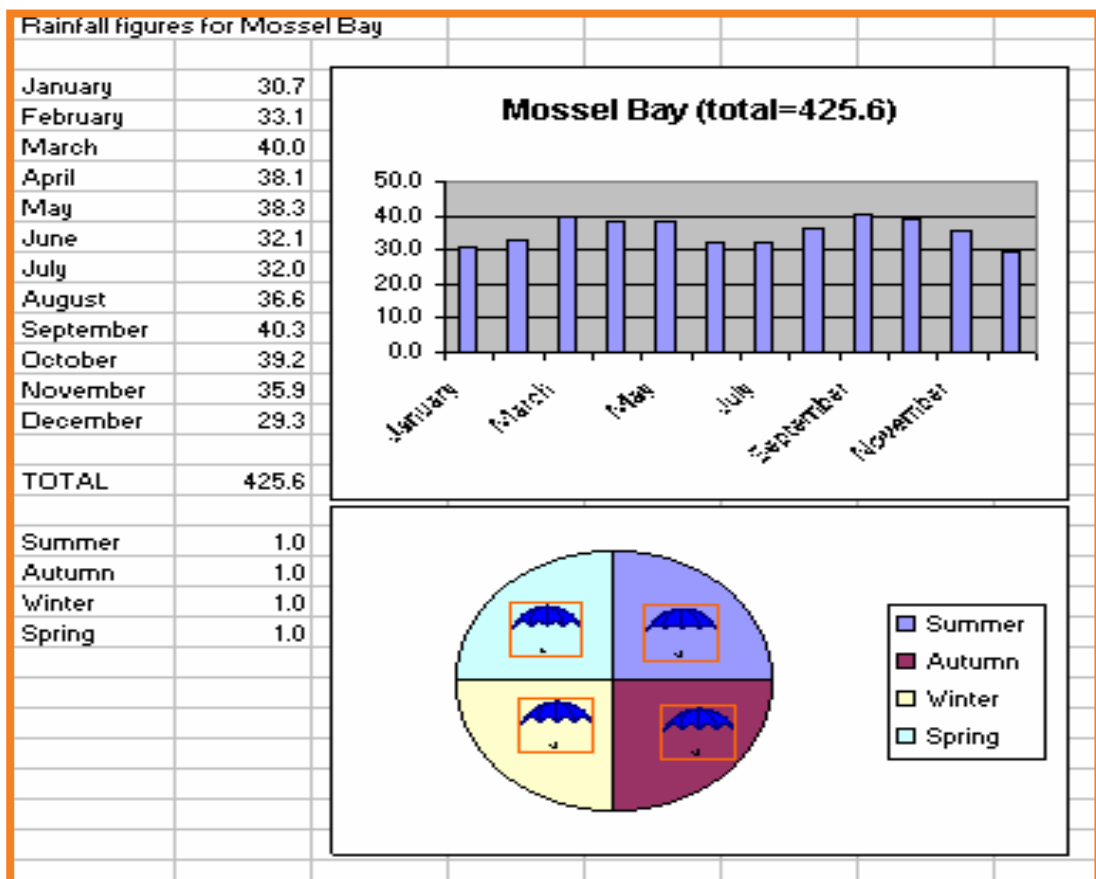




# Integrated ICT Learning Unit

## Volume 5

### 5.6 Rainfall Round-up



## Overview

This integrated ICT learning unit consists of two activities which explore the concept of **Rainfall Round-up**.

### Lesson format:

- 10 minutes Educational game (optional; at the discretion of the teacher)
- 5 minutes "Tech Talk" which introduces ICT terminology
- 5 minutes Touch Typing skills which develops essential touch typing techniques
- 20 minutes+ Integrated activity involving tasks which relate to relevant content being covered in the classroom

### ICT applications used in this Learning Unit:

Word Processing	Graphics	Spreadsheets	Databases	Internet	E-mail	Presentations	Drawing	Web design	Information Organiser	Simulations & design	Desktop Publishing	Operating Systems	Programming & logic
		√		√								√	

### Structure of the Learning Unit:

#### **Integrated Activity**

This lesson is aimed at integrating ICT into current, relevant class curriculum. Using this approach enables learners to use the computer not only as a working tool but also as a relevant learning tool to learn new concepts and skills or consolidate previously learnt work. This activity will take between 20 – 60 minutes (or 1-3 lessons) to complete depending on the ability of the learners and the time available.

