



Year 9 2009 Mathematics Active Data – Spreadsheet Assignment

Student Name: _____

Teacher's Name: _____

Date Due: Last mathematics lesson term 2 week 5

Outcomes:

- Demonstrate basic spreadsheet skills as they work with and modify files.
- A student converts m/s to km/h, and vice versa.
- DS4.1 A student uses statistical language.
- DS4.1 A student draws and uses stem-and-leaf plot in analysis of data.
- DS4.2 A student collects statistical data using a census or a sample, and analyse data using measures of location and range.
- DS4.1A student constructs a histogram and polygon.
- DS5.1.1 A student constructs a grouped data histogram and polygon.
- DS4.1 A student draws, interprets and reads conversion graphs.
- DS5.1.1 A student groups data into class centres.
- DS5.2.1 A student comparing the relative merits of measures of spread: range, modal class, mean and median
- DS5.2.1 A student uses the central measures of tendency to describe and analyse data.

Skills:

- Use cell address to locate cells.
- Insert and format text, numbers and formulae in cells.
- Select a range of cells.
- Use basic mathematical operations (+, -, *, /, ^) in their spreadsheet for simple formulae.
- Sort information according to desired criteria.
- Create appropriate charts based on spreadsheet data.

INSTRUCTIONS:

Before students start this assignment they need to ensure they have their student login for the DET portal: user name and password e.g. user name: john.smith3 password: *****

- Students need to perform 3 experiments to collect information while in class. If you are away on the day experiments are completed, see your teacher for a copy of the class results, **as these results must be used to complete the assignment.**
- The assignment is to use a spreadsheet interactive package found on the DET portal website. To find the spreadsheet package please follow the steps outlined below:
 - ❖ Go to school website: erskinparkhs.com.au
 - ❖ Log onto the **DET portal** link on left side of school home page this is where you need your user name and password
 - ❖ Click **I Agree** to the conditions of the DET portal
 - ❖ Select **TaLe** found in LEARN on the left side of the screen
 - ❖ Once this page loads go to **TaLe home** found under the search box top middle of the page

- ❖ Click on the puzzle **secondary**
 - ❖ Click on **Centre for Learning Innovation** on the right hand side of the page
 - ❖ Select **Mathematics stage 5** by clicking in the table
 - ❖ In the search box at the top of this page next to secondary type **active data** and search
 - ❖ Then click Active Data in the search results
 - ❖ The Active Data project page will be displayed. Giving a description of the project either use this program via the view access which will not save your information or download onto your computer to save work and come back to at a later time.
 - ❖ Once you open the program there will be a sector graph with different graphs listed on each sector. Choose one of the sectors which you need to complete and follow the instructions on each page.
- You need to complete three separate sectors of the graph:
- Stem-and-leaf graphs**
 - Histograms**
 - Conversion graphs**
- Refer to each section listed below for the requirements for each separate sector. Please ensure you read all the information on the pages prior to completing the task and review links as they have vital information about the graphs and terminology.
- All work needs to be handed in to your teacher on your own paper with the blue Assessment Task Notification Sheet attached to the front. Your answers will also include one page you must print or draw from the box-and-whisker plot sector.
- Please seek assistance from family members or your classroom teacher if you require help.

Section 1

Stem-and-leaf graph– Test your Visual Memory

In class you would have a table completed of times of how long it took for your class to match the 10 pairs. This is instead of doing the memory game on the internet (if you wish to use the net to play you can but please use the data collected in class). Follow the steps on this page to complete this section. The spreadsheet is in the link **Test your visual memory** in step 3. After completing the spreadsheet and graph, answer the questions on the right hand side of the page. Place cursor over the question to see it. Please write the question and answer on your own paper.

Section 2

Histogram – Fly your own plane!

In class you would have constructed two dart planes and completed the Flight range results table for the distance each plane flew. Follow the steps on this page to complete this section. The spreadsheet is in the link **histograms and polygon spreadsheet** in step 3. After completing the table on sheet 1 **data**, open sheet 2 **graphs**, answer the questions on the right hand side of the page. Place cursor over the question to see it. Please write the question and answer on your own paper. **(If you open the word document that has the questions listed, please don't do question 12. We are only using questions 1 to 11 in our assignment)**

Section 3

Conversion graph– How fast are you?

