

# Science Notes

English Immersion Program  
5th grade  
1st semester



Name:

Class:

Number:

Teacher:

國立臺北教育大學附設實驗國民小學  
國立臺北教育大學雙語教學研究中心



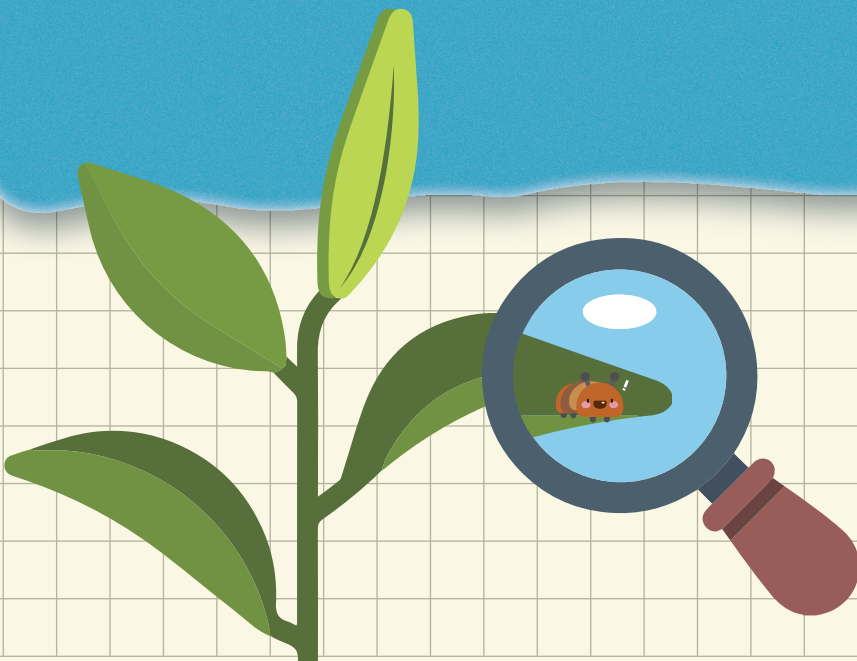
## Preface 前言

在「2030雙語國家政策發展藍圖」中強調「厚植國人英語力」、「提升國家競爭力」（國家發展委員會，2020）；而如何提升國民英語力以增加國際競爭力，是學校教育中努力的目標。

有感於雙語教育及近年來我國積極培養學童STEAM（Science, Technology, Engineering, Arts, and Mathematics）結合科學、技術、工程、藝術，以及數學跨學科素養的教育趨勢，本校自108學年度開始試辦自然課程雙語教學，以英語營造生活情境中的科學，透過趣味科學實驗增進學童以英語來進行科學探究的興趣與能力。

這本科學筆記本是本校自然課程雙語教學團隊~陳美卿、林雨慶、林怡伶、范瑋庭等教師所共同設計的；國立臺北教育大學雙語教學研究中心協助自然科學英語內容校對、編排及印製；期望學童可以紮紮實實的學習自然科學知識，更透過以英語指導科學實驗步驟，動手做實驗來激發學童的科學探究潛能、啟發學童善用英語進行科學領域學習的能力，厚植學童的科學力及英語力。

2020.09.02





**Unit**

**1**

**Sun**

太陽

The Sun's position changes throughout the day.  
太陽的位置隨著一天變化有所改變

Use shadow to observe the Sun's position  
利用影子觀察太陽的位置

We measure a shadow's length and direction.  
我們觀測影子的長度與方向

The Sun's position changes throughout the four seasons.  
太陽的位置隨著四季變化有所改變

Observe the Sun's position  
觀測太陽的位置

We measure the Sun's elevation angle and direction.  
我們觀測太陽的高度角與方向

The Sun rises in the east and sets in the west.  
太陽由（正東方）升起、（正西方）落下

Spring equinox  
春分

At noon, the Sun is in the south.  
中午太陽在（正南方）

The Sun rises in the northeast and sets in the northwest.  
太陽由（東偏北）升起、（西偏北）落下

Summer solstice  
夏至

At noon, the Sun is right above the head.  
中午太陽在（正頭頂）

The Sun rises in the east and sets in the west.  
太陽由（正東方）升起、（正西方）落下

Autumn equinox  
秋分

At noon, the Sun is in the south.  
中午太陽在（正南方）

The Sun rises in the southeast and sets in the southwest.  
太陽由（東偏南）升起、（西偏南）落下

Winter solstice  
冬至

At noon, the Sun is in the south. It has the smallest elevation angle.  
中午太陽在（正南方），高度角最小

The Sun affects our lives.  
太陽影響我們的生活

The Sun is useful.  
太陽的利用

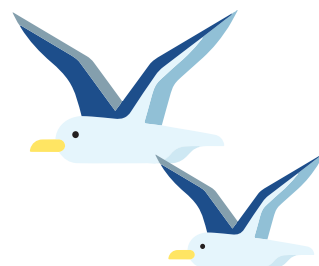
The Sun gives energy that we can use in daily life.  
太陽提供我們日常生活的能量

The Sun helps tell time.  
太陽幫助我們知道時間

We use sunrise and sunset to tell time.  
我們透過日出與日落來計時

## 應聽懂及認讀的生字

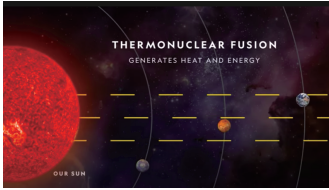
- |                                    |                 |                                   |                 |
|------------------------------------|-----------------|-----------------------------------|-----------------|
| <input type="checkbox"/> 1. 北      | north           | <input type="checkbox"/> 17. 影子   | shadow          |
| <input type="checkbox"/> 2. 南      | south           | <input type="checkbox"/> 18. 長短   | length          |
| <input type="checkbox"/> 3. 東      | east            | <input type="checkbox"/> 19. 方位   | direction       |
| <input type="checkbox"/> 4. 西      | west            | <input type="checkbox"/> 20. 高度角  | elevation angle |
| <input type="checkbox"/> 5. 東北     | northeast       | <input type="checkbox"/> 21. 日升   | sunrise         |
| <input type="checkbox"/> 6. 西北     | northwest       | <input type="checkbox"/> 22. 日落   | sunset          |
| <input type="checkbox"/> 7. 東南     | southeast       |                                   |                 |
| <input type="checkbox"/> 8. 西南     | southwest       | <input type="checkbox"/> 23. 生物能量 | bioenergy       |
| <input type="checkbox"/> 9. 觀察(n)  | observation     | <input type="checkbox"/> 24. 太陽能  | solar energy    |
| <input type="checkbox"/> 10. 觀察(v) | observe         |                                   |                 |
| <input type="checkbox"/> 11. 測量    | measure         |                                   |                 |
| <input type="checkbox"/> 12. 位置    | position        |                                   |                 |
| <input type="checkbox"/> 13. 春分    | spring equinox  |                                   |                 |
| <input type="checkbox"/> 14. 夏至    | summer solstice |                                   |                 |
| <input type="checkbox"/> 15. 秋分    | autumn equinox  |                                   |                 |
| <input type="checkbox"/> 16. 冬至    | winter solstice |                                   |                 |



- The Sun rises in the east and sets in the west during spring equinox and autumn equinox.  
春、秋分時，太陽由正東方升起、正西方落下。
- At noon, the Sun is right above the head during summer solstice.  
夏至時，中午的太陽在正頭頂。

# Science Videos Unit 1

1-1 Stars 101 | National Geographic (恆星)



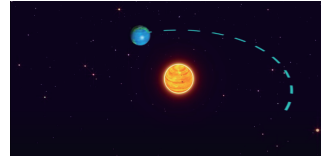
1-1 Light and Shadows | Types of Light | How are Shadows Formed



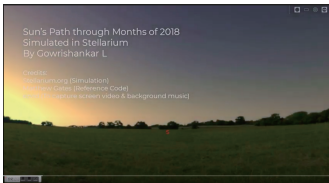
1-1 The Sun | Educational Video for Kids



1-2 The Sun's Surprising Movement Across the Sky



1-2 Sun's Path Through Months of 2018



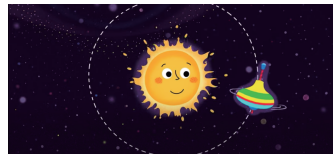
1-2 Reasons for the Seasons



1-2 Sun Path Simulator 太陽視運動軌跡模擬器



1-3 How the Sun Affects the Earth | Science Videos for Kids



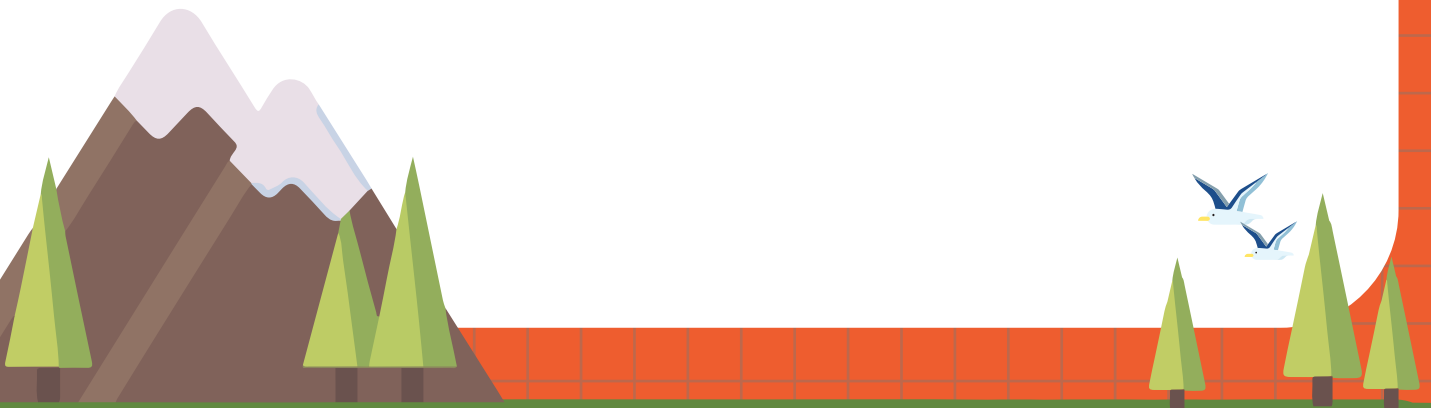
1-3 Importance of the Sun in Our Life || What Happens if the Sun Disappears?