#### **e-Learner Assessment**

The required assessment for each unit is completed by the ICT teacher by means of evaluating each skill on the skills matrix. The ICT teacher can indicate on the skills matrix whether the skill is being practised or developed by inserting a tick in the appropriate column next to the appropriate skills. Should the teacher wish to formally assess the skills, a symbol of 1, 2, 3 or 4 is inserted into the matrix in the assess column next to each skill assessed. The corresponding skills should also be marked off on the e-Learner Administration System and forwarded to Head Office when completed. As a pre-requisite for accreditation, all the required skills for each e-Learner unit need to be mastered. In this way, the level of ICT competency as well as the progress of each learner can be monitored. This matrix may be printed or photocopied for each learner.

LEARNING OUTCOMES ADDRESSED IN THIS INTEGRATED ICT LEARNING UNIT						
Learning Areas	LO1	LO2	LO3	LO4	LO5	LO6
<b>Languages</b>	Listening	Speaking	Reading & viewing	Writing	Thinking & reasoning	Language Structure and use
<b>Mathematics</b>	Numbers, operations & relationships	Patterns, functions & algebra	Space & shape (Geometry)	Measurement	Data Handling	
<b>Natural Sciences</b>	Investigate relationships & solve problems in scientific, technological & environmental contexts	Interpret & apply scientific, technological and environmental knowledge	Relationship between science, technology, society & environment			
<b>Social Sciences - History</b>	Historical Enquiry	Historical Knowledge and Understanding	Historical interpretation			
<b>Social Sciences - Geography</b>	Geographical Enquiry	Geographical Knowledge and Understanding	Exploring Issues			
<b>Arts and Culture</b>	Creating, Interpreting and Presenting	Reflection	Participation and Collaboration	Expression and Communication		
<b>Life Orientation</b>	Health Promotion	Social Development	Personal Development	Physical Development and Movement	Orientation to World of Work	
<b>Economics and Management Sciences</b>	Economic Cycle	Sustainable Growth and Development	Managerial, Consumer & Financial Knowledge & Skills	Entrepreneurial Knowledge & skills		
<b>Technology</b>	Technological Processes & Skills	Technological Knowledge & Understanding	Technology, Society & the Environment			

## STRUCTURE OF LESSON 5.6 RAINFALL ROUND-UP

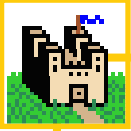
INTEGRATED LESSON	
<b>Prior Learning Requirements</b>	
<b>Concept / Topic:</b> Knowledge of measurement of rainfall	
<b>ICT Skills:</b> Entering data into cells in a spreadsheet	
Educational Game	<b>10 Min</b>
A suitable educational game, as per Appendix A, may be used as an optional activity at any point during the course of the lesson at the discretion of the ICT or class teacher	
Touch Typing	<b>5 Min</b>
Ensure continuity and progression as per Appendix B	
Tech Talk	<b>5 Min</b>
<b>BITMAP</b> A type of image file. It is made up of many dots which form the picture. The extension name is <i>.bmp</i> . Bitmaps can be very large in file size.	
Integrated Activity	<b>20 Min</b>
Learners research information on the Internet about annual rainfall figures of a town/ city in their country. Graph the information.	
<b>Resources Used</b>	
<b>Software:</b> Internet Explorer; Microsoft Excel	
<b>Prerequisite:</b> Website Links in Volume 5 folder	
<b>Template:</b> None	
<b>WWW:</b> <a href="http://www.worldclimate.com">www.worldclimate.com</a>	
<b>Learning Outcomes</b>	
<ul style="list-style-type: none"> <li>• Social Sciences Geography LO 1</li> <li>• Mathematics LO 5</li> </ul>	
<b>Additional Learning Opportunities</b>	
<b>Concept / Topic:</b> 5.13 Weather	
<b>ICT Skills:</b> 5.8 Globe Trotters	
<b>Beyond the ICT Centre</b>	
<ul style="list-style-type: none"> <li>• E-mail the local weather bureau asking for highs and lows for temperature and rainfall over the last 10 years.</li> <li>• Create a weathervane out of scraps.</li> <li>• Record the weather for another province/ area (not your own province) for a month. How does it compare to your weather patterns in your province?</li> </ul>	

