

Welcome MYP 9 Mathematics!

	Assignment Effort Grade (Circle One)	Comments (What was interesting or challenging?)
Monday Date: <u>4/09</u> Topic: <u>10A: Types of data</u>	0 1 2	
Tuesday Date: _____ Topic: _____	0 1 2	
Wednesday Date: _____ Topic: _____	0 1 2	
Thursday Date: _____ Topic: _____	0 1 2	
Friday Date: _____ Topic: _____	0 1 2	

Think:

What is important to you when you are working on a group assignment?



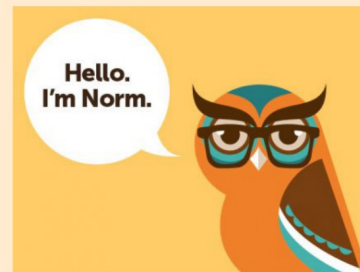
Group Pre-Assessment = 8 points, 25% weight.

Each member of a team will be asked to:

- 1) Read questions
- 2) Record responses
- 3) Follow group and class norms.



Determine two norms for your team.



Group Assessment Norms

During the participation pre-assessment, I will be looking for....

- Working together to answer questions
- Equal air time (all voices heard)
- Encouraging each other
- Listening to each other
- Asking each other questions
- Using your team as a resource and respect norms

Remember: No one is good at all of these things, but everyone is good at something. You will need all of your group members to be successful at today's tasks.

Group Assessment Rubric

7	<p>The student is able to:</p> <ul style="list-style-type: none"> • Consistently use appropriate mathematical language • Use appropriate forms of mathematical representation to consistently present information correctly. • Move effectively between different forms of mathematical representation. 		<ul style="list-style-type: none"> • Each team member facilitates their assigned question. • Each team member records, <i>in detail</i>, the responses of their team members on their portion of the team packet. • Students are actively engaged, on-task, and communicating their mathematical thinking. • Students remain focused on communicating within their team.
8	<ul style="list-style-type: none"> • Communicate through lines of reasoning that are complete, coherent, and concise. • Present work that is consistently organized using a logical structure. 		

Group Justification:

Done: Group assess, justify score, turn in team packet

Unit 7: Statistics

Purpose of Group Pre-Assessment

- *Recall knowledge of statistics
- ***Communicate** mathematics
(Criterion C)
- ***Work together**
- ***Note: Give your best effort**
(It's okay if you don't know a topic!)

Done? Pick up 10B handout

Exercises:

1) Finish survey if you haven't already.

<https://goo.gl/PHS9KE>

B

DISCRETE NUMERICAL DATA

2) 10B Discrete Data Displays
(Stem-and-Leaf Plot)

B**DISCRETE NUMERICAL DATA**

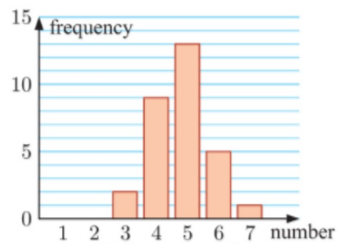
Discrete numerical data with not many different data values can be arranged in a **tally and frequency table**, and displayed in a **column graph** or **dot plot**.

For example, consider the data set:

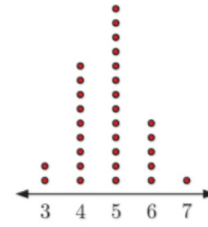
5 4 5 7 4 5 3 6 5 4
4 5 6 4 6 5 5 6 4 5
5 4 5 5 3 4 6 5 5 4

<i>Number</i>	<i>Tally</i>	<i>Frequency</i>
3		2
4		9
5		13
6		5
7		1

Tally and frequency table



Column graph



Dot plot

B**DISCRETE NUMERICAL DATA**

If the data has many different data values, we can display the data in groups using a **stem-and-leaf plot** or **stem plot**. The stem plot displays the frequency of data in each group, but retains the actual data values.

28 47 39 23 17 33
 35 26 49 35 9 36
 43 44 38 27 32 51
 31 11 26 42 24 30

For the data shown, we can construct an unordered or an ordered stem plot.

