

# Data Handling

## Student's worksheets

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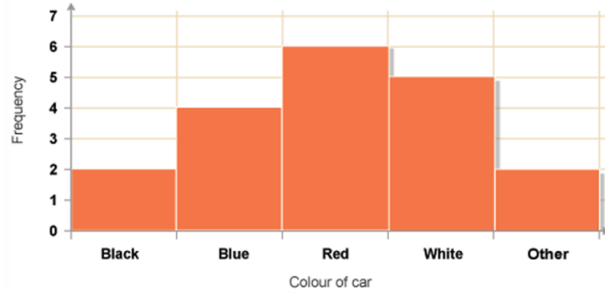
**February – April 2011**

**University of Aberdeen**

Date: \_\_\_\_\_ Class: \_\_\_\_\_ Number: \_\_\_\_\_ Name: \_\_\_\_\_

### Data Handling - Charts

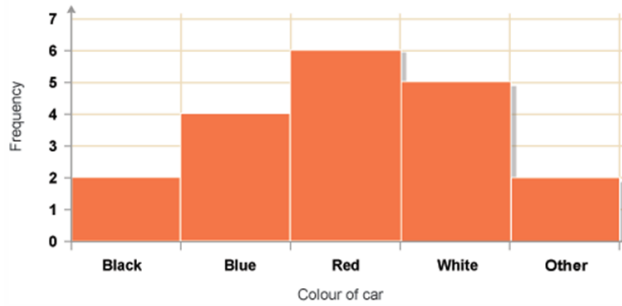
1. Lisa conducted a survey of the cars passing her house. How many cars passed in total?



- 17
- 19
- 23

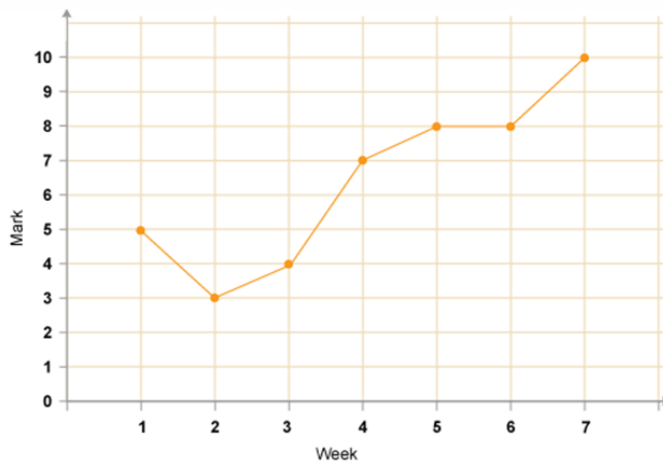


2. How many of the cars were white?



- 4
- 5
- 6

3. The line graph shows Julie's French test results over half a term. Which week was Julie's mark the same as the previous week's?



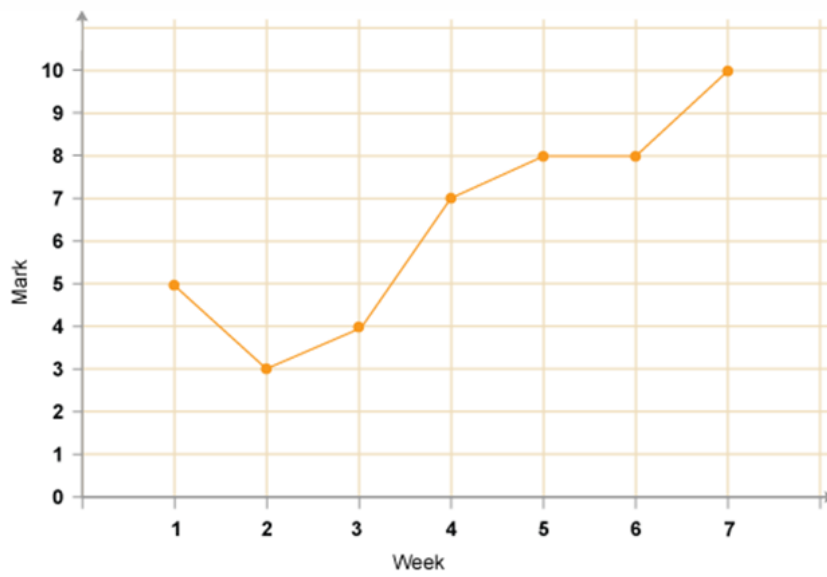
- 2
- 4
- 6



Activities available from

[http://www.bbc.co.uk/apps/iff/schools/ks3bitesize/maths/quizengine?quiz=representing\\_data&templateStyle=maths](http://www.bbc.co.uk/apps/iff/schools/ks3bitesize/maths/quizengine?quiz=representing_data&templateStyle=maths)

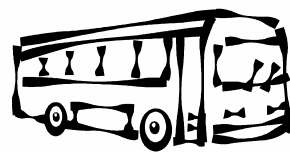
4. In which week was Julie's mark lower than the previous week's mark?