In class you would have completed a task to time how long it takes you to run 100m in seconds. Once you have this figure follow the steps on this page to complete this section. In step 2 you are asked to calculate your speed in metres per second, show all working on your own answer paper for this section of the assignment. After completing the section your speed in metres per second, go to step 3 and open **how fast are you**, this gives you two sheets within the spreadsheet. On sheet 1 **How fast are you** answer the questions on the right hand side of the page, using the graph given. Place cursor over the question to see it. Please write the question and answer on your own paper. Then open sheet 2 **Speed converter**, this allows you to insert data into the spreadsheet to convert metres per second to kilometres per hour, and vice versa, please choose 5 different values for each conversion and write them in a table on your answer sheet.

E.g.

m/s	km/h
3.4	12.24

km/h	m/s
15	4.17

Congratulations you have now finished the assignment. Please gather all the questions and answers you have completed and attach it all to the blue Assessment Task Notification Sheet. Bring the assignment to class to hand in on the last lesson of Mathematics in Week 5 of term 2.

Marking Criteria

Section 1

Stem-and-leaf graph– Test you Visual Memory

Question No.	Criteria	Mark
1	Correct statement about your location in the distribution	1
	Incorrect statement about your location in the distribution	0
2	Correct selection of what the distributions would look like	1
	Incorrect selection of what the distributions would look like	0
3	Correct explanation of what the skewness tells you about visual memory for your class	1
	Incorrect explanation of what the skewness tells you about visual memory for your class	0
4	Correct prediction of what type of scores the class would need to get a distribution more aligned to a normal curve (either numerical or explanation)	1
	Incorrect prediction of what type of scores the class would need to get a distribution more aligned to a normal curve (either numerical or explanation)	0
5	Three correct values for the mean, mode and median scores	3
	Two correct values for the mean, mode and median scores	2
	One correct value for the mean, mode and median scores	1
	No correct values for the mean, mode and median scores	0
6	Correct statement about the comparison of the mean and the median scores with statistical explanation	2
	Correct statement about the comparison of the mean and the median scores without statistical explanation	1
	Incorrect statement about the comparison of the mean and the median scores with or without statistical explanation	0
7	Two correct values for the mean and median scores and correct statement about why the median is sometimes a better representative score than the mean	3
	One correct value for the mean and median scores and correct statement about why the median is sometimes a better representative score than the mean	2
	Two correct values for the mean and median scores and incorrect statement about why the median is sometimes a better representative score than the mean	2
	One correct value for the mean and median scores and incorrect statement about why the median is sometimes a better representative score than the mean	1
	No correct values for the mean or median scores and correct statement about why the median is sometimes a better representative score than the mean	1
	No correct values for the mean or median scores and incorrect statement about why the median is sometimes a better representative score than the mean	0

8	Statement about the comment “someone said that stem-and-leaf plots are a sort of rotated histogram” and listing at least one advantage and at least one disadvantage of using a stem-and-leaf plot over a histogram for this memory game	3
	Statement about the comment “someone said that stem-and-leaf plots are a sort of rotated histogram” and listing no advantage and at least one disadvantage of using a stem-and-leaf plot over a histogram for this memory game	2
	Statement about the comment “someone said that stem-and-leaf plots are a sort of rotated histogram” and listing at least one advantage and no disadvantage of using a stem-and-leaf plot over a histogram for this memory game	2
	No statement about the comment “someone said that stem-and-leaf plots are a sort of rotated histogram” and listing at least one advantage and at least one disadvantage of using a stem-and-leaf plot over a histogram for this memory game	2
	Statement about the comment “someone said that stem-and-leaf plots are a sort of rotated histogram” and listing no advantage and no disadvantage of using a stem-and-leaf plot over a histogram for this memory game	1
	No statement about the comment “someone said that stem-and-leaf plots are a sort of rotated histogram” and listing at least one advantage and no disadvantage of using a stem-and-leaf plot over a histogram for this memory game	1
	No statement about the comment “someone said that stem-and-leaf plots are a sort of rotated histogram” and listing no advantage and at least one disadvantage of using a stem-and-leaf plot over a histogram for this memory game	1
	No statement about the comment “someone said that stem-and-leaf plots are a sort of rotated histogram” and listing no advantage and no disadvantage of using a stem-and-leaf plot over a histogram for this memory game	0
9	Stating another type of graph that could be used to represent the same data and listing at least one advantage and at least one disadvantage of using this graph for this memory game	3
	Stating another type of graph that could be used to represent the same data and listing at no advantage and at least one disadvantage of using this graph for this memory game	2
	Stating another type of graph that could be used to represent the same data and listing at least one advantage and no disadvantage of using this graph for this memory game	2
	Stating another type of graph that could be used to represent the same data and listing no advantage and no disadvantage of using this graph for this memory game	1
	Not stating another type of graph that could be used to represent the same data	0
	Total	/18

Section 2

Histogram – Fly your own plane!

