



DIGITAL SKILLS TRAINING MANUAL

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PREFACE

LiteHaus International is an Australian charity and NGO which exists to tackle digital inequality and expand educational opportunities for students across Asia-Pacific. Starting in Papua New Guinea (PNG) back in 2017, our digital equity programs have provided digital learning outcomes for over 250,000 people in ten countries, including Australia, PNG, Philippines and the wider Pacific and South-East Asia regions.



To complement the deployment of thousands of computers into schools across the developing world, LiteHaus International has developed this 'Digital Skills Training Manual' Unit with teacher training resources and an 5-week teaching curriculum in the form of a unit plan. This will serve as an invaluable primary resource to guide teachers with no formal training or limited competency in teaching IT and using computers, providing a structured and detailed curriculum for teaching digital technologies.

The plan breaks down the learning objectives, lessons, and helps to create assessments in a clear and strategic manner, making it easy for teachers to follow along and implement in their classrooms for 5 weeks of the teaching year.

Following this unit plan, teachers can gain a better understanding of how to introduce students to fundamental digital skills such as typing, using word processing software, working with spreadsheets, creating presentations, and even basic coding. The plan includes specific lessons and activities that guide teachers on how to teach these concepts effectively, even without prior IT training.

Further, the unit plan covers topics such as e-safety, cyberbullying, misinformation, and being a good digital citizen, which are important for students to learn as they navigate today's digital age. By following this plan, teachers can help students develop essential digital literacy skills and knowledge while also ensuring their safety and well-being in the online world. Teachers will be able to use these resources to train themselves and build greater digital capability.

LiteHaus International's 'Digital Skills Training Manual' Unit is not just a resource; it is a gateway to a world of digital knowledge and empowerment for both teachers and students. In offering a structured and detailed curriculum in the form of a unit plan, LiteHaus International is not only working to bridge the digital divide but also striving for a future where quality education is accessible to all.

We wish all users of this resource every success on your digital learning journey.

Kind Regards,

Jack Growden

Founder & CEO LiteHaus International



CASE STUDY: AVIAMP PRIMARY SCHOOL

Sly Vii Joan is a teacher at Aviamp Primary School in rural Jiwaka, Papua New Guinea (PNG). When LiteHaus International was founded, few of the 3,500 schools in PNG had quality digital learning infrastructure. Aviamp Primary School was one of them until LiteHaus International stepped in with Deloitte and the Sir Brian Bell Foundation to install a computer lab.

When Aviamp Primary School received the computers, Sly Vii saw this as an opportunity to further her studies and enrolled in a university computer course. Now, she is the IT Teacher at the school.

"I always say to my students, that nowadays mastering computing is a survival skill." - Sly Vii Joan IT teacher at Aviamp Primary School.

Sly Vii has developed a daily schedule for digital classes and graduated Grades 3 to 8, and organises free computer lessons for teachers after hours.

Time	Activity	Learning Intentions					
Day 1							
8:00 AM	Everyone to start arriving for 8:30 Start	N/A					
8:30 AM	 Introductions & Training Overview Introduce LiteHaus trainers Take everyone through the structure of the day. Participants to self-assess their digital competencies before training. 	 All participants understand the structure of the training and the content which will be covered. All participants introduced to LiteHaus International trainers. All participants to reflect on their digital competencies at present. 					
9:00	 Microsoft Word (2 hours 30 minutes) Plugging in and booting the laptop. Using keypad to open and minimise all applications needed for the day ahead. Introduction to Word – What Word Can Help You Achieve Navigating the Word Interface & Understanding the Terminology Digital Skills Guidebook Adapted Activity – Drafting a Letter: Typing a letter with four paragraphs (manipulating font, font size, font colour, font style). Use of lower and upper case, alignment of text, underline/bold. Copy, pasting, and aligning images into the letter Creating a table (example: meeting agenda for upcoming event) and entering it into the letter. Electronic signing of letter. Review of Other Functionalities: Headers, Footers, Page Numbers Document Templates & Orientation Word & Character Count Spelling & Grammar Checker 	 All participants are familiar with Microsoft Word and its range of functionalities. All participants can type to a functional standard and speed. All participants can type and alignment. All participants can create tables and copy, paste and align them as well as images; All participants know how to save documents to particular locations and where to find them in File Explorer. 					
11:30	Lunch						
12:30	 How to Be safe on Social media Chapter Module to be presented to the social media representative and any other personnel who wish to be involved. Discussions around social media - what is ok, what to do and not do Sharing and examples from the real world and troubles have had because of it 						

