七年級英語融入科技領域—資訊科技教學之教案設計理念

依據科技領域課程綱要之規範，國中教育階段（第四學習階段）科技領域學習節數每週2節課。授課時間分配之規劃建議依學期開設，採資訊科技與生活科技上下學期對開，每週連排 2 節課。具體之科目組合及開課架構可參酌表1之模組。

表 1 國中階段開課模組

	701 班		702 班		703 班	
	第一學期	第二學期	第一學期	第二學期	第一學期	第二學期
資訊科技		2	2		2	
生活科技	2			2		2

七年級英語融入科技領域—資訊科技教學之教案設計理念
本計畫以七年級 3 個班，規劃七年級一周 2 節的資訊科技課程，由資訊科技老師與英文老師協同教學，內容安排如下：
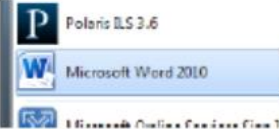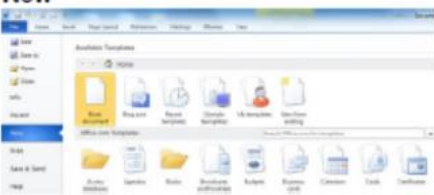
	主題	名稱	教學週次
一學期資訊科技	Microsoft 微軟文書軟體	Word & Excel	第 2~7 週
	Microsoft 微軟文書軟體 & Google	PPT & Xmind	第 8~13 週
	程式語言軟體	Scratch	第 14~19 週

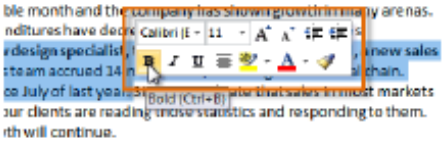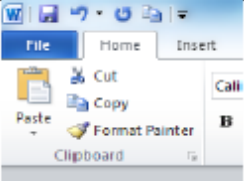| 週	主題	科技領綱	資訊科技課程理念與設計
1	開學準備週		
2-	認識 Microsoft Word 與使用方法 Word 中文字的編輯	科-J-A1 具備良好的科技態度，並能應用科技知能，以啟發自我潛能。 科-J-A2 運用科技工具，理解與歸納問題，進而提出簡易的解決之道 科-J-B1 具備運用科技符號與運算思維進行日常生活的表達與溝通。	1.開啟 Word 2.認識 Word 工作視窗 3 瞭解功能表中各種工具的功能：（檔案、編輯、檢視、插入、格式、工具、表格、視窗與說明） 4.使用中英文輸入法輸入文字。 5.學會文字的編輯：（選取、複製、剪下、貼上、復原與重複） 6.學會快速鍵的使用
3	Word 中格式的設定 Word 中表格的使用	科-J-A1 具備良好的科技態度，並能應用科技知能，以啟發自我潛能。 科-J-A2 運用科技工具，理解與歸納問題，進而提出簡易的解決之道 科-J-B1 具備運用科技符號與運算思維進行日常生活的表達與溝通。	1.瞭解字型格式內容 2.瞭解段落格式：尺規、左右縮排與行距的使用。 3.認識項目符號與編號。 1.認識表格、欄、列與儲存格 2.學會插入 4x5 的表格 3.學會顯示／隱藏表格工具列 4.學會使用表格工具列
4-5	試算表 Excel	科-J-A1 具備良好的科技態度，並能應用科技知能，以啟發自我潛能。 科-J-A2 運用科技工具，理解與歸納問題，進而提出簡易的解決之道 科-J-B1 具備運用科技符號與運算思維進行日常生活的表達與溝通。	1.試算表功能基本操作 2.建立算式、公式並排序。 3.進階格式化設定。 4.建立統計圖表。 實作：班級段考成績單製作。 含加總、平均、名次、加權統計、評語、格式化條件等。