Unordered stem plot

<i>Stem</i>	<i>Leaf</i>
0	9
1	7 1
2	8 3 6 7 6 4
3	9 3 5 5 6 8 2 1 0
4	7 9 3 4 2
5	1

Scale: 5 | 1 = 51

Ordered stem plot

<i>Stem</i>	<i>Leaf</i>
0	9
1	1 7
2	3 4 6 6 7 8
3	0 1 2 3 5 5 6 8 9
4	2 3 4 7 9
5	1

Scale: 5 | 1 = 51

In the ordered stem plot, the data are given in ascending order.



Example 1**Self Tutor**

The scores for a test out of 50 were recorded for 36 students.

25, 36, 38, 49, 23, 46, 47, 15, 28, 38, 34, 9, 30,
24, 27, 27, 42, 16, 28, 31, 24, 46, 25, 31, 37, 35,
32, 39, 43, 40, 50, 47, 29, 36, 35, 33

- a Display the data using a stem-and-leaf plot.
- b What percentage of students scored 40 or more marks?

Sorted: ~~9~~, ~~15~~, ~~16~~, 23, 24, 24, 25, 25, 27, 27, 28, 28, 29, 30, 31, 31, 32, 33, 34, 35, 35, 36, 36, 37, 38, 38, 39, 40, 42, 43, 46, 46, 47, 47, 49, 50

Ordered stem plot

<i>Stem</i>	<i>Leaf</i>
0	9
1	5 6
2	3 4 4 5 5 7 7 8 8 9
3	0 1 1 2 3 4 5 5 6 6 7 8 8 9
4	0 2 3 6 6 7 7 9
5	0

key:

4 | 3 means
score of 43

Example 1

The scores for a test out of 50 were recorded for 36 students.

25, 36, 38, 49, 23, 46, 47, 15, 28, 38, 34, 9, 30,
24, 27, 27, 42, 16, 28, 31, 24, 46, 25, 31, 37, 35,
32, 39, 43, 40, 50, 47, 29, 36, 35, 33

- a Display the data using a stem-and-leaf plot.
- b What percentage of students scored 40 or more marks?

- a The stems will be 0, 1, 2, 3, 4, 5 to account for numbers from 0 to 50.

Unordered stem plot

<i>Stem</i>	<i>Leaf</i>
0	9
1	5 6
2	5 3 8 4 7 7 8 4 5 9
3	6 8 8 4 0 1 1 7 5 2 9 6 5 3
4	9 6 7 2 6 3 0 7
5	0

Scale: 2 | 4 = 24 marks

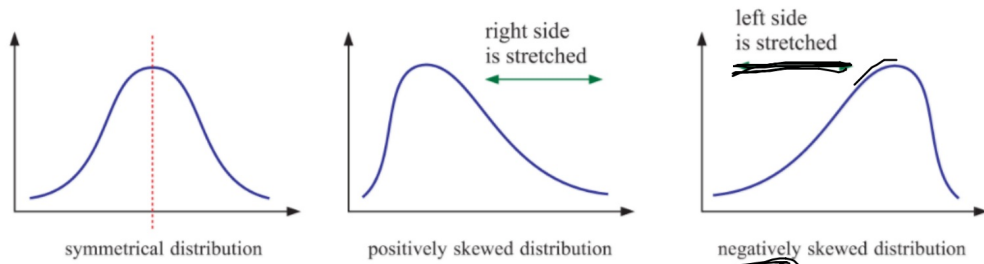
Ordered stem plot

<i>Stem</i>	<i>Leaf</i>
0	9
1	5 6
2	3 4 4 5 5 7 7 8 8 9
3	0 1 1 2 3 4 5 5 6 6 7 8 8 9
4	0 2 3 6 6 7 7 9
5	0

- b 9 students scored 40 or more marks.
 \therefore the percentage of students scoring 40 or more marks = $\frac{9}{36} \times 100\% = 25\%$.

How is the data distributed?

So we have:



Negative (Left)

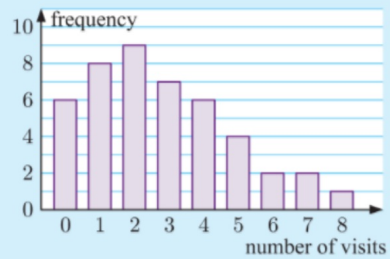
Stem	Leaf
0	9
1	5 6
2	3 4 5 5 7 7 8 9
3	0 1 1 2 3 4 5 5 6 6 7 8 9
4	0 2 3 6 6 7 7 9
5	0

Example 2**Self Tutor**

45 people were asked how many times they had visited the doctor this year. The results are given in the frequency table alongside.

