- What was the total audience:
  - for the last 2 performances? **1550** ( $800 + 750$ )
  - for the first 3 performances? **1600** ( $650 + 500 + 450$ )

**A**

The members of a football club were each asked to choose the skill which they thought was their greatest strength. These are the results.



- Which skill was chosen most often?
- Which skill was chosen least often?
- How many club members chose tackling?
- Which skill was chosen by 11 members?
- How many members chose dribbling?
- Which skill was chosen by 20 members?
- How many fewer members chose dribbling than heading?
- How many more members chose passing than shooting?
- How many of the club's players took part in the survey?
- Which skill would you choose?

**B**

This bar chart shows the length of Class 5's lessons on one Tuesday.



- Which was the shortest lesson?
- Which was the longest lesson?
- How long was the English lesson?
- Which lesson lasted 35 minutes?
- How long was Music?
- Which lesson lasted half an hour?
- How much longer was PE than Music?
- How much shorter was Maths than Science?
- English, French and Maths were taught in the morning, the other three classes in the afternoon. How long were:
  - the morning lessons?
  - the afternoon lessons?
- How much longer altogether were the Maths and Science lessons than the English and French?

**C**

This bar chart shows the number of votes cast for each dance in a televised celebrity dancing competition.



- Which dance received 17,500 votes?
- How many people voted for the waltz?
- How many more people voted for the waltz than the rumba?
- How many fewer people voted for the ballroom than the quickstep?
- What was the difference between the number of votes received by the most popular dance and the least popular?
- How many people altogether voted for one of the three Latin dances: the waltz, the rumba and the samba?
- How many more people voted for one of the three Ballroom dances than for one of the Latin dances?
- How many people voted altogether?

## Thursday 9.7.20

To interpret **continuous** data represented in a bar chart.

**Continuous** data is where data is not in separate groups but each category runs into the next one.

Continuous data often has measurements organised into ranges of values e.g. heights, weights, distances, times

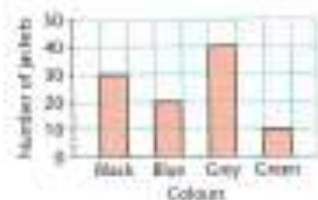
They can be represented in a type of bar graph called a histogram. There are no gaps between the bars as the range is continuous.

### TARGET To interpret and present continuous data.

#### DISCRETE DATA

Discrete means separate. Discrete data is organised in separate categories, e.g. colours, countries, favourite drinks, etc. Discrete data is often presented in a bar chart.

The colours of 100 jackets sold in a menswear shop.

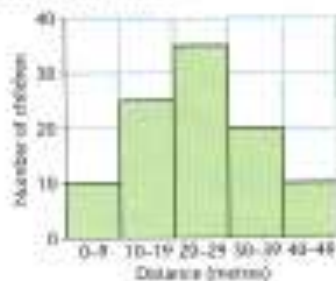


Each colour is a discrete category. This is shown by having gaps between the bars.

#### CONTINUOUS DATA

With continuous data each category is not separate but runs into the next one. Continuous data often consists of measurements organised into ranges of values, e.g. heights, weights, distances, times, etc. It can be presented in a type of bar graph called a histogram.

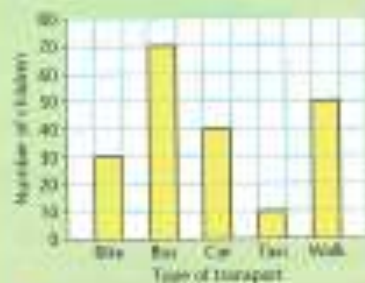
The distances thrown by 100 children in a cricket ball throwing competition.



The ranges are continuous. This is shown by having no gaps between the bars.

#### A

This bar chart shows how the children in a village school travel to school each morning.



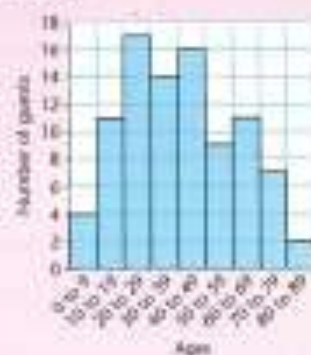
- 1 What is the value of one division?
- 2 How many children come to school by bike?
- 3 How many more children come to school by bus than by car?
- 4 Which form of transport is used by the fewest children?
- 5 How did 50 of the children come to school?
- 6 How many children are there in the school altogether?
- 7 This table shows the number of people using a swimming pool in one day.