<b>Learner name:</b>	<b>Class</b>	
<b>Integrated Activity: Learners research information on the Internet about annual rainfall figures of a town/ city in their country. Graph the information</b>		
<b>Theme/Topic: Rainfall Round-up</b>	<b>Integrated Activity</b>	
<b>Learning Outcomes &amp; Assessment Standards</b>	<b>Practice</b>	<b>Assess</b>
<b>Social Sciences Geography</b>		
<b>5.1.1</b> Selects and uses sources of useful Geographical information		
<i>Comment:</i>		
<b>Mathematics</b>		
<b>5.5.6</b> Draws a variety of graphs to display and interpret data		
<i>Comment:</i>		
<b>Concepts and Skills</b>		
Location		
Weather and Climate		
Locate, access and select relevant information		
Organising information		
<b>4 = Exceeded Requirements   3 = Satisfied Requirements</b> <b>2 = Partially Satisfied Requirements   1 = Has Not Satisfied Requirements</b>		

Learner name:	Class	
<b>Integrated Activity: Learners research information on the Internet about annual rainfall figures of a town/ city in their country. Graph the information</b>		
<b>Theme/Topic: Rainfall Round-up</b>	<b>Integrated Activity</b>	
<b>e-Learner Skills</b>	<b>Practice</b>	<b>Assess</b>
<b>Unit 2 - Files and Folders</b>		
2.2.1 Right / Left click mouse		
2.2.2 Single / Double click mouse		
2.3.1 Alpha / numeric keys on keyboard		
2.3.2 Special Keys (Ctrl / Alt / Shift etc) on keyboard		
2.4 Recognising icons		
2.5.1 Open / Exit programmes Using Shortcuts		
2.5.2 Open / Exit programmes Using Start Menu		
2.6.1 Maximise / Minimise window		
2.6.2 Close window		
2.6.3 Move window		
2.6.4 Multitask between documents / applications		
2.6.5 Using the task bar		
2.7.1 Navigating through folders / Folder structure		
2.7.3 Navigating within a file (scrollbar / hyperlinks)		
2.7.4 Opening Files		
2.7.5 Saving Files		
2.7.6 Closing Files		
<b>4 = Exceeded Requirements   3 = Satisfied Requirements</b> <b>2 = Partially Satisfied Requirements   1 = Has Not Satisfied Requirements</b>		

Learner name:	Class	
<b>Integrated Activity: Learners research information on the Internet about annual rainfall figures of a town/ city in their country. Graph the information</b>		
<b>Theme/Topic: Rainfall Round-up</b>	<b>Integrated Activity</b>	
<b>e-Learner Skills</b>	<b>Practice</b>	<b>Assess</b>
<b>Unit 5 – Spreadsheets</b>		
5.1 Open programme		
5.2.1 Start new workbook		
5.3.1 Insert data		
5.3.2 Format data (font face/ colour / size / bold)		
5.3.3 Align data		
5.4.1 Create formulas		
5.5.1 Insert graphics		
5.5.2 Move graphics		
5.5.3 Resize graphics		
5.8 Save		
5.10 Print		
5.11 Exit		
<b>Unit 7 - Web Browsing and Email</b>		
7.1 Open web browser		
7.2 Entering URL		
7.3.1 Access Online web page		
7.3.2 Access Saved web page		
7.4 Search engines		
7.5.1 Using Hyperlinks		
7.5.2 Using Scrollbars		
7.5.3 Using Forward / Back button		
7.8.1 Save Images		
7.11 Exit Web Browser		
<b>4 = Exceeded Requirements    3 = Satisfied Requirements</b> <b>2 = Partially Satisfied Requirements    1 = Has Not Satisfied Requirements</b>		

## Integrated Lesson Rainfall Round-up (Internet Explorer; Microsoft Excel)



### **EDUCATIONAL GAME: (10 minutes)**

A suitable educational game, as per Appendix A, may be used as an optional activity at any point during the course of the lesson at the discretion of the ICT or class teacher



### **TOUCH TYPING (5 minutes)**

#### **Check that all Learners:**

1. Have their hands in the correct touch typing position (ASDF JKL; - home keys)
2. Look at the screen all the time
3. Are sitting up straight with their bodies square to the keyboard



### **TECH TALK: (5 minutes)**

#### **BITMAP**

A type of image file. It is made up of many dots which form the picture. The extension name is *.bmp*. Bitmaps can be very large in file size.



