



Science Notes

Bilingual Science
4th Grade
2nd Semester



Name: _____
Class: _____
Number: _____
Teacher: _____



Preface

前言

政府推動 2030 雙語政策，期基於臺灣已掌握華語使用的優勢，在專業知識之上，進一步強化我國人，尤其年輕世代的英語溝通能力，增強全球競爭力。（國家發展委員會 2020）；而如何提升國民英語溝通能力以增加國際競爭力，是學校教育中努力的目標。

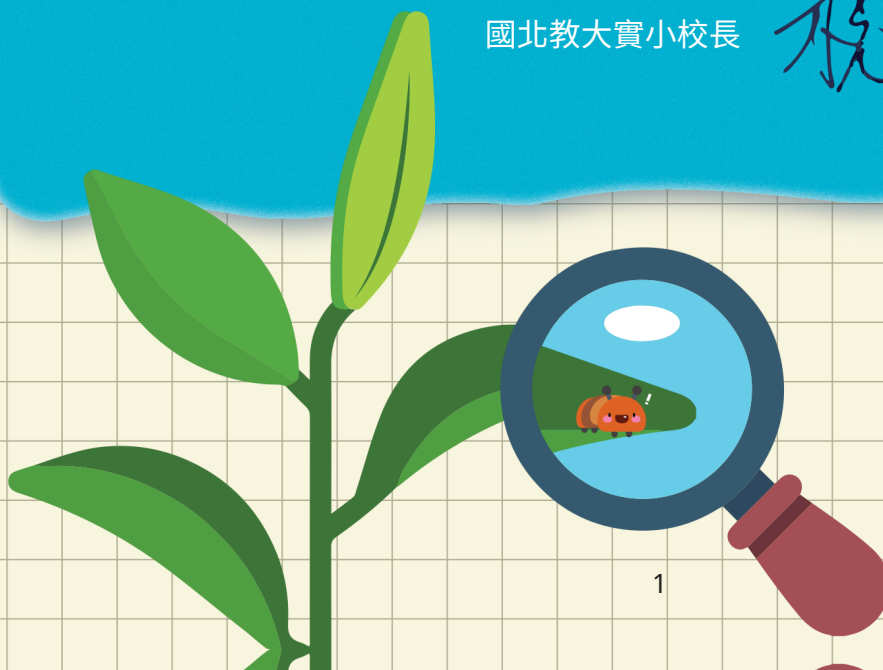
有感於雙語教育及近年來我國積極培養學童STEAM (Science, Technology, Engineering, Arts, and Mathematics)結合科學、技術、工程、藝術，以及數學跨學科素養的教育趨勢，本校自108學年度開始試辦自然課程雙語教學，以英語營造生活情境中的科學，透過趣味科學實驗增進學童以英語來進行科學探究的興趣與能力。

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、劉容昇、范瑋庭以及2022年7月剛到任的外師Leonawen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；教學過程中階段性的提高雙語的使用，以英語指導科學實驗步驟，透過動手做實驗來激發學童的科學探究潛能，期望學童可以紮紮實實的學習自然科學知識，提升學生英語聽說能力，以及把所學的英語運用在課堂上，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，進而培養我國國際型人才與視野。

國北教大實小校長

祝勤捷

2023.02



Unit 1

Day and Night Sky

白天和夜晚的天空

Unit 1
Day and Night Sky
第一課
白天和夜晚的天空

Differences
between day and
night
日夜景象的不同

Daytime view
白天的景象

We can see the Sun during the day. The day feels brighter and warmer because of the Sun's light.
白天能看到太陽，因為陽光照射，白天較明亮溫暖。

Night view
夜晚的景象

We can see the Moon and stars at night. Some stars are bright, and some are dim.
夜晚能看見月亮和星星。星星有些亮、有些暗。

Sun and shadows
太陽和影子

The shadow of an object is on the side opposite to the Sun.
物體的影子和太陽方位相反。

Sun
太陽

Changes of the Sun's
position during the
day
一天中太陽位置的變化

The Sun rises in the east and sets in the west.
太陽從東方升起，由西方落下。

Shadows are shortest around noon and longest in the morning and afternoon.
中午時，影子最短；上午和下午時，影子較長。