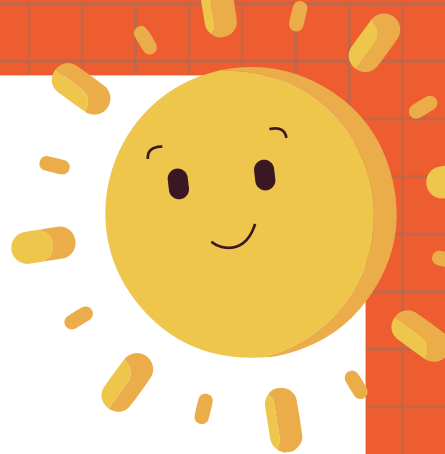
1-3 How Do Solar Panels Work?(太陽能板)



# NOTES

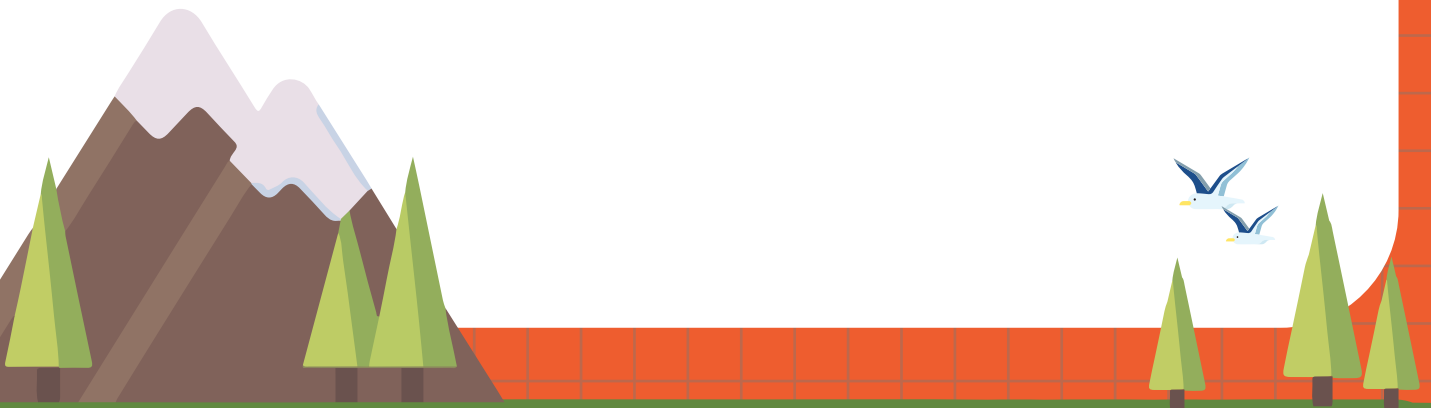


# NOTES

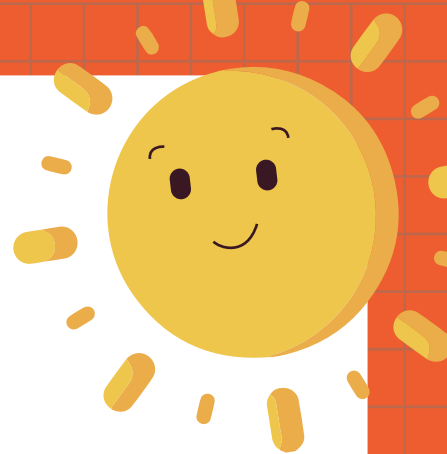




# NOTES

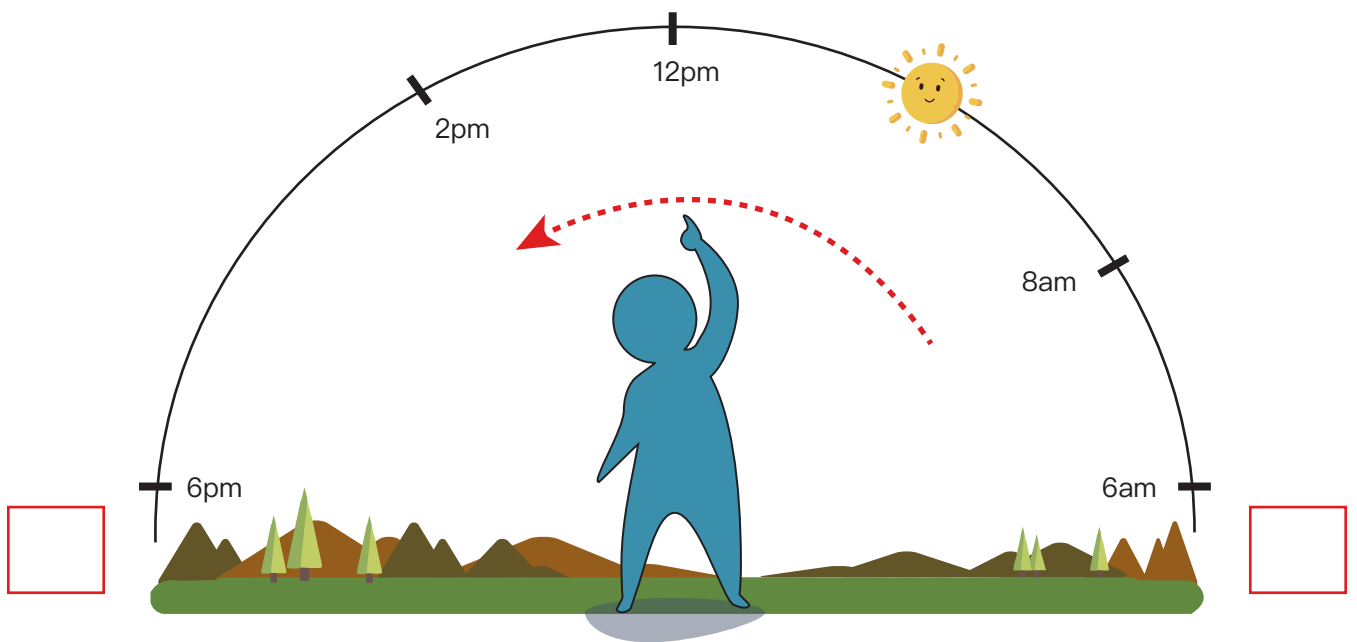


# NOTES

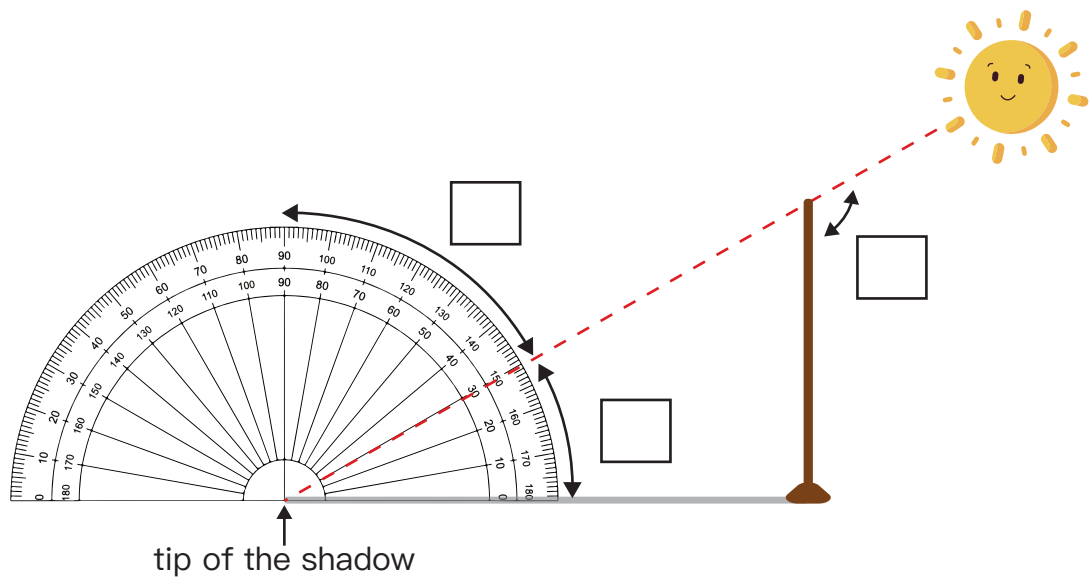


# Sun's position and shadow

1. Xiaonan observed the Sun's position at different times of the day. Write down the direction (方位) inside the .



2. Where is the elevation angle (高度角)? Put  inside the .



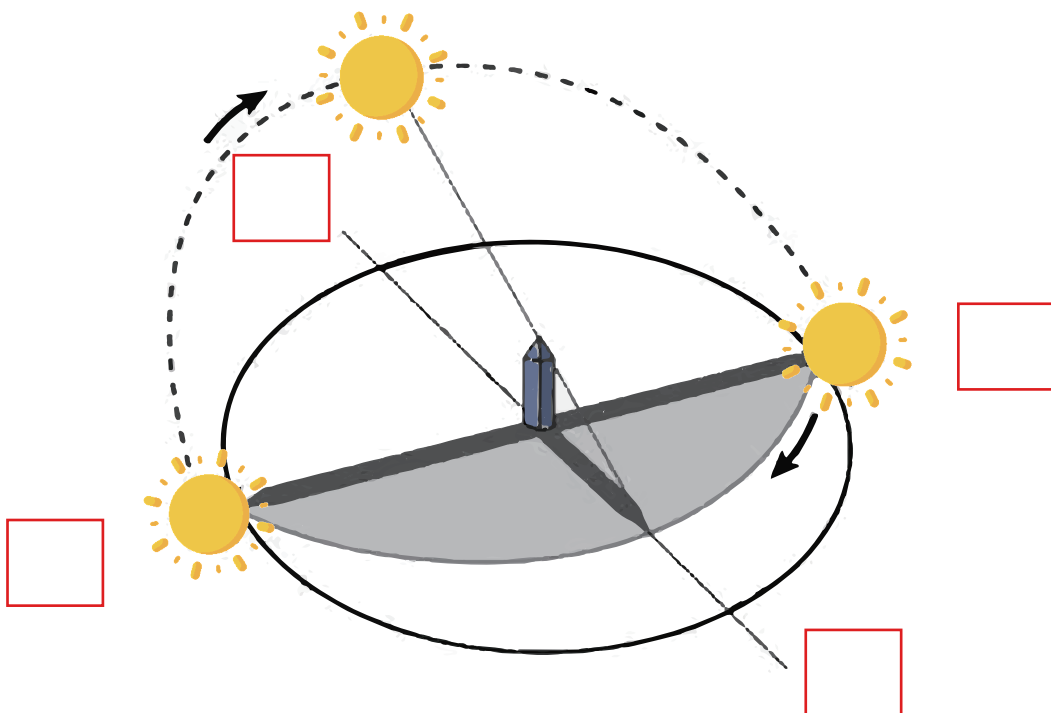
# Sun clock

Many years ago, people in Egypt (埃及) made obelisks (方尖碑) like this one.