## INTEGRATED ACTIVITY (60 – 120 MINUTES)

In order to promote relevant discussion, the following questions are posed by the educator to the learners:

- **What weather changes can you expect from one season to another?**
- **How do people in different places deal with seasonal changes?**
- **How and why do we measure rainfall?**

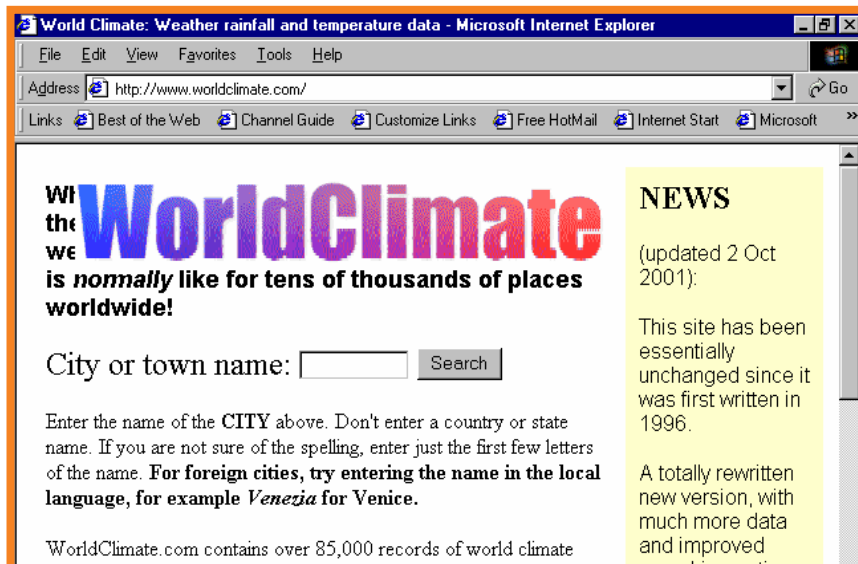
A short discussion takes place about the seasonal changes that are experienced through the various seasons and why it is important to record rainfall throughout the year.

Do people in your city / town use umbrellas in Winter or Summer? And in other areas of the country? As part of comparing the way people in different parts of the country deal with seasonal changes in the weather, we focus in this lesson on rainfall differences in the country. Through the combined effort of the class we should be able to create a map of our country and discover that areas differ from each other in how much rain they get and when it falls. Did you know there is a wonderful site on the Internet where you can type in the name of a town and get its rainfall figures? We will use this site to get data for the lesson or you can prepare beforehand by taking figures from an atlas. You may wish to pre-select the towns. The effect of this lesson is maximised by the presence of a large map of your country. Once the graphs have been printed and placed on the map you should be able to discern a pattern of variation around the country.

*Note to the educator: Select different towns / cities around your country for learners to study*

**Task: You will be given the name of a town or city. Obtain data on the monthly rainfall of a town /city and make a bar graph to illustrate this. Then create a pie graph with a section for each of the four seasons and place an umbrella in each of the rainy seasons. Print the graphs and place them on the map of your country. Look for towns with a similar rainfall pattern to yours. How big is the area covered by these towns? How many different rainfall regions in your country can you see?**

1. Start the Internet Browser by double clicking on the shortcut on the desktop
2. Access the **World Climate** website by double clicking on the link in the "**Weather and Climate**" folder in the **Volume 5 Website Links** folder



3. Type in the name of the city / town for which you require data → **Search**.
4. Sometimes there is more than one town in the world with the name you chose. On the next screen click on the town you want.