Moon
月亮

The Moon I know
我知道的月亮

The Moon's surface has both dark and light areas.
月亮表面有亮有暗。

We can see the Moon both during the day and at night.
白天和夜晚都能看見月亮。

Changes of the
Moon's position
月亮的位置變化

The Moon rises in the east and sets in the west.
月亮從東方升起，由西方落下。

Moon phases
月相

The Moon waxes and wanes. It takes the Moon 29 to 30 days to go through its different phases.
月相變化由缺到圓，再由圓到缺，通常需要29到30天。

The lunar calendar is based on the Moon phases.
農曆是根據月相變化而來。

UNIT 1

Day and Night Sky

日期： /

應聽懂及認讀的生字

- ☐ 1. 日 day
- ☐ 2. 夜晚 night
- ☐ 3. 白天 daytime
- ☐ 4. 夜間 nighttime
- ☐ 5. 天空 sky
- ☐ 6. 星星 star
- ☐ 7. 太陽 sun
- ☐ 8. 陽光 sunlight
- ☐ 9. 位置 position
- ☐ 10. 東方 east
- ☐ 11. 西方 west
- ☐ 12. 影子 shadow
- ☐ 13. 上升 rise
- ☐ 14. 落下(日、月) set

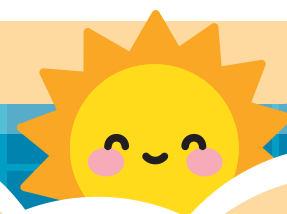
- ☐ 15. 月亮 moon
- ☐ 16. 表面 surface
- ☐ 17. 明亮的 bright



- ☐ 18. 亮度 brightness
- ☐ 19. 黑暗的 dark
-
- ☐ 20. 月相 moon phase
- ☐ 21. (月亮)漸圓 waxing
- ☐ 22. (月亮)虧缺 waning
- ☐ 23. 新月 new moon
- ☐ 24. 眉月 waxing crescent moon
- ☐ 25. 上弦月 first quarter moon
- ☐ 26. 盈凸月 waxing gibbous moon
- ☐ 27. 滿月 full moon
- ☐ 28. 虧凸月 waning gibbous moon
- ☐ 29. 下弦月 third quarter moon
- ☐ 30. 殘月 waning crescent moon
-

- ☐ 31. 望遠鏡 telescope
- ☐ 32. 指南針 compass
- ☐ 33. 農曆 lunar calendar

1. We can see the Sun during the day and the Moon at night.
白天能看見太陽，晚上能看見月亮。
2. The Sun and the Moon rise in the east and set in the west.
太陽和月亮從東方升起，由西方落下。
3. The shadow of an object is on the side opposite to the Sun.
物體的影子和太陽方位相反。
4. The Moon waxes and wanes. It takes the Moon 29 to 30 days to go through its different phases.
月亮會漸圓，也會漸虧缺。月相變化由缺到圓，再由圓到缺，需要29到30天左右才能完成。

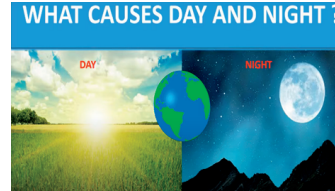


Science Videos Unit 1

1-1 Day and Night



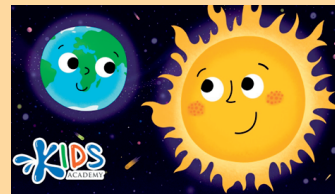
1-1 What Causes Day and Night



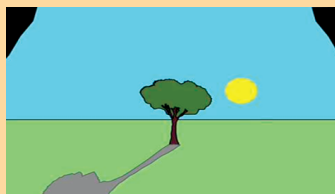
1-1 Day and Night Explanation, Causes Science for Kids



1-2 How the Sun Affects the Earth



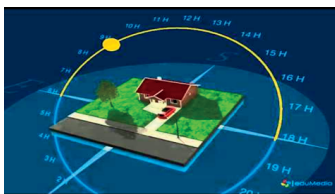
1-2 Solar Energy—the Sun's Apparent Daily Movement



1-2 Sun and Shadow



1-2 The Apparent Path of the Sun



1-3 The Moon for Kids

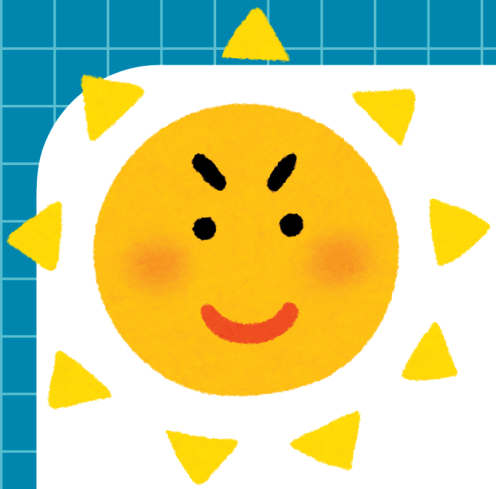


1-3 Why Does the Moon Change?

