25 YR 9 PATH MATHS: LESSON OUTLINE: DATA ANALYSIS A (MATHSPACE – M.S)

Instructions: Every lesson: Remember to work off "Lesson Instructions" you glued in the front of your book (also on GC).

1. **Mathspace :** Complete "Check-in" date check-in's table on Lesson Outline.
2. **Copy ALL the "Theory Notes"** supplied by Teacher in class.
3. **Mathspace Lesson Activity**: Read through the "Lesson" Add any additional notes to your "Theory Notes" from the class.
4. **Practical Exercises**:
   - Write Heading for Exercise with date. Complete set work showing ALL working out in your Exercise Book. Any work not completed in class AUTOMATICALLY becomes homework. When finished, entering answers into M.S and marking your answers in your exercise book. Upload working out on G.C. This is considered part of homework.

MATHSPACE/PRACTICAL EXERCISE: MATHSPACE (M.S) ACTIVITY: Set by teacher: Custom Task (C.T), Adaptive Task (A.T), Worksheet (W.S)

First lesson: Draw up a table with a small column called Word and larger column called Definition: This is your Definition Table (**D.T**). You are to add the definitions of words from LESSONS throughout the topic.

TOPIC	DATE	LESSON	MATHSPACE/PRACTICAL EXERCISE:
Centre and spread		• Lesson 12.01C Centre and spread	❖Complete **M.S**: "Activity: C.T 12.01C Centre and spread (22Q'S)".
Cumulative frequency		• Read "Lesson 12.04C Cumulative frequency	❖Complete **M.S**: "Activity: C.T 12.04C Cumulative frequency (11Q'S)
Standard deviation		• Read "Lesson 12.02C Standard deviation " & complete the practice questions.	❖Complete **M.S**: "Activity: C.T 12.02C Standard deviation (11Q'S)
Comparisons using standard deviation		• Read "Lesson 12.03C Comparisons using standard deviation "	❖Complete **M.S**: "Activity: C.T 12.03C Comparisons using standard deviation (12Q'S)
Stem-and-leaf and dot plots		• Read "Lesson 13.04 Stem-and-leaf and dot plots INCLUDING back-to-back stem and leaf plots.	Complete **M.S**: "Activity: C.T 13.04 Stem-and-leaf and dot plots (16QQ'S)
Quartiles (2 Lessons)		• Read Lessons: - Lesson 12.06C Quartiles - Lesson 13.06 Quartiles - Lesson 5.06 Quartiles	Complete **M.S**: "Activity: C.T 12.06C Quartiles (29Q'S) Worksheets: - Worksheet 12.06C Quartiles - Worksheet 13.06 Quartiles - Worksheet 5.06 Quartiles**".**
Box plots (2 Lessons)		• Read Lessons: - Lesson 12.07C Box plots - Lesson 13.07 Box plot - Lesson 15.07 Box plots	Complete **M.S**: "Activity: C.T 12.07C Box plots (25Q'S) Worksheets: -Worksheet 12.07C Box plots - Worksheet 13.07 Box plot - Worksheet 15.07 Box plots".
The shape of data (2 Lessons)		• Read "Lesson 12.05C The shape of data " & Lesson 15.03 The shape of data complete the practice questions.	❖Complete **M.S**: "Activity: ❖C.T 12.05C The shape of data (17Q'S) ❖Worksheet : 12.05C The shape of data" AND Worksheet 15.03 The shape of data".
The spread of data sets		• Read "Lesson 15.08 The spread of data sets "	❖Complete **M.S**: "Activity: Worksheet : 15.08 The spread of data sets".
Samples		• Read "Lesson 12.09P Samples and populations	❖C.T 12.09P Samples and populations (23Q'S)
		❖C.T REVIEW Univariate data (10Q'S)	

REMEMBER:

- Pre-set Mathspace is to be continually completed throughout the topic.
- Work not completed in class **automatically** becomes homework.
- Complete additional revision sheets.
- Challenge yourself by completing other topic tasks from Mathspace when finished set work.
- Always date your work in your Exercise Book with ALL working out & your Lesson Outline

Outcomes: A student:

- develops understanding and fluency in mathematics through exploring and connecting mathematical concepts, choosing and applying mathematical techniques to solve problems, and communicating their thinking and reasoning coherently and clearly **MAO-WM-01**
- compares and analyses datasets using summary statistics and graphical representations **MA5-DAT-C-01**

Content: Examine standard deviation as a measure of spread

- Identify standard deviation as a measure of spread
- Calculate the standard deviation of a small dataset using digital tools