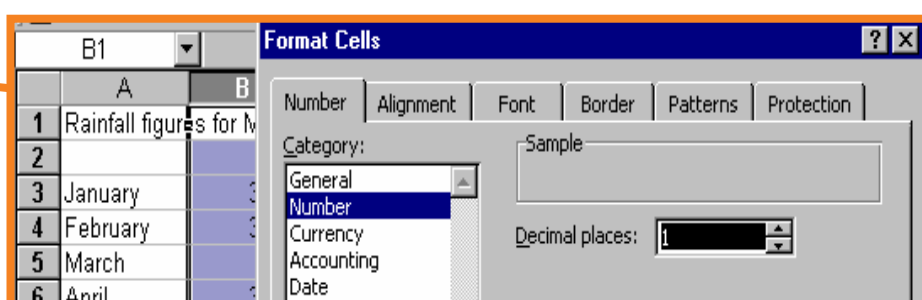


5. On the next screen find your town and click on the link to the figures you want.

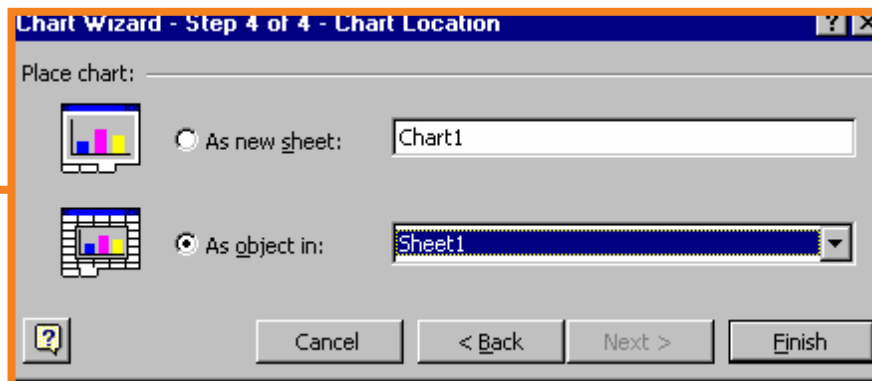
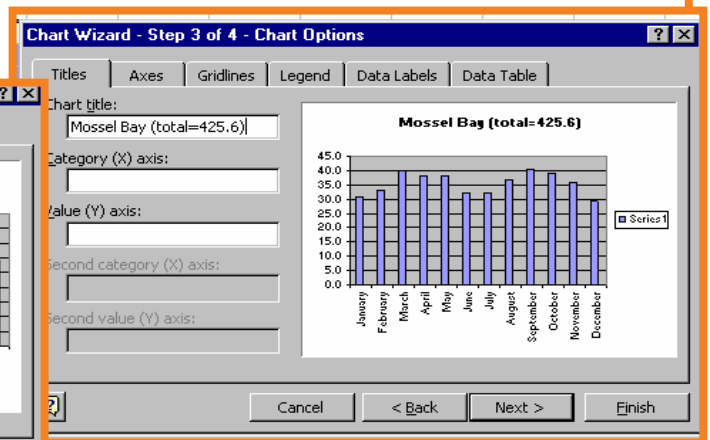
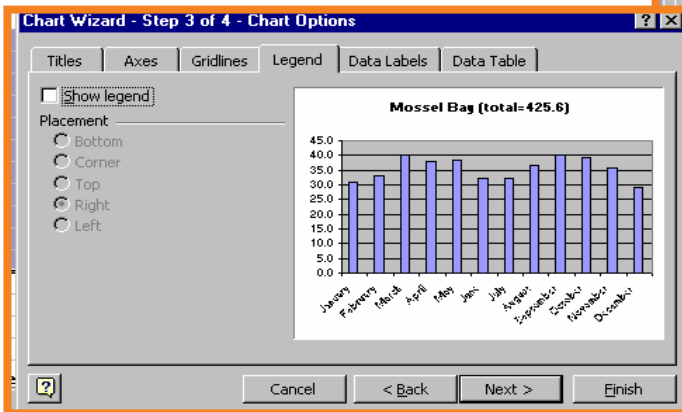
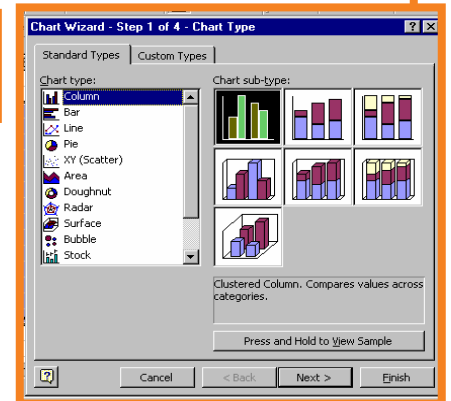
6. Now you will have the figures you need.

MOSSEL BAY (CAPE ST. B, SOUTH AFRICA)													
Located at <i>about</i> 34.18°S 22.10°E. Height <i>about</i> 59m / 193 feet above sea level.													
<u>Average Rainfall</u>													
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Year
mm	30.7	33.1	40.0	38.1	38.3	32.1	32.0	36.6	40.3	39.2	35.9	29.3	426.4