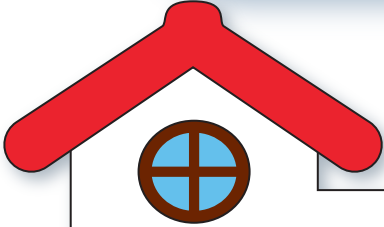


Photo by Courtney Cook on Unsplash

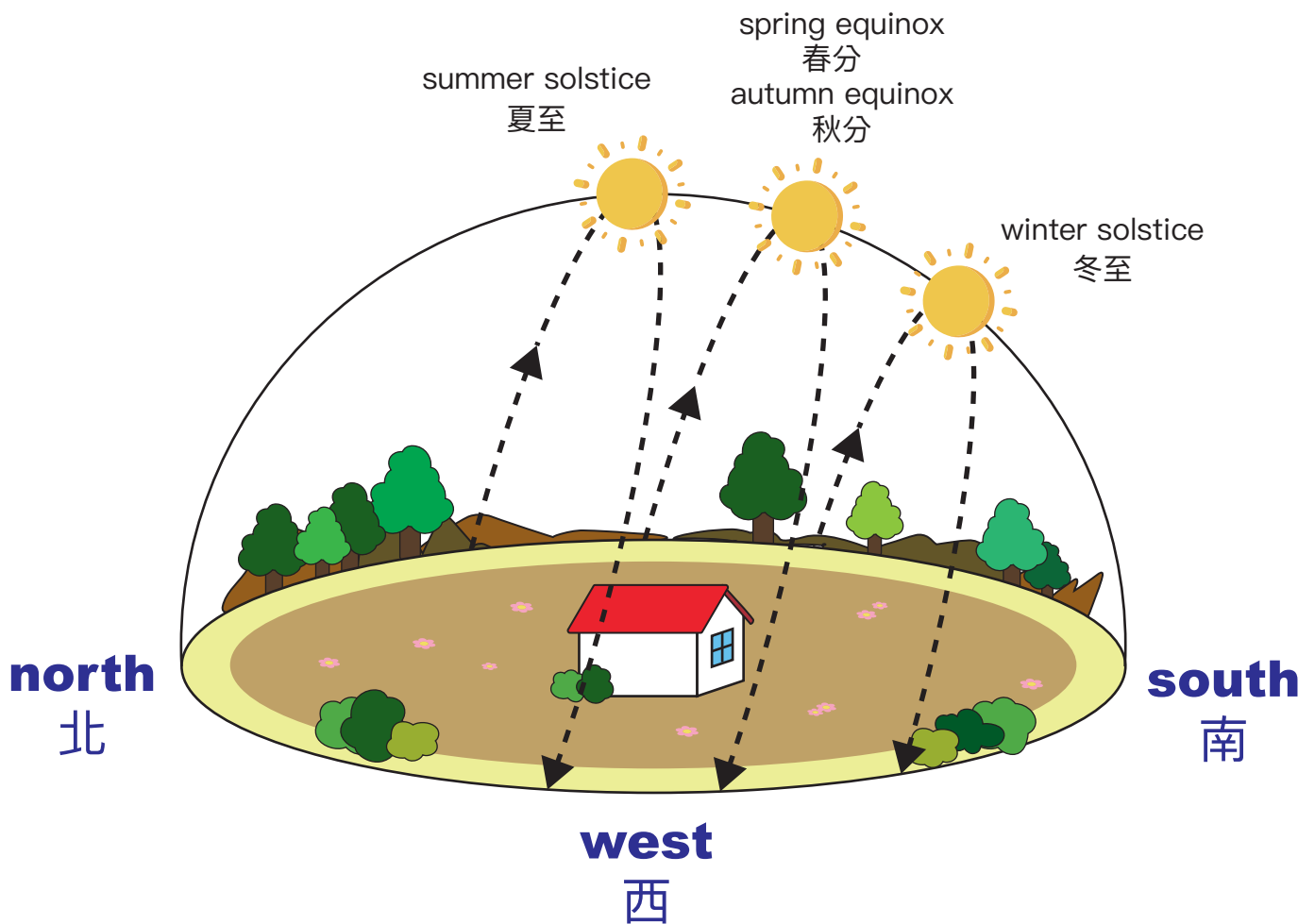
An obelisk can be used to tell time and direction (方位), as seen in the picture below. Where is north, south, east and west? Write your answer inside the  . Remember that Egypt and Taiwan are near the Tropic of Cancer (北迴歸線).



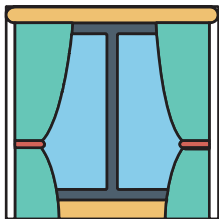
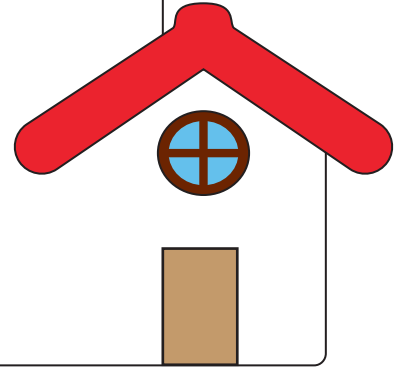
# Position of the house



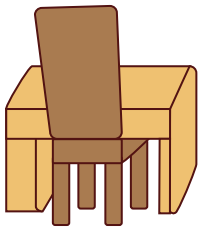
家在北回歸線經過地區的美美，房間有一扇窗開在南方，不同季節的清晨到傍晚，陽光照入美美房間的情形有什麼不同？



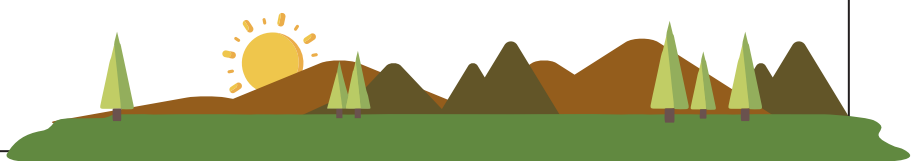
1. Which of the four seasons brings the most sunlight inside the room at noon (12:00)? Why?



2. Will opening a window that is on the south side bring warmth during winter and cold during summer? Why?



3. Why is sunlight important in our lives? Write down two reasons.



## Let's review

Fill in the blanks using the words below.

autumn equinox

elevation angle

energy

spring equinox

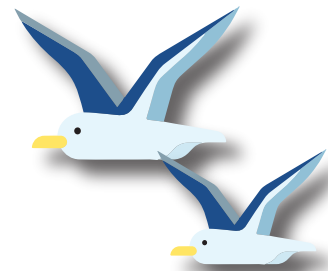
summer solstice

winter solstice

The Sun's position changes throughout the day. We can know the Sun's position by measuring a shadow's length and direction or the Sun's \_\_\_\_\_ and direction.

The Sun's position also changes throughout the four seasons. During \_\_\_\_\_ and \_\_\_\_\_, the Sun rises in the east and sets in the west. At noon, the Sun is in the South. During \_\_\_\_\_, the Sun rises in the northeast and sets in the northwest. At noon, the Sun is right above the head. During \_\_\_\_\_, the Sun rises in the southeast and sets in the southwest. At noon, the Sun is in the south.

The Sun affects our lives. It gives \_\_\_\_\_ that we can use in daily life. It also helps us tell time.