- a Display this information on a column graph.
- b Describe the distribution of the data.

<i>Number of visits</i>	<i>Frequency</i>
0	6
1	8
2	9
3	7
4	6
5	4
6	2
7	2
8	1

a Visits to the doctor

- b The right side of the graph is stretched out, so the data is positively skewed.

Exercises:

EXERCISE 10B

- 2** The stem-and-leaf plot alongside shows the ten pin bowling scores Ron has obtained this year.
- a** How many games has Ron played?
 - b** Find Ron's:
 - i** lowest score
 - ii** highest score.
 - c** Describe the distribution of the data.
 - d** How many times has Ron scored less than 100?
 - e** What percentage of Ron's scores have been 130 or higher?

<i>Stem</i>	<i>Leaf</i>	
7	6 8	
8	2 5 8	
9	1 1 2 5 9	
10	1 2 4	
11	0	
12	6	
13	2 7	<i>Scale:</i> 8 2 = 82

Exercises:

6 For the following stem plots:

- i state the minimum and maximum data values
- ii describe the distribution of the data.

a

Stem	Leaf
2	7 8
3	0 1 3
4	2 3 5 5 7
5	1 1 3 7 9 9
6	4 3 6 7
7	0 2 8
8	1

Scale: 3 | 0 = 30

b

Stem	Leaf
6	3 6 7 8
7	2 2 6 8 9
8	0 5 7 7 8 9 9
9	1 3 4 6 7
10	2 4 5 8
11	0 0 3
12	1 4 7
13	4 4
14	1 3
15	2

Scale: 7 | 2 = 72

c

Stem	Leaf
1	4
2	
3	2 5
4	0 1 4
5	1 6 7 9
6	0 2 2 3 5 8
7	1 1 3 4 8 8 9
8	0 2 5 7

Scale: 3 | 2 = 3.2



Exercises:

- 8 The number of peanuts in a jar varies slightly from jar to jar. A manufacturer took a sample of sixty jars of peanuts and recorded the number of peanuts in each. The results were:

201 204 213 224 221 193 194 195 178 185 196 210
201 203 207 207 204 192 188 205 207 201 215 201
209 217 189 191 194 194 198 195 204 208 213 224
227 185 198 203 203 213 216 231 182 193 194 203
200 206 210 228 201 196 186 197 199 208 204 189

- a Construct a stem plot for the data. The 'stems' are to be split to give a better display of the distribution of numbers. Use the stem 17 for numbers from 170 to 174, 17* for numbers from 175 to 179, and so on.
- b What percentage of the jars had 200 peanuts or more?
- c What percentage of the jars had less than 190 peanuts?
- d Describe the distribution of the data.
- e The manufacturer would like at least 95% of his jars to have within 20 peanuts of the stated number which is 200. Is this the case for this sample?



Exercise Solutions:

2 **a** 17 games **b** **i** 76 points **ii** 137 points
 c positively skewed **d** 10 times **e** $\approx 11.8\%$

6 **a** **i** minimum: 27, maximum: 81
 ii approximately symmetric
b **i** minimum: 63, maximum: 152
 ii positively skewed
c **i** minimum: 1.4, maximum: 8.7
 ii negatively skewed

Exercise Solutions:

8 a Number of peanuts in a jar

<i>Stem</i>	<i>Leaf</i>
17*	8
18	2
18*	5 5 6 8 9 9
19	1 2 3 3 4 4 4 4
19*	5 5 6 6 7 8 8 9
20	0 1 1 1 1 1 3 3 3 3 4 4 4 4
20*	5 6 7 7 7 8 8 9
21	0 0 3 3 3
21*	5 6 7
22	1 4 4
22*	7 8
23	1

Scale: 18 | 2 = 182

18* | 5 = 185

a 60% **b** $\approx 13.3\%$ **c** approximately symmetric

d no, $\approx 88.3\%$