

國立臺中教育大學全英語教學研究中心
109 年國民小學教育階段雙語教學教案設計競賽

編 號：_____（由承辦單位填寫）

作品名稱：氣象特攻隊—防颱任務大作戰

※注意：封面及整份教案請勿出現任何可供辨識參賽者身分之資料。

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109 年國民小學教育階段雙語教學教案設計

壹、設計理念

天氣變化與人類的生活密切相關，平時可以透過天氣預報得知國內外的天氣資訊，而天氣預報中的天氣圖、符號的意義、專有名詞是判讀天氣預報的基本常識，本課程，因此本課程的設計以康軒版的自然六上第一單元「天氣的變化」為主，中央氣象局數位科普網為輔，作為課本內容的延伸教材。

透過網路資源和中央氣象局科普擴增實境 APP，讓學生扮演氣象特攻隊的角色，利用平板蒐集鋒面和颱風資訊，解決老師給予的任務，包括學習單、天氣預報、上台發表成果。此外，課程導入具有韻律感的颱風歌曲、趣味性的水循環和颱風螺旋實驗，使學生在唱歌中熟悉單字；在實驗裡體驗「做中學」的樂趣。

每年夏秋兩季常有颱風侵襲台灣，造成的災害主要是水災和土石流。在颱風前應做好防範，例如：關注天氣預報、準備緊急救難包、瞭解注意事項，可以降低災情發生的機率，期許本課程能提高學生對於防颱的警覺性。

貳、教學分析

一、學生分析

(一)家庭背景:

父母對於學生有所期望，重視學生科學知識的累積和英語溝通力的養成，能將自然科課本內容融入英語，有助於平時閱讀科普文章或觀看國外新聞的習慣。

(二)先備知識:

在低、中、高年級的課程裡，均有與天氣相關的單元，自然科學過的概念包括「天氣圖上用高、低氣壓、鋒面、颱風等符號來表示天氣現象，並認識其天氣變化」、「自然界的水循環主要由海洋或湖泊表面水的蒸發，經凝結降水，再透過地表水與地下水等傳送回海洋或湖泊」、「臺灣的主要天然災害之認識及防災避難」，而英語科所學過的概念包括「簡易歌謠、短文」、「天氣字詞及句型的生活溝通」，溝通的學習內容是詢問天氣狀況並適切回應。本單元將英語融入，教學內容大致分為「天氣圖符號、水循環、颱風、防災」四部份，均呼應第三學習階段的自然科學習內容。

二、教材分析

「天氣」是基本的日常生活話題，以康軒版的自然科教材為例，二下「下雨天生活變化多」三上「認識天氣」，而六上則是「天氣的變化」，學習到氣象的專

有名詞、符號意義，而高低氣壓、鋒面，若單從課本中學習，較為抽象複雜，難以體會實際情境，本單元藉由中央氣象局科普擴增實境 APP，讓學生對於冷暖鋒過境的天氣變化、颱風的形成過程更有概念，並搭配 Quizizz、學習單、字圖卡配對遊戲和教師提問的方式，了解學生的學習狀況。而英語教材參考自翰林版

《Dino on the Go!》第 5 冊第一單元的「How is the weather?」，包括「天氣的單字和句型」、「氣象播報」、「閱讀天氣短文」。本單元教材將學生熟悉的課本內容延伸，「聽、說、讀、寫」融入英文教學，期能使學生將中英文字詞連結，有助於提高未來升學的競爭力。

三、教學方法分析

(一)融入資訊科技，設計兼具多元化及情境化的學習活動

因應國際化的來臨，不再使學習侷限在課堂中，而是擴大到課堂外，從紙上到線上。透過平板及網路資源，將主題與現實生活情境結合，讓學生解決的是真實世界中的問題，做有意義的活動，增加學生動機。

(二)採取螺旋式教學，培養學生自主學習的能力

打造環繞主題的教學活動，教學前半部進行後設認知鷹架輔助教學，從學習單、線上測驗再到桌遊，多方面使學生反覆操練，進而掌握學科及溝通語言技能；教學後半部漸拆鷹架，指派任務放手讓學生研究挑戰的內容並將想法具體實踐來解決需求。循序漸進的方式在降低學生學習焦慮的同時，亦能進一步培養出自主探索，善用資源解決問題的能力。

(三)藉由小組共學，養成學生溝通討論之素養

採異質性分組，在小組活動中，可由程度較佳的同學分配工作，引導組員完成任務並填寫任務單，之後教導程度稍弱的同學正確唸出任務紀錄單，讓其上台發表實務結果。透過合作學習，建立學習共同體之互助精神以及學會如何與人溝通、相互傾聽之基本素養。

四、情境脈絡分析

(一)內容 Content

- 本教案設計多元評量產出，除了一般英語課常見的聽、說、讀、寫之外，強調「五感學習」，發揮學生多元智能，像是製作水循環袋、颱風實驗以及製作海報，幫助學生跨越對學課的抗拒，更願意學。
- 透過情境融入，取材交通部中央氣象局網站，將資訊和生活連結起來，激發學生想探究的好奇心。

(二)溝通 Communication

- 任務活動以小組全對共同完成為目標，透過互相分享、討論，實際演練常用英語對話，主動參與課堂。

- 藉由影音、網路等真實語料，讓學生熟悉並練習生活中的溝通情境，使其日後能夠在日常中實踐。

(三) 認知 Cognition

- 教導學生圖表識讀 (graphic literacy)，依據圖表資料進行推斷，分析並提取隱含在圖表內的訊息。
- 學習蒐集資源的方式、媒體識讀的能力及網路使用的倫理。

(四) 文化 Culture

- 把學生自身觀看天氣預報及防颱等相關經驗與學習內容作連結，給予學生發揮能力及提升學習動機的舞台，進而反思自己生活的土地。

參、教學活動設計

單元名稱 Unit Title	多變的天氣	課程時間 Unit Length	共 4 節 160 分鐘
學生年級 Grade Level	六年級	學生人數 Number of Students	26
配合融入之學科領域 Integrated Subject/Content Area	<input type="checkbox"/> 數學 <input checked="" type="checkbox"/> 自然科學 <input type="checkbox"/> 綜合活動 <input type="checkbox"/> 健康與體育 <input type="checkbox"/> 生活課程 <input type="checkbox"/> 藝術 <input type="checkbox"/> 社會		
配合融入之議題 Integrated Issue	<input type="checkbox"/> 性別平等教育 <input type="checkbox"/> 人權教育 <input type="checkbox"/> 環境教育 <input type="checkbox"/> 海洋教育 <input type="checkbox"/> 品德教育 <input type="checkbox"/> 生命教育 <input type="checkbox"/> 法治教育 <input type="checkbox"/> 科技教育 <input type="checkbox"/> 資訊教育 <input type="checkbox"/> 能源教育 <input type="checkbox"/> 安全教育 <input checked="" type="checkbox"/> 防災教育 <input type="checkbox"/> 閱讀素養 <input type="checkbox"/> 多元文化教育 <input type="checkbox"/> 國際教育 <input type="checkbox"/> 生涯規劃教育 <input type="checkbox"/> 家庭教育 <input type="checkbox"/> 原住民教育 <input type="checkbox"/> 戶外教育 <input type="checkbox"/> 無		
領域核心素養 Core Competencies	<p>【自然科學領域】 自-E-A2 能運用好奇心及想像能力，從觀察、閱讀、思考所得的資訊或數據中，提出適合科學探究的問題或解釋資料，並能依據 已知的科學知識、科學概念及探索科學的方法去想像可能發生的事情，以及理解科學事實會有不同的論點、證據或解釋方式。</p> <p>自-E-B2 能了解科技及媒體的運用式，並從學習活動、日常經驗及科技運用、自然環境、書刊及網路媒體等，察覺問題或獲得有助於探究的資訊。</p> <p>自-E-C2 透過探索科學的合作學習，培養與同儕溝通表達、團隊合作及和諧相處的能力。</p> <p>【語文領域-英語文】 英-E-B1</p>		