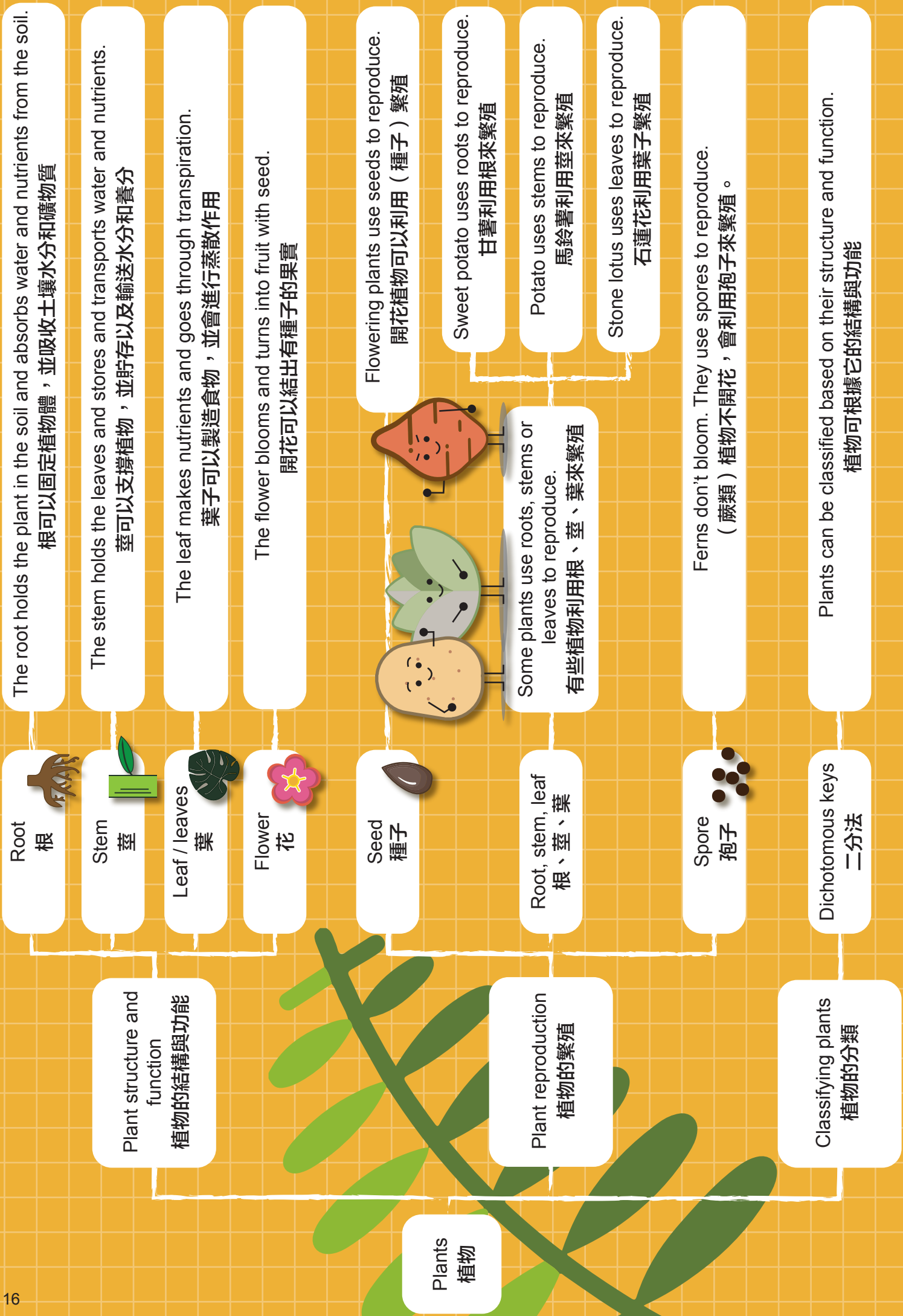


# Unit 2

## Plants

植物





## 應聽懂及認讀的生字

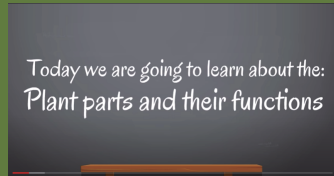
- |                          |            |              |                          |           |                  |
|--------------------------|------------|--------------|--------------------------|-----------|------------------|
| <input type="checkbox"/> | 1. 根       | root         | <input type="checkbox"/> | 23. 構造    | structure        |
| <input type="checkbox"/> | 2. 莖       | stem         | <input type="checkbox"/> | 24. 功能    | function         |
| <input type="checkbox"/> | 3. 葉       | leaf/leaves  | <input type="checkbox"/> | 25. 土壤    | soil             |
| <input type="checkbox"/> | 4. 花       | flower       | <input type="checkbox"/> | 26. 吸收    | absorb           |
| <input type="checkbox"/> | 5. 雄蕊      | stamen       | <input type="checkbox"/> | 27. 養分    | nutrient         |
|                          |            |              | <input type="checkbox"/> | 28. 輸送    | transport        |
|                          |            |              | <input type="checkbox"/> | 29. 蒸散(n) | transpiration    |
| <input type="checkbox"/> | 6. 花藥      | anther       | <input type="checkbox"/> | 30. 蒸散(v) | transpire        |
|                          | 7. 花絲      | filament     | <input type="checkbox"/> | 31. 開花    | bloom            |
|                          | 8. 雌蕊      | pistil       | <input type="checkbox"/> | 32. 分類(n) | classification   |
|                          |            |              | <input type="checkbox"/> | 33. 分類(v) | classify         |
|                          |            |              | <input type="checkbox"/> | 34. 二分法   | dichotomous keys |
|                          | 9. 柱頭      | stigma       |                          |           |                  |
|                          | 10. 花柱     | style        |                          |           |                  |
|                          | 11. 子房     | ovary        |                          |           |                  |
|                          | 12. 子房內的胚珠 | ovule        |                          |           |                  |
| <input type="checkbox"/> | 13. 花瓣     | petal        |                          |           |                  |
| <input type="checkbox"/> | 14. 萼片     | sepal        |                          |           |                  |
| <input type="checkbox"/> | 15. 種子     | seed         |                          |           |                  |
| <input type="checkbox"/> | 16. 繁殖(n)  | reproduction |                          |           |                  |
| <input type="checkbox"/> | 17. 繁殖(v)  | reproduce    |                          |           |                  |
| <input type="checkbox"/> | 18. 授粉(n)  | pollination  |                          |           |                  |
| <input type="checkbox"/> | 19. 授粉(v)  | pollinate    |                          |           |                  |
| <input type="checkbox"/> | 20. 花粉     | pollen       |                          |           |                  |
| <input type="checkbox"/> | 21. 孢子     | spore        |                          |           |                  |
| <input type="checkbox"/> | 22. 蕨類     | fern         |                          |           |                  |



- Flowering plants use seeds to reproduce.  
開花植物可以利用（種子）繁殖。
- Plants can also use roots, stems and leaves to reproduce.  
植物可以利用根、莖、葉來繁殖。
- Ferns don't bloom. They use spores to reproduce.  
（蕨類）植物不開花，會利用孢子來繁殖。

# Science Videos Unit 2

## 2-1 Plant Parts and Functions



## 2-1 Parts of a Plant | The Dr. Binocs Show



## 2-1 Parts of a Plant



## 2-2 How Does a Seed Become a Plant?



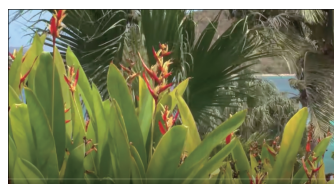
## 2-2 What is Seed Germination?



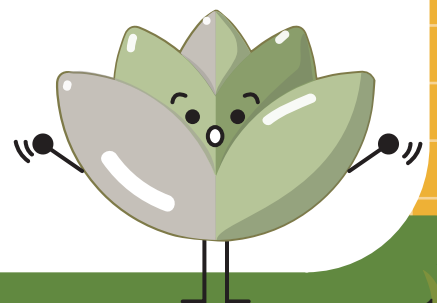
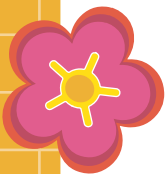
## 2-3 The Plant Kingdom: Characteristics and Classification



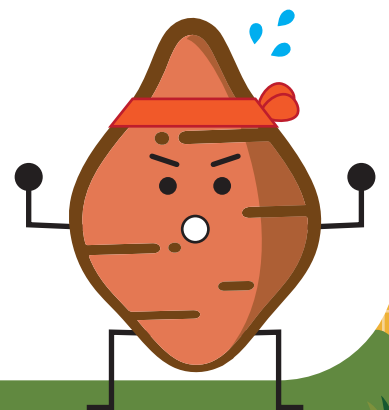
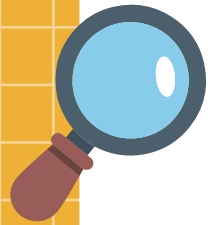
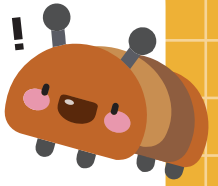
## 2-3 What is a Plant?



# NOTES

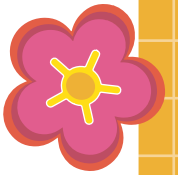


# NOTES

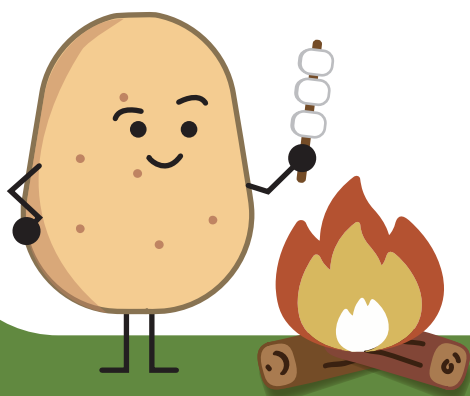
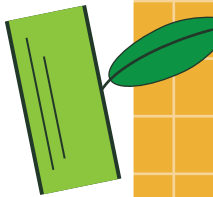







# NOTES

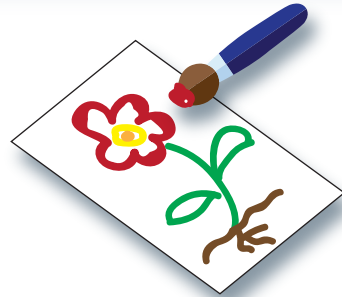


# NOTES



# Plant structure and function

-  Choose a plant that you like.
-  Draw each plant part.
-  Write down the function of each part.



Plant name: \_\_\_\_\_

1. Roots



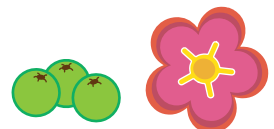
2. Stems



3. Leaves



4. Flowers and fruits





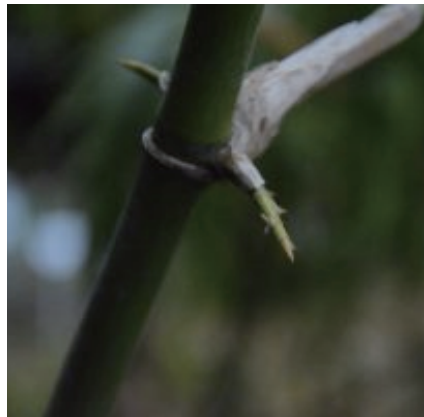
# Classifying plants

These plants are found in Taiwan.