6	成績查詢 google 帳 號設定		1. 學生登入校務系統介紹 2. google 帳號設定
第一次段考			
7-9	Xmind 心智圖	科-J-A1 具備良好的科技態度,並能應用科技知能,以啟發自我潛能。 科-J-A2 運用科技工具,理解與歸納問題,進而提出簡易的解決之道 科-J-B1 具備運用科技符號與運算思維進行日常生活的表達與溝通。	1、輸入中心主題內容文字。 2、加上相關的分支主題,輸入文字內容。 3、可用滑鼠隨意拖移至其它位置,選接適當歸屬的父級主題下來排列。 4、可使用工具欄的插入外框,來將重要主題內容圈選標示。 5、利用圖標或圖片庫,或工具欄的圖片,在各個主題內加上圖案。 6、設定改變內容的屬性,如字形、大小、顏色、框形、線形等。 7、設定風格樣式、線條型式、色彩配置、或選用背景圖。 8、匯出成圖檔、文檔等。
10-12	簡報軟體 PPT	科-J-A1 具備良好的科技態度,並能應用科技知能,以啟發自我潛能。 科-J-A2 運用科技工具,理解與歸納問題,進而提出簡易的解決之道 科-J-B1 具備運用科技符號與運算思維進行日常生活的表達與溝通。	1. 介紹 PowerPoint 簡報軟體的用途 2. 啟動 PowerPoint 2010 軟體 3. 認識 PowerPoint 2010 視窗環境 4. 視窗介面基本操作
第二次段考		專題報告	
13-14	程式設計我最行	科-J-A1 具備良好的科技態度,並能應用科技知能,以啟發自我潛能。 科-J-A2 運用科技工具,理解與歸納問題,進而提出簡易的解決之道 科-J-B1 具備運用科技符號與運算思維進行日常生活的表達與溝通。	1. 認識程式設計和 Scratch 2. 開啟 Scratch 程式 3. Scratch 程式寫法 4. Scratch 程式初體驗
15-16			小雪人變裝秀 1. 程式設計的步驟 2. 動手畫小雪人 3. 造型中心與存檔 4. 完成小雪人造型 5. 開始寫積木程式 6. 增加像素化特效 7. 重複迴圈簡化程式
17-18			爆米花樂趣多 1. 舞台準備和角色造型 2. 舞台座標和定位 3. 角色跟著滑鼠移動 4. 控制判斷和偵測 5. 多重條件和分身應用 6. 完成爆米花
第三次段考		報告 scratch 作品	

科技領域-資訊科技課程沉浸式英語教學教案設計-主題一

主題名稱	Microsoft Word Lesson Plan	教學設計者	簡敏惠
教學節次	3 個單元(12 節課/每週二節 45 分鐘)	教學對象	七年級
核心素養	資 T-IV-1 資料處理應用專題 資 A-IV-1 演算法基本概念 資 P-IV-1 程式語言基本概念、功能及應用 資 P-IV-2 結構化程式設計 資 H-IV-1 個人資料保護 資 H-IV-2 資訊科技合理使用原則 資 H-IV-3 資訊安全		
學習目標	1. This class is a brief introduction to Word 2010. It consists of 2 one and one-half hour sessions. 2. By the endof this class you should be able to create a simple document and manipulate its appearance and text. 3. Word is veryuseful in creating documents such as letters, resumes, brochures, flyers or invitations.		
設計理念	資訊教育的學習目標不單只是教會學生使用電腦、玩電腦，更重要的是教導學生如何活用電腦；將電腦做為學習的輔助工具，並且能夠融入日常的學習中。本課程主要教導學生學習使用文書處理軟體，並與網際網路結合，使用網路資源做為輔助工具，完成專題報告。		
教學方法	合作學習法、實作教學		

教學活動	教具	評量
Activity 1 -- The student will be asked to download a Word document from google classroom. 　　Open the document, and explain it. • Show that buttons/icons are labeled as you mouse over. Maximize screen. Review how to use mouse and cursor. Review use of scrollbar • Scroll down to Computer Use and Classes. Click on this link and then on Directions for accessing class materials or on the Microsoft Word link(s) and follow instructions. Download one of the, doc or .docx documents shown here—instructor may choose. • Students will complete steps 1 (Open Word) through 15 (Text Alignment) Activity 2 – Students will briefly review steps from Week 1 as needed, and then will complete steps 16 (Page Layout and Design) through 24 (Conclusion and Practice) 　　The students will be given a print copy of the instructor's Word document, and will be shown how edit and format the document. They will also be given a copy of the MS Word Quick Guide to keep.		