	<p>具備入門的聽、說、讀、寫英語文能力。在引導下，能運用所學、字詞及句型進行簡易日常溝通。</p> <p>英-E-B2</p> <p>具備使用各種資訊科技媒材進行自我學習的能力，以增進英語文聽說讀寫綜合應用能力及文化習俗之理解。</p>	
<p>本單元學習重點 Learning Focus</p>	<p>學習表現 Student Performance</p>	<p>tr-III-1 能將自己及他人所觀察、記錄的自然現象與習得的知識互相連結，察覺彼此間的關係，並提出自己的想法及知道與他人的差異。</p> <p>pa-III-2 能從（所得的）資訊或數據，形成解釋、發現新知、獲知因果關係、解決問題或是發現新的問題。並能將自己的探究結果和他人的結果（例如：來自同學）比較對照，檢查相近探究是否有相近的結果。</p> <p>ai-III-3 參與合作學習並與同儕有良好的互動經驗，享受學習科學的樂趣。</p>
	<p>學習內容 Learning Content</p>	<p>INd-III-12 自然界的水循環主要由海洋或湖泊表面水的蒸發，經凝結降水，再透過地表水與地下水等傳送回海洋或湖泊。</p> <p>INd-III-7 天氣圖上用高、低氣壓、鋒面、颱風等符號來表示天氣現象，並認識其天氣變化。</p>
<p>表現任務 Performance Task(s)</p>		
<p>節次架構 Lesson Structure</p>		
<p>第一節 The First Period</p>		

學習目標 Learning objectives	學科內容目標 Content/subject specific knowledge objectives	1.了解水在自然界中的循環過程。 2.知道水的三態變化彼此交互作用，產生雲、雨、霧、露、霜、雪等各種天氣現象。
	溝通/語言目標 Communication/ language objectives	目標字詞： Evaporation, Condensation, Precipitation, Collection, Transpiration

學習活動
Learning activities

教學內容與步驟 Procedure	跨語言實踐 Use of Translanguaging		學習檢核 Assessment
	教師	學生	
<p>第一節 水循環 Water Cycle</p> <p>【Warm-up】</p> <p><u>Review background knowledge</u></p> <p>1. Greeting 與學生進行例行性問候及關心 T: Good morning, class! How are you today? Ss: Good morning, Miss Kuo. I'm great, thanks.</p> <p><u>Introduce water cycle</u></p> <p>1. Ask the questions 藉由提問導入主題 T: Have you ever thought about water? We use large amounts of water every day, like drinking, washing, cleaning, and cooking. Will Earth run out of water? Let's see how water moves around and around which called "Water Cycle".</p> <p>2. Give each group a set of scrambled cards about water cycle process. Students need to predict and unscramble them before playing the video. (附件一)</p> <p>各組發下打亂順序的水循環階段圖，請學生在影片撥放前預測並排出順序</p> <div style="display: flex; justify-content: space-around;">     </div> <p style="text-align: right; font-size: small;">© Vecteezy.com</p> <p>2. Play the video "Water Cycle" to introduce water</p>	<p>課室用語 (附件一)以英文為主</p> <p>把學生以中文回答的部分轉述為英文</p>	<p>允許學生可以用中文回答問題，但鼓勵以英語溝通</p> <p>允許學生可以用中文討論，但鼓勵以英語溝通</p>	<p>口語評量： 能進行簡易日常溝通</p> <p>實作評量： 能積極參與小組活動並完成任務</p> <p>觀察評量：</p>

cycle

播放水循環介紹影片，讓學生對水循環有基本認知

(<https://www.youtube.com/watch?v=9pqh6tIEOhs&t=27s>)

- Let each group take turns to share their processes, and then check the answers.

請各組分享排序並核對答案

【Presentation】

Introduce key vocabulary of water cycle

- Use slides to teach vocabulary of water cycle

(附件三)

介紹水循環相關單字

Evaporation	Sun heats up water and turns it into water vapor. The water vapor rises into the air.
Condensation	Water vapor cools down and changes into liquid, forming clouds.
Precipitation	The clouds get heavy and water falls back to the ground in the form of rain or snow.
Collection	Water runs over the land and collects in lakes or rivers, which take it back to the sea.
Transpiration	The loss of water from plants.

【Practice】

Complete the worksheet

- Give out one worksheet for each group and explain that students need to use the vocabulary and clues at the bottom to fill in the blanks.

(附件四)

發下各組學習單並解釋任務

- Check the answers of the worksheets as well as review the vocabulary.

核對答案並複習單字

【Production】

Board game

- Give each group a dice and a worksheet of board

以英文呈現教學內容，專有名詞可用中文輔助

在說明任務程序時，中英文並用。

學生以英文書寫學習單

能專心欣賞影片

口語評量：
能分享自己的答案

紙筆評量

觀察評量：

<p>game. (附件五) 各組發下桌遊紙及骰子</p> <p>2. Explain and demonstrate how to play the game. 說明桌遊規則</p> <p>3. Students can practice the vocabulary again and again over the course of the game. 學生在遊戲過程中反覆練習水循環過程和單字</p> <p>【Wrap-up】 <u>Make a water cycle bag</u></p> <p>1. Give each group needed materials (Plastic bag, marker, water, blue food coloring) 每組一份水循環袋所需的材料</p> <p>2. Explain and demonstrate how to make a bag 講解製作步驟</p> <p>Step 1: Draw the water cycle on the bag with a marker.</p> <p>Step 2: Add small water to the bag with few drops of coloring.</p> <p>Step 3: Hang it up on a sunny window.</p> <p>3. Each group take turns to show the bag and describe the process of water cycle to the rest of class. 各組用製成的水循環袋講述完整的水循環過程</p>		<p>確認學生了解遊戲規則，確實練習水循環單字</p> <p>實作評量： 學生能完成任務並運用溝通能力教將這節課內容重點具體描述。</p>
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第二節 The Second Period

<p style="text-align: center;">學習目標 Learning objectives</p>	<p style="text-align: center;">學科內容目標 Content/subject specific knowledge objectives</p>	<p>1. 認識衛星雲圖與地面天氣的關係。 2. 認識天氣圖的符號及意義。 3. 能閱讀氣象資料，並了解氣象報告的內容。 4. 了解冷鋒通過會造成的天氣改變。</p>
	<p style="text-align: center;">溝通/語言目標 Communication/language objectives</p>	<p>目標字詞： Cold front, Warm front, Stationary front, Low pressure, High pressure, Isobars</p>
<p>學習活動 Learning activities</p>		
<p>教學內容與步驟 Procedures</p>	<p>跨語言實踐 Use of Translanguaging</p>	
<p>第二節 認識天氣圖 Synoptic weather chart</p>	<p>教師</p>	<p>學生</p>

【Warm-up】

Review water cycle

1. Greeting

與學生進行例行性問候及關心

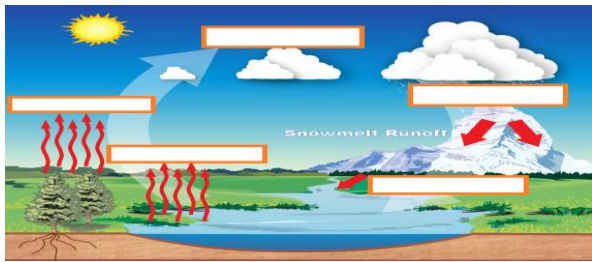
T: Good morning, class! How are you today?