**Common free fern (筆筒樹)**

- does not bloom (不會開花)
- grows straight (樹形直立)
- oval leaf marks on the stem (莖上可見橢圓狀葉痕)
- uses spores to reproduce (利用孢子來繁殖)



**Thorny bamboo (刺竹)**

- blooms (會開花)
- use stems to reproduce (常使用地下莖來進行繁殖)
- white small flower (白色小花)



**Sweet potato (甘薯)**

- blooms, bears fruit and seeds (會開花、結果，並產生種子)
- can also use roots and stems to reproduce (塊根或莖也可以繁殖)
- purple flower (紫色花)



**Mahogany (桃花心木)**

- blooms (會開花)
- thick fruit can protect the seeds (果實厚實可以保護種子)
- fruit splits when the seed matures (種子成熟後果實會裂開)
- seed has wings (種子有翅膀)



**Coconut (椰子)**

- blooms (會開花)
- thick fruit (果實厚實)
- hollow fruit with liquid inside, and the fruit can float on water (果實內部中空有液體，且可以漂浮在水面上)



**Spider brake fern (鳳尾蕨)**

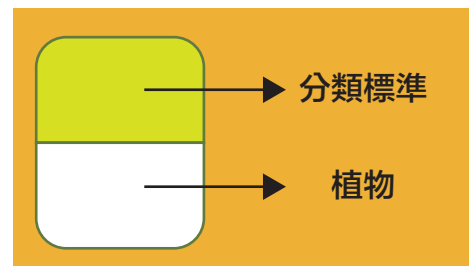
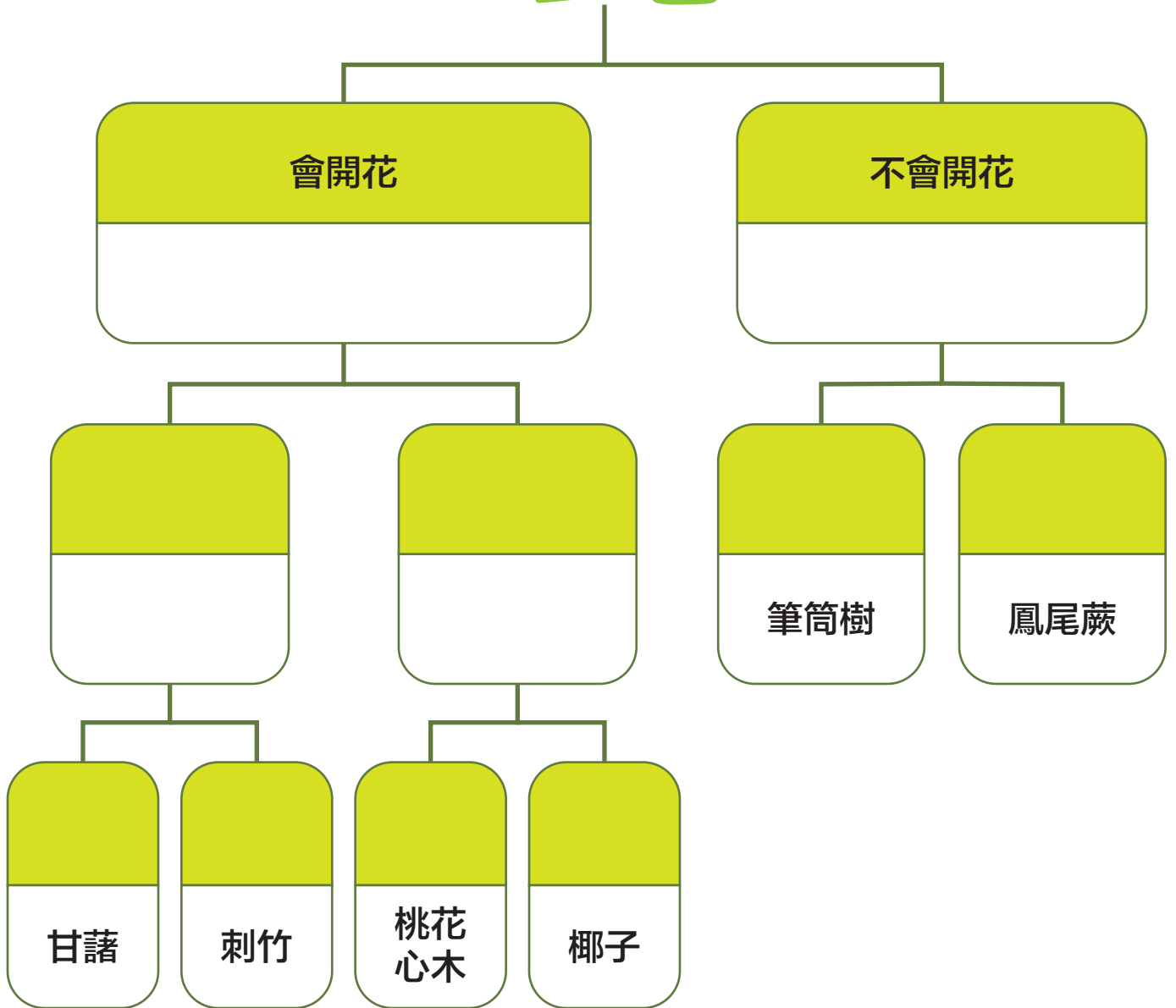
- does not bloom (不會開花)
- grows low (低矮)
- uses spores to reproduce (直接利用葉後面的孢子來繁殖)

Common free fern <https://reurl.cc/em5QLK>  
 Thorny bamboo <http://www.taivoan.org/?p=1196>  
 Sweet potato <https://reurl.cc/1oQlb8>

Coconut [http://img-cdn.jg.jugem.jp/71d/2831957/20130416\\_1125016.jpg](http://img-cdn.jg.jugem.jp/71d/2831957/20130416_1125016.jpg)  
 Spider brake fern [https://bruce0342.blogspot.com/2015/12/blog-post\\_7.html](https://bruce0342.blogspot.com/2015/12/blog-post_7.html)  
 Mahogany <http://www.payer.de/amarakosa/amara02346.jpg>

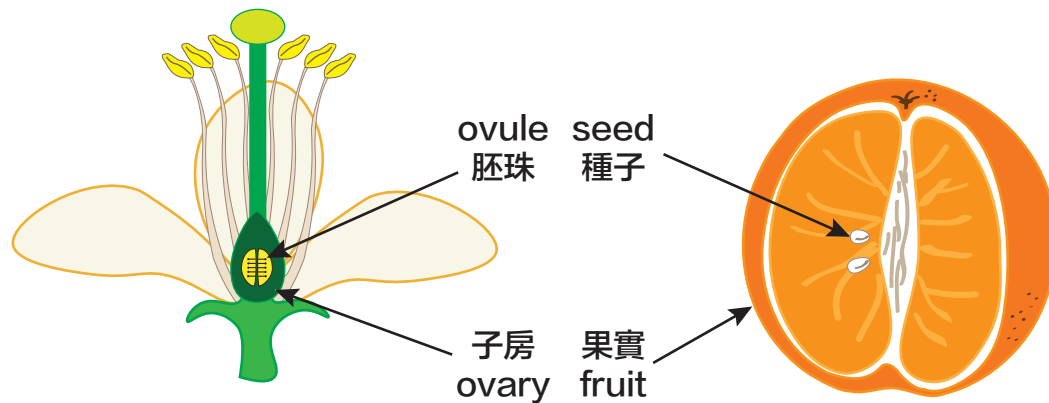
Classify the plants by completing the chart below using the structures and functions on page 24.

# Plant



# Plant reproduction

Did you know that a flower of an orange plant can become an orange fruit? Look at the picture below.



Turning a flower into a fruit takes many steps. Answer the questions below to know more about the steps.

| Step   | Question   | Answer |
|--|--|--------|
| The pollen (花粉) goes from the male part of the flower to the female part.      | How can the pollen go from the male part of the flower to the female part? |        |
| After the female part is pollinated (授粉), one of its parts turns into a fruit. | Which female part turns into a fruit?                                      |        |
| Inside the fruit, you will find seeds.   | Which female part turns into a seed?                                       |        |
| The seeds can spread and grow into new plants.                                 | How can seeds spread?  |        |

## Let's review

Fill in the blanks using the words below.

classify

flower

leaf

reproduce

root

seeds

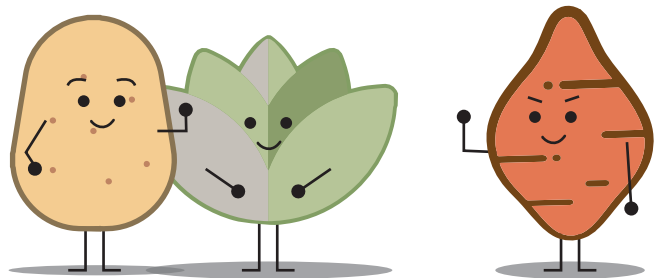
spores

stem

A plant is made up of different parts. Each part has its own structure and function. The \_\_\_\_\_ holds the plant in the soil and absorbs water and nutrients from the soil. The \_\_\_\_\_ holds the leaves and stores and transports water and nutrients. The \_\_\_\_\_ makes nutrients and goes through transpiration. The \_\_\_\_\_ blooms and turns into fruit with seed.

A plant can \_\_\_\_\_ in different ways. A flowering plant uses \_\_\_\_\_ to reproduce. A fern uses \_\_\_\_\_ to reproduce. Other plants use roots, stems or leaves to reproduce.

We can \_\_\_\_\_ plants based on their structure and function.