	Writing letters to each other.	
3:00 PM	Day 1 Concludes	
Day 2		
Day 2 9:00 10:30 10:45	 ESafety Presentation – 5 Chapters E-safety, making good choices online. Scam Safety & Awareness Cyberbullying Fake News & Misinformation How to be a good Discussions around the eSafety content Sharing and examples given by members Raising awareness through our own faults How we can learn from our mistakes Short Break Microsoft Excel (2.5 hours) Introduction to Excel – What Excel Can Help You Achieve Navigating the Excel Interface & Understanding the 	To learn about e-safety and specific topics that fall under eSafety, how it impacts us and how it can be prevented. • All participants are familiar with Microsoft Excel and its range of functionalities.
	 Terminology (Ribbon, Formula Bar, Status Bar, Worksheet, Cells) Digital Skills Guidebook Adapted Activity – School Enrolment Data Entry & Analysis: Building the Spreadsheet – participants will be getting a printed copy of data points related to enrolments at fictional schools. Participants will determine how best this could be reflected in a spreadsheet and then build the template in Excel, outlining and widening columns, adding shading and borders. Data Entry – Participants will enter the raw data into the spreadsheet accurately. Filtering & Sorting – participants will be shown how to add data filters and sort A-Z or numerically or by location. 	 All participants can create a spreadsheet by adjusting column and row size, and adding shading and borders. All participants are comfortable entering data into cells. All participants can add and use filters.
12:15	Lunch	
1:15	 Microsoft Excel - Continued (1 hour 30 minutes) Using Functions: SUM function to add up all students at a school. SUMIF function to add up all students in a certain region. SUMIFS function to add up all female students in a certain region. COUNTIF function to count all the schools in a certain region. MAX function to determine the largest school. 	 All participants understand basic functions and when and how to build them. All participants understand how to convert data into various types of graphs.

2:15	 AVERAGE function to determine the average number of students per school. Creating Graphs – transforming the analysis above into pie charts, bar charts and consolidated table summaries. Exporting Data – deploying this analysis to presentations. Questions/finishing tasks Answering any questions about excel or word as they are often the most difficult Help finishing off previous tasks. Allowing for time to use their own data, seek assistance and to answer any questions they may have. 	Consolidating learning from previous 2 days as they are very content heavy
3:00	Day 2 Concludes	
Day 3		
8:30	 Microsoft PowerPoint (2 hours) Introduction to PowerPoint – What Can PowerPoint Help You Achieve? Navigating the PowerPoint interface & Understanding the Terminology: Slide, Slide Show, Animation, Transitions. Digital Skills Guidebook Adapted Activity – Creating a Presentation on School Enrolments in the Province: Selecting Presentation Template & Design Adding & Deleting Slides & Slide Elements Adding Text to the Slide Migrating Data Analysis from Excel to PowerPoint effectively. Adding Transitions & Animations Presentation Tips: i.e. full screen presentation mode, staging animations, and general style tips. 	 All participants are familiar with Microsoft PowerPoint and its range of functionalities. All participants are familiar with the templates and designs on offer. All participants can create a presentation by adding and deleting slides. All participants can add text, images and data from other apps to a presentation. All participants and data from other apps to a presentation. All participants and data from other apps to a presentation. All participants can add text, images and data from other apps to a presentation. All participants and animations. All participants understand the best ways to present and things to avoid in presentations.
10:30	Short Break	
11:00	 Computer Safety & Basic Troubleshooting How to keep the computer healthy and allow it to last longer. How to solve basic troubleshooting problem Keeping the PC clean Avoiding potential issues Discussions about how to solve problems, listing things and crossing them off, etc. 	

	Any further questions	
	• Going over any issues that may have not been	
	covered.	
12:00	Lunch	
1:00	 Debrief on all activities. What worked? What did you struggle with? Is there anything else you wanted to know about? Conclusion & Feedback Participants to review the key learning outcomes. Participants invited to join WhatsApp Group with LiteHaus tech team for ongoing support. Participants to offer feedback. Participants to self-assess their digital competencies after training. 	
2.00	Discussions around how this can be useful for their teaching and how they can teach the skills they have learnt will be taught to their students and this will be covered over the next two days.	
3:00	Day 3 Concludes	
Day 4		
9:00	 Discussion - What does teaching look like in PNG? Open sharing of what the teachers in PNG due Positive discussions about what works and what doesn't 	To understand the similarities and difference between PNG and Australian teaching to better evolve it to the digital
	 What does teaching look like in Australia? Talking, showing examples of what we do in Australia What do we try to achieve? What parts do we want to take away? Learning Intention & Success Criteria 	world.
10:30	 What does teaching look like in Australia? Talking, showing examples of what we do in Australia What do we try to achieve? What parts do we want to take away? Learning Intention & Success Criteria Small break	world.
10:30 11:00	 What does teaching look like in Australia? Talking, showing examples of what we do in Australia What do we try to achieve? What parts do we want to take away? Learning Intention & Success Criteria Small break Creating a lesson Example from 11-week curriculum shown Explanation of process shown, going through step by step Working in small groups to create a unique lesson in time with steps given Creating a lesson that teaches the skills you wish the student to learn 	world. Learning Intention: To further develop and test your skills in lesson creations, IT understanding and how to reproduce these in the classroom for student learning.