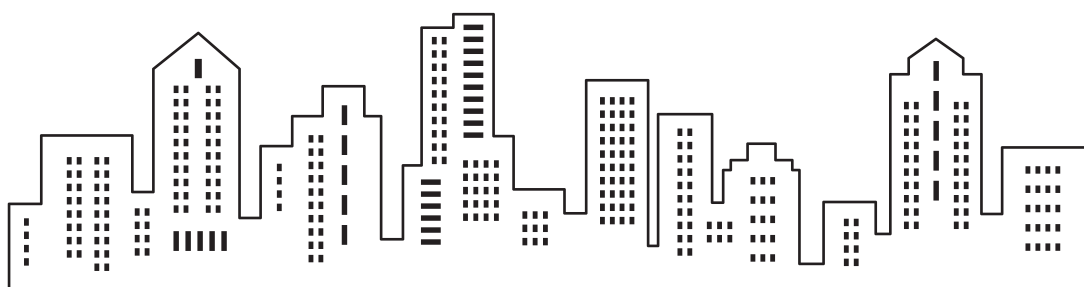


1-3 Why Can I See the Moon during the Day?





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Activity 1

Daytime and Nighttime

What can you see?

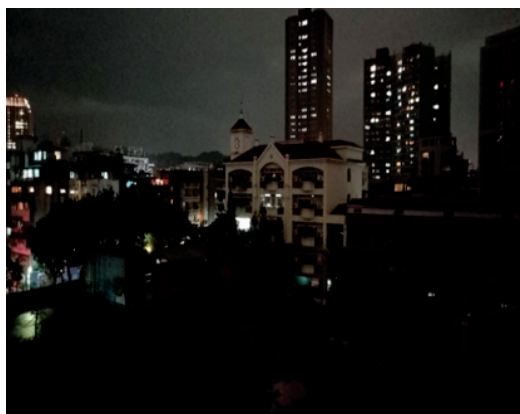


Daytime

What can you see in the daytime?

I see _____

and _____.



Nighttime

What can you see at night?

I see _____

and _____.

True or False

- () 1. We can still see stars easily even when there is light pollution (光害).
- () 2. It is bright (明亮) during the day.

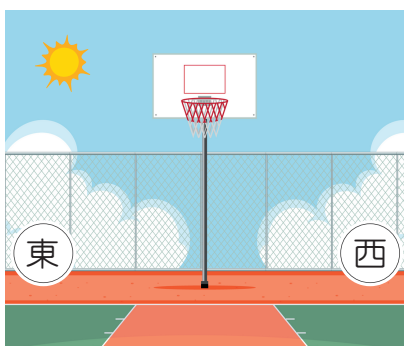
Activity 2

Sun and Shadows

What happens to the size and the position (位置) of the shadow? Fill in the _____ using the words below.

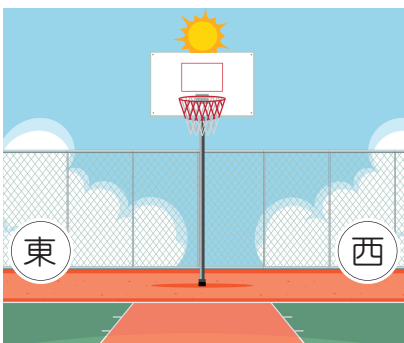


long the shortest east
west above



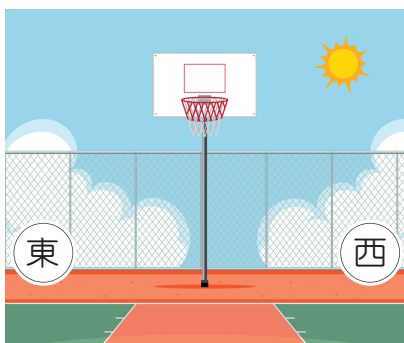
The Sun rises (升起) in the _____.

The shadow is _____ in the morning.



The Sun is _____ the basketball stand (籃球架).

The shadow is _____ at noon.