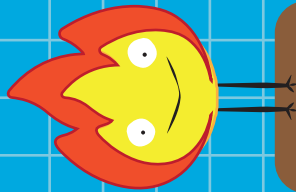


# Unit 3

---

## Air and Burning

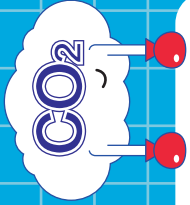
空氣與燃燒



Air and Burning  
空氣與燃燒



Oxygen  
氧氣



Carbon dioxide  
二氧化碳

We can make oxygen.  
我們可以製造氧氣

Add carrots to hydrogen peroxide to make oxygen  
紅蘿蔔加入雙氧水以產生氧氣

Oxygen is colorless and tasteless.  
氧氣是無色無味的

Oxygen has features.  
氧氣的特性

Incense burns in a bottle of oxygen.  
線香可以在氧氣瓶內燃燒

Oxygen helps burning.  
氧氣幫助燃燒

Oxygen is useful.  
氧氣的用處

Oxygen is used in the hospital and aquarium. It is mixed with acetylene to cut steel.  
氧氣用於醫院和水族館，與乙炔混合可切割鋼

We can make carbon dioxide.  
我們可以製造二氧化碳

Add baking soda to vinegar to make carbon dioxide  
利用蘇打粉加醋來製造二氧化碳

Carbon dioxide is colorless and tasteless.  
二氧化碳是無色無味的氣體

Carbon dioxide has features.  
二氧化碳的特性

Incense does not burn in a bottle of carbon dioxide.  
線香在二氧化碳瓶內不會燃燒

Carbon dioxide does not help burning.  
二氧化碳不會幫助燃燒

Carbon dioxide turns limewater turbid.  
會使澄清石灰水變（混濁）

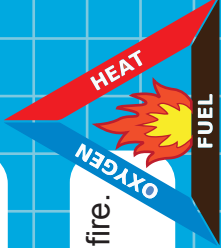
Carbon dioxide is useful.  
二氧化碳的用處

Carbon dioxide is used in fire extinguisher, carbonated drink and dry ice.  
二氧化碳應用在滅火器、氣泡飲、乾冰

Three elements are needed to make fire.  
生火需要的元素

1. oxygen 氧氣
2. heat 燃燒
3. fuel 燃料

Removing one of these elements will stop fire.  
移除其中一個元素就會停止燃燒



There is a right way to use a fire extinguisher.  
正確使用滅火器

PASS:  
Pull (拉), Aim (瞄), Squeeze (壓), Sweep (掃)

We can be safe from fire.  
遠離火源保持安全

Watch what you are cooking and do not overload an electrical outlet.  
烹飪時不離開火源，不過度使用插座

When there is fire, walk outside while staying low and do not use the elevator.  
火災發生時，身體蹲低離開現場，且不使用電梯



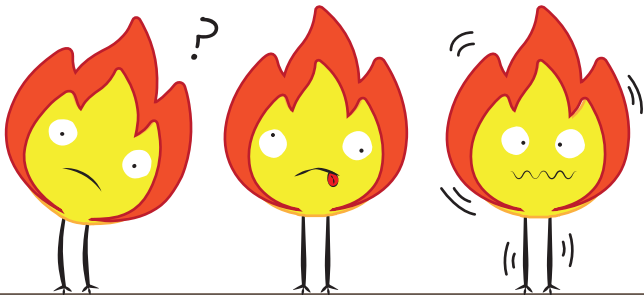
Burning and extinguishing fire  
燃燒與滅火

## 應聽懂及認讀的生字

- 1. 空氣                      air
- 2. 燃燒                      burning
- 3. 氧氣                      oxygen
- 4. 雙氧水                    hydrogen peroxide
- 5. 特性                      feature
- 6. 無色                      colorless
- 7. 無味                      tasteless
- 8. 線香                      incense
- 9. 醫院                      hospital
- 10. 水族館                    aquarium
- 11. 乙炔                      acetylene
- 12. 鋼材                      steel

- 13. 二氧化碳                carbon dioxide
- 14. 小蘇打粉                baking soda
- 15. 醋                        vinegar
- 16. 滅火器                    fire extinguisher
- 17. 碳酸飲料                carbonated drink
- 18. 乾冰                      dry ice
- 19. 澄清石灰水              limewater
- 20. 混濁                      turbid

- 21. 要素                      element
- 22. 加熱                      heat
- 23. 燃料                      fuel
- 24. 拉                        pull
- 25. 瞄                        aim
- 26. 壓                        squeeze
- 27. 掃                        sweep
- 28. 過度乘載                overload
- 29. 插座                      electrical outlet
- 30. 蹲低                      staying low
- 31. 電梯                      elevator



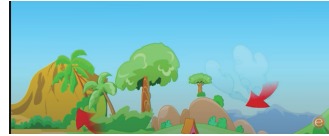
1. Oxygen helps burning.  
氧氣幫助燃燒
2. Carbon dioxide does not help burning.  
二氧化碳不幫助燃燒
3. Watch what you are cooking and do not overload an electrical outlet.  
烹飪時不遠離火源，不過度使用插座
4. When there is fire, walk outside while staying low and do not use the elevator.  
火災發生時，身體蹲低離開現場，且不使用電梯

# Science Videos Unit 3

3-1 Is Fire a Solid, a Liquid, or a Gas?



3-1 Air Contains Oxygen Experiment – Elementary Science



3-1 Chemical Change Making Oxygen Gas



3-2 Vinegar + Baking Soda + Balloons = FIZZY FUN! | Kids Science Experiments |



3-2 To Prove the Presence of Carbon Dioxide in Air | Kids Science Experiments



3-2 Climate Science in a Nutshell #4: Too Much Carbon Dioxide



3-3 The Smokin' Science of Fire Extinguishers

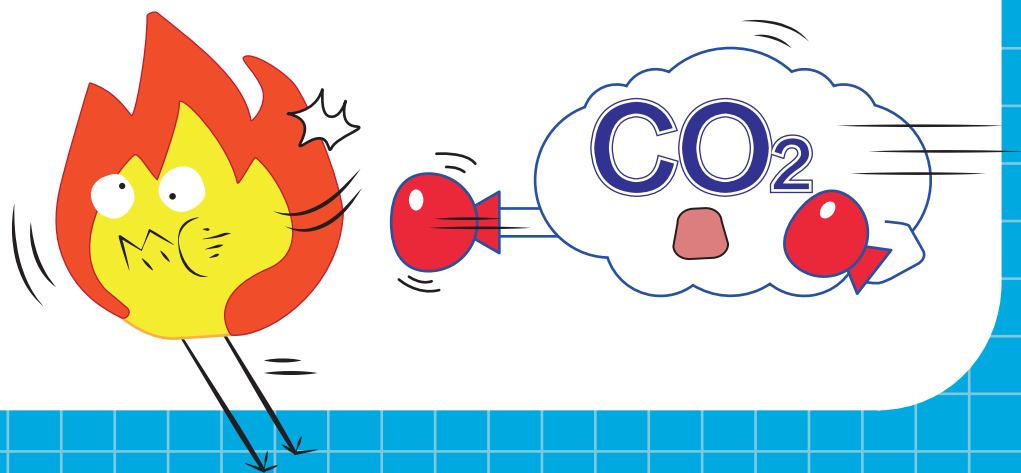


3-3 Fire Safety – Top 10 Tips to Keep You Safe at Home

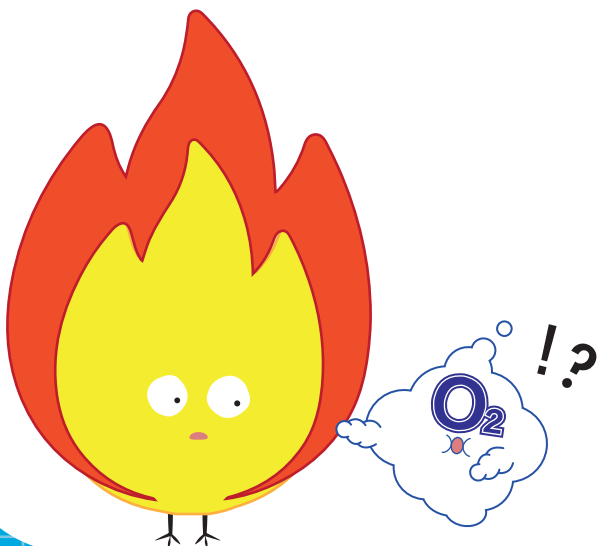




# NOTES



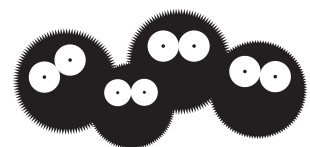
# NOTES



# NOTES



# NOTES



# Oxygen



頤茵 and 瑋銘 are talking about what happens to the oxygen made from adding carrots to hydrogen peroxide.

Oxygen mixes with water.



Oxygen pushes the water away to make space for itself.



Who is correct ?

- A. 頤茵
- B. 瑋銘
- C. 頤茵 and 瑋銘 are correct
- D. 頤茵 and 瑋銘 are wrong



Why ?

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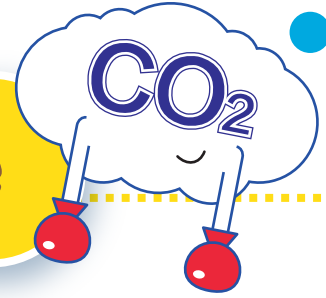
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What are the main gases found on Earth?

- a. carbon dioxide and nitrogen
- b. carbon dioxide and oxygen
- c. hydrogen and oxygen
- d. nitrogen and oxygen

|      |                |
|------|----------------|
| 二氧化碳 | carbon dioxide |
| 氫氣   | hydrogen       |
| 氮氣   | nitrogen       |
| 氧氣   | oxygen         |

# Carbon Dioxide



Fill in the blank using one of the words below.

burning

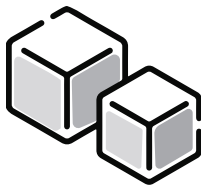
cooking

extinguishing

Carbon dioxide forms when wood goes through \_\_\_\_\_.



Is carbon dioxide used to make these things? Circle 😊 if yes and ☹️ if no.



dry ice



fire extinguisher



carbonated drink



# Extinguishing Fire

Remember the **PASS** Word

**P**



Pull the pin (or other motion) to unlock the extinguisher.

**A**



Aim at the base (bottom) of the fire and stand 6 - 10 feet away.

**S**



Squeeze the lever to discharge the agent.

**S**



Sweep the spray from left to right until the flames are totally extinguished.

Write the missing letters inside the .

## HOW TO USE A FIRE EXTINGUISHER

Remember these 4 easy steps!!

**P**  the pin

**A**  Fire  aim  low

**S**  the handles together

**S**  side to side

bigtbooks.wordpress.com

## Let's review

Fill in the blanks using the words below.

aim  
pull

carbon dioxide  
squeeze

fire  
sweep

oxygen

We can make \_\_\_\_\_ by adding carrots to hydrogen peroxide. Oxygen is colorless, tasteless and helps burning. Oxygen is useful.

We can make \_\_\_\_\_ by adding baking soda to vinegar. Carbon dioxide is colorless, tasteless, and does not help burning. Carbon dioxide is useful.