		and creating an assessment to test their skills.				
1.00	Lunch	test their skills.				
2.00	Creating an assessment	To use the example and skills				
2:00	Example shown go through step by step	learnt to create an assessment				
	 Using part of the 11 - week curriculum to create 	piece for part of the 11-week				
	an assessment that assess the kids and what	curriculum.				
	they have learnt from the content.					
	• Using lesson as ideas for what should be in the					
	assessment, e.g. what are the skills we are					
	teaching? How do we assess them?					
	• Creation of assessment done as step by step is					
	given with example assessment					
3:00	Day 4 Concludes					
Day 5						
9:00	Going through the 11-week curriculum provided	Going through the content				
	 Walking through the curriculum 	provided that makes up 10				
	 How the lessons work 	weeks' worth of learning,				
	 Resources provided. 	being able to use this to help				
	 Content covered. 	future learning, obtaining				
	• How it can be used as a template for	resources that can be used				
	their own term lesson writing/planning	and gaining everything used				
	 Discussing how it can be used in their classes effectively 	and covered on a usb.				
	• Further discussions about what else can be					
	provided for education.					
	$^{\prime}_{\odot}$ Assessing the needs of the teachers and					
	how digital technology can help					
	 What else can be done 					
	\circ Surveying straight from the education					
	system of what they need					
	Handing out litelland E library on LICD/a op well of					
	training and curriculum					
	Providing all participants resources curriculum					
	and training resources used in over the last 5					
	days to go back and to be used among					
	themselves, their schools and to help assist					
	digital technology and teaching.					
11:00	Break					
12:00	Completion Ceremony and any events to follow					

Microsoft Word



MICROSOFT WORD

On the following page, we have prepared a letter which is addressed to Jack Growden, welcoming him to Papua New Guinea.

Your task is to re-write this letter exactly in the format it is in (including the table, images and fonts), to learn the various functionalities of Microsoft Word.

You will notice that the letter includes the use of a range of text styling techniques, including **bold**, <u>underline</u>, *italics*, change of colour, and text highlight. It also includes a table and two images. The LiteHaus letterhead image can be found on your accompanying USB stick as 'Letterhead'. The 'houses' image can be found on the same USB stick as "PNG Image 1".

Below are your instructions:

- 1. Open a blank Microsoft Word document. Microsoft Word can be found by clicking the Windows Menu button in the bottom left corner of your screen:
- 2. Once Microsoft Word is opened, click 'Blank Document'.
- 3. Begin typing the text, **ignoring the styling, images and table** for now once you have typed the entire text, we will move on with these.
- 4. Create a list for the following: Lush rainforests; towering mountain ranges; pristine beaches; and vibrant coral reefs
 - a. To create a list, space these points out line by line using the Enter key:

lush <u>rainforest;</u>

towering mountain ranges;

pristine beaches;

and vibrant coral reefs

b. Select all lines by left clicking (HOLD) and dragging across the text with your right hand.

lush <u>rainforest;</u>	
towering mountain	ranges;
pristine <u>beaches;</u>	
and vibrant coral r	eefs

- c. Click the list button in the Home tab which looks like this: Ξ ~
- d. The list should now look like this:
 - lush <u>rainforest;</u>
 - towering mountain <u>ranges;</u>
 - pristine beaches;
 - and vibrant coral reefs



Once you have written all of the text, including the list above, it is time to begin styling the letter. Let's start by adding the pictures.

- 1. Insert the USB flash drive provided.
- 2. Click on File Explorer at the bottom of your screen:
- 3. Click on USB Drive (D:): ---- USB Drive (D:)
- 4. In the folder, you should find 'PNG Image 1', click to open it.
- 5. **Right**-click on the image and select *Copy*.
- 6. Return to your Microsoft Word document and click in the appropriate location in the letter where the image will be being placed.
- 7. Right-click and select Paste.
- 8. The image in its current form will be too big for the space provided. Therefore, we need to crop the image. To do this:
 - a. Select the image and click on 'Picture Format' tab at the top of your screen.
 - b. Click on Crop.

Crop

c. The corners of the image will now have black lines click and hold on the top right hand corner of the image and drag it down to cut out the sky. Then click and hold the bottom right hand corner of the image and drag it up to remove most of the grass. The image should now look like this:



- 9. The image should now fit neatly on the bottom of the first page of the letter.
- 10. Now let's add the **letterhead**. Once again, click on File Explorer at the bottom of the screen and open 'Letterhead'
- 11. **Right**-click on the image and select *Copy*.
- 12. Return to your Microsoft Word document and click at the top of the letter where the image will be being placed.
- 13. **Right**-click and select *Paste*.
- 14. You will notice that the image does not stretch exactly to the margins. To fix this, select the image and click on 'Picture Format' tab at the top of your screen.
- 15. Click on Wrap Text and select "Behind Text". This will make the image more flexible and easier to move.
- 16. Now, resize the image and stretch it right to the margins by clicking on the image and then clicking, holding and dragging the image to the corners of the document.
- 17. You may need to enter the text down so that it starts neatly below the letterhead.

Your letter should now have both images neatly included as shown in the example letter. Now, it is time to add the table following these steps:

- Table
- 1. Select the Insert tab. Then click on the Table icon and drop-down menu.
- Pere, you can select the number of rows and columns by clicking on the grid which looks like this:



3. Create a table with **3 columns** and **5 rows**. It will look like this at first:

- 4. Begin adding in the text so that your table looks like the below. To create a number list, go to the Home tab and click on this button: [1 →]
- 5. Your table should now look like this:

Year levels	Gender	Highest Numbers		
Year 5	Males: 57	Males		
	Females: 45			
Year 6	Males:35	Females		
	Females:46			
Year 7	Males: 75	Males		
	Females:50			
Year 8	Males:59	Females		
	Females: 60			