	Tasks	Steps and knowledge necessary to complete task.
1.	Open Word	Click once on Word icon.
2.	Show the "Help" button and explain	Help is also on the Backstage View page.
3. 4.	Show Backstage View Show templates	File tab houses major commands on a page called Backstage View. Show Open, Save, Save As, Print, Help and Word Options Save – Show how to save as .doc compatible with Word 97-2003 as well as .docx for Word 2010 New Print Preview hasn't disappeared. A preview of your document appears on the right side of the screen when you click Print in File-Backstage view. Print settings are on the left.
5.	Ribbons – Includes Tabs and Boxes	Tabs represent related activity areas. In each Tab are Boxes that link related items. Clicking on a Tab displays the commands needed for that activity. Briefly show each of the Tabs and their activities. Most features of the Ribbon will not be used in this class. (Home, Insert, Page Layout, References, Mailings, Review and View) Note that Ribbon design is consistent across other Microsoft products such as Excel and Publisher. Note the Launcher arrow at the bottom right of some Boxes. This will open a Dialog Box which will show other commands or tasks which can be useful. Context-sensitive Tabs appear on a Ribbon only when they can be used: Drawing Tools, Table Tools, Picture Tools Minimizing and Maximizing the Ribbon by using small arrow at top right of screen, near the Help icon. You may also customize your own Ribbon – not shown today in this class
6.	Quick Access Toolbar	Quick Access Toolbar contains commands you use over and over every day: Save, Undo, Repeat. You may customize this toolbar by clicking on File-Word Options-Quick Access Toolbar. You may move it below the

		ribbon if you wish by clicking on the Down arrow and then clicking **Show Below Ribbon.** **Show Undo and explain its value.**
7.	Ruler	Point out **View Ruler** icon at top of scroll bar on right side of screen. Or click on View Tab and then click on **Show Ruler** in **Show** box.
8.	Quick Review Demo	Open Word. A new blank document will appear. Be sure Ribbon is maximized. Display the Ruler. Add commands to Quick Access Toolbar. Close Word without saving your document.
9.	Open AuntMadge.docx or WordSampleCL.docx **Scroll through document**	From PPLS website Scroll up and down one line. Scroll up and down one screen. Drag the scroll bar to move to specific page. Scroll right and left. Use Ctrl+Home to move to the top of your document, and Ctrl+End to move to the bottom.
10.	Basics of Working with Text (in AuntMadge.docx or WordSampleCL.docx) *Dear Aunt Madge,* *The family reunion…* OR Ann Smith 1115 Rosebud Ln. Plano, TX 75002 972.111.1111 **Use either of these documents to demonstrate all text features, here and below.**	How to insert text. How to delete text. To insert text: Move mouse to point at which you wish to insert text. Click mouse and cursor appears at the insertion point. To delete text: Place cursor next to text to delete. Cursor appears. Use **Backspace** key to delete text to the **left** of the cursor/insertion point. Use **Delete** key to delete text to the **right** of cursor. To select text: Place cursor next to text you wish to select. **Click and hold mouse to drag mouse over text to select it.** Release it and a highlighted box appears over the selected text—often the background color is blue. You may see a smaller toolbar 'hover' over the text with formatting options. This can save you time, but you can also use the options on the Ribbon at the top of the page. Clicking in margin easily selects text to format: 1 click selects the whole line 2 clicks selects the entire paragraph 3 clicks selects the entire document
11.	Copy and Paste Cut and Paste	Select the text you wish to copy. Click the Copy command on the Home tab on the Ribbon. Or right-click and select Copy. Place cursor at the point where text is to appear and click **Paste** on the **Home** tab. The copied text will appear.