\_\_\_\_\_ is formed when there is oxygen, heat and fuel. Removing one of these will stop fire. To use a fire extinguisher, follow PASS: \_\_\_\_\_, \_\_\_\_\_, \_\_\_\_\_, \_\_\_\_\_. We can be safe from fire if we watch what we are cooking and do not overload an electrical outlet. When there is fire, walk outside while staying low and do not use the elevator.







# Unit 4

Sound

聲音

whizz

Sound is around us.  
我們周圍的聲音

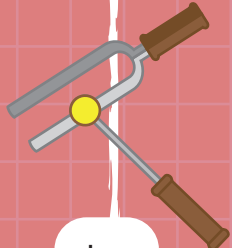
clatter

yay!

((boom))



We can make sound.  
製造聲音



If a thing vibrates, it makes a sound.  
物體震動時，會產生噪音

Volume  
音量



The more a thing vibrates, the higher the volume.  
物體震動越多，音量越大

The less a thing vibrates, the lower the volume.  
物體震動越少，音量越小

Timbre  
音色



Each thing vibrates differently and makes a different timbre.  
物體震動不一，產生不同音色

DO RE MI

Pitch  
音調



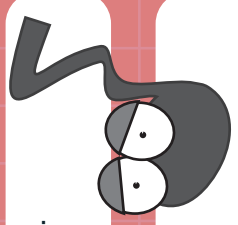
The faster a thing vibrates, the higher the pitch.  
物體震動越快，音調越高

The slower a thing vibrates, the lower the pitch.  
物體震動越慢，音調越低

We can make noise.  
製造噪音

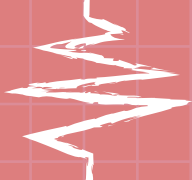


Noise is a type of sound.  
噪音是聲音的一種



Noise can be loud.  
噪音可以很大聲

We can measure noise.  
測量噪音



A decibel meter measures noise level.  
利用分貝器測量噪音

We can stop noise.  
停止噪音

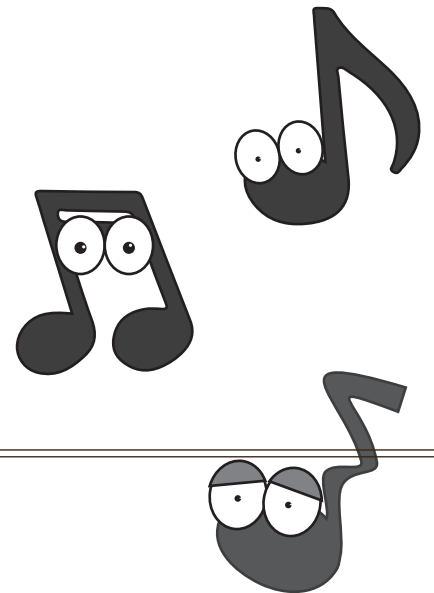


Noise  
噪音

We are all responsible for being quiet.  
維護安寧是我們的責任

## 應聽懂及認讀的生字

|                                       |           |                                   |               |
|---------------------------------------|-----------|-----------------------------------|---------------|
| <input type="checkbox"/> 1. 震動(n)     | vibration | <input type="checkbox"/> 18. 噪音   | noise         |
| <input type="checkbox"/> 2. 震動(v)     | vibrate   | <input type="checkbox"/> 19. 噪音程度 | noise level   |
| <input type="checkbox"/> 3. 音量        | volume    | <input type="checkbox"/> 20. 安靜   | quiet         |
| <input type="checkbox"/> 4. 大聲        | loud      | <input type="checkbox"/> 21. 分貝   | decibel       |
| <input type="checkbox"/> 5. 較大聲的      | louder    | <input type="checkbox"/> 22. 分貝器  | decibel meter |
| <input type="checkbox"/> 6. 最大聲的      | loudest   |                                   |               |
| <input type="checkbox"/> 7. 小聲        | soft      |                                   |               |
| <input type="checkbox"/> 8. 較小聲的      | softer    |                                   |               |
| <input type="checkbox"/> 9. 最小聲的      | softest   |                                   |               |
| <input type="checkbox"/> 10. 音調       | pitch     |                                   |               |
| <input type="checkbox"/> 11. 高        | high      |                                   |               |
| <input type="checkbox"/> 12. 較高 (音) 的 | higher    |                                   |               |
| <input type="checkbox"/> 13. 最高 (音) 的 | highest   |                                   |               |
| <input type="checkbox"/> 14. 低        | low       |                                   |               |
| <input type="checkbox"/> 15. 較低 (音) 的 | lower     |                                   |               |
| <input type="checkbox"/> 16. 最低 (音) 的 | lowest    |                                   |               |
| <input type="checkbox"/> 17. 音色       | timbre    |                                   |               |



- The more a thing vibrates, the higher the volume.  
物體震動越多，音量越大  
The less a thing vibrates, the lower the volume.  
物體震動越少，音量越小
- The faster a thing vibrates, the higher the pitch.  
物體震動越快，音調越高  
The slower a thing vibrates, the lower the pitch.  
物體震動越慢，音調越低
- Each thing vibrates differently and makes a different timbre.  
物體震動不一，產生不同音色

# Science Videos Unit 4

4-1 What is Sound?



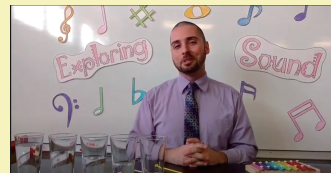
4-1 Can Sound Move Objects? Cool Science Experiment



4-1 Sound Wave Demo with Tuning Forks and a Bowl of Water



4-2 Experimenting with Sound and Pitch



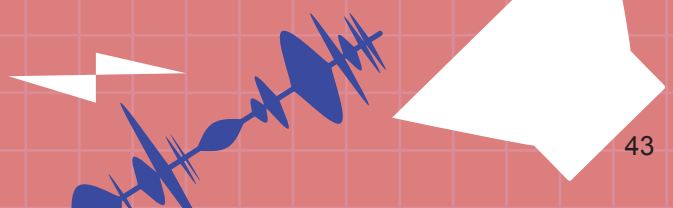
4-2 Length of Rubber Band Determines Pitch | Sound | Physics



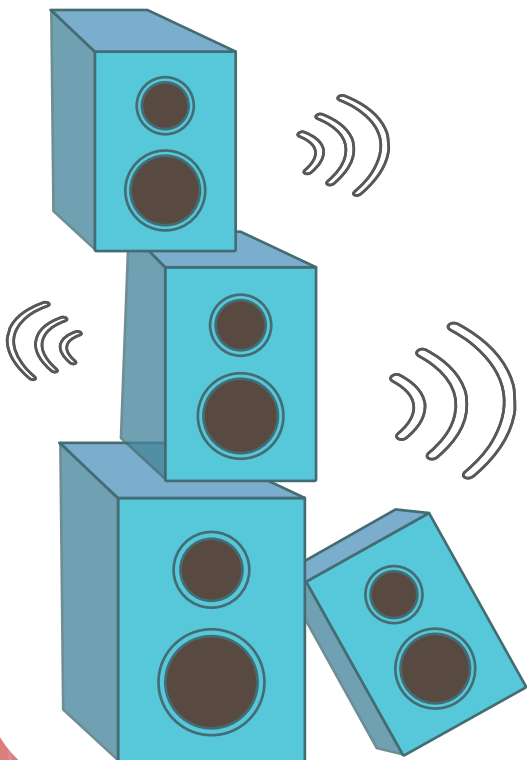
4-3 What is Noise Pollution? | What Causes Noise Pollution? | The Dr. Binocs Show



4-3 Why Do Doctors Use Stethoscopes?