- 2
- 5
- 7

5. 50 people are asked how they travelled to work. From the pictogram, how many people does the figure in the key represent?

Bus	
Car	
Park and ride	
Walk	
Cycle	
Other	



- = 2 people
- = 5 people
- = 10 people

Date: \_\_\_\_\_ Class: \_\_\_\_\_ Number: \_\_\_\_\_ Name: \_\_\_\_\_

**6. What was the most popular method of transport to work?**



- Walk
- Car
- Other

**7. How many people used the Park and Ride service?**



- 5
- 11
- 13

Date: \_\_\_\_\_ Class: \_\_\_\_\_ Number: \_\_\_\_\_ Name: \_\_\_\_\_

## Data Handling – Charts Homework

Handling Data/ Representing Data

### Completing frequency diagrams from displayed data

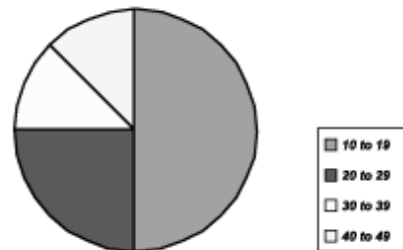
1. Use the bar chart to complete the frequency table.

The shoe sizes of a year 6 class



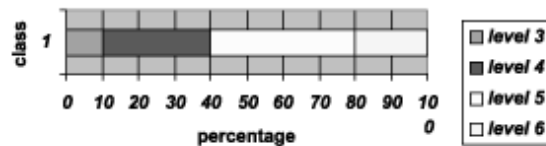
2. If there are forty people on a bus. Use the pie chart to fill in the frequency table.

A pie chart to show the age of people on a bus.



3. If the results from 50 people are recorded in this stacked bar chart complete the frequency table.

A stacked bar chart showing the percentage of people reaching each level.



Handling Data / Collecting recording and displaying data

## Completing Frequency Tables

Tallying is a quick and easy way to collect data.

1. Record the following this data into the frequency table.

5, 4, 4, 1, 5, 4, 6, 3, 7, 4, 2, 2, 5, 3, 4, 5, 3, 6, 2, 4, 1, 7, 5, 2, 3, 4, 2, 5, 3, 4, 4, 2, 5, 1, 1, 3, 4, 3, 5, 6

Shoe size	Tally	Frequency
1		
2		
3		
4		
5		
6		
7		
8		

2. Record this data in the following frequency table

1, 6, 7, 18, 19, 7, 8, 9, 10, 10, 9, 2, 3, 10, 10, 11, 12, 16, 17, 13, 14, 15, 14, 12, 13, 3, 5, 20, 21, 11, 12

Age	Tally	Frequency
0*age<5		
5*age<10		
10*age<15		
15*age<20		
20*age<25		

### EXTENSION

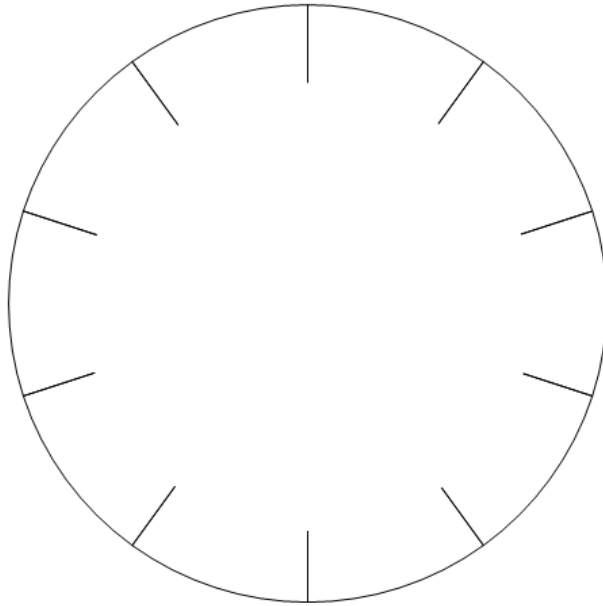
Now draw a frequency diagram for each of the tables.