Pool users	Number of users
Boys	75
Girls	60
Men	55
Women	100

Draw a bar chart labelled in terms to show the information in the table.

#### B

This bar graph shows the ages of the guests at a wedding.



- 1 How many of the guests were:
  - a) in their twenties?
  - b) under 10?
- 2 How many more of the guests were in their 20s than their 30s?
- 3 How many fewer of the guests were in their 50s than their 60s?
- 4 How many of the guests were:
  - a) 80 or over
  - b) under 20?
- 5 How many guests were at the wedding altogether?
- 6 This table shows the turnover (total sales) of a cafe in its first six months of trading.

Month	Turnover (£)
March	3000
April	2500
May	4000
June	5500
July	7500
August	9000

Draw an histogram labelled in 1000s to present the data in the table.

#### C

This bar graph shows the heights of the children in Year 4.



- 1 How many of the children are:
  - a) less than 130 cm tall?
  - b) more than 139 cm tall?
- 2 How many more children are between 130 and 134 cm tall than are between 135 and 139 cm tall?
- 3 How many more of the children are in the 140-144 cm range than are in the 145-149 cm range?
- 4 How many children are there in Year 4 altogether?
- 5 This table shows the weights of two hundred 18 year old men applying to join the army.

Weight (kg)	Men
50-59	35
60-69	55
70-79	70
80-89	25
90-99	10
100-109	5

Draw an histogram labelled in 10s to show the data in the table.

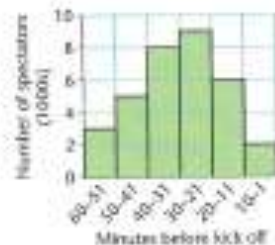
**TARGET** To begin to interpret and present change over time in graphs.

### HISTOGRAMS

Change over time can be shown in an histogram.

#### Example

The number of spectators entering a football ground in the hour before kick off.

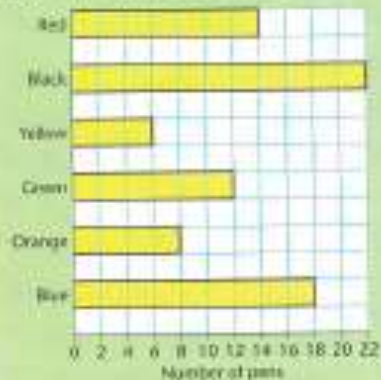


Look at the histograms.

- How many spectators entered the ground in the first 20 minutes of the hour before kick off?  
Answer: 8000 (3000 + 5000)
- How many fewer spectators entered the ground in the final 10 minutes before kick off than in the 10 minute period before it?  
Answer: 4000 (6000 - 2000)
- How many more spectators entered the ground in the last half hour before kick off than in the half hour before it?  
Answer: 1000 (17000 - 16000)

### A

Tamith and Ricky always tried to guess which colour pen their teacher would use for a whiteboard. One half term they recorded the colours used. These are the results.



- Which colour pen was used least often?
- How many times was the orange pen used?
- Which colour pen was used 12 times?
- How many more times was the blue pen used than the orange?
- How many fewer times was the red pen used than the black?
- Tamith said that their teacher used either a blue or a black pen half the time. Was she right? Explain your answer.

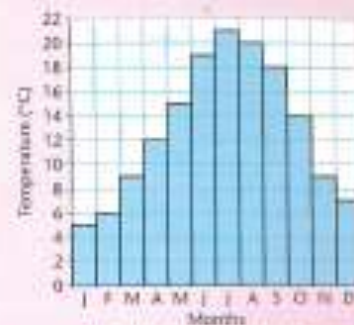
This table shows the number of chickens sold in a butcher's shop in five days.

Days	Tues	Wed	Thur	Fri	Sat
Chickens	3	6	2	9	7

Draw a bar chart labelled in two's to show the information.

### B

This graph shows the average daily maximum temperature recorded in Birmingham for one year.



- What was the temperature in:
  - October
  - March?
- In which two months was the temperature 9°C?
- Between which two months was there:
  - the largest rise in temperature?
  - the largest fall in temperature?
- How much higher was the average temperature:
  - in May than in April?
  - in July than in January?
- This table shows the temperature recorded every two hours for one day in March?

Time	Temp (°C)	Time	Temp (°C)
00:00	4	14:00	15
02:00	1	16:00	14
04:00	-1	18:00	11
06:00	-2	20:00	8
08:00	0	22:00	5
10:00	6	00:00	3
12:00	11		

Draw an histogram labelled in two's to show the information in the table.