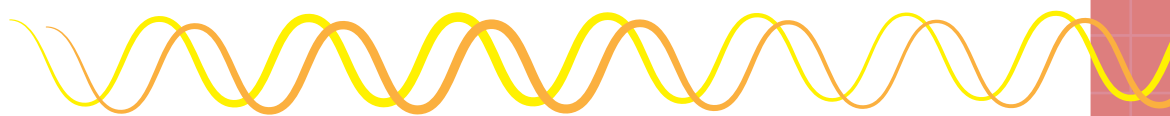
# NOTES



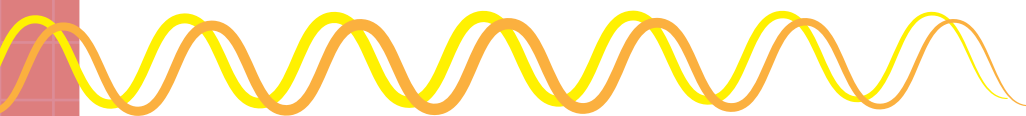
# NOTES



# NOTES



# NOTES





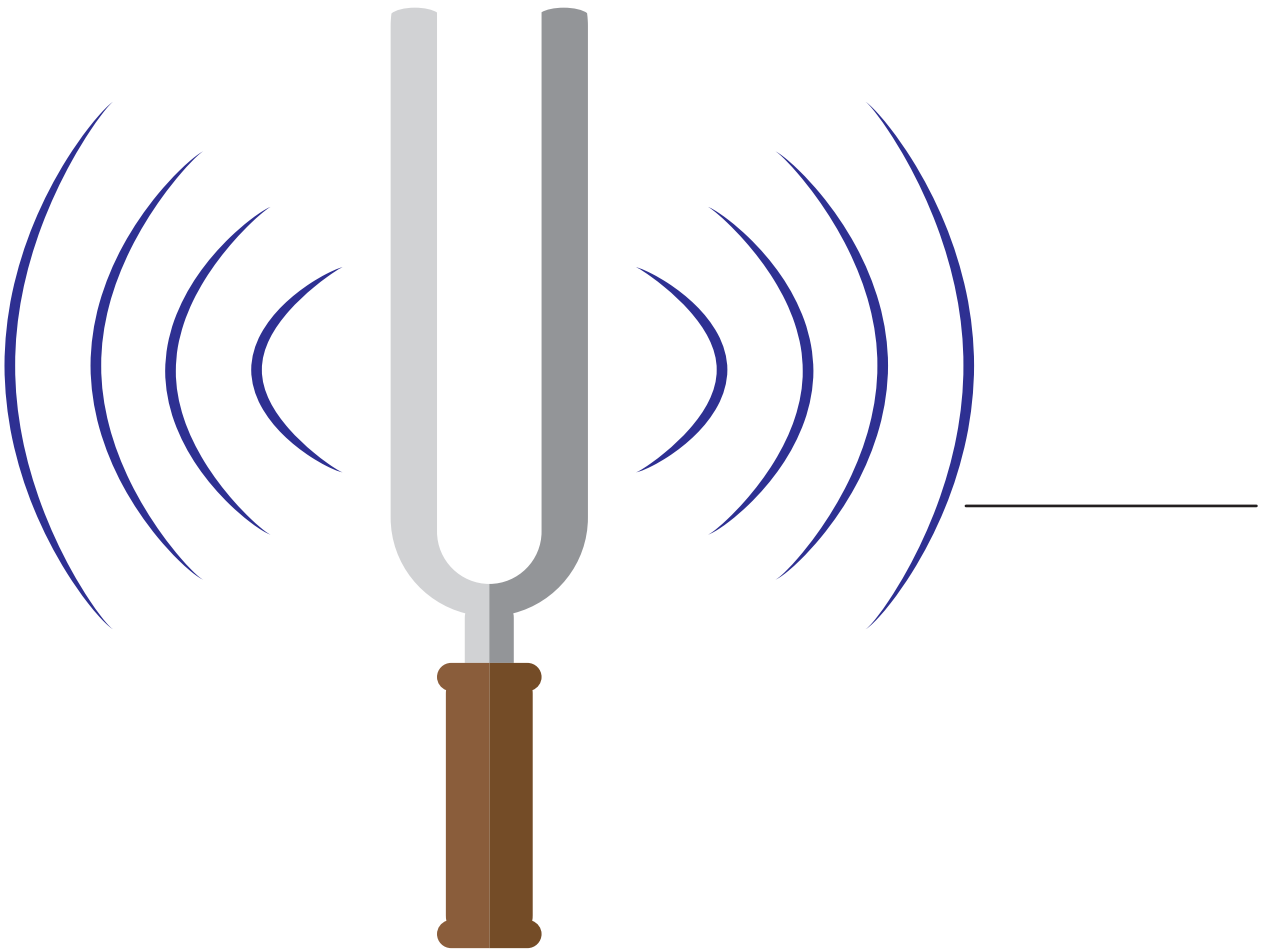
# Volume

Fill in the blanks using the words below.

higher

lower

vibration



The more a thing vibrates (震動), the \_\_\_\_\_ the volume (音量).

The less a thing vibrates (震動), the \_\_\_\_\_ the volume (音量).

# Pitch

Fill in the blanks using the words below.

high

low

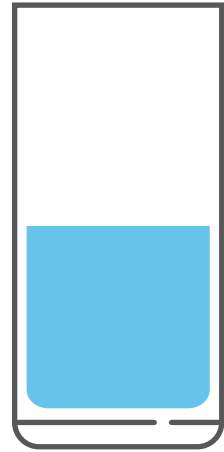
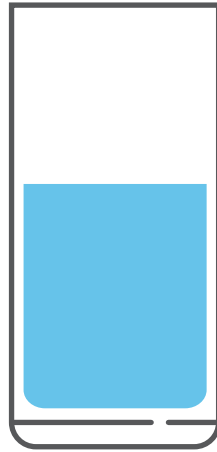
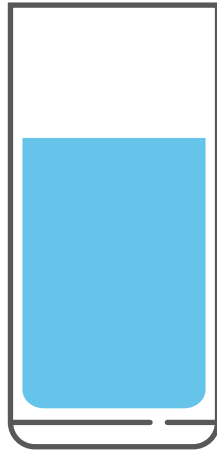
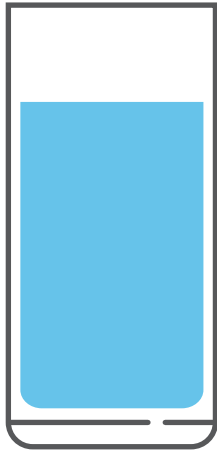
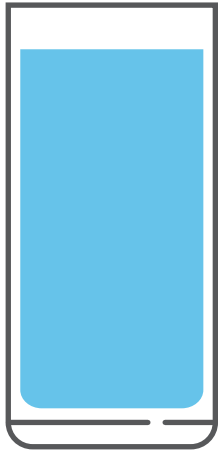
vibration



A long string (琴弦) makes a sound with a \_\_\_\_\_ pitch (音高).

A short string (琴弦) makes a sound with a \_\_\_\_\_ pitch (音高).

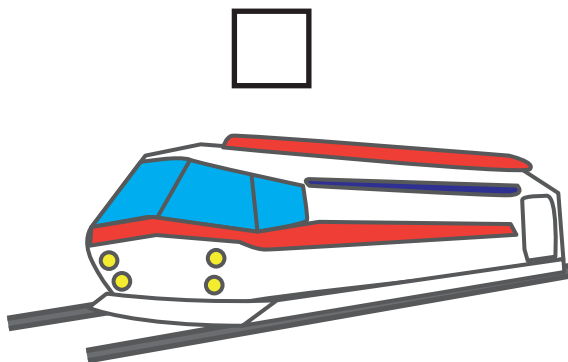
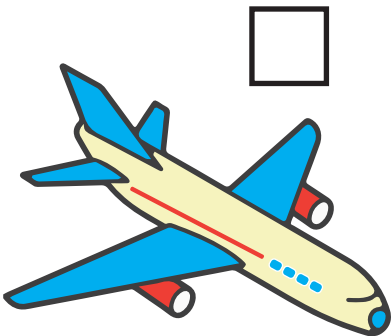
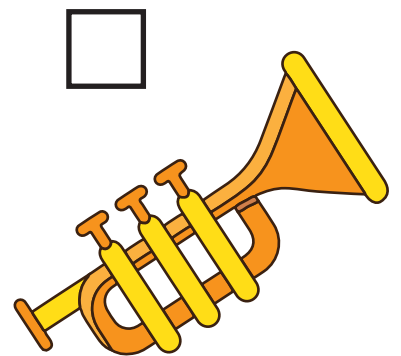
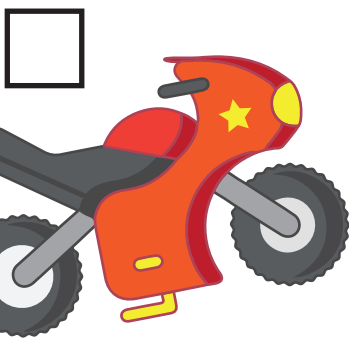
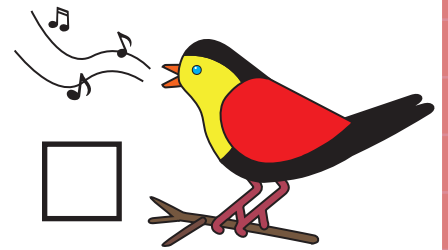
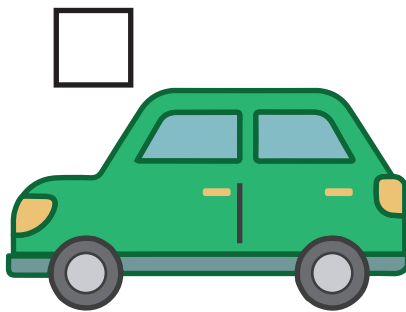
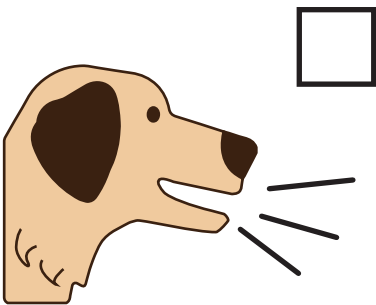
Which glass makes the highest pitch? Put **V** inside the  .



# Noise

Which of these things makes the softest sound? Put 😊 inside the .

Which of these things makes the loudest sound? Put ☹️ inside the .



Do not stand beside the loudest thing. Your ears will get hurt!

## Let's review

Fill in the blanks using the words below.

decibel meter  
timbre

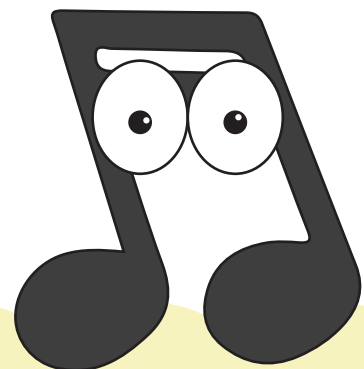
noise  
vibrates

pitch  
volume

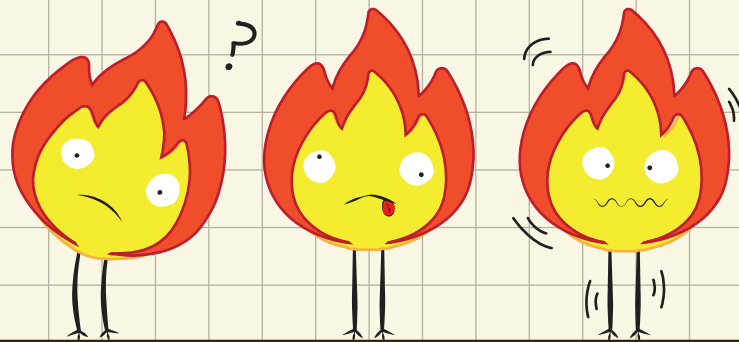
sound

We can make sound. If a thing \_\_\_\_\_, it makes a \_\_\_\_\_. We can change a sound's volume, pitch and timbre. The more a thing vibrates, the higher the \_\_\_\_\_. The less a thing vibrates, the lower the volume. The faster a thing vibrates, the higher the \_\_\_\_\_. The slower a thing vibrates, the lower the pitch. Finally, each thing vibrates differently and makes a different \_\_\_\_\_.

\_\_\_\_\_ is a type of sound. It can be loud. It can be measured using a \_\_\_\_\_. We can stop noise because we are all responsible for being quiet.







# Science Notes

English Immersion Program

5th grade

1st semester

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