THE RIVERS SECONDARY COLLEGE
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Assessment Task Notification

RICHMOND RIVER HIGH CAMPUS

Task Number	1	**Task Name**	Data Analysis
Course	Year 8 Mathematics	**Faculty**	Mathematics
Teacher	McClure, Prince, Tyson, Whitehall & Cabot	**Head Teacher**	Ms Humphrys
Issue date	Week 7	**Due date**	Week 9
Focus (Topic)	Shape and Skew	**Task Weighting**	25%

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**
- classifies and displays data using a variety of graphical representations **MA4-DAT-C-01**
- analyses simple datasets using measures of centre, range and shape of the data **MA4-DAT-C-02**

Task description

In this assessment, you will choose one of the three provided data sets to analyse. You will apply your knowledge of data representation, measures of tendency, spread, and data interpretation to complete the tasks. This is an individual task designed to showcase your analytical skills. This is an at home task, however, you will be given two periods in class to work on it. Steps:

1. Choose **one** of the following data sets:
    - **Data Set 1:** Weekly screen time (hours) of 30 Year 8 students.
    - **Data Set 2:** Test scores out of 100 from a recent Mathematics Exam for 25 students.
    - **Data Set 3:** Daily temperatures (°C) recorded over the first 15 days of March in Melbourne.
2. Complete the questions below based on your chosen data set.
3. Submit your completed workbook to your teacher via hardcopy or Google Classroom (code: **ksoca2a**).

Marking Guidelines: Please see the attached marking rubric for details.

Data Sets: Please choose **one** data set to complete your assessment. Ensure you use the data accurately for your analysis, calculations, and graphing tasks.

☐ **Data Set 1 - Weekly Screen Time (Hours) of 15 Year 8 Students**

12, 15, 10, 18, 20, 22, 14, 16, 15, 19, 21, 13, 17, 14, 35

☐ **Data Set 2 - Mathematics Test Scores (Out of 100) for 15 Students**

78, 85, 90, 72, 88, 95, 68, 85, 76, 89, 91, 73, 85, 77, 40

☐ **Data Set 3 - Daily Maximum Temperatures (°C) in Melbourne, 1st -15th March 2024**

Date March	**Max Temperature (°C)**
1st	31
2nd	22
3rd	22
4th	21
5th	33
6th	29
7th	23
8th	28
9th	38
10th	38
11th	36
12th	29
13th	20
14th	24
15th	16

Organise and Display Data (5 marks).

1. What data set did you choose?

2. Create a suitable graph to represent your data clearly (bar graph, histogram, stem-and-leaf plot, sector graph, box plot or line graph). Justify why you chose this type of graph and how it best represents the data using mathematical reasoning and terminology.

Measures of Central Tendency (5 marks).

3. Calculate the **mean, median** and **mode** of the data set (show full mathematical working).

4. Compare two measures of central tendency (e.g., mean vs. median) and justify which one provides a more accurate representation of the data, considering any outliers and skewness.

Measures of spread (5 marks).

5. Calculate the **range** and identify any **outliers.**

6. What do these measures tell you about the **spread** of your data and the **effect of the outliers** on these calculations?

Data Shape and Distribution (3 marks).

7. Describe the **shape of your data distribution** (symmetrical, negatively skewed, or positively skewed). Explain how the **mean, median, and mode** affects the shape of your data distribution, and discuss its **impact** on data interpretation.

Real-World Application (5 marks).

8. Based on your analysis, suggest **one real-world conclusion or decision** that could be made using this data. Provide reasoning to support your conclusion.

Critical Evaluation (5 marks).

9. Critically evaluate the reliability of the data. Discuss any **potential biases, errors in data collection, or limitations** in the data set. Explain how these factors might affect the conclusions drawn from the data.