The Sun sets (落下) in the _____.

The shadow is _____ in the evening.

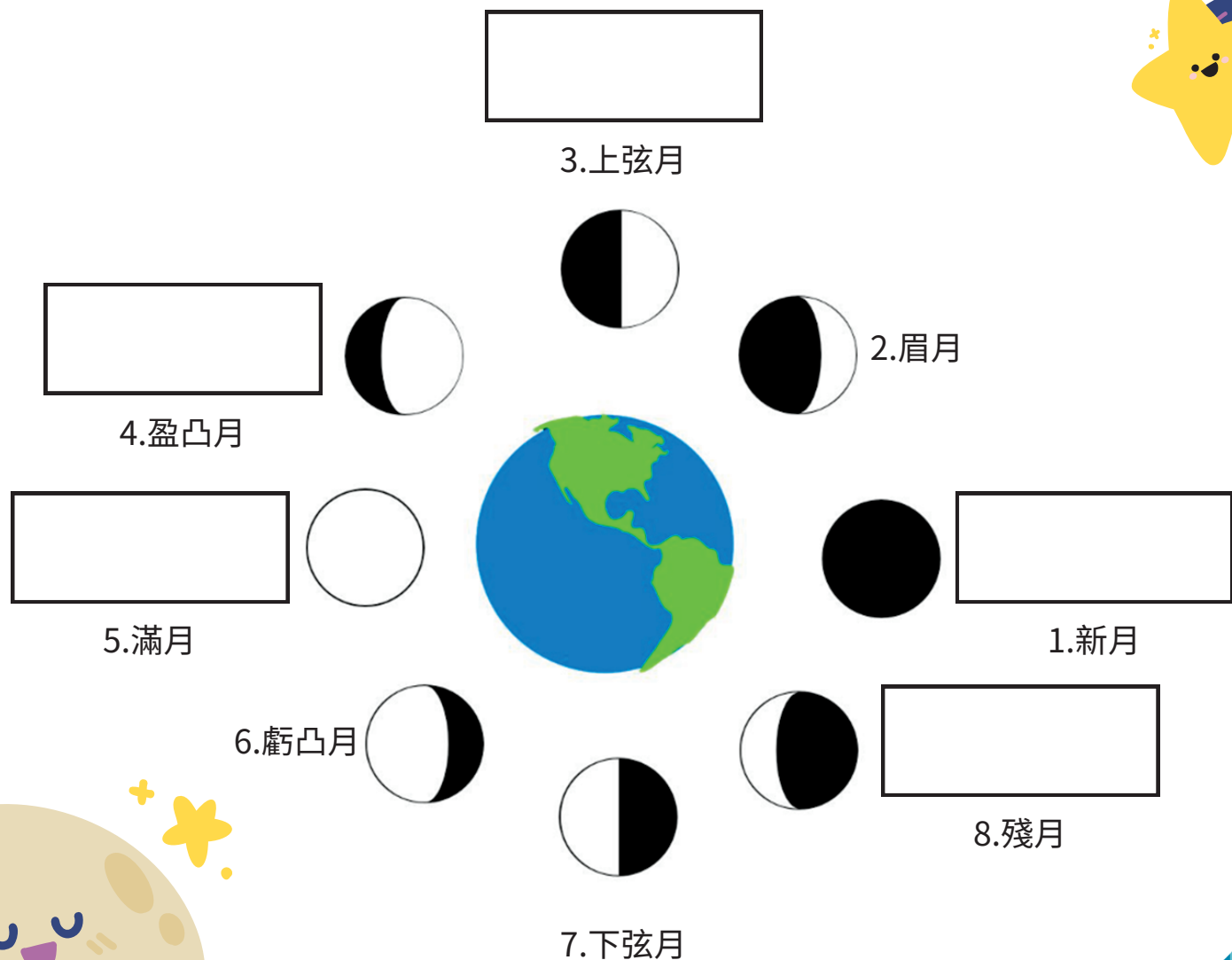


Activity 3 Moon Phases

The changes we see in the shape of the Moon are known as Moon phases (月相).