		To Cut: Select text. Click **Cut** on the **Home** tab and then right-click and select Cut. Place cursor where text is to appear and click **Paste**. The cut text will disappear and appear where it is Pasted. **Paste Options:** This button appears below your Pasted text. You may choose how Word will Paste the text. Show Copied or Cut text on Clipboard by clicking the **Launcher** arrow at the bottom of the Clipboard Box>Clipboard. Cut or Copied items will stay in the **Clipboard** buffer and can be used over and over until you copy or cut another segment. Remember: Always **Select**, then **Click** to act/give the mouse a command.
12.	**Drag and Drop Text**	Select the text you wish to copy. Then **click and drag text** to the location you want it to appear. The cursor will have a **rectangle** under the arrow to show that you are dragging text.
13.	**Find and Replace**	To Find: Click on Home tab, then **Find** (at top right). **Navigation pane** appears. Type text you wish to find in box at top. (Example: *flowers)* Text if found will appear highlighted in the document and previewed in navigation pane. Use arrows to show all instances where word appears. Close nav pane. To Replace: Click on Home, then **Replace. Find and Replace box** appears. Type the text you wish to find in the **Find What** field. Type the text you wish to replace it with in the **Replace With** field. Click **Find Next** and then **Replace** to make the change. Or click **Replace All** to replace the word every time it appears.

科技領域-資訊科技課程沉浸式英語教學教案設計-主題二

主題名稱	Microsoft Excel Lesson Plan	教學設計者	簡敏惠
教學節次	3 個單元(12 節課/每週二節 45 分鐘)	教學對象	七年級

核心素養	資 T-IV-1 資料處理應用專題 資 A-IV-1 演算法基本概念 資 P-IV-1 程式語言基本概念、功能及應用 資 P-IV-2 結構化程式設計 資 H-IV-1 個人資料保護 資 H-IV-2 資訊科技合理使用原則 資 H-IV-3 資訊安全
學習目標	1.Each student will gain the basic skills needed to operate and navigate MS Excel. 2.Identify, gather and input data into a spreadsheet. 3.Successfully create, copy and paste formulas and functions. 4. to be able to work collaboratively with peers in groups. 5. Successfully print areas of the spreadsheet. 6. Identify Excel as a tool used for manipulating data.
設計理念	1.Identify ways of utilizing Excel as a tool 2. Students will be able to identify and create a spreadsheet. 3. Students will successfully record data and be able to create, copy and paste formulas and functions. 4. Students will acquire information using various resources. 5. Review of standard and formatting toolbars and menus within Excel. 6 . Review of worksheets,workbooks,cells,columns,rows,and Excel cursors 7. Introduction of basic use of formulas in Excel.
教學方法	合作學習法、實作教學

教學活動	教具	評量
Introduction: 1.　First we will discuss uses of spreadsheets 2.　A payroll with three records will be opened and cell contents identified. 3.　Discussion on the data necessary to complete a payroll. 4.　Request that students perform actions such as cell alignment, formatting cells,shading cells, placing borders around cells etc. individually. 5.　Request that students exhibit knowledge of renaming worksheets,deleting worksheets, adjusting row heights and column widths etc. Engagement: 1.　As a class we will add one record of data. 2.　Each student will verbally add their record (fictitious); the payroll now contains 10-12 records. 3.　I will demonstrate formula building, copying, pasting and printing. Class Practice: 1.　Students will complete the payroll (pay). 2.　Overtime, bonus will be added to the spreadsheet (use of absolute value) 3.　They are encourage to look on each others screens and speak out loud. 4.　Students will be given opportunity to print (print preview).	• LCD Projector, handouts, audio equipment. • Students will be provided a computer workstation in the computer lab. • Students will utilize Microsoft Excel to develop a spreadsheet using the data they obtain. • Students will have access to the Internet. • Students will be given a copy of the rubric to refer to while working on this lesson.	