- 1. Now, the columns need to be re-aligned. To do that, select the first column, click the Layout tab and the click the Centre Align button which looks like this:
- While you have the first column still selected, click on the **bold** icon in the Home tab. It looks like this:
- 3. Repeat Step 6 for the third column, **but not the second column**.
- 4. Now we need to bold and shade the top row. To do that, select the top row and, firstly, press the bold icon. Secondly, click the Table Design tab in the toolbar, and click on the Shading drop down menu. It looks like this:



5. Your **table** should now look exactly like the example letter template.

Now it is time to style the text throughout the document, following the instructions below:

Bolding Text:

• Select the text, then click on the **bold** icon in the Home tab. It looks like this: **B**

Underlining Text:

• Select the text, then click on the <u>underline</u> icon in the Home tab. It looks like this: <u>U</u> <u>Italicising Text:</u>

• Select the text, then click on the *italics* icon in the Home tab. It looks like this: I

Changing Text Colour:

• Select the text, then click on the dropdown menu next to this icon: <u>A</u>. Select colour.

Highlighting Text:

• Select the text, then click on the dropdown menu next to this icon:

Enlarging Text:

• Select the text, then click on the dropdown menu next to this icon: 11

Now to put the finishing touches on the letter by signing off. You will see in the template that it asks for your name and your title. Amend this to suit you. Create a gap between "Warm Regards," and your name. This is where we will add your signature.

To create your signature:

- 1. Click on the **Draw** tab in your toolbar.
- 2. Select the black pen icon to the right.
- 3. ALERT: Now your mouse is operating as a pen. To use the pen, left click and hold with your left hand. With your right hand, drag the mouse along to make your signature. Be gentle and take your time as the mouse is touchy.
- 4. If you are unhappy with your first attempt, press CTRL+Z to undo.
- 5. Once you are satisfied, be sure to return to the Draw tab and click the mouse icon to deactivate the pen function.

You have now completed the letter. Now save the document by clicking the save icon.



RE: Pen Pal Letter – Learning each other's cultures

Dear Australian Friend,

I hope this letter finds you in great health and high spirits. I would like to tell you a bit about my home country and my Village.

Papua New Guinea, located in the **South Pacific/Oceania**, is a land of incredible diversity and breathtaking landscapes. These include:

- Lush rainforests;
- towering mountain ranges;
- pristine beaches;
- and vibrant coral reefs.

PNG offers a unique blend of natural beauty that is second to none. Whether you're trekking through the rugged terrain of the Kokoda Track, exploring the enchanting Sepik River, or diving into the mesmerizing underwater world of Milne Bay, PNG promises unforgettable adventures.



This is a picture of my home; we use a lot of natural resources and live a good life. We live in a small village, out in our beautiful rainforest. There are a lot of trees, grass and a lot of work. We love our farming and pride ourselves on our food that we grow and enjoy. My favourite food is Kau Kau which is like a sweet potato.

I have a few questions about Australia.

- 1. What is your life like in Australia?
- Do you live similarly to the way we live?
 What is your favourite food from Australia?
- 4. Do you have questions for me about Papau New Guinea?

I hope to receive a response from you soon!

All the best,

Your Name Here

Microsoft Excel



MICROSOFT EXCEL

On the following page, we have compiled hypothetical student enrolment data from across imaginary schools.

Your task is to enter the data accurately into spreadsheet using Microsoft Excel, and then analyse the data to determine the answers to the following questions:

- 1. Which region has the most schools?
- 2. Which region has the most students in total?
 - a. Express in a bar graph.
 - b. Express this in pie chart.
- 3. Which region has the most female students in total?
- 4. Which region has the highest average number of students per school?
- 5. Which school is the biggest in the country?
- 6. Which school is the biggest in the Southern region by population?

To begin the task:

- 1. Open Microsoft Excel, which can be found by clicking the Windows Menu button in the bottom left corner of your screen:
- 2. Select 'Blank Worksheet'.
- 3. Fill in the sheet like below:

	A	В	С	D	E	F	G	Н	- 1	J	K	L	M	N	0
1				Grade 9			Grade 10			Grade 11			Grade 12		
2	School Name	Region	м	F	т	м	F	т	м	F	т	М	F	т	GRAND TOTAL
3	Kilo School	Highlands	144	98	242	432	282	714	76	72	148	62	20	82	1186
4	Lima School	Highlands	136	94	230	408	282	690	74	72	146	66	16	82	1148
5	Juliett School	Highlands	128	96	224	384	288	672	82	66	148	58	24	82	1126
6	Delta School	Islands	73	50	123	58	44	102	37	34	71	29	28	57	353
7	Echo School	Islands	59	46	105	54	40	94	43	36	79	32	35	67	345
8	Golf School	Southern	71	51	122	52	45	97	39	37	76	33	7	40	335
9	Bravo School	Momase	62	47	109	56	42	98	45	38	83	34	9	43	333
10	Hotel School	Southern	63	52	115	60	39	99	42	31	73	35	10	45	332
11	Foxtrot School	Southern	67	48	115	57	43	100	40	33	73	30	12	42	330
12	Charlie School	Momase	68	49	117	53	41	94	41	35	76	31	11	42	329
13	Alpha School	Momase	64	49	113	55	40	95	39	39	78	32	8	40	326
14	India School	Southern	69	47	116	55	42	97	38	32	70	28	13	41	324
15			1004	727	1731	1724	1228	2952	596	525	1121	470	193	663	6467

To do this, you will need to:

- 1. Adjust the size of the columns by left clicking and holding the line that separates column A and column B, for example, and dragging them to fit.
- 2. You will see that Grade 9, Grade 10, Grade 11 and Grade 12 fit neatly across all of the M. F. T columns. To achieve this \leftrightarrow
 - a. Select cell C1, D1, and E1 and press Merge and Centre icon:

You will now be wondering how to get the Total number of students automatically, for each grade as these are not provided in the data.