Date: \_\_\_\_\_ Class: \_\_\_\_\_ Number: \_\_\_\_\_ Name: \_\_\_\_\_

### Data Handling – Charts

#### **My snacks pie chart**

**1. Look at the 2-week snack chart and design a pie chart for the snacks you had. Create the key.**



Date: \_\_\_\_\_ Class: \_\_\_\_\_ Number: \_\_\_\_\_ Name: \_\_\_\_\_

### Data Handling - Frequency

#### FREQUENCY

Let's calculate the relative frequency!

1. Look at the PowerPoint presentation slides and follow the steps to calculate the relative frequency.

Favourite food	Tally marks	Absolute Frequency	Relative Frequency	
Pizza				
Vegetables				
Fruit				
Meat				
Pasta				
<b>Total number of events</b>				

2. What happens if you add up all the relative frequencies?

**Why is it 1?**

Because the \_\_\_\_\_ of all the \_\_\_\_\_ is the unit.





**3. Order these steps. Write a number from 1 - 9.**

- The fraction is the relative frequency.
- Write the absolute frequency as the numerator and the total number of events as the denominator.
- Round the result up or down to the nearest hundredth.
- Next, count the total number of events.
- This is the absolute frequency.
- The result of the fraction is also the relative frequency.
- Now, write a fraction for each piece of data.
- First of all, count the number of times that each piece of data is repeated.
- Then, divide the numerator by the denominator. Use a calculator.

Date: \_\_\_\_\_ Class: \_\_\_\_\_ Number: \_\_\_\_\_ Name: \_\_\_\_\_

**Chart to record frequency and average**

Questions	Absolute Frequency	Relative Frequency	Range	Median	Mode	Mean
Question 1						
Question 2						
Question 3						
Question 4						
Question 5						

Date: \_\_\_\_\_ Class: \_\_\_\_\_ Number: \_\_\_\_\_ Name: \_\_\_\_\_

**Data Handling – Frequency Homework**

**Maths File**



**Words, Words, Words**

level **1**



Look at the following piece of writing and fill in the table below with the tally and frequency for each letter of the alphabet.

"The cat was lying in the sun enjoying the warmth on his sleek fur. In the garden the birds happily flew from plant to plant catching small creatures to take back to their nests. The old grandfather clock struck one o'clock. I turned the television off and went back to school."

	Tally	Frequency		Tally	Frequency
A			N		
B			O		
C			P		
D			Q		
E			R		
F			S		
G			T		
H			U		
I			V		
J			W		
K			X		
L			Y		
M			Z		

Draw a bar chart of your results and complete the sentence below.

"The five most used letters in the piece of writing were -----,-----,-----,----- and ----- . The least used letters are -----,-----,-----,----- and -----."

You may want to continue your investigation by working out the most used vowel in this piece of writing.

Date: \_\_\_\_\_ Class: \_\_\_\_\_ Number: \_\_\_\_\_ Name: \_\_\_\_\_

### Data Handling – Average

#### **RANGE**

##### **1. Look at this information.**

Number of hours watching TV per week								
Mary	Peter	David	John	Susan	Mark	Claire	Jane	Paul
21	15	9	15	14	11	22	12	18

##### **2. In pairs, answer these questions:**

1. What is the lowest number of hours? \_\_\_\_\_
2. What is the highest number of hours? \_\_\_\_\_
3. What is the difference between the highest and the lowest number of hours? \_\_\_\_\_



That is the RANGE.

##### **3. Complete this definition. Use some of the words below.**

highest    number  
lowest     range  
piece of data  
difference    hours

The RANGE is the \_\_\_\_\_ between the \_\_\_\_\_ and the \_\_\_\_\_ number or piece of data.

**4. Look at this data and calculate the range.**

Eating pizza last month	
Times eaten	Frequency
0	8
1	7
2	14
3	19
4	5
5	2



The range is \_\_\_\_\_.

**MEDIAN**

**1. Look at this information again.**

Number of hours watching TV per week								
Mary	Peter	David	John	Susan	Mark	Claire	Jane	Paul
21	15	9	15	14	11	22	12	18

**2. In pairs, order the data from the lowest to the highest number.**

**3. Copy the data in order in this table.**

Number of hours watching TV per week								

Which piece of data is in the middle? \_\_\_\_\_

That is the MEDIAN.

Date: \_\_\_\_\_ Class: \_\_\_\_\_ Number: \_\_\_\_\_ Name: \_\_\_\_\_

In order to calculate the piece of data that is in the middle...

1. Count the pieces of data.
2. Add on 1 and divide by 2.

$$(n+1):2=$$

$$(9+1):2=10:2=5$$

So, in this case, the median is the 5<sup>th</sup> number.