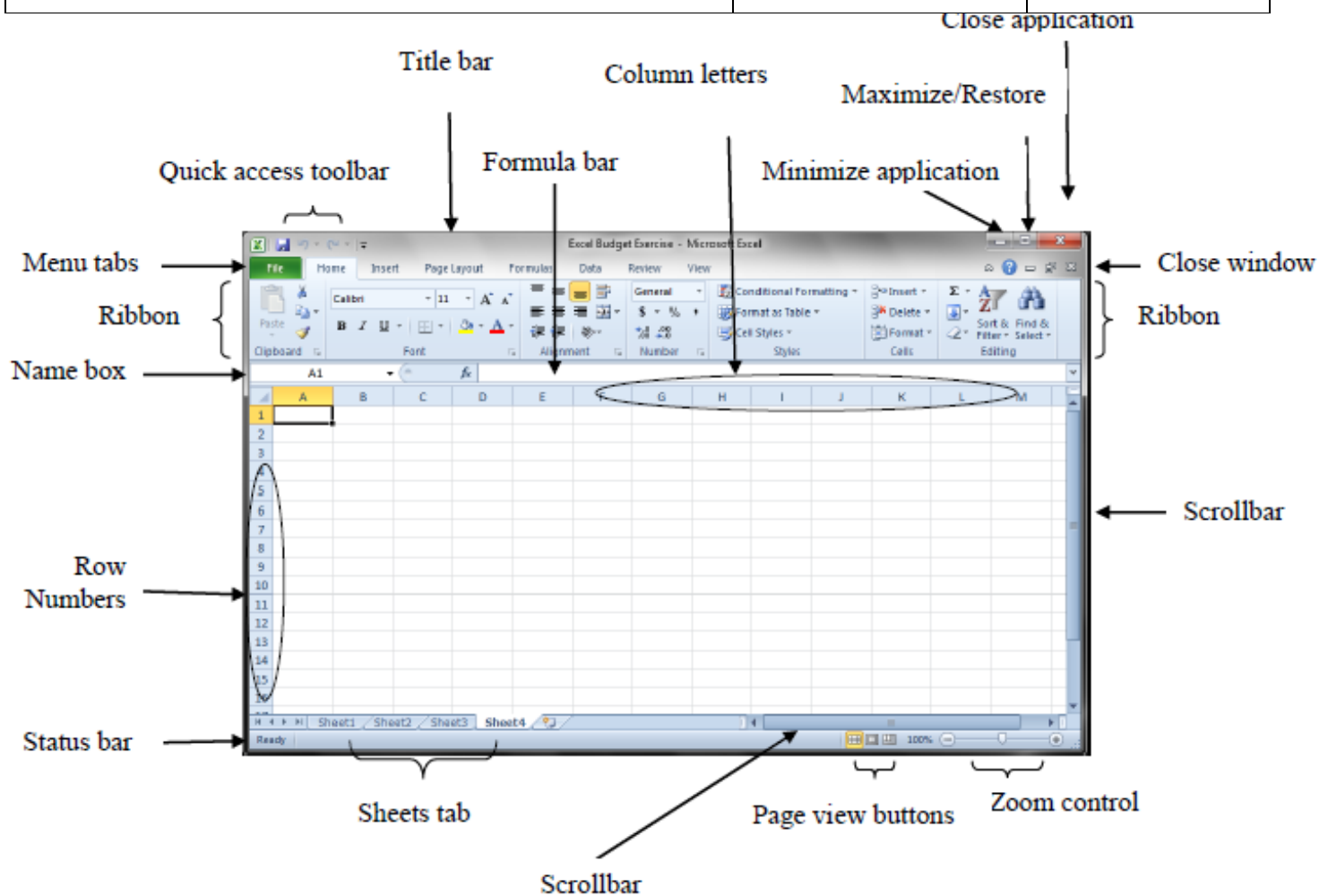|	
Independent Practice: 1. Students will create a spreadsheet from scratch(grocery budget,address list or book inventory a book inventory 2. They will create, copy an paste formulas and functions. 3. They are encourage to look on each others screens and speak out loud. 4. Students have been asked to complete a detailed budget exercise to exhibit gathered knowledge of MS Excel. Accommodations (Differentiated Instruction): 1. Slow typists - they will be able to Open my completed spreadsheet (as emphasis in this class is not on typing) 2. Quick to create - we we add the overtime calculation and bonus (using absolute value) 3. Experienced in a payroll (completed examples of advanced payrolls will be on shared drive, to be explored during breaks) Learning Checkup: 1. I will walk around the room as they create and work on their spreadsheets 2. Challenge students by changing the data (pay rate)- does the 'ripple down' effect occur?	• A laptop/projector set up will be provided for presentation. • A flash drive will be used to save and copy student work onto the laptop. • A shared drive will be available to store completed spreadsheets.