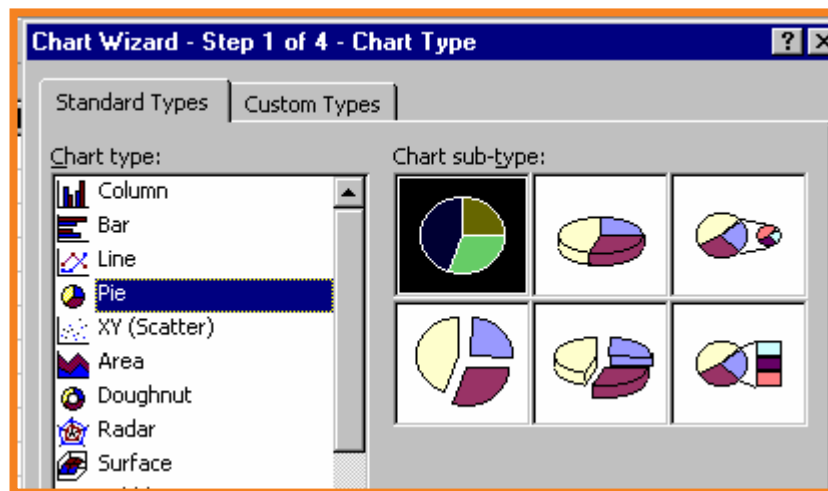
7. Copy these so that you are ready to enter them in Excel.
8. Start MS Excel by **double clicking** on the icon on the desktop or clicking on **Start → Programmes → Microsoft Excel**.
9. Save your document into your digital portfolio → **file → save as → locate your portfolio → double click → type a suitable name in the file name box → save**
10. In **cell A1** type the heading **Rainfall figures for: *the name of your town city***
11. Use **Column A** to fill in the names of the months of the year. Begin in **cell A3** by typing **January** → **enter**.
12. Fill the other eleven months in below.
13. Place the mouse on the right lower corner of **cell A3**. The mouse pointer changes into a skinny black **+**. Drag the mouse down column A until you see **December**
14. **Widen column A** so that the months fit → place the mouse on the line between columns A and B and drag to the right
15. In A16 type **TOTAL**.
16. Format **column B** to show the rainfall figures with one decimal point → **format → Cells → Number → Number → Decimal Places 1 → OK**



17. In **column B** fill in the rainfall in mm (or whatever the unit of measurement is in your country) for each month.
18. In **cell B16** calculate the total rainfall → type **=sum(B3:B14)**
19. Save your document → **file** → **save**
20. Make the bar graph as described below.
21. Select the area from **cell A3 to B16** →  
click in cell A3 and drag to cell B16
22. Click on the **Chart wizard button**
23. Click on your choice of bar graph and click **Next>**
24. If you are happy with the result click **Next>**
25. In Step 3, type in the chart title – **Name of your town/ city (total = 425.6)**
26. Click on **Legend** remove the legend by clicking on the tick box → **Next>**
27. In Step 4 click on **As object in** → **finish**



28. You are now going to make a pie graph to explain which seasons are wet in your country
29. In **cell A18 to A21** type the seasons, beginning with summer.
30. In **column B**, type a **1** for each season.
31. Now make a **pie graph**. Select cells **A18 to B21** → by clicking and dragging → click on the **chart wizard button**.
32. Select **Pie** and click on the **first** option.



33. Ignore the other steps by clicking next each time and click on **finish**.
34. Click in **cell A25** and insert a picture of an umbrella → **insert** → **picture** → **Clipart**. Type "umbrella" in the search for clips box → **enter** → click on the blue arrow to insert (Excel 2000) → click on the picture once to insert → (Excel X)
35. Resize the picture so that it is small enough to fit into any quarter of the pie graph by dragging on the adjustment handles
36. If necessary, make copies of the umbrella for each season that is rainy.
37. Right click on the picture → **edit** → **copy** → **edit** → **paste**.
38. Drag on the pictures to separate them

39. Drag a picture on to each quarter that is rainy.

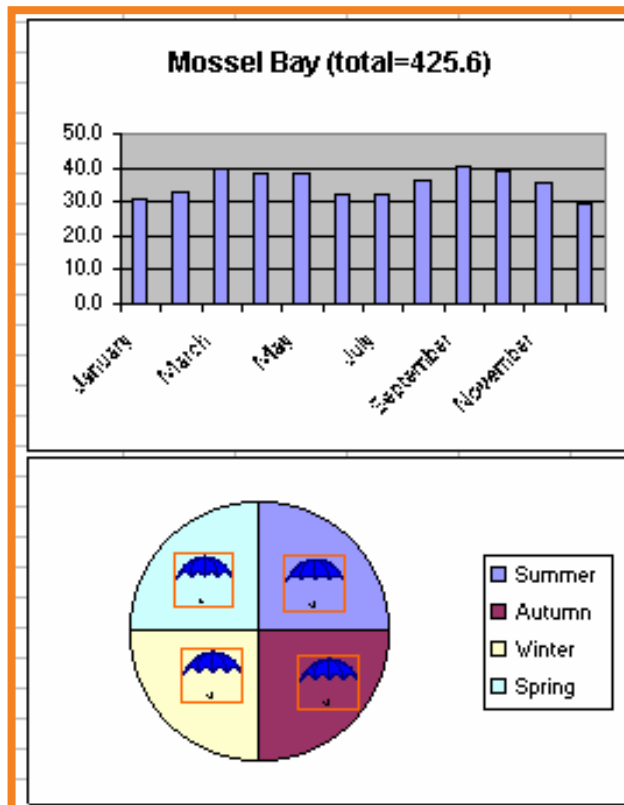
17		
18	Summer	1.0
19	Autumn	1.0
20	Winter	1.0
21	Spring	1.0
22		
23		
24		
25		
26		
27		