Ss: Good morning, Miss Kuo. I'm great, thanks.

2. Use poster to review water cycle.

用海報複習水循環

Students need to help teacher to stick the flashcards on the right place of the poster.



【Presentation】

Introduce synoptic weather chart

1. Use slides to show the satellite cloud image and

surface weather chart. (附件六)

展示衛星雲圖跟地面天氣圖

2. Guide students to discuss the correlation between them.

引導學生討論兩者的關聯

3. Sum up the main points of the discussion:

做個總結:

the cloud distribution matches the symbol of a

blue line (cold front), and H (high pressure)

systems typically have light clouds or no clouds at all and L (low pressure) is contrary to it.

Introduce weather symbols

1. Each group will get an iPad, an AR card of front, and a worksheet.

每組一台平板、一張 AR 鋒面圖卡及一張學習單

2. Introduce how to use “Augmented Reality” App

(附件六)

介紹如何操作「中央氣象局科普擴增實境」

App

課室用語

(附件一)

以英文為主

以英文呈現教學內容，專有名詞可用中文輔助

在說明任務程序時，中英文並用。

口語評量：

能進行簡易日常溝通

觀察評量：

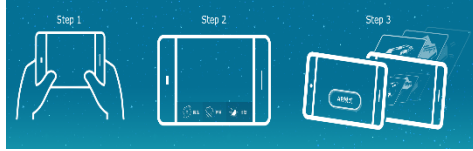
能正確回應老師指令

口語評量：

學生能分享自己的觀察。

實作評量：

學生能找到答案並填寫在學習單上



3. Guide students to get the information through the App and write it down.

(附件七)

引導學生使用 APP 得到鋒面資訊並填到學習單上

4. Use slides to teach vocabulary of weather symbols

(附件六)

講解各個天氣符號

Cold front	<ul style="list-style-type: none"> • a mass of cold air meets up with a mass of warm air • warm air is forced to rise quickly • sharp change in weather
Warm front	<ul style="list-style-type: none"> • a mass of warm air meets up with a mass of cold air • warm air pushes up over the cold air, gradually cooling the air • steady continuous rain
Stationary front	<ul style="list-style-type: none"> • a cold front or warm front stops moving. • clouds, long periods of rain, and sometimes lines of thunderstorms.
Low pressure	<ul style="list-style-type: none"> • as air warms it ascends, leading to low pressure. • unsettled weather
High pressure	<ul style="list-style-type: none"> • as air cools it descends, leading to high pressure. • settled weather
Isobars	Show equal Lines of Pressure

5. Check the answers of the worksheets.

核對學習單答案

【Practice】

Weather forecast

1. Half of groups will get a worksheet marked A (cold front passing). Others get the worksheet marked B (after cold front passing).

(附件八)

一半組別拿到鋒面經過的圖表學習單 A，另一半拿到鋒面經過後的圖表學習單 B

2. Explain that Students need to use the information from the weather chart of the worksheet to complete the script of weather forecast.

講解任務

3. Each group take turns to present their weather forecasts to their classmates.

各組輪流上台做天氣播報

4. Guide students to compare the difference between two.

引導學生討論鋒面過境前後兩者的差異

5. Sum up the main points of the discussion:

做個總結:

As the cold front passes, a sudden drop in temperature will occur, and the rain will increase. While the cold front continues to pass by, the temperature stays on low but the showers will subside.

【Production】

Quizizz- Brain out

1. Introduce how to join quizizz game. (附件六)

講解如何登入 Quizizz 遊戲

2. Group which answers correctly and quickly wins.

最快完成答題的組別獲勝

3. Review Quizizz after all the students have completed.

學生答題完畢後，檢討錯誤。

【Wrap-up】

Summarize

1. Review the content they learned and generalize the diagram. (附件六)

複習內容並歸納出表格

Name	Symbol	Definition	Weather Prediction

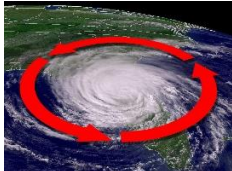
實作評量：
學生能歸納圖表，提取資訊完成天氣播報。

口語評量：
學生能分享自己的觀察。

觀察評量：
能專心答題

雙語筆記

紙筆評量

第三節 The Third Period				
學習目標 Learning objectives	學科內容目標 Content/subject specific knowledge objectives	1.認識颱風的相關單字 2.能瞭解颱風的形成條件 3.藉由實驗操作，瞭解颱風的特徵(螺旋狀、逆時針)		
	溝通/語言目標 Communication/ language objectives	目標字詞： typhoon, wave, tropical depression, mild, moderate, severe, the eye of the typhoon, typhoon season		
學習活動 Learning activities				
教學內容與步驟 Procedures		跨語言實踐 Use of Translanguaging		學習檢核 Assessment
第三節 Typhoon 【Warm-up】 1. Greeting 與學生打招呼 T: Hello, class! How are you today? Ss: Hello, Miss Lee. I'm good, thank you. 2. Sing a song 藉由颱風兒童歌曲(播放至 02:14)導入主題 https://youtu.be/zN8DUInXKpI?t=12 T: "Let you guess! What is the topic today?" (候答時可以哼歌: "Typhoon goes on a journey. Spinning spinning to the beach. Spinning here and spinning there. The waves go higher higher.") 待學生說出主題是「颱風」後，教影片中的單字，並請學生在學習單上標記出單字。(附件九) 3. Use slides to ask the questions 教師利用 PPT 列出問題，並請學生舉手發表。(附件十) "When is the typhoon season in Taiwan?" "In the video, what direction does a typhoon spin?" 		教師	學生	口語評量： 能進行簡易日常溝通
		課室用語 (附件一)以英文為主	影片單字： 1. typhoon 颱風 2. spin 旋轉 3. wave 波浪 4. flip 翻轉 目標單字： counterclockwise 逆時針	

【Presentation】

1. Use slides to teach vocabulary of typhoon

(附件十一)

spiral 螺旋	A typhoon is a <u>spiral</u> system.
tropical depression 熱帶性低氣壓	A <u>tropical depression</u> is a region of low pressure that develops into a typhoon.
the eye of the typhoon 颱風眼	The winds spin around a center is called <u>the eye of the typhoon</u> .
typhoon season 颱風季	<u>Typhoon season</u> is from June to October in Taiwan.
mild 輕度	The wind speed of a <u>mild</u> typhoon is from 17.2 to 32.6 meters per second.
moderate 中度	The wind speed of a <u>moderate</u> typhoon is from 32.7 to 50.9 meters per second.
severe 強度	The wind speed of a <u>severe</u> typhoon is over 51 meters per second.

【Practice】

Complete the worksheet

1. Give out one worksheet for everyone. (附件十二)

教師發給每位學生一張學習單

2. Students listen to teacher said and write down the words in the blanks.

學生聽教師導讀短文，並填空單字

A typhoon is a _____(螺旋) system. When the ocean surface temperature is over _____°C, the _____(蒸發) is increased and water vapor condenses(集中) to form clouds. An air column with high temperature, light weight and low density. This is how the “_____”(熱帶性低氣壓) forms and the center of a typhoon is called _____(颱風眼). It's a part with low air pressure generally

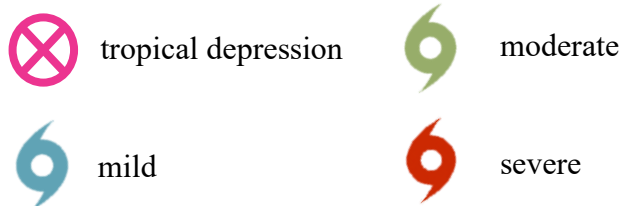
觀察評量：
能專心聆聽和複誦老師教的單字和句子

學習單填空：

1. spiral
2. 26
3. vaporation
4. tropical depression
5. the eye of the typhoon
6. typhoon season
7. mild
8. moderate
9. severe

the wind is calm and there is no rain. Typhoon usually strike(侵襲) Taiwan from June to October, called _____(颱風季). According to the wind speed, there are three types of intensity: _____(輕度), _____(中度), and _____(強度).The typhoon packs(夾帶) strong winds and heavy rain. It is important to be well-prepared before typhoon comes.