Compare small datasets using standard deviation

Content: Determine quartiles and interquartile range

- Determine the 5-number summary for sets of numerical data
- Determine the 5-number summary for sets of numerical data

Example(s):

Determining the 5-number summary (minimum and maximum values, median, and upper and lower quartiles) for the datasets below:

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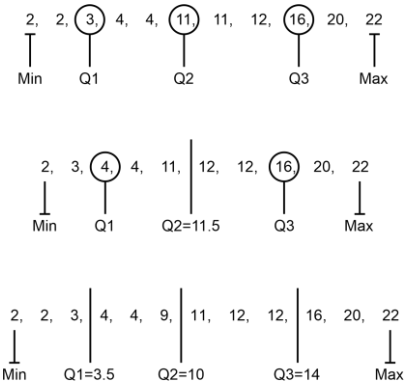

Image long description: The first dataset containing the numbers 2, 2, 3, 4, 4, 11, 11, 12, 16, 20 and 22. The minimum is 2, Q1 is 3, Q2 is 11, Q3 is 16 and the maximum is 22. The second dataset contains the numbers 2, 3, 4, 4, 11, 12, 12, 16 and 20. 22. The minimum is 2, Q1 is 4, Q2 is 11.5, Q3 is 16 and the maximum is 22. The third dataset contains the numbers 2, 2, 3, 4, 4, 9, 11, 12, 12, 16, 20, 22. The minimum is 2, Q1 is 3.5, Q2 is 10, Q3 is 14 and the maximum is 22.

***Content:* Determine quartiles and interquartile range**

- Determine the 5-number summary from graphical representations

Example(s): Determining the 5-number summary from a dot plot:

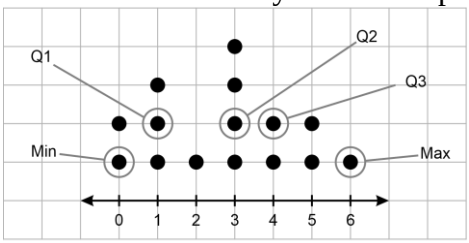

Image long description: A dot plot with 15 scores plotted. Indicated scores include a minimum of 0, Q1 as 1, Q2 as 3, Q3 as 4 and a maximum of 6.

- Determine the interquartile range (IQR) for datasets

Compare and explain the relative merits of range and IQR as measures of spread

- Determine the interquartile range (IQR) for datasets
- Compare and explain the relative merits of range and IQR as measures of spread

***Content:* Represent datasets using box plots and use them to compare datasets**

- Represent numerical datasets using a box plot to display the median, upper and lower quartiles, and maximum and minimum values
- Compare 2 or more numerical datasets using parallel box plots drawn on the same scale

Example(s): Comparing the range, median and IQR for Class A and Class B using the following parallel box plot:

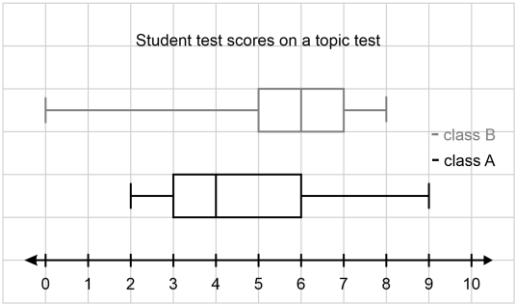

Image long description: ***Class A has a minimum of 2, Q1 of 3, median of 3, Q3 of 6 and maximum of 9. Class B has a minimum of 0, Q1 of 5, median of 6, Q3 of 7 and maximum of 8.***

- Compare and contrast the centres, spreads and shapes of 2 or more numerical datasets, using box plots and numerical statistics, including the 5-number summary
- Determine quartiles from datasets displayed in histograms and dot plots, and represent these as a box plot
- Identify and describe skewness or symmetry of datasets displayed in histograms, dot plots and box plots

Example(s): Analysing a negatively skewed distribution where the mean is smaller than the median and comparing it with a positively skewed distribution where the mean is larger than the median.

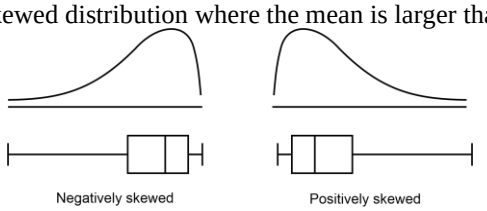

Image long description: Negatively skewed data has the curve highest to the right with the box to the right, and positively skewed data has the curve highest to the left with the box to the left.

Interpret box plots to draw conclusions and make inferences about the dataset