Introduction to statistics

median

mean

mode

range

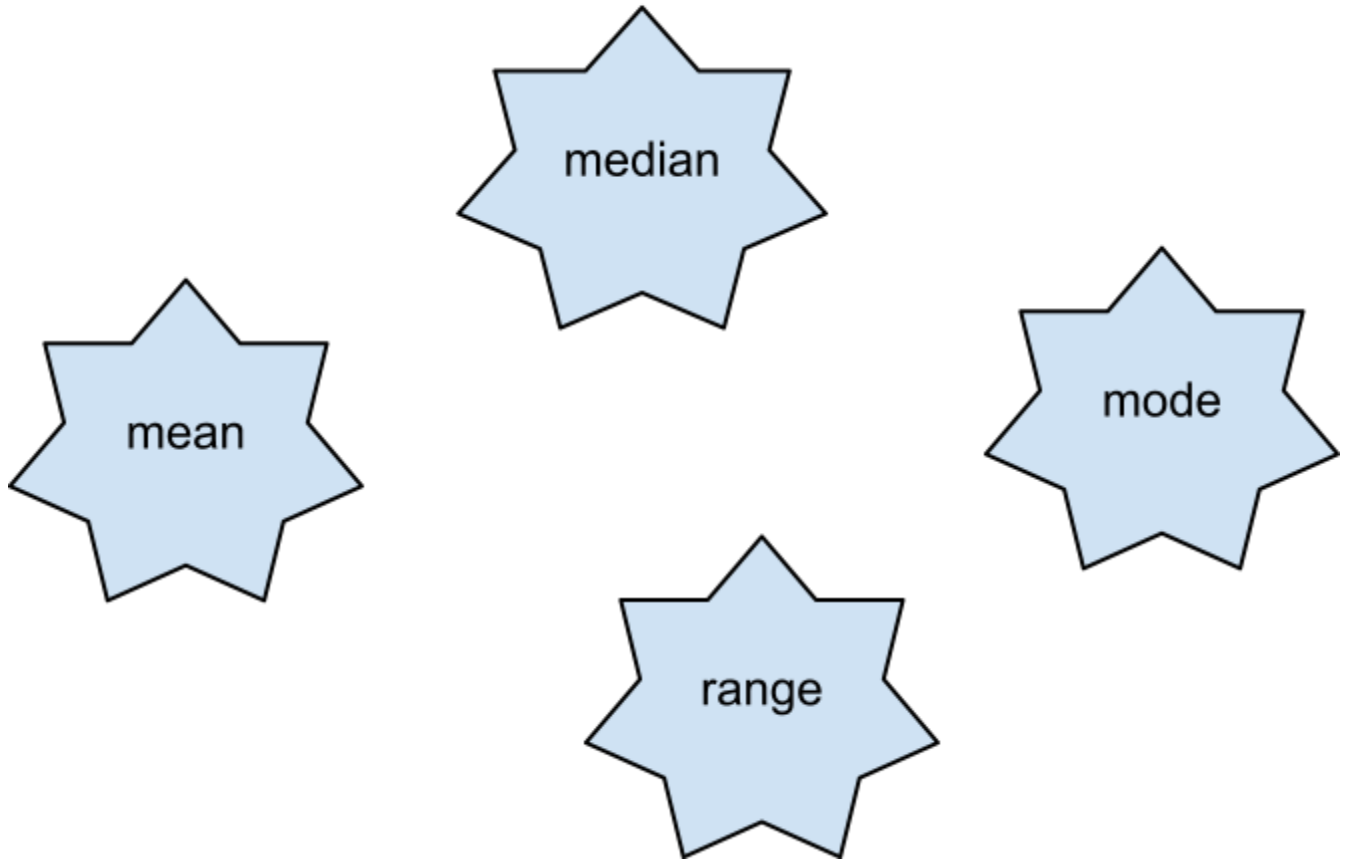# Introduction to statistics

The topic

Statistics is a subject that is studied the world over and is very important in various areas of life. Every country, company schools and different organization needs to collect different information and store appropriate and relevant data as per their undertakings. As such statics needs to be taught in schools to enable them not only get the right jobs but also be able to keep organized personal data. Statistics also inculcates in the students the ability to be organized always; for what employer would want to have disorganized employees or what type of an individual would want to hold the record of being disorganized??