3. Guide students to draw typhoon intensity symbols on the worksheet.



【Production】

Experiment

T: Why is a typhoon spiral? Let’s do an experiment to find out the answer.

1. Each group prepares tape, a scissor, and two PET bottles before the class.

2. Guide the students to do the steps below:

(1) Remove the caps of the PET bottles, and stick tape on the opening of one of the PET bottles, leaving a hole with a diameter of at least 1 cm in the middle.

(2) Fill another PET bottle with 80% of blue water.

(3) Put the two bottles together and wrap them with tap.

(4) Spin the bottle with blue water and upside down.

(5) Imagine the blue water as the ocean and observe the whirlpool in the bottle.

3. Ask the questions

T: What do you see in the bottle?

Ss: The blue water is spiral and it spins counterclockwise.

【Wrap-up】

Summarize

T: The blue water in the bottle is like the ocean.

實作評量：
學生能完成實驗
操作。



When the strong wind blows across the ocean, a whirlpool is formed, that is the reason why a typhoon is spiral. Watch carefully, there is a hole in the center of the whirlpool, like the eye of a typhoon. Connected with your life experience, you can observe the situation of the sink in your home, and there will be a whirlpool at the water outlet, too.

第四節 The Fourth Period

學習目標 Learning objectives	學科內容目標 Content/subject specific knowledge objectives	1.能分辨颱風、颶風、氣旋的差異 2.能認識颱風災害的相關單字 3.能瞭解防颱注意事項 4.能正確蒐集颱風資訊，並練習用英語上台發表
	溝通/語言目標 Communication/ language objectives	目標字詞： cyclone, hurricane, disaster, heavy rain, flood, landslide, emergency kit 目標句型： What can we do to prepare for typhoon? We can _____.

學習活動

Learning activities

教學內容與步驟 Procedures	跨語言實踐 Use of Translanguaging		學習檢核 Assessment
	教師	學生	
<p>【Warm-up】 <u>Review typhoon formation</u></p> <p>1. Each group get an iPad, and an AR card of typhoon. 利用中央氣象局的科普擴增實境 App 複習「颱風」。</p> <p>2. Guide students to get the information from APP. 教師分配小組一台平板及一張颱風的 AR 圖卡，並請學生掃 QR code 下載 App(如下圖)。</p> <div style="display: flex; align-items: center;">   </div>		<p>允許使用中 英文學習工 具(例如 APP)</p>	

3. Use slides to ask the questions and let students find the answers from APP. (附件十)
 教師引導操作方式，請學生開啟 APP，並點選「颱風」AR 模式，請學生對準 AR 圖卡，觀看內容說明，並找出教師提問的答案。



T: What is the temperature above of the sea surface easy to form a typhoon?
 What is the maximum wind speed at the center of a mild typhoon?

2. Sum up the main points from APP.

教師歸納說明：

When the sea surface temperature is 26°C above, it's easy to form a typhoon. The maximum wind speed at the center of a mild typhoon is 17.2 meters per second.

【Presentation】

1. Describe the typhoon disasters.

教師講述颱風帶來的災害

“Typhoon caused many disasters, such as heavy rain, flood, landslide and so on. When a typhoon is approaching to Taiwan, we have to take some preparations.”

2. Let students share their typhoon experience.

請學生簡單分享颱風經驗

3. Use slides to talk about typhoon preparations.

利用 PPT 講解颱風前後的注意事項(附件十)

Before typhoon comes:

- Don't go wave watching, stay inside.”
- “Get the latest weather forecast.”
- “Trim tree near your house.”
- “Prepare for your emergency kit.”
- “Put some sandbags and protect windows.”

After typhoon:

“Stay away from damaged buildings.”

PPT 內容以英文為主

雙語筆記

實作評量：
 學生能從 APP 找到答案並回答老師的提問

目標單字：
 disaster

目標句型：
 Q: What can we do to prepare for typhoon?
 A: We can _____.

口語評量:能運用英語表達經驗

“Beware of polluted water.”

【Practice】

Introduce the vocabulary

1. Give out a worksheet to everyone and introduce the vocabulary. (附件十二)
教師先介紹單字，請學生將單字填於學習單
2. Guide students to read the short paragraph.
導讀學習單的短文，並讓學生瞭解「颱風、颶風、氣旋」的差異。
3. Let students complete the worksheet and check the answers.

【Production】

1. Watch the video 《SAFE STEPS: 緊急避難包》
<https://www.youtube.com/watch?v=AuzECZvOQd4>
2. Use slides to ask the questions.
教師提問影片內容
“What are the things you think that are important to put in your emergency bag?”
3. Write down the answers from students on the blackboard.
利用曼陀羅思考法，將學生答案寫在黑板。
3. Write down the typhoon names that caused severe disaster to Taiwan on the blackboard.
在黑板上列出過去造成臺灣嚴重災害的颱風名稱，並分配給小組查詢颱風資料
4. Group poster design
T: Each group has a poster. You have to search a typhoon and briefly write down the information on the poster. Besides, write down a slogan for typhoon preparation and draw up five important items in the emergency kit on the poster.
小組合作海報設計(範例如附件十三)，請學生利用平板查詢颱風資訊，並寫於海報上。各組需在海報上寫出一句防災口號和畫出5種緊急救難包中必裝物品(可參考黑板上的答案)

【Wrap-up】

Group presentation

T: Everyone is ready for the poster sharing. Let's start from the first group.

學習單字
詞:

- 1.hurricane
- 2.cyclone
- 3.heavy rain
- 4.flood
- 5.landslide

防災口號
舉例:
1. Safety first so you last.
2.Keep the typhoon outside.

鼓勵以英文
報告海報成
果

紙筆評量:學習
單

小組討論時
可以使用中
英文溝通

觀察評量:學生
在小組裡的表現

口語評量:能正
確說出課堂所學
的單字

請各組上台分享海報設計

Summarize

T: A typhoon not only rains cats and dogs but also brings danger. You'd better stay at home and not go anywhere. Don't take your life in your own hands!