#### 4. Complete. Use some of the words below.

number      lowest      range      middle  
piece of data      order      highest      median

The MEDIAN is the \_\_\_\_\_ that is in the \_\_\_\_\_ when the pieces of data are in \_\_\_\_\_ from the \_\_\_\_\_ to the \_\_\_\_\_.

So, in this table...

Number of hours watching TV per week								
Mary	Peter	David	John	Susan	Mark	Claire	Jane	Paul
21	15	9	15	14	11	22	12	18

The range is \_\_\_\_\_ and the median is \_\_\_\_\_.

**5. What is the median of these data? Calculate in pairs.**

Eating pizza last month	
Times eaten	Frequency
0	8
1	7
2	14
3	19
4	5
5	2

Order the pieces of data.

---

Is there a problem?

There is no middle number, so...

Add up the two middle numbers and divide the result by 2.

$$(n+n):2=$$

When there is an even number of pieces of data, this is the way to calculate the median.

Date: \_\_\_\_\_ Class: \_\_\_\_\_ Number: \_\_\_\_\_ Name: \_\_\_\_\_

## MODE

### 1. Look at these frequency charts.

Eating cookies last week	
Cookies eaten	Frequency
0	16
1	0
2	11
3	15

The mode is 0.

Writing letters	
Letters written	Frequency
0	1
1	8
2	18
3	16

The mode is 2.

Scores on the math quiz	
Score	Frequency
5	4
6	3
7	8
8	14
9	18
10	1

The mode is 9.

Eating pizza last month	
Times eaten	Frequency
0	8
1	7
2	14
3	19
4	5
5	2

The mode is 3.

Picking flowers	
Flowers picked	Frequency
0	8
1	17
2	0
3	1
4	5

The mode is 1.

In pairs, think what mode is.

### 2. Let's work it out! Do you know what the mode is? Circle the correct answer.

The mode is the **most** / **least** repeated piece of data.

### 3. Check it!



### 4. You can identify the mode from...

You can identify the mode from...

Eating pizza last month	
Times eaten	Frequency
0	8
1	7
2	14
3	19
4	5
5	2

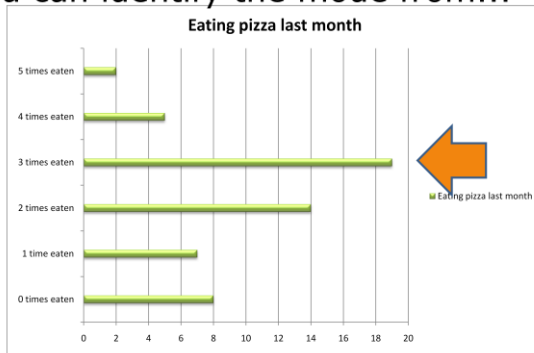
a frequency chart.

You can identify the mode from...



a bar chart.

You can identify the mode from...



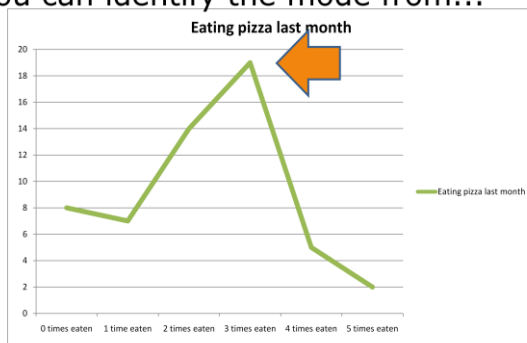
a bar line chart.

You can identify the mode from...



a pie chart.

You can identify the mode from...



a line graph.

You can identify the mode from...

0, 0, 0, 0, 0, 0, 0, 0  
 1, 1, 1, 1, 1, 1, 1  
 2, 2, 2, 2, 2, 2, 2, 2, 2, 2, 2, 2, 2  
 3, 3, 3, 3, 3, 3, 3, 3, 3, 3, 3, 3, 3, 3, 3, 3, 3, 3, 3, 3  
 4, 4, 4, 4, 4  
 5, 5

the data.

Date: \_\_\_\_\_ Class: \_\_\_\_\_ Number: \_\_\_\_\_ Name: \_\_\_\_\_

**5. Look at this frequency chart.**

Portions of fruit and vegetables eaten per day.

Portions eaten	Frequency
0	0
1	3
2	2
3	9
4	7
5	4
6	0
+6	0



Now, answer these questions.