Fill in the with the correct names of the Moon for its different phases.

new moon waning crescent moon first quarter moon
full moon waning gibbous moon





Let's Review

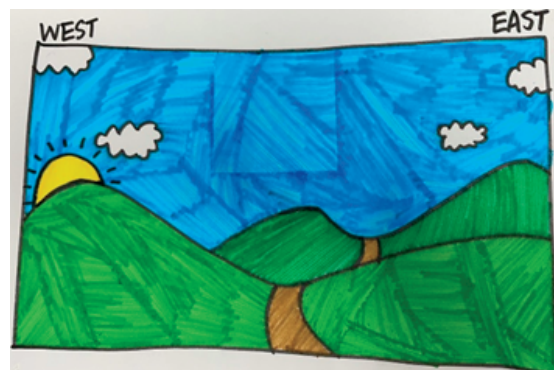


1. Every day, the Sun rises in the east and sets in the west. We can tell the time by looking at the Sun's position in the sky.

Please check ☒ the correct time for each picture below based on (根據) the Sun's position.



☐ sunrise ☐ morning ☐ noon

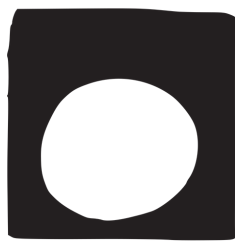


☐ sunrise ☐ sunset ☐ afternoon



☐ morning ☐ sunset ☐ afternoon

2. Complete(完成) the order(順序) of the Moon phases.



3



1

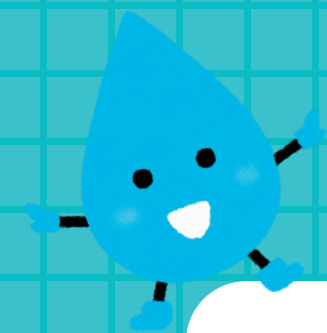




Unit 2

Water Movement

水的移動



Unit 2 Water Movement 第二課 水的移動

Properties of capillary action 毛細現象的特性

In nature
大自然中

Water flows from high to low
places.
水由高處往低處流動。

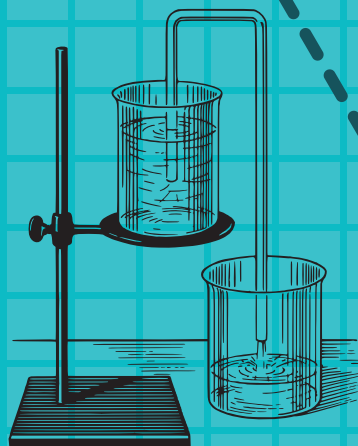
Water movement
through tiny spaces
水在細縫中的移動

Materials that absorb water
have tiny spaces inside them.
會吸水的物質都具有細縫。

The size of the spaces affects
how water moves.
細縫大小會影響水的移動情形。

Capillary action
in life
生活中的毛細現象

Many household items, like
towels, are the application of
capillary action.
許多生活用品如毛巾，是毛細
現象的應用。



Properties of
the siphon
phenomenon
虹吸現象的特性

Conditions for
the siphon
phenomenon
虹吸現象的條件

The water tube needs to be
filled with water.
水管內需裝滿水。

The water outlet must be
lower than the water surface.
出水口需低於水面。

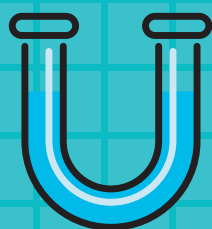
The horizontal
phenomenon
水平的現象

When water is still, its
surface remains horizontal.
水靜止時 水面會維持水平。

Properties of
connecting
tubes
連通管的特性

Fantastic
connecting tubes
奇妙的連通管

Water in containers connected at the
base will be at the same level.
水在底部相通的容器內 水面會保持相同高度。



Applications of
connecting tubes
連通管的生活應用

We can use the principle of connecting
tubes to measure if an object is level.
連通管原理可以用來測量物品是否水平。

For example, the water level indicator of a
water boiler, the U-shaped tube under the
sink, etc.
例如熱水瓶水位裝置、水槽下方U型管等。