--	--	--

附件（多媒體教學資源、教材、學習單、評量單）

*從下一頁開始

附件一 課室用語 Classroom Language

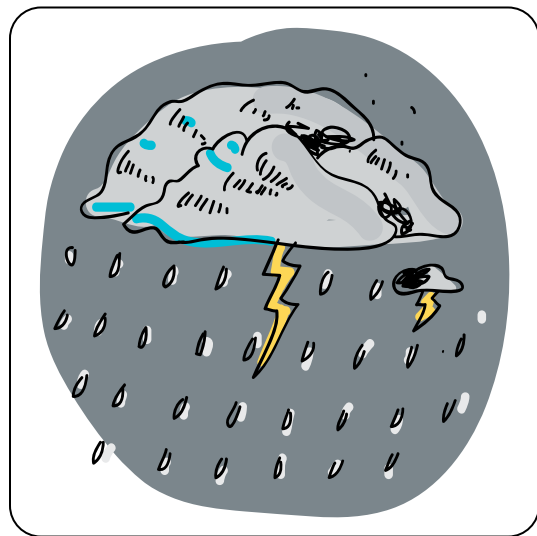
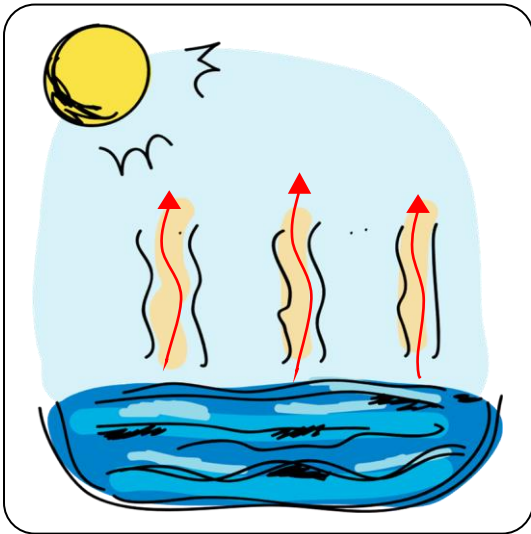
課室用語

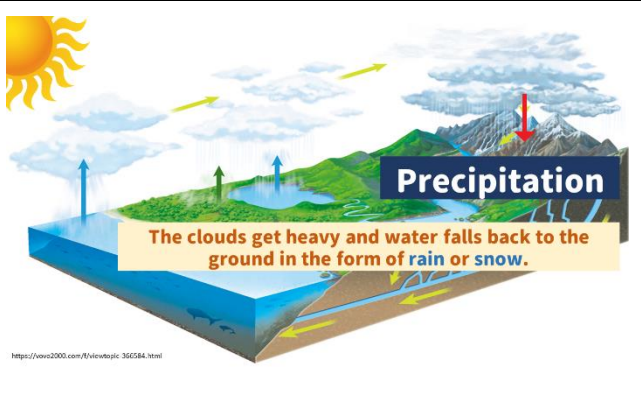
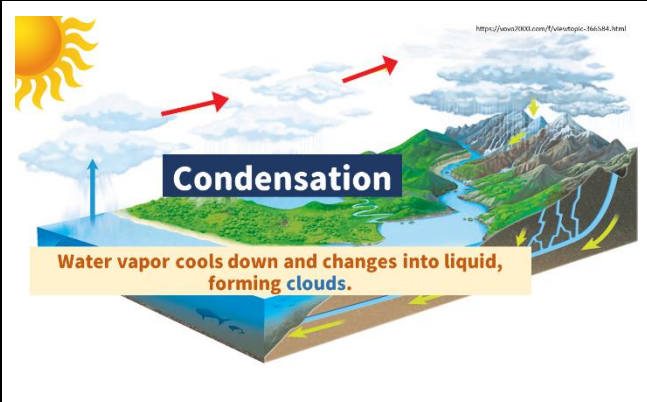
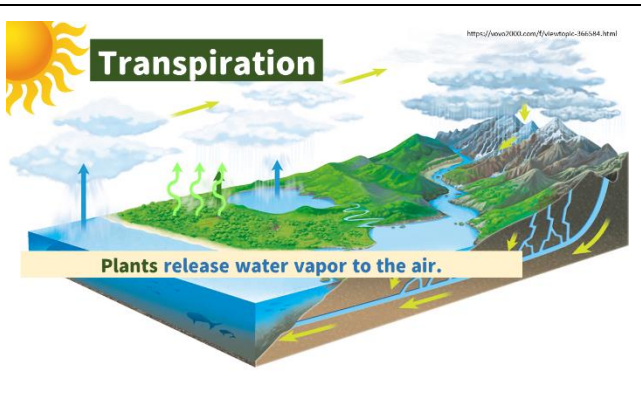
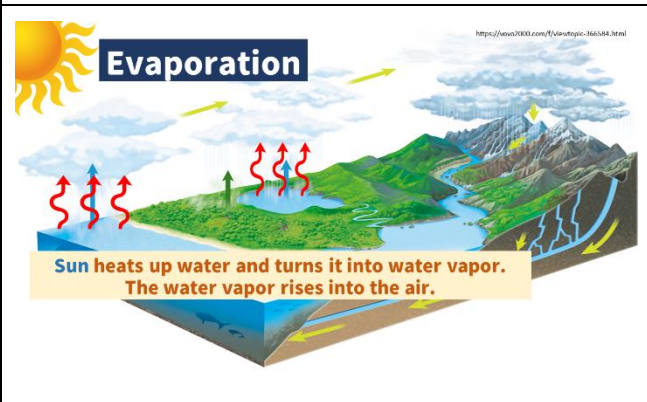
編號	英文	中文
1	Let's have roll call.	現在來點名。
2	It's time for class.	上課了。
3	Take out your textbook.	拿出你的課本。
4	Take out your pen.	拿出你的筆。
5	Let's stop here today.	這堂課就上到這裡。
6	Lower your voice!	小聲一點！
7	Everyone, take one worksheet.	每個人拿 1 份學習單。
8	Eyes to the front.	眼睛看前面。
9	Do you get it?	有聽懂嗎？
10	Keep our classroom clean.	教室保持乾淨
11	Class dismissed	下課了

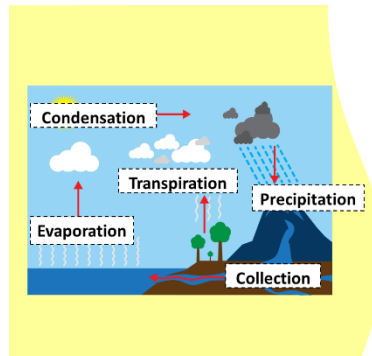
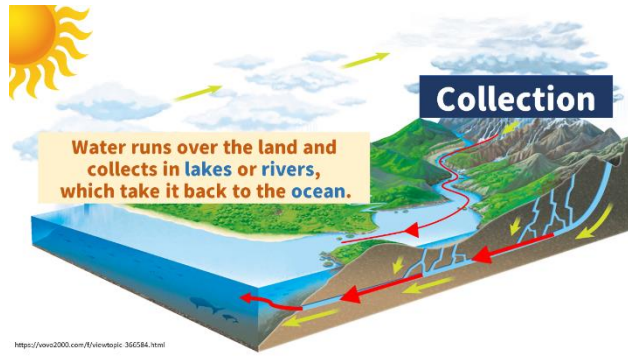
參考資料
臺南市課堂常用英語指導用語
<http://tnetrc.cmes.tn.edu.tw/classroomEnglish.html>

附件二 水循環階段圖 Water cycle process

© Vecteezy.com







- ✓ Water vapor cools down and changes into liquid, forming clouds.
- ✓ Water runs over the land and collects in lakes, rivers, and sea.
- ✓ The loss of water from plants.
- ✓ The clouds get heavy and water falls back to the ground as rain or snow.
- ✓ Sun heats up water and turns it into water vapor. The water vapor rises into the air.