1. How many pupils eat 3 portions per day? \_\_\_\_\_
2. How many portions do 4 pupils eat? \_\_\_\_\_
3. How many pupils answered the question? \_\_\_\_\_
4. How many pupils eat less than 3 portions per day? \_\_\_\_\_
5. What is the mode? \_\_\_\_\_

**6. Look at this information again.**

Number of hours watching TV per week								
Mary	Peter	David	John	Susan	Mark	Claire	Jane	Paul
21	15	9	15	14	11	22	12	18

Work in pairs. What is the mode?

The most repeated piece of data is \_\_\_\_\_. The mode is \_\_\_\_\_.

So, in this table...

The range is \_\_\_\_\_, the median is \_\_\_\_\_ and the mode is \_\_\_\_\_.

**7. Discuss in groups. What is the mode now?**

Number of hours watching TV per week							
Mary	Peter	David	Susan	Mark	Claire	Jane	Paul
21	15	9	14	11	22	12	18

There are no repeated numbers, so there is no \_\_\_\_\_.

**8. Discuss in groups. What is the mode now?**

Number of hours watching TV per week							
Mary	Peter	David	Susan	Mark	Claire	Jane	Paul
11	14	9	14	11	14	12	11

There are two numbers repeated three times, so...

- A. there is no mode or
- B. the modes are 11 and 14.

Date: \_\_\_\_\_ Class: \_\_\_\_\_ Number: \_\_\_\_\_ Name: \_\_\_\_\_

## MEAN

### 1. Look at this information again.

Number of hours watching TV per week								
Mary	Peter	David	John	Susan	Mark	Claire	Jane	Paul
21	15	9	15	14	11	22	12	18

Work in pairs.

1. Count the number of pieces of data.
2. Add up all the data.
3. Divide the result by the number of pieces of data.

That is the MEAN. The mean can be different from the numbers of the data.

### 2. So, in this table...

The range is \_\_\_\_\_,

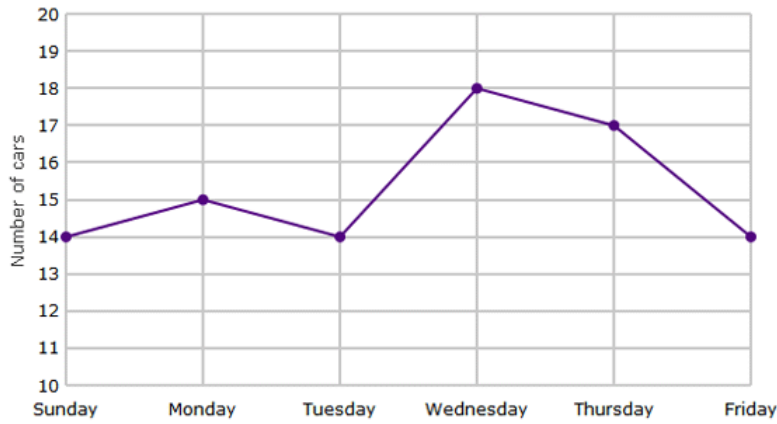
the median is \_\_\_\_\_,

the mode is \_\_\_\_\_ and

the mean is \_\_\_\_\_.

### 3. What is the mean of these data? Calculate in pairs.

Ariel's family went on a road trip and counted the number of cars they saw each day.



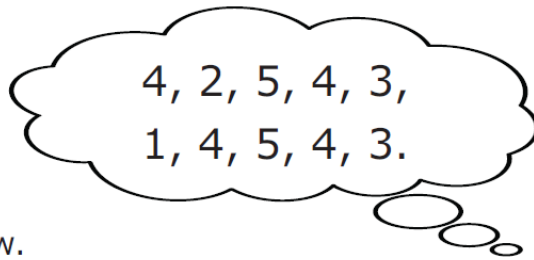
1. Count the number of pieces of data.
2. Add up all the data.
3. Divide the result by the number of pieces of data.
4. The MEAN is \_\_\_\_\_

Frequency charts available from <http://uk.ixl.com/math/>

Date: \_\_\_\_\_ Class: \_\_\_\_\_ Number: \_\_\_\_\_ Name: \_\_\_\_\_

**Data Handling – Average Homework**

10 children took a maths test that was marked out of 5. Here are their scores.



a. Fill in the tally chart below.

Score	Tally	Frequency
1		
2		
3		
4		
5		

b. Write all the scores in order, from lowest to highest.

c. What is the mode of the scores?

d. What is the range of the scores?

e. What is the median of the scores?

f. What is the mean of the scores?

g. The next week, the same children took another maths test that was marked out of 5. The mean score that time was 2. What might this tell you about the second test?

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