UNIT 2

Water Movement

日期： /

應聽懂及認讀的生字

<input type="checkbox"/> 1. 水	water	<input type="checkbox"/> 16. 管道	tube
<input type="checkbox"/> 2. 水的移動	water movement	<input type="checkbox"/> 17. 水管	water tube
<input type="checkbox"/> 3. 毛細現象	capillary action	<input type="checkbox"/> 18. 連通管	connecting tube
<input type="checkbox"/> 4. 水流	water flow	<input type="checkbox"/> 19. 管道原理	tube principle
<input type="checkbox"/> 5. 高處	high place	<input type="checkbox"/> 20. 水泵	water pump
<input type="checkbox"/> 6. 低處	low place	<input type="checkbox"/> 21. 水力馬達	water motor
.....		<input type="checkbox"/> 22. 水位	water level
<input type="checkbox"/> 7. 虹吸管	siphon	<input type="checkbox"/> 23. 出水口	water outlet
<input type="checkbox"/> 8. 虹吸現象	siphon phenomenon	<input type="checkbox"/> 24. 淨水器	water filter
<input type="checkbox"/> 9. 水平的	horizontal	<input type="checkbox"/> 25. 水容器	water container
<input type="checkbox"/> 10. 水平現象	horizontal phenomenon	<input type="checkbox"/> 26. 自來水	tap water
<input type="checkbox"/> 11. 吸收	absorb		
<input type="checkbox"/> 12. 能吸收(液體)的	absorbent		
<input type="checkbox"/> 13. 傾斜的	tilted		
<input type="checkbox"/> 14. 容器	tank		
<input type="checkbox"/> 15. 水族館	aquarium		



1. Capillary action is the ability of water to move in tiny spaces without the help of an outside force.
毛細現象是指水不依靠外力在狹小空間中移動。
2. In the siphon process, we need to fill the water tube with water, and the water outlet must be lower than the water surface.
虹吸現象的過程中，水管需要填滿水，而且出水口必須低於原容器的水面。
3. If some containers are connected at the base, the water level in each container will be the same.
如果數個容器的底部相連，各別容器內的水位高度會相同。

Science Videos Unit 2

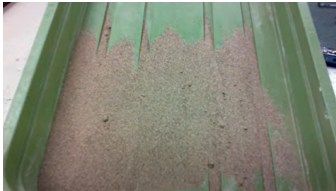
2-1 The Water



2-1 Capillary Action Experiment



2-1 Capillary Water



2-1 The Color-changing Celery Experiment!



2-2 Curious George George's Simple Siphon



2-1 Kid Experiments: Syphon



2-3 How Does Water Get to Your House?



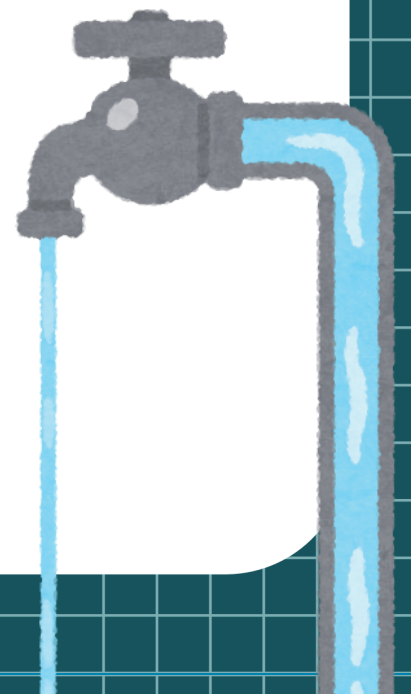
2-3 How Your Home Plumbing Works (From Start to Finish)



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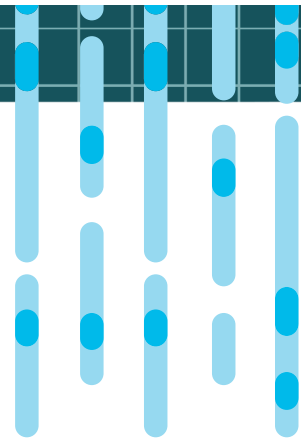
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Activity 1

Capillary Action



Use the words below to fill in the _____.

faster

slower

up

down

capillary action

What is **capillary action**?

When water moves _____
through narrow spaces, we call
it _____.



1) The thinner paper absorbs water _____

2) The thicker paper absorbs water _____



What are examples of capillary action? Circle them.