●	Evaporation	●●●	Collection
●●	Condensation	●●●●	Transpiration
●●●	Condensation	●●●●●	Precipitation

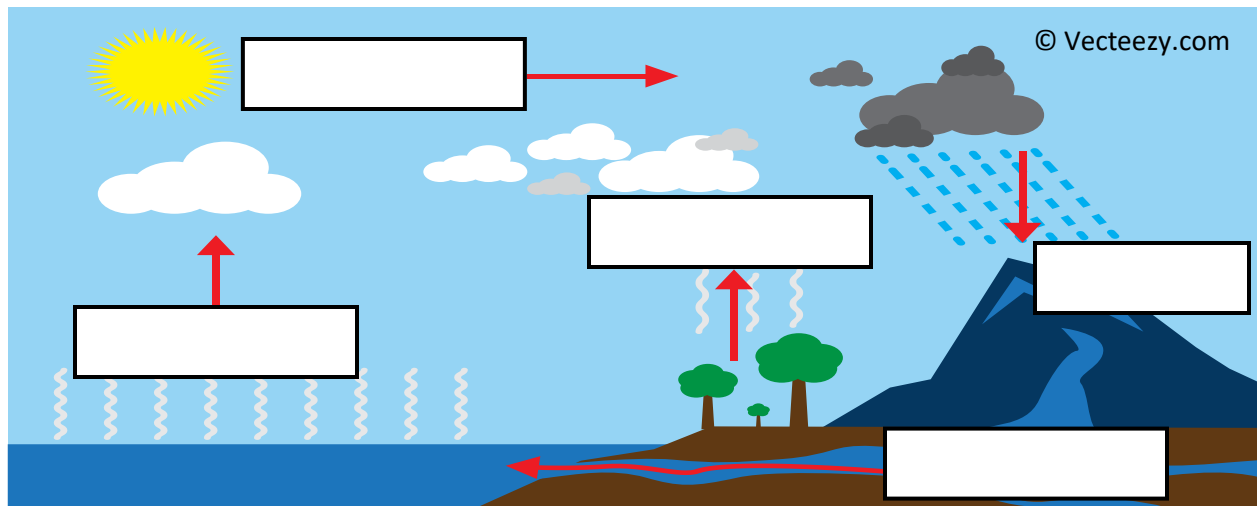
1. Roll the dice 2. Say the word 3. Draw a line 4. Make a box

	Snow	Sun heats the water and dries it up	
	Water falls from the sky	Water vapor changes into liquid, forming clouds	River
	Clouds	Rain	Water vapor from plants to the air
	Water runs from the land into the ocean		

Class: _____ Group: _____

Water cycle

Fill in the blanks for each part of water cycle



Match the label to the definition

Evaporation

Water vapor cools down and changes into liquid, forming clouds.

Condensation

Water runs over the land and collects in lakes, rivers, and sea.

Precipitation

The loss of water from plants.

Collection

The clouds get heavy and water falls back to the ground as rain or snow.

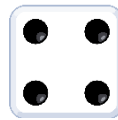
Transpiration

Sun heats up water and turns it into water vapor. The water vapor rises into the air.

附件五 水循環桌遊 Water cycle board game



Evaporation



Collection



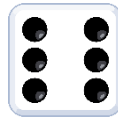
Condensation



Transpiration



Condensation

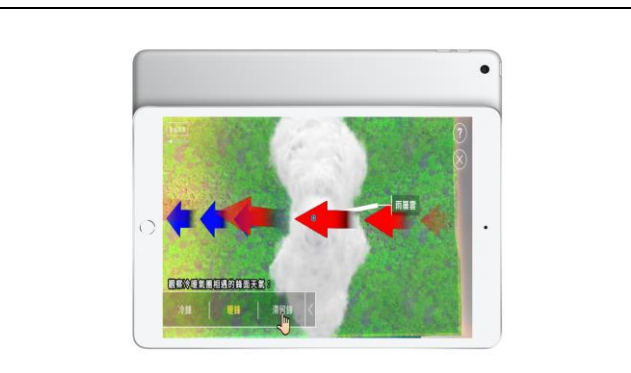
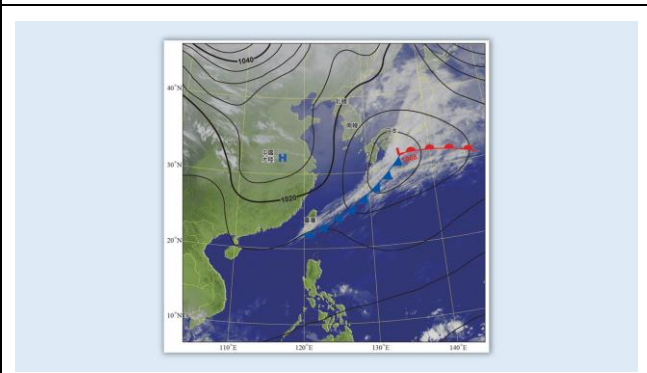
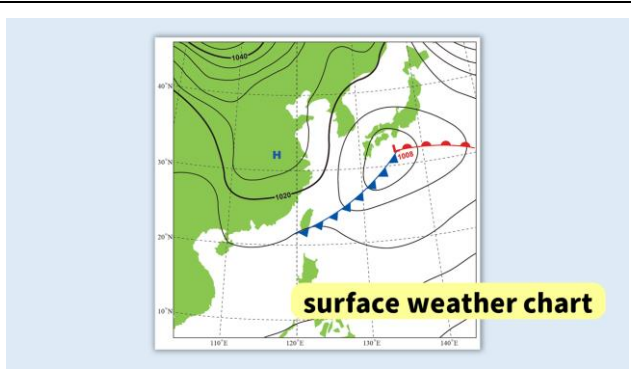
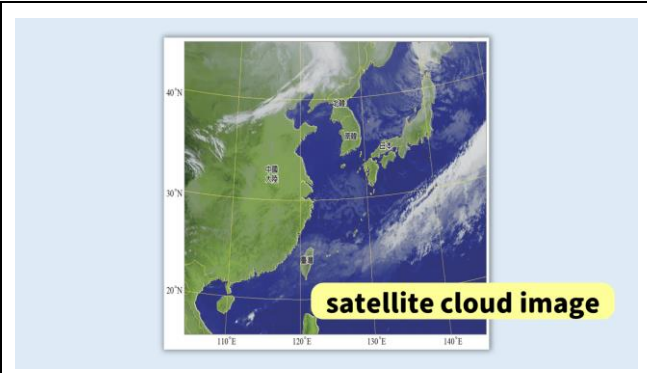


Precipitation

1. Roll the dice
2. Say the word
3. Draw a line
4. Make a box

	<p>Snow</p>	<p>Sun heats the water and dries it up</p>	
<p>Water falls from the sky</p>		<p>Water vapor changes into liquid, forming clouds</p>	<p>River</p>
		<p>Rain</p>	<p>Water vapor from plants to the air</p>
<p>Clouds</p>	<p>Water runs from the land into the ocean</p>		

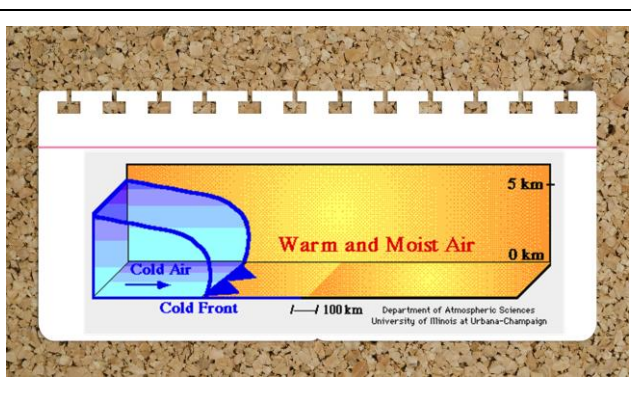
附件六



Cold front

- ▶ a mass of cold air meets up with a mass of warm air
- ▶ warm air is forced to rise quickly
- ▶ sharp change in weather

←數十公里至百公里→ 冷鋒 Cold front



Warm front

- a mass of warm air meets up with a mass of cold air
- warm air pushes up over the cold air
- continuous rain