Excel interface diagram with labels: Close application, Title bar, Column letters, Maximize/Restore, Minimize application, Quick access toolbar, Formula bar, Menu tabs, Ribbon, Close window, Ribbon, Name box, Scrollbar, Row Numbers, Status bar, Sheets tab, Scrollbar, Page view buttons, Zoom control

Cursor Movement	
One cell up	Up arrow
One cell down	Down arrow or Enter
One cell right	Right arrow or Tab
One cell left	Left arrow or SHIFT+Tab
Top of worksheet (cell A1)	CTRL+Home
Where the last column with data intersects with the last row with data	CTRL+End
Any cell	Enter the cell address in the Cell Number Box
Move to next worksheet	CTRL+PageDown

Selecting Cells	
One cell	Click once in the cell
All cells left of current cell	SHIFT+left arrow
All cells right of current cell	SHIFT+right arrow
Entire column	Click the column label
Entire row	Click the row label
Entire worksheet	Click the whole sheet button or CTRL+A
Cluster of cells	Drag mouse over the cells or hold down the SHIFT key while using the arrow keys
Non-adjacent cells	Hold down the CTRL key and use the mouse to click on non-adjacent cells

Moving and Copying Cells

Action	Using the Home Ribbon	Using the right mouse button	Using the keyboard
To **cut** the cell's content that will be moved to another cell, highlight the cell and …	Click on the **Cut** icon on the **Home Ribbon**.	Right click on the highlighted cell, select **Cut** from the menu that appears.	Use the keystroke CTRL + X
To **copy** the cell's content, highlight the cell and …	Click on the **Copy** icon on the **Home Ribbon**.	Right click on the highlighted cell, select **Copy** from the menu that appears.	Use the keystroke CTRL + C
Highlight the cell into which you want to **paste** the cut or copied cell and …	Click on the **Paste** icon on the **Home Ribbon**.	Select **Paste** from the menu that appears.	Use the keystroke CTRL + V
Drag and Drop	Drag the highlighted border of the selected cell to the destination cell with the mouse.		

科技領域-資訊科技課程沉浸式英語教學教案設計-主題三

主題名稱	Microsoft Power Point Lesson Plan	教學設計者	簡敏惠
教學節次	3 個單元(12 節課/每週二節 45 分鐘)	教學對象	七年級
核心素養	資 T-IV-1 資料處理應用專題 資 A-IV-1 演算法基本概念 資 P-IV-1 程式語言基本概念、功能及應用 資 P-IV-2 結構化程式設計 資 H-IV-1 個人資料保護 資 H-IV-2 資訊科技合理使用原則 資 H-IV-3 資訊安全		
學習目標	1. At the end of the lesson, the student will be able to launch the program, save a file, and exit the program. 2. The student will also be able to correctly identify the default file extension of a PowerPoint program.		
設計理念	1. The student will demonstrate the ability to: 2. Identify the Program Manager and PowerPoint icon via the Start menu. 3. Be able to launch the PowerPoint program via the program's icon in Program Manager. 4. Open a new file. Save a file. Exit the program. I 5. dentify the naming convention for a PowerPoint file (.ppt). 6. If present or time permits, the student will also demonstrate the ability to: Identify the PowerPoint shortcut (if present) on the desktop or toolbar. 7. Launch the PowerPoint program via the PowerPoint shortcut. Repeat the "save and		
教學方法	合作學習法、實作教學		