For this, we will use the first of many Excel Formulas.

Formulas instruct the computer to calculate and measure certain things based on certain variables.

Below is a summary of formulas which we will use to analyse the data:

SUM – To add up numbers.

SUMIF – To add up numbers based on criteria.

SUMIFS – To add up numbers based on multiple criteria.

COUNTIF – To count based on a criteria.

COUNTIFS – To count based on multiple criteria.

MAX – To find the highest value in the list.

AVERAGE – To find the average value of a list.

To add up the total students per grade, per school, we will use the **SUM** function. To do this:

- 1. Click in the blank Total column for Alpha School, Grade 9.
- 2. Enter the following: **=sum(** and then select both D3 and C3. Your formula will now looks like **=sum(C3:D3**. Close the brackets so it looks like this: **=sum(C3:D3**). Press enter.
- 3. To save you from having to write that for every single school's Grade 9 total, click on the Total for Alpha School and **left click, hold and drag** from the bottom right-hand corner of the field all the way down to the last school. Once you release your hold, all the values will automatically appear.
 - a. Repeat Steps 2 & 3 for each of Grades 10, 11 and 12.
- 4. Add in a final column called 'Grand Total' at the end of the sheet and use the **SUM** function to add up all of the Total columns for each school. This will give you the total number of students in the school. To do that:
 - a. Press =sum(and then select E3. Then add a + and then add H3. Then add a + and then add K3. Then add a + and add N3. Then close the brackets. Your formula should now look like this: =sum(E3+H3+K3+N3). Press enter.
 - b. Repeat Step 3 for the Grand Totals column to list all the values down the sheet.
- 5. Repeat Step 4 and then Step 3 to add 'Total Females' and 'Total Males' columns. To Insert Columns (and rows when required) click on Insert in the Home Tab and a dropdown menu will appear. Click on Insert Sheet Columns as below:

🚰 In	sert ~ 🔰 🛛 × A
	Insert Cells
₹	Insert Sheet <u>R</u> ows
.∭	Insert Sheet <u>C</u> olumns
取	In <u>s</u> ert Sheet

Note for reference, that when writing Excel formulas, everything needs to be precise. We have touched on adding numbers together above, but to subtract, multiply and divide them:

- * Multiply in Excel Formula
- / Divide in Excel Formula
- + Add in Excel Formula
- -- Subtract in Excel Formula

Now our spreadsheet will enable us to begin data analysis. To answer **Q1**, we need to create a table below the data like this:

Region	Number of Schools	Students
Momase		
Islands		
Southern		
Highlands		

Now:

1. Click in the Momase/Number of Schools field and press the Formulas tab in the toolbar, then click Insert Function. This is a critical button which will be used throughout the analysis, so please note it on the very left below:

File	Home	Insert	Draw	Pag	je Layo	out	Formulas	Data	Review
fx Insert Function	AutoSum	Recently Used ~	Financial ř	Cogical	A Text ~	Date & Time Y	Q Lookup & Reference ~	θ Math & Trig ~	More Functions ~
Function Library									

- 2. Select **COUNTIF** from the list of formulas. This will instruct Excel to count the number of schools in each region.
- 3. Select the Range by clicking on B3 and dragging it down to B14 to select all regions.
- 4. Add Momase into the Criteria field.
- 5. Press Enter.

Range	B3:B14	<u>+</u>
Criteria	"Momase"	Ţ

6. Repeat these steps for each of the regions: Islands, Southern, Highlands until your table looks like the below. You will see that Southern is the answer to **Q1**.

Region	Number of Schools
Momase	3
Islands	2
Southern	4
Highlands	3

Note: if you are getting zero values, ensure that you are entering the criteria/region in absolutely identical to what you have listed in the data.

To answer **Q2**, we need to use the **SUMIF** function to add up the total number of students per region. To do that:

- 6. Click in the Momase/Students field and press the Formulas tab in the toolbar, then click Insert Function, just like in Step 1.
- 7. Select **SUMIF** from the list of functions. This will instruct Excel to add up the number of students in each region.
- 8. Again, select the Range by clicking on B3 and dragging it down to B14 to select all regions.

9. Again, add Momase as the Criteria.

10. For the Sum Range, go to the Grand Total column and click and drag O3 to O14.

11. Press Enter.

Range	B3:B14	1			
Criteria	"Momase"	1			
Sum_range	03:014	1			

12. Repeat the above steps now for each of the regions.

Your table should now look like this:

Region	Number of Schools	Students
Momase	3	988
Islands	2	698
Southern	4	1321
Highlands	3	3460

Now, you can clearly see that the answer to **Q2** is Highlands.