The root of the
plant absorbs water.
植物的根吸收水分



The sponge
absorbs water.
海綿吸水



Water flows from
high to low places.
水從高處往低處流

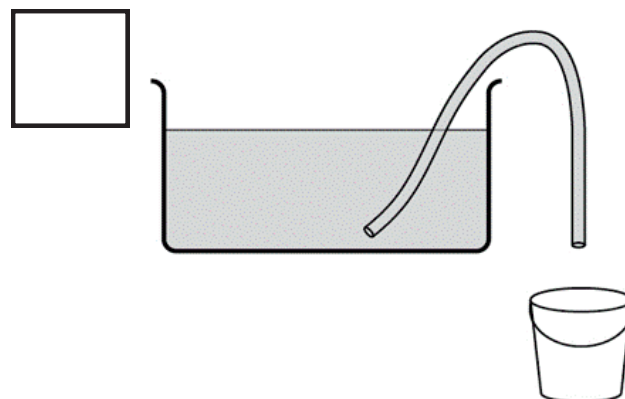
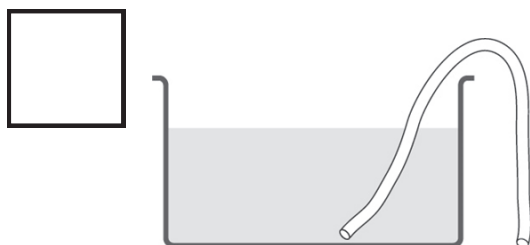
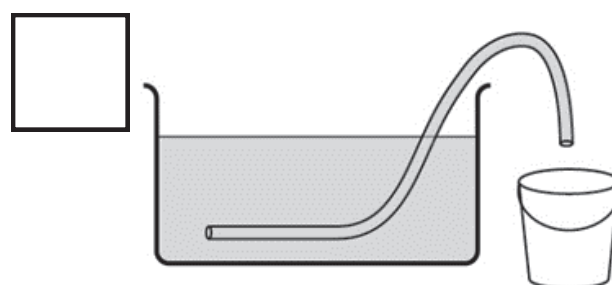
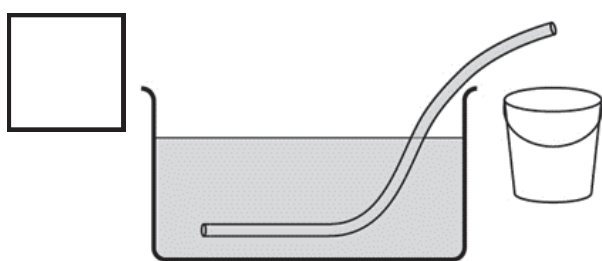


We write with a
Chinese brush.
用毛筆沾墨汁寫字

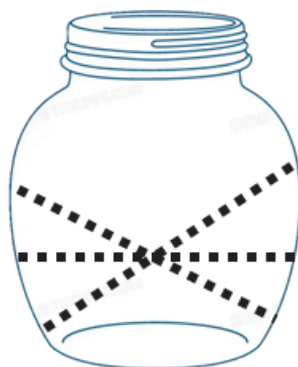
Activity 2

Siphon

1. Will the water flow out of the tube? Please check ☒ the box ☐ if it will flow out of the tube.



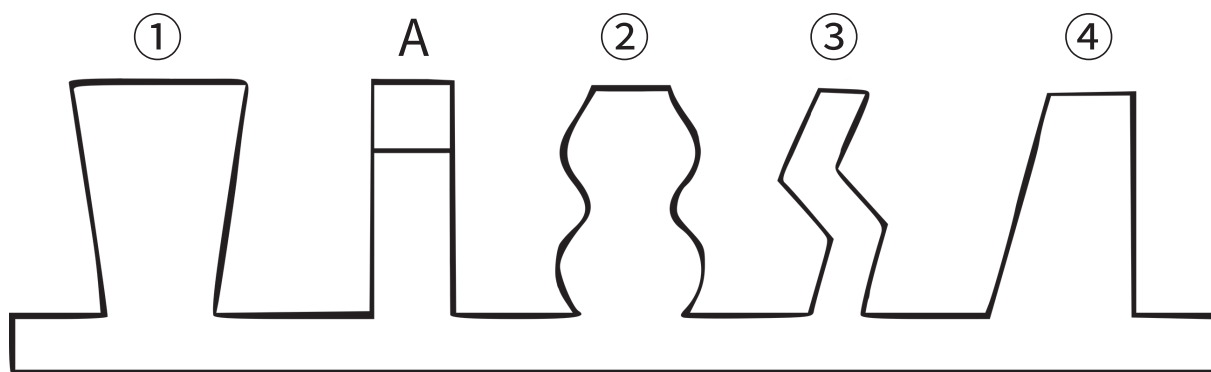
2. Please draw the horizontal planes (水平面) for each picture.