Stationary front

- a cold front or warm front stops moving
- clouds, long periods of rain, plum rain

Low pressure

L

air warms it ascends

unsettled weather

High pressure

H

air cools it descends

settled weather

Isobars

Show equal Lines of Pressure

- Cold front** ★ 冷鋒
- Warm front** ★ 暖鋒
- Stationary front** ★ 滯留鋒

- Low pressure** ★ 低氣壓中心
- High pressure** ★ 高氣壓中心
- Isobars** ★ 等壓線

Cold front passing

A During

日期	天氣狀況	氣溫(°C)
9月7日	多雲時陰 短暫陣雨	25~28
中部地區	多雲時陰 短暫陣雨	25~30
南部地區	多雲時陰 短暫陣雨	26~32
東部地區	陰短暫陣雨	25~30

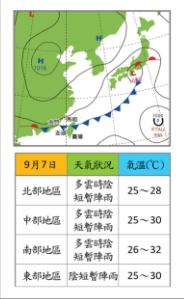
Good afternoon, everyone. Welcome to the weather forecast. We're Group ____ A ____ front will pass through Taiwan. The weather around Taiwan is mostly ____ with (occasional/regular) rain. Don't forget to bring your ____ when you go out. The temperature is around ____ to ____ degrees. Have a nice day.

B After

日期	天氣狀況	氣溫(°C)
9月8日	多雲	23~28
北部地區	多雲	24~31
中部地區	多雲	24~31
南部地區	多雲	24~31
東部地區	多雲 短暫陣雨	23~30

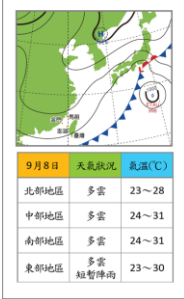
Good afternoon, everyone. Welcome to the weather forecast. We're Group ____ Let's see the weather after a ____ front moves through Taiwan. Around Taiwan is mostly ____ in ____ Taiwan, it's prone to be (occasional/regular) rain, so don't leave your house without an ____ The temperature is around ____ to ____ degrees. Have a nice day.

A During



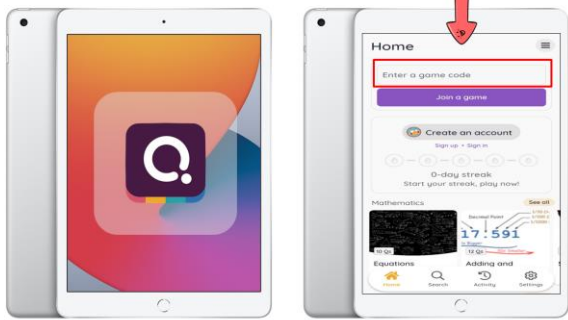
Cold front passing

B After

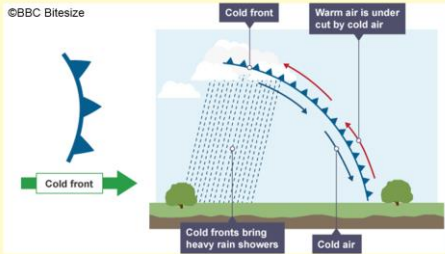


Brain out

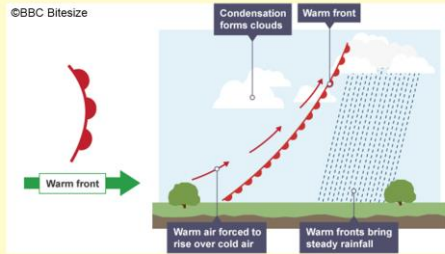
Guessing GAME



Review



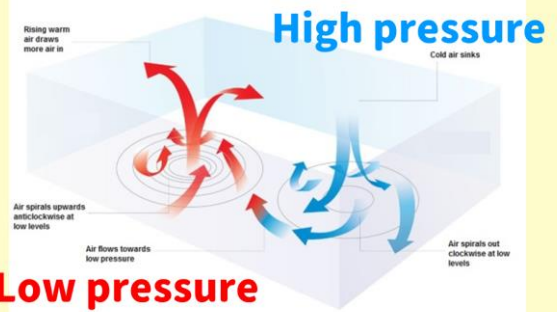
Cold front



Warm front



Stationary front



Low pressure

Class: _____ Group: _____

Weather Symbols

Draw a line to match the picture

Cold front ★
冷鋒



Warm front ★
暖鋒



Stationary front ★
滯留鋒



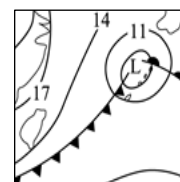
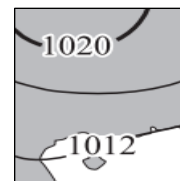
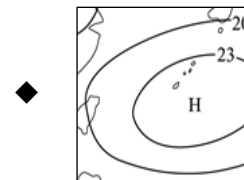
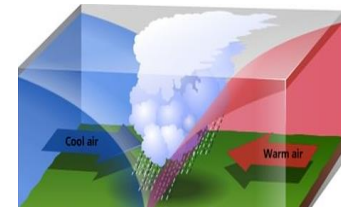
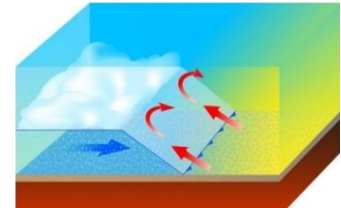
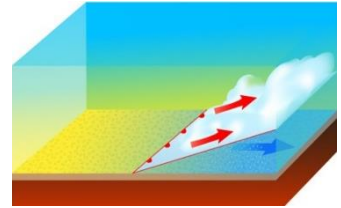
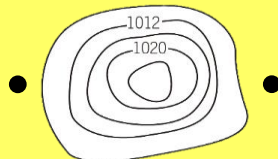
Low pressure ★
低氣壓中心



High pressure ★
高氣壓中心



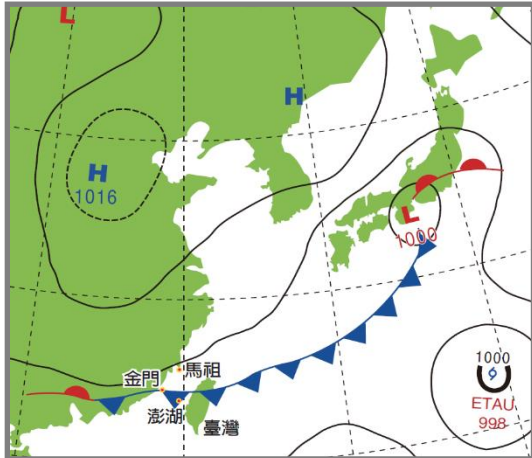
Isobars ★
等壓線



附件八 鋒面過境學習單 Worksheet of cold front passing

During

A

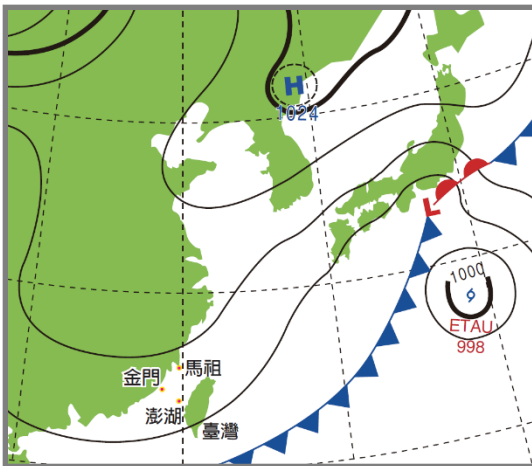


9月7日	天氣狀況	氣溫(°C)
北部地區	多雲時陰 短暫陣雨	25~28
中部地區	多雲時陰 短暫陣雨	25~30
南部地區	多雲時陰 短暫陣雨	26~32
東部地區	陰短暫陣雨	25~30

Good afternoon, everyone. Welcome to the weather forecast. We're Group __. A _____ front will pass through Taiwan. The weather around Taiwan is mostly _____ with (occasional/ regular) rain. Don't forget to bring your _____ when you go out. The temperature is around ____ to ____ degrees. Have a nice day.