Now, you can express this in both a Bar Chart and a Pie Chart. To create a Bar Chart:

 Select the regions list (Region, Momase, Islands, Southern, Highlands) and then press and hold CTRL and then select the students list (Students, 988, 698, 1321, 3460)

a. You will know that they are selected when they are highlighted in black.

14. Click on the Insert tab in the toolbar, and select the bar chart icon.



15. Select the first 2-D column graph option.

You will notice that your graph looks like this:



Now we need to edit the title. To do that, click on the 'Chart Title' and amend it to 'Total Students by Region in PNG'.

We will now add data labels to each of the bars. To do this:

- 16. Click on the graph.
- 17. Click on the Chart Design tab and then click on **Add Chart Element, Data Labels, Outside End**.



Your graph should now look like this:



18. To create a pie chart, follow the same steps, but instead click on 2-D Pie chart.



Once you add the data labels and change the title by following the previous steps, the pie chart should appear like below:



To answer **Q3**, we have to use the SUMIF function, but instead of adding up the Grand Total, we need to add a new column called **Female Total** and use that.

- 19. Create a Female Total column following the instructions in Step 4 of Page 8.
- 20. Return to your smaller table and click in the Momase/Female Students field.
- 21. Press Insert Function and add in the variables listed below, then press ENTER.

Range	je B3:B14					
Criteria	"Momase"	1				
Sum_range	03:014	1				

22. Repeat this step for each region.

Your table should look like the below. We can see that the answer to Q3 is Highlands.

Region	Number of Schools	Students	Female
Momase	3	988	408
Islands	2	698	313
Southern	4	1321	542
Highlands	3	3460	1410

You may choose to also express this in a bar or pie chart as an extra activity.

To answer **Q4**, we need to add another column into our smaller analysis table called 'Average Students Per School'. To calculate this, we need to use the **SUM** function again.

- 23. Click in the Momase/Average Students Per School field.
- 24. Type =sum(and then select the total number of students for Momase field. Then type the symbol: / and then select the number of schools for Momase field. Press enter.a. Your formula should be: =sum(Number of students/Number of Schools)
- 25. Repeat this step for each of the regions until your table looks like this:

Region	Number of Schools	Students	Female	Average Per School
Momase	3	988	408	329.3333333
Islands	2	698	313	349
Southern	4	1321	542	330.25
Highlands	3	3460	1410	1153.333333

You will notice that the decimal places are untidy. To fix this:

- 1. Click on the 329.33333333 value.
- 2. Click on the decrease decimal icon in the Home tab.
- 3. Repeat this step for each of the values.

Now, we can clearly see that the answer to **Q4** is again, the Highlands.

To answer **Q5** & **Q6**, we will now learn how to Sort & Filter.

• **Sorting** is the process of manipulating a list so that it is placed in a particular order (i.e. A to Z or Highest to Lowest).

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• Filtering is the process of removing pieces of information to leave a refined list.

Let's answer **Q5** first by using the Sorting function.

- 4. Go to your Grand Total column and select all values.
- 5. In the Home Tab, click Sort & Filter and then Sort Largest to Smallest.



6. When you click this, it will come up with a 'Sort Warning' – refer the following page. Click Expand the Selection and then Sort.

Sort Warning		?	×
Microsoft Excel found data next to your selection. S will not be sorted.	ince you have not s	elected this	s data, it
What do you want to do?			
Expand the selection			
\bigcirc <u>C</u> ontinue with the current selection			
	<u>S</u> ort	Can	cel

You will notice that the schools are now in the list of largest to smallest.

As such, we can see that the answer to **Q5** is Kilo School.

To answer, **Q6**, we have to use the Filtering function.

- 7. Click on cell A2 School Name.
- 8. Click on the Sort & Filter icon again and then press Filter.
- 9. You will notice that next to every heading in that row, a little arrow has appeared. Click on the arrow next to Region.
- 10. You will see this list:
- ✓ (Select All)
 ✓ Highlands
 ✓ Islands
 ✓ Momase
 ✓ Southern
 ✓ (Blanks)
- 11. Untick all of the regions except for Southern and press OK.

Now you should only see the four schools in Southern listed. Therefore, we can see that the answer to **Q6** is Golf School.

To return your data sheet to its original form, re-select all the regions in the Filter function.

SECONDARY SCHOOL ENROLMENT DATA

Alpha School – Momase Region

Grade 9 (64 M | 49 F), Grade 10 (55 M | 40 F), Grade 11 (39 M | 39 F), Grade 12 (32 M | 8 F)

Bravo School – Momase Region Grade 9 (62 M | 47 F), Grade 10 (56 M | 42 F), Grade 11 (45 M | 38 F), Grade 12 (34 M | 9 F)

Charlie School – Momase Region Grade 9 (68 M | 49 F), Grade 10 (53 M | 41 F), Grade 11 (41 M | 35 F), Grade 12 (31 M | 11 F)

Delta School – Islands Region Grade 9 (73 M | 50 F), Grade 10 (58 M | 44 F), Grade 11 (37 M | 34 F), Grade 12 (29 M | 28 F)

Echo School – Islands Region Grade 9 (59 M | 46 F), Grade 10 (54 M | 40 F), Grade 11 (43 M | 36 F), Grade 12 (32 M | 35 F)