Lesson plan

Teaching should be more learner centered and less teacher centered as this gives the learner an opportunity to participate fully and express himself or her throughout the lesson. This introductory part of the topic should go for five lessons (either 1 hour or 40minutes each)

Time	Activity
	A • Introducing statistics: what the is topic all about: learn about data collection, calculating mode, median, range and mean • Students define data, mode mean, median and range • The teacher give a more correct and conclusive definition
	B • Teachers give examples with questions on how to calculate mode, median, range and mean • Another example is given for the student to attempt on the board • Students are given time to ask questions and clarifications where necessary
	C • Students are given question to work out before the lesson come to an end. • Teacher may give more work for practice to help the students

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	understand • the activities of the day • it's important to repeat part B and C for the subsequent lessons • *NB*: the teacher can decide to first teach mode, median and range then teach mean later depending on the level of understanding of the students
	• On the last day the student can be asked to sit in groups of 3 or 5 carry out a survey on a particular topic, for example ask each person the number of shoes they own or better still set their own questions, come up with their own data and use it to calculate mean, mode, median and range. • For the week end activity the student can still be asked to do a research on a given topic for example visit a zoo and find out the different types of animals that are found it the zoo. They should record the information and calculate mode, mean, median and range and submit the work for correction/ marking on a given day by the teacher

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Introduction to statistics: Mean mode, median and range.

By the end of this lesson the student should be able to:

a. *Define what data is*
b. *understand how to calculate mean mode median and range from any given data with ease*

- Data is any information collected about a given topic. For example students can collect information about their favorite subjects, colors, types of candies, the number of shoes owned by each students in a class or the favorite sports of different students among others things
- mode – the number or the value that is most repeated in the data
- median – the number in the middle of the data after arranging the data in ascending or descending order
- range – is the difference between the biggest and the smallest number in the data.

    Therefore Range = biggest number – smallest number

- mean – add all the numbers in the data and divide by how many the numbers are

For example

- The data below shows the grades attained by 9 students during their end of semester math test. Use it to calculate the mode, median, range and mean of the data: 80, 65, 75, 80, 65, 45, 65, 50, 65

    <u>**Solution**</u>

Mode = 65

Median = 45, 50, 65, 65, <u>65</u>, 65, 75, 80, 80. After arranging the numbers from the smallest to the biggest, 65 is the number in the middle, therefore 65 is the median.

Range = 80 – 45 = 35

Mean = (45+50+65+65+65+65+75+80+80) ÷ 9 = 400 ÷9 = 44.44

Name _____ Grade _____Date_____

Section A

Calculate the mode, median, range and mean of each data given below

   a. 2, 1, 4, 9, 6, 4, 4, 2,

   b. 4, 3, 5, 9, 6, 11, 4

   c. 12, 10, 12, 9, 12, 8, 7

   d. 7, 10, 12, 7, 11, 9,7

   e. 8, 6, 8, 4, 8, 10,5

   f. 18, 11, 18, 9, 4

   g. 6, 5, 6, 4, 6, 3, 5

   h. 15, 4, 10, 4, 8, 4, 11

   i. 17, 18, 16, 17, 6

   j. 18, 11, 15, 3, 11, 8, 11

Section B: word problems

1. This data shows the number of birds brought into a museum for a period of 9 days. Use it to calculate the mode, median range and mean of the data: 8, 9, 7, 5, 8, 4, 8, 6, 7

2. The *Museum de Louvre* decided to record the number of visitors who arrived at the museum between the hours of 8am and 9 am for seven day and recorded the data was 11, 5, 4, 5, 6, 5, 6. From this data calculate the mode, range, mean and median.

3. These are the class points for grade 7 students in one week 10, 13, 9, 10, 8. From this data, work out the mean. Range, median and mode

4. Use this data to calculate the range, mean, median and mode. 2, 4, 7, 11, 9, 11, 10

5. 10, 13, 9, 8, 11, 9, 10, 9, 2 are the temperatures recorded at a weather station for 9 days. Use this data to calculate mean, mode, median and range.

6. Lucia like to horse ridding every Saturday, whenever she is there she likes writing down the number of white horses that are in the stables. Her data for one week was 10, 11, 12, 10, 13, 7, and 3. From her data calculate the range, mode, mean and median.

7. During a math class, grade 9 students were told to go home and collect data of their likings. Christine decided to collect the number of books read by children in her neighborhood; she interviewed 9 children and came up with this data: 9, 4, 8, 12, 15, 8, 10, 8, 7, from her data work out the mean, mode, median and range.

8. Eleven grade 8 students took part in an IQ test survey and obtained the scores were 11, 15, 10, 14, 15, 12, 15, 12, 14. Use this data to work out the median, range, mean and mode.

9. In an art competition, students decided to use letter to represent colors; R – red, P – purple, Y – yellow and G – green, they then came up with a list of all the colors that were there. Use this list to work out the mode, mean, median and range

   Y G R G Y R P Y P R P Y P

   Y P P P YP G Y G P R P G

10. Two students were playing dice with a normal six sided dice one student rolled the dice seven times while the other rolled the dice eight times and recorded their findings. Use this data to calculate their mode, mean median and range: 6 4 5 4 4 6 4 5 6 2 6 1 4 3 4