■ Summer  
■ Autumn  
■ Winter  
■ Spring

40. Save the work → **CTRL** → **S**

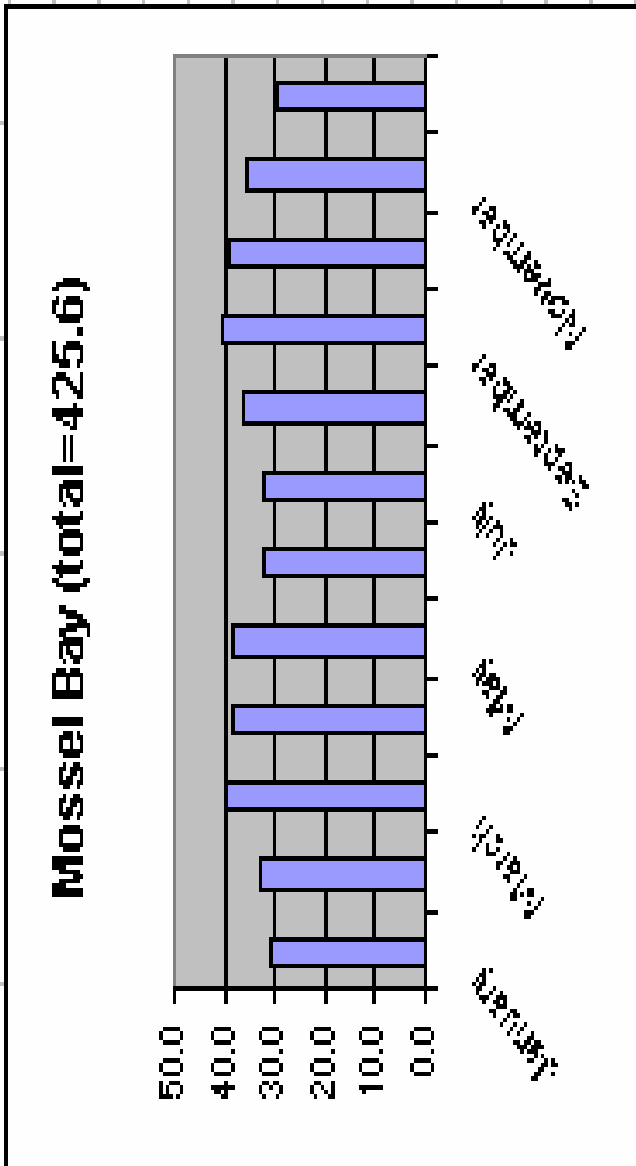
41. Drag the pie graph under the bar graph and make the two graphs the same width

42. Print the graphs and cut them out to paste on to the map of your country → **file** → **print** → **active sheet** → **OK**