Foxtrot School – Southern Region Grade 9 (67 M | 48 F), Grade 10 (57 M | 43 F), Grade 11 (40 M | 33 F), Grade 12 (30 M | 12 F)

Golf School – Southern Region Grade 9 (71 M | 51 F), Grade 10 (52 M | 45 F), Grade 11 (39 M | 37 F), Grade 12 (33 M | 7 F)

Hotel School – Southern Region Grade 9 (63 M | 52 F), Grade 10 (60 M | 39 F), Grade 11 (42 M | 31 F), Grade 12 (35 M | 10 F)

India School – Southern Region Grade 9 (69 M | 47 F), Grade 10 (55 M | 42 F), Grade 11 (38 M | 32 F), Grade 12 (28 M | 13 F) Juliett School – Highlands Region

Grade 9 (128 M | 96 F), Grade 10 (384 M | 288 F), Grade 11 (82 M | 66 F), Grade 12 (58 M | 24 F)

Kilo School – Highlands Region

Grade 9 (144 M | 98 F), Grade 10 (432 M | 282 F), Grade 11 (76 M | 72 F), Grade 12 (62 M | 20 F)

Lima School – Highlands Region

Grade 9 (136 M | 94 F), Grade 10 (408 M | 282 F), Grade 11 (74 M | 72 F), Grade 12 (66 M | 16 F)

FORMULAS FOR EXCEL

Dates and Time Excel Formulas

- <u>=EDATE</u> add a specified number of months to a date in Excel
- =EOMONTH convert a date to the last day of the month (e.g., 18/7/2018 to 31/7/2018)
- =DATE Returns a number that represents the date (yyyy/mm/dd) in Excel. This formula is useful when working with Excel functions that have a date as an argument.
- <u>=TODAY</u> insert and display today's date in a cell
- =NETWORKDAYS Returns the number of whole workdays between two specified dates.
- =YEAR extracts and displays the year from a date (e.g., 18/7/2018 to 2018) in Excel
- =YEARFRAC expresses the fraction of a year between two dates (e.g., 1/1/2018 3/31/2018 = 0.25)

Lookup Formulas

- =VLOOKUP a lookup function that searches vertically in a table
- =HLOOKUP a lookup function that searches horizontally in a table
- =INDEX a lookup function that searches vertically and horizontally in a table
- =MATCH returns the position of a value in a series
- =OFFSET moves the reference of a cell by the number of rows and/or columns specified

Math Functions Excel Formulas

- =SUM add the total of a series of numbers
- =AVERAGE calculates the average of a series of numbers
- =MEDIAN returns the median average number of a series
- =SUMPRODUCT calculates the weighted average, very useful for financial analysis
- =PRODUCT multiplies all of a series of numbers
- <u>=ROUNDDOWN</u> rounds a number to the specified number of digits
- <u>=ROUNDUP</u> the formula rounds a number to the specific number of digits
- <u>AutoSum</u> a shortcut to quickly sum a series of numbers
- =ABS returns the absolute value of a number
- =PI Returns the value of pi, accurate to 15 digits
- =SUMIF sum values in a range that are specified by a condition
- =SUMQ Returns the sum of the squares of the arguments

Financial Formulas

- <u>=NPV</u> calculates the net present value of cash flows based on a discount rate
- =XNPV calculates the NPV of cash flows based on a discount rate and specific dates
- =IRR this formula calculates the internal rate of return (discount rate that sets the NPV to zero)
- <u>=XIRR</u> calculates the internal rate of return (discount rate that sets the NPV to zero) with specified dates
- =YIELD returns the yield of a security based on maturity, face value, and interest rate
- =FV calculates the future value of an investment with constant periodic payments and a constant interest rate
- =PV calculates the present value of an investment
- =<u>INTRATE</u> the interest rate on a fully invested security
- =IPMT this formula returns the interest payments on a debt security
- =PMT this function returns the total payment (debt and interest) on a debt security
- =PRICE calculates the price per \$100 face value of a periodic coupon bond
- =DB calculates depreciation based on the fixed-declining balance method
- =DDB calculates depreciation based on the double-declining balance method
- =SLN calculates depreciation based on the straight-line method

Conditional Functions

- =IF checks if a condition is met and returns a value if yes and if no
- =OR checks if any conditions are met and returns only "TRUE" or "FALSE"
- =XOR the "exclusive or" statement returns true if the number of TRUE statements is odd
- =AND checks if all conditions are met and returns only "TRUE" or "FALSE"
- =NOT changes "TRUE" to "FALSE", and "FALSE" to "TRUE"
- IF AND combine IF with AND to have multiple conditions
- =IFERROR if a cell contains an error, you can tell Excel to display an alternative result

Microsoft PowerPoint



MICROSOFT POWERPOINT

In the previous exercise, we analysed student data to create various graphs and tables. However, this is not a neat format for presenting to large groups at formal events. Instead, Microsoft PowerPoint is the best option.

In this task, we will create a PowerPoint presentation titled "Analysis of Student Data in PNG" and include our key findings and graphs.

To begin the task:

- 1. Open Microsoft PowerPoint, which can be found by clicking the Windows Menu button in the bottom left corner of your screen:
- 2. Select 'Blank Presentation'.
- 3. Click on the Design tab and select a design. We recommend the third option (in green below).