After

B



9月8日	天氣狀況	氣溫(°C)
北部地區	多雲	23~28
中部地區	多雲	24~31
南部地區	多雲	24~31
東部地區	多雲 短暫陣雨	23~30

Good afternoon, everyone. Welcome to the weather forecast. We're Group __. Let's see the weather after a _____ front moves through Taiwan. Around Taiwan is mostly _____. In _____ Taiwan, it's prone to be (occasional/ regular) rain, so don't leave your house without an _____! The temperature is around ____ to ____ degrees. Have a nice day.

Class: _____ Group: _____

Be Careful! A Typhoon is Coming



Lyrics:

Typhoon goes on a journey. **Spinning** spinning to the beach. Spinning here and spinning there. The **waves** go higher higher.

Typhoon goes on a journey. Spinning spinning to a town. Spinning here and spinning there. All windows doors are closed closed.

Typhoon goes on a journey. Spinning spinning to a street. Spinning here and spinning there. The cars are shaking shaking. The cars say, “Stop **flipping** us over!”

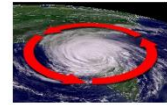
Typhoon goes on a journey. Spinning spinning to the woods. Spinning here and spinning there. Big trees are shaking shaking.

附件十



Q1: When is the typhoon season in Taiwan?
 (1) Summer and autumn.
 (2) It is from June to October.

Q2: In the video, what direction does a typhoon spin?
 It spins counterclockwise.
 逆時針







A typhoon is a spiral system.
 螺旋

The winds spin around a center is called the eye of the typhoon.
 颱風眼

Typhoon season is from June to October in Taiwan. 颱風季

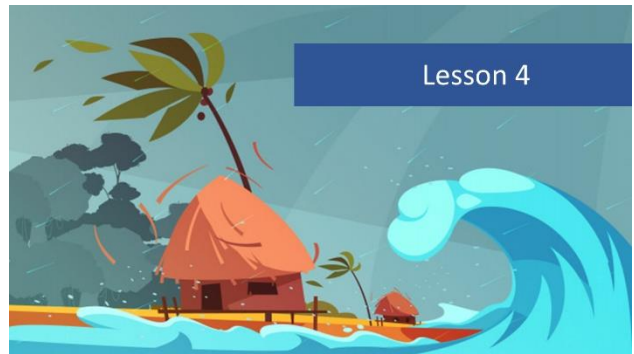
According to the wind speed, there are four types of typhoon intensity.

-  A tropical depression is a region of low pressure that develops into a typhoon and the wind speed is below 17.2 meters per second.
-  The wind speed of a mild typhoon is from 17.2 to 32.6 meters per second.
-  The wind speed of a moderate typhoon is from 32.7 to 50.9 meters per second.
-  The wind speed of a severe typhoon is over 51 meters per second.

Let's draw the typhoon intensity symbols on the worksheet!

 tropical depression

 mild  moderate  severe



Q1: What is the temperature above of the sea surface easy to form a typhoon?
 When the sea surface temperature is 26°C above, it's easy to form a typhoon.

Q2: What is the maximum wind speed at the center of a mild typhoon?
 The maximum wind speed at the center of a mild typhoon is 17.2 meters per second.

Before typhoon comes:

“Don't go wave watching, stay inside.”

“Get the latest weather forecast.”

“Trim tree near your house.”

“Prepare for your emergency kit.”

“Put some sandbags and protect windows.”


“What are the things you think that are important to put in your emergency bag?”



cell phone 	battery 	water bottle 
food 	emergency bag 	flashlight 
raincoat 	ID card 	sleeping bag 



typhoon name: Nepartak
 landfall time: July 8th, 2016
 landfall location: Taitung
 the highest wind in Taiwan:

57.2m/s → 

Draw the typhoon intensity symbols on the picture!

Reference

1. 第三節封面-poweredtemplate.com
2. 第四節封面-macrovector.com
3. 救難包用品-VectorStock.com
4. 尼伯特颱風路徑圖-den.ncdr.nat.gov.tw

Class: _____ Group: _____

What is typhoon?

A typhoon is a _____(螺旋) system. When the ocean surface temperature is over _____°C, the _____(蒸發) is increased and water vapor condenses(集中) to form clouds. An air column with high temperature, light weight and low density. This is how the “_____”(熱帶性低氣壓) forms and the center of the typhoon is called _____(颱風眼). It's a part with low air pressure generally the wind is calm and there is no rain. Typhoon usually strike(侵襲) Taiwan from June to October, called (颱風季). According to the wind speed, there are three types of intensity: (輕度), _____(中度), and _____(強度). The typhoon packs(夾帶) strong winds and heavy rain. It is important to be well-prepared before typhoon comes.

★ Draw typhoon intensity symbols!

Hurricane, typhoon and cyclone: What's the difference?

Hurricane - Typhoon - Cyclone

What is the difference?

They are essentially the same type of weather phenomenon. It only depends on **WHERE** the storm forms and happens.

- HURRICANE** Northeast Pacific Ocean and Atlantic Ocean
- TYPHOON** Northwest Pacific Ocean
- CYCLONE** South Pacific Ocean and Indian Ocean.



THE STORM SPINS
 Northern Hemisphere: counter-clockwise / anti-clockwise
 Southern Hemisphere: clockwise

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Vocabulary

颱風: _____

颶風: _____

氣旋: _____

豪雨: _____

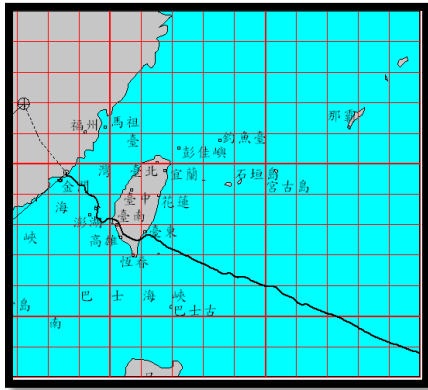
水災: _____

土石流: _____

1. _____ (Hurricane/Typhoon/Cyclone) is named in Northeast Pacific Ocean and Atlantic Ocean.
2. What do you call a storm that forms over the Indian Ocean? _____. (Hurricane/Typhoon/Cyclone)
3. () In meteorology, a type of cyclone occurring in Northwest Pacific Ocean.
A. Hurricane B. Typhoon C. Cyclone
4. In Northern hemisphere, the storm spins clockwise / counterclockwise. (Circle the correct answer.)
5. If a typhoon comes, it will likely bring _____ (豪雨), _____ (水災) and _____ (土石流).


Slogan: Safety first so you last

Typhoon warning



©Newtalk.tw

1. Typhoon name: _____
2. Landfall time: _____
(登陸時間: month-day-year)
3. Landfall location: _____
(登陸地點)
4. Highest wind in Taiwan: _____
(在台灣最大風速)
5. Draw the typhoon intensity symbols on the picture above!

	<17.2m/s		32.7-50.9m/s
	17.2-32.6m/s		>51m/s

Emergency bag

		cell phone
		water bottle
		food
ID card		
		battery
flashlight		
		aid kit
sleeping bag		
		mask
rain coat		

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