教學活動	教具	評量
1. Start Microsoft Windows. 2. Click Start. 3. Select Programs from the menu. 4. Select MS PowerPoint 2003. 5. Doubleclick to open the program. PowerPoint starts and a new file opens. Remember, whenever you're creating files, it's a good idea to save your work on a regular basis. So even right now we won't be creating any slides, we're going to save a practice file. 6. Choose Save from the File menu. Because you're saving the file for the first time, the Save As dialog box appears 7. Type the name of your file--for example, My tutorial--in the File Name box. Note that you don't need to type a file extension. The default file extension in PowerPoint is .ppt. This So if in "My Documents" you had two files, cars.doc and cars.ppt, you would know that one is a Word file and one is a PowerPoint file. 8. If you still want to save the file, click the OK button. If you had changed your mind, you still can cancel even after you type in the filename by NOT clicking the OK button at this point. The file stays on the screen and the new filename, My tutorial.ppt, appears in the bar above the slide on your screen. You can exit PowerPoint at any time you want. Just choose Exit from the File menu.	MS Office	

教學活動	教具	評量
9. If you just saved your presentation, PowerPoint closes and you return to the Program Manager. If there is a shortcut on the desktop or toolbar, try going into PowerPoint this way: 1. Doubleclick the shortcut icon. 2. ???What happens here--does it try to open a new file or does it try to ask you if you want to open the file you just created?? Not sure--you'd have to check. 3. Based on what happens in step 2, if they open their previous file, have them type their initials in the text area and resave the file as part of the independent practice:	MS Office	

教	教具	評量
Xmind –fishbone teaching plan：	Xmind	口說分享
教學目標： （一）認識魚骨圖的時間前後關係。 （二）能以腦力激盪法繪製魚骨圖。		學生能製作魚骨圖 且能聽懂並看懂課堂上使用 的英語單字
[準備] 　教師: Sign in your google account. 　　　　Down load your Xmind from your google drive. 　學生: (Down their files from the google drive.)		
[發展活動] 　教師: At age 10-12, what can you do? 　學生: I can ……. 　教師: What else can you do? 　學生: ……… 　教師: Now, you have ten minutes to finish age 10-12. 　教師: Your time is up. 　　　　Now export the fishbone as a picture, 　　　　Save to the desktop. 　　　　And upload to the Google classroom. 　　　　Later you are going to share your idea with us. 　　　　"I can go to junior high school at age12"	實作練習	學生能聽懂老師所說的英語且回答問題 口說分享 實作評量

	英語單字： 第一次段考			
英語學習 content vocabulary / sentences patterns	Keyboard/mouse	Word vocabulary	Excel vocabulary	Google
	Enter Key. Caps Lock Space Bar Delete Print Screen Pointer Left-click Double-click Right-click	Underline Copy Paste New Open Save as Table	Active Cell Cell Column Drag File Sum Average Rank	Google drive Google classroom Google account Password Upload Download Hand in

第二次段考

Xmind	PPT
Main topic Insert Tool box Floating topic Summary Marker Label Note Fish bone Export	Animation Guide settings Grouping Charts Picture toolbar Motion Paths Handout master Slide Show view

第三次段考範圍

Scratch	
Scratch – Blocks – Projects - Stage - Scripts - Sprite - Backdrop Costumes -	Coordinates - Drawing – Repeat Blocks - Cloning - Speech Bubble - Thought Bubble - Volume – Tempo

教室用語：
　試試看 Try it. You can make it.
　認真聽 Listen carefully.
　專心 Pay attention. Be quiet!
　小組討論 Discuss in groups of 4(5)
　Good job! Excellent! Awesome!
　Raise your hands if you have problems/ questions.
句子：
　like /prefer …
　Please upload your file.
　Would you please share your ideas with your classmates?
　Would you tell us why you do this way?
　Tell your classmates. How did you do it?
　It's time to finish.
　Do you get it?
　Do you understand?
　I'm afraid it's time to finish now.
　We have an extra five minutes.
　Just a moment, please.
　Have you finished?
　Next one, please.
　You have ten minutes to do this.
　Your time is up.

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　認真聽 Listen carefully.
　專心 Pay attention. Be quiet!