Question No.	Criteria	Mark
1	Correct statement about the length of each class interval	1
	Incorrect statement about the length of each class interval	0

2	Correct working to show how class centres were calculated	1
	Incorrect working to show how class centres were calculated	0
3	Correct value for the plane with the shortest range	1
	Incorrect value for the plane with the shortest range	0
4	Correct value for modal class for dart 1 and correct statement about increasing or decreasing trend	2
	Incorrect value for modal class for dart 1 and correct statement about increasing or decreasing trend	1
	Correct value for modal class for dart 1 and incorrect statement about increasing or decreasing trend	1
	Incorrect value for modal class for dart 1 and incorrect statement about increasing or decreasing trend	0
5	Correct value for modal class for dart 2 and correct statement about increasing or decreasing trend	2
	Incorrect value for modal class for dart 2 and correct statement about increasing or decreasing trend	1
	Correct value for modal class for dart 2 and incorrect statement about increasing or decreasing trend	1
	Incorrect value for modal class for dart 2 and incorrect statement about increasing or decreasing trend	0
6	Correct statement about the position of the polygons, correct statement about the importance of the meeting of the polygons and four correct values for the maximum and minimum points of the two polygons	6
	Correct statement about the position of the polygons, incorrect statement about the importance of the meeting of the polygons and four correct values for the maximum and minimum points of the two polygons	5
	Incorrect statement about the position of the polygons, correct statement about the importance of the meeting of the polygons and four correct values for the maximum and minimum points of the two polygons	5
	Correct statement about the position of the polygons, correct statement about the importance of the meeting of the polygons and three correct values for the maximum and minimum points of the two polygons	5
	Correct statement about the position of the polygons, incorrect statement about the importance of the meeting of the polygons and three correct values for the maximum and minimum points of the two polygons	4
	Incorrect statement about the position of the polygons, correct statement about the importance of the meeting of the polygons and three correct values for the maximum and minimum points of the two polygons	4
	Correct statement about the position of the polygons, correct statement about the importance of the meeting of the polygons and two correct values for the maximum and minimum points of the two polygons	4
	Incorrect statement about the position of the polygons, incorrect statement about the importance of the meeting of the polygons and four correct values for the maximum and minimum points of the two polygons	4
	Correct statement about the position of the polygons, incorrect statement about the importance of the meeting of the polygons and two correct values for the maximum and minimum points of the two polygons	3

	Incorrect statement about the position of the polygons, correct statement about the importance of the meeting of the polygons and two correct values for the maximum and minimum points of the two polygons	3
	Correct statement about the position of the polygons, correct statement about the importance of the meeting of the polygons and one correct values for the maximum and minimum points of the two polygons	3
	Incorrect statement about the position of the polygons, incorrect statement about the importance of the meeting of the polygons and three correct values for the maximum and minimum points of the two polygons	3
	Correct statement about the position of the polygons, incorrect statement about the importance of the meeting of the polygons and one correct values for the maximum and minimum points of the two polygons	2
	Incorrect statement about the position of the polygons, correct statement about the importance of the meeting of the polygons and one correct values for the maximum and minimum points of the two polygons	2
	Incorrect statement about the position of the polygons, incorrect statement about the importance of the meeting of the polygons and two correct values for the maximum and minimum points of the two polygons	2
	Correct statement about the position of the polygons, correct statement about the importance of the meeting of the polygons and no correct values for the maximum and minimum points of the two polygons	2
	Correct statement about the position of the polygons, incorrect statement about the importance of the meeting of the polygons and no correct values for the maximum and minimum points of the two polygons	1
	Incorrect statement about the position of the polygons, correct statement about the importance of the meeting of the polygons and no correct values for the maximum and minimum points of the two polygons	1
	Incorrect statement about the position of the polygons, incorrect statement about the importance of the meeting of the polygons and one correct values for the maximum and minimum points of the two polygons	1
	Incorrect statement about the position of the polygons, incorrect statement about the importance of the meeting of the polygons and no correct values for the maximum and minimum points of the two polygons	0
7	Correct statement about why you would not use a column graph to represent this data	1
	Incorrect statement about why you would not use a column graph to represent this data	0
8	Correct statement about the affect on the mean and median if two outliers were identified and deleted from the data	2
	Correct statement about the affect on the mean and incorrect statement about the median if two outliers were identified and deleted from the data	1
	Incorrect statement about the affect on the mean and correct statement about the median if two outliers were identified and deleted from the data	1
	Incorrect or no statement about the affect on the mean and median if two outliers were identified and deleted from the data	0