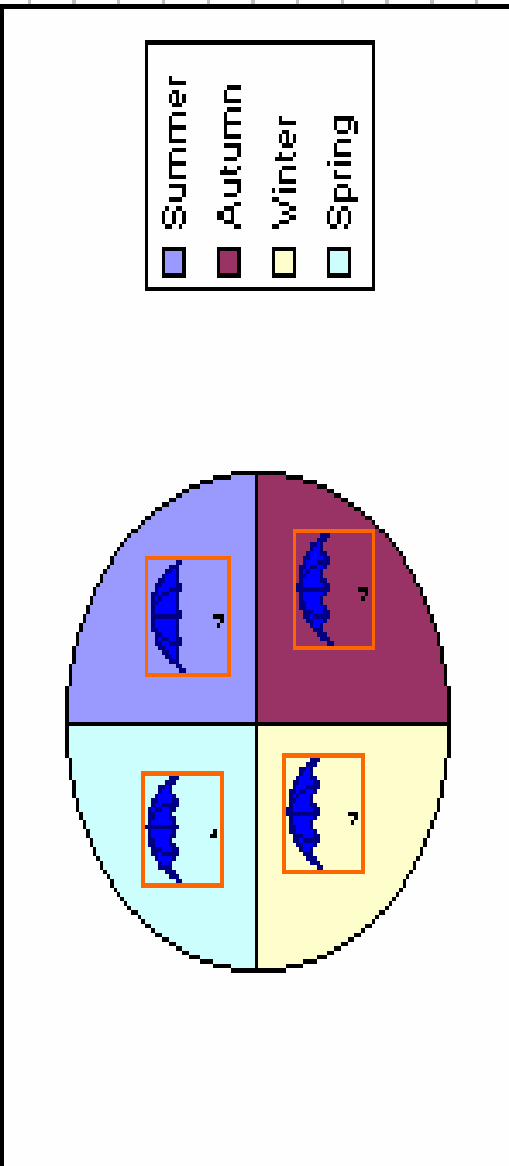


Rainfall figures for Mossel Bay

January	30.7
February	33.1
March	40.0
April	38.1
May	38.3
June	32.1
July	32.0
August	36.6
September	40.3
October	39.2
November	35.9
December	29.3



**TOTAL** 425.6



Summer	1.0
Autumn	1.0
Winter	1.0
Spring	1.0

## Teacher Feedback Form

This Teacher Feedback Form serves as a

- ❖ Personal record of work covered with your class
- ❖ Feedback form about this lesson to your management
- ❖ Feedback form about this lesson to your colleagues

Place a relevant comment in each of the boxes.

<b>Volume Number</b>			
<b>Learning Unit</b>			
<b>Integrated Lesson</b>			
<b>Educational Game</b>			
<b>Touch typing / Keyboard Skills</b>			
<b>Tech Talk</b>			
I found this Learning Unit to be...			
<b>Engaging?</b>			
<b>Relevant?</b>			
<b>Significant?</b>			
<b>Challenging?</b>			
<b>General Comment</b>			
<b>Name</b>		<b>Date</b>	




This **Teacher Feedback Form** may be photocopied or found in digital format with the Educator Resources and at [www.computers4kids.co.za](http://www.computers4kids.co.za)

## Self Assessment Form

This Self Assessment Form serves as a

- ❖ Personal record of work covered during class
- ❖ Personal record of your progress

Place a tick (✓) and comment in the relevant boxes.

<b>Volume Number</b>				
<b>Learning Unit</b>				
<b>Regarding this Learning Unit ...</b>	Great 	Partial 	None 	Comment
<b>When I started this task my knowledge of this topic was...</b>				
<b>The effectiveness of my completed task is...</b>				
<b>My answers to the topical questions were...</b>				
<b>The pride and care I took in the presentation of my work was...</b>				
<b>After completing this task my knowledge of this topic is...</b>				
<b>During this task I have learnt to be...</b>				
Caring		Principled		
Communicative		A Risk Taker		
Reflective		A Thinker		
Inquiring		Well-balanced		
Knowledgeable		Open-minded		
<b>After completing this task I have learnt...</b>				
<b>Name</b>			<b>Date</b>	




This **Self Assessment Form** may be photocopied or found in digital format with the Educator Resources and at [www.computers4kids.co.za](http://www.computers4kids.co.za)

## Peer Assessment Form

This Peer Assessment Form serves as

- ❖ Feedback to your peer about your perception of their achievements
- ❖ A record of your personal perception of your peers achievements

Place a tick (✓) and comment in the relevant boxes.

<b>Peer's Name</b>				
<b>Volume Number</b>				
<b>Learning Unit</b>				
<b>Regarding this Learning Unit ...</b>	Yes 	Sort Of 	No 	Comment
<b>Has the task been completed?</b>				
<b>Is the completed work effective?</b>				
<b>Have the topical questions been answered successfully?</b>				
<b>Have they taken pride in the presentation of their work?</b>				
<b>Have you learnt anything new from your friends work?</b>				
<b>I think this task has taught my friend to be...</b>				
Caring		Principled		
Communicative		A Risk Taker		
Reflective		A Thinker		
Inquiring		Well-balanced		
Knowledgeable		Open-minded		
<b>By completing this task I think my friend has learnt...</b>				
<b>Name</b>			<b>Date</b>	

This **Peer Assessment Form** may be photocopied or found in digital format with the Educator Resources and at [www.computers4kids.co.za](http://www.computers4kids.co.za)