File	Home	Insert	Draw	Design	Transitions	Animations	Slide Show	Record	Review	View	Help	Acrobat
Aa		Aa		Aa	Aa	Aa	Ac		Aa		la	 ▲ ▲ ■ ■ ■

4. Change the Title to "Analysis of Student Data in PNG" and the Subtitle to "Provincial Department of Education".



- 5. Insert a new slide by clicking **New Slide**. Be sure to select 'Title & Content' as the format.
- 6. Change the title to 'Key Findings'.
- 7. In the textbox below, you will see that it has automatically started a list. Go ahead and write six dotpoints listing the following from the data in your Excel sheet:
 - a. The total number of students in PNG is XXXX
 - b. The total number of schools in PNG is XXXX
 - c. The region with the largest number of schools is XXXX
 - d. The region with the largest number of students is XXXX
 - e. The average number of students per school is XXXX
 - f. The largest school in PNG is XXXX
- 8. Insert a new slide by clicking **New Slide**. Be sure to select "Title Only" as the format.
- 9. Change the title to 'Regions of PNG'.
- 10. Copy (CTRL-C) and Paste (CTRL-V) the graph titled Total Students By Region from the Excel sheet into the vacant space on this slide.
- 11. Repeat these steps for each graph that was produced in the Excel sheet, inserting new slides when required.
- 12. Add a new slide by clicking New Slide. Be sure to select "Blank" as the format. Then copy and paste the image 'PNG Image 1' on the page. This will be our end page.

To add artistic transitions into the slideshow, click on the Transitions tab and select from the options below. We recommend 'Wipe'.



To ensure that this is consistent throughout the presentation, press Apply to All on the right hand side of the toolbar (see above).



To enter Presentation Mode (which will make your slideshow full screen), click the Slide Show tab and then the From Beginning icon. Now your slideshow will be full screen. To click through your slides, press the Space Bar.

BEST PRACTICE – PRESENTATION TIPS

- Less is best adding too much text to the screen can confuse the viewer.
 - You can always say more in your speech. The PowerPoint should just be there to re-enforce what you have to say.
- Less is best (again!) be sure to limit the variety of transitions and colours used.
 Random movements on the screen can distract the viewer.
 - Always use an existing 'Design' to improve professionalism of style.
- Make sure all images and text boxes are neatly aligned to each other.
- Use a simple, professional font. Remember it is the content of the presentation that the audience is interested in.
- Always use Presentation Mode when presenting.

Assessment Materials

Weeks 7, 8, 9



EXCEL ASSESSMENT

You have been asked to check the ability of the schools in the area to teach students. The government has asked that you check that each school meets the following criteria:

- 1. 1 classroom for every 30 students
- Make another column. Use ratios (refer to page 13) to calculate students per classroom
- 2. 1 Teacher for every 30 students
 - Make another column. Use ratios (refer to page 13) to calculate students per teacher.
- The government also wants to know the overall numbers of students and teachers.
 Use SUM function to calculate (Refer to page 13)
- 4. How many places do not meet 1 Classroom, 1 Teacher for every 30 students.
 - Refer to page 13 to help you to find the ratios.
- 5. Which needs the immediate attention? For every 1 classroom and 1 teacher under per 30 students
 - Use filter function to find this answer (refer to page 13-14)
- 6. Rank from top priority to less necessary, based on your results.
 - Use the filter function to help you rank this (refer to page 13-14)
- Make a graph of the <u>number of students in each region, the numbers of schools, Teachers</u> (one pie graph and one bar chart required) use the data from countif to help complete (refer to page 9-12)

MAKE SURE TO USE SUMIF AND COUNTIF TO HELP YOU WITH CALCULATIONS.

Wood School (Northern Region) - 68 Students, 1 Teacher, 1 Classroom John School (Western Region) - 90 students, 2 Teachers, 2 Classrooms Oak School (Eastern Region) - 150 Students, 7 Teachers, 6 Classrooms Oil School (Southern Region) - 100 Students, 2 Teachers, 2 Classrooms Rock School – (Northern Region) 88 Students, 2 Teachers, 1 Classroom Tree School – (Northern Region)125 Students, 2 Teachers, 2 Classrooms Fish school – (Western Region) 190 Students, 5 Teachers, 4 Classrooms Lone School – (Western Region) 190 Students, 5 Teachers, 4 Classrooms Cart School – (Western Region) 79 Students, 2 Teachers, 3 Classrooms Care School – (Western Region) 142 students, 4 Teachers, 5 Classrooms Friend School – (Northern Region) 135 Students, 3 Teachers, 3 Classrooms Thursday School – (Eastern Region) 99 Students, 3 Teachers, 3 Classrooms Coral School – (Western Region) 83 Students, 3 Teachers, 3 Classrooms Coral School – (Southern Region) 177 Students, 4 Teachers, 5 Classrooms

Your table should include the following **columns** in your excel spreadsheet with these **titles**: schools, region, students, teachers, classrooms.

WORD ASSESSMENT

Based upon your findings in the Excel assessment, write to the government with your results, explaining what schools are in dire need of attention and what the solutions are to solve the numbers issues for students, to teachers, to classroom numbers. You will need to provide an idea of how much time you expect these projects to take and a timeframe you believe this needs to be completed by.

Example of Template On Following Page