9	Correct statement about the mean and median values being different or not and correct explanation about under what circumstances the median is a better representation of the distribution than the mean	2
	Correct statement about the mean and median values being different or not and incorrect explanation about under what circumstances the median is a better representation of the distribution than the mean	1
	Incorrect statement about the mean and median values being different or not and correct explanation about under what circumstances the median is a better representation of the distribution than the mean	1
	Incorrect statement about the mean and median values being different or not and incorrect explanation about under what circumstances the median is a better representation of the distribution than the mean	0
10	Correct statement about the scientific reasons why the flight range will be different	1
	Incorrect statement about the scientific reasons why the flight range will be different	0
11	List of limitations on this experiment which might restrict generalising your findings	1
	No list of limitations on this experiment which might restrict generalising your findings	0
Total		/20

Section 3

Conversion graph– How fast are you?

Question No.	Criteria	Mark
Speed over 100m	Correct calculation of your speed in metres per second	1
	Incorrect calculation of your speed in metres per second	0
1	Correct calculation for the conversion of 7.4m/s and 5.9m/s into km/h	2
	Correct calculation for the conversion of 7.4m/s into km/h and incorrect conversion for 5.9m/s into km/h	1
	Incorrect calculation for the conversion of 7.4m/s into km/h and correct conversion for 5.9m/s into km/h	1
	Incorrect calculation for the conversion of 7.4m/s and 5.9m/s into km/h	0
2	Correct calculation for the conversion of 23km/h and 19km/h into m/s	2
	Correct calculation for the conversion of 23km/h into m/s and incorrect conversion for 19km/h into m/s	1
	Incorrect calculation for the conversion of 23km/h into m/s and correct conversion for 19km/h into m/s	1
	Incorrect calculation for the conversion of 23km/h and 19km/h into m/s	0
3	Correct calculation for the speed needed in m/s to beat Asafa Powell record of 36.96km/h	1
	Incorrect calculation for the speed needed in m/s to beat Asafa Powell record of 36.96km/h	0

4	Correct predictions from the graph for the conversions of 12m/s into km/h and 50km/h into m/s	2
	Correct predictions from the graph for the conversion of 12m/s into km/h and incorrect conversion for 50km/h into m/s	1
	Incorrect predictions from the graph for the conversion of 12m/s into km/h and correct conversion for 50km/h into m/s	1
	Incorrect predictions from the graph for the conversions of 12m/s into km/h and 50km/h into m/s	0
5	Correct calculation for the speed in m/s of a cheetah running and speed in m/s to fly as fast as a peregrine falcon	2
	Correct calculation for the speed in m/s of a cheetah running and incorrect speed in m/s to fly as fast as a peregrine falcon	1
	Incorrect calculation for the speed in m/s of a cheetah running and correct speed in m/s to fly as fast as a peregrine falcon	1
	Incorrect calculation for the speed in m/s of a cheetah running and speed in m/s to fly as fast as a peregrine falcon	0
Completion for speed conversion tables	Correctly draw two tables one to convert m/s into km/h, the other to convert km/h into m/s with 5 student selected values in each	2
	Correctly draw two tables one to convert m/s into km/h, the other to convert km/h into m/s with less than 5 student selected values in each	1
	Correctly draw one table to convert m/s into km/h or to convert km/h into m/s with 5 student selected values in each	1
	Incorrectly draw two or one table to convert m/s into km/h, the other to convert km/h into m/s with 5 or less student selected values in each	0
	Total	/12