Activity 3

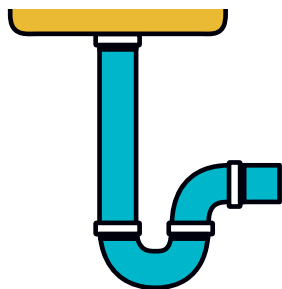
Connecting Tubes

1. Please draw the water level in picture ① ② ③ ④ .

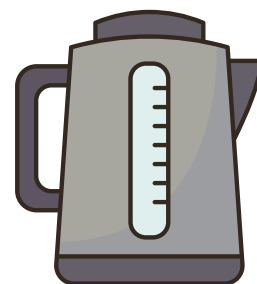


2. What are examples of connecting tubes?

Please check ☒ the box ☐.



☐ The U-shaped pipe under the sink
洗手台下的U型管



☐ The hot water pot with a water level indicator
有水位裝置的熱水壺



☐ Writing with a Chinese brush
用毛筆沾墨汁寫字



☐ The melting of ice
冰塊溶化



Let's Review

What will these flowers look like? Color them and fill in the _____ using the words below.



absorb up capillary action

A plant uses _____ to _____ water.
Its stem is like a straw. The water goes
_____ through the stem and moves to
different parts of the plant.

Unit 3

Demystifying Insects

昆蟲大解密

Unit 3
Demystifying
Insects
第三課
昆蟲大解密

Where are
insects?
昆蟲在哪裡

How to find
insects
如何找昆蟲的
位置

Find the
reference point
找出參照點

Determine the direction
and distance
確定方位與距離

Head
頭部

Eyes, antennae
眼睛、觸角

Thorax
胸部

Six legs, wings
六隻腳、翅膀

Abdomen
腹部

Characteristics
特徵

How do insects
change and
grow?
昆蟲如何成長變化

Complete
metamorphosis
完全變態

Egg, larva, pupa, adult
卵、幼蟲、蛹、成蟲

Incomplete
metamorphosis
不完全變態

Egg, nymph, adult
卵、若蟲、成蟲

Are insects
important?
昆蟲重要嗎

Nature
大自然

Animals, plants
動物、植物

Human
人類

Life/lives
生活

UNIT 3

Demystifying Insects

日期： /

應聽懂及認讀的生字

- | | | | |
|----------------------------------|------------------|------------------------------------|---------------|
| <input type="checkbox"/> 1. 昆蟲 | insect | <input type="checkbox"/> 21. 生命週期 | life cycle |
| <input type="checkbox"/> 2. 蝴蝶 | butterfly | <input type="checkbox"/> 22. 變態 | metamorphosis |
| <input type="checkbox"/> 3. 蜜蜂 | bee | <input type="checkbox"/> 23. 孵化 | hatch |
| <input type="checkbox"/> 4. 蚊子 | mosquito | <input type="checkbox"/> 24. 卵；蛋 | egg |
| <input type="checkbox"/> 5. 蟑螂 | cockroach | <input type="checkbox"/> 25. 幼蟲 | larva/larvae |
| <input type="checkbox"/> 6. 螞蟻 | ant | <input type="checkbox"/> 26. 蛹 | pupa/pupae |
| <input type="checkbox"/> 7. 蜻蜓 | dragonfly | <input type="checkbox"/> 27. 成蟲；成人 | adult |
| <input type="checkbox"/> 8. 蛾 | moth | <input type="checkbox"/> 28. 若蟲 | nymph |
| <input type="checkbox"/> 9. 甲蟲 | beetle | | |
| <input type="checkbox"/> 10. 蟋蟀 | cricket | <input type="checkbox"/> 29. 蜂蜜 | honey |
| <input type="checkbox"/> 11. 竹節蟲 | stick bug | <input type="checkbox"/> 30. 登革熱 | dengue |
| <input type="checkbox"/> 12. 棲息地 | habitat | <input type="checkbox"/> 31. 衣服 | clothing |
| | | <input type="checkbox"/> 32. 棉布 | cotton |
| <input type="checkbox"/> 13. 頭 | head | <input type="checkbox"/> 33. 害蟲 | pest |
| <input type="checkbox"/> 14. 胸部 | thorax | | |
| <input type="checkbox"/> 15. 腹部 | abdomen | | |
| <input type="checkbox"/> 16. 觸角 | antenna/antennae | | |
| <input type="checkbox"/> 17. 眼睛 | eye | | |
| <input type="checkbox"/> 18. 腿 | leg | | |
| <input type="checkbox"/> 19. 六條腿 | six legs | | |
| <input type="checkbox"/> 20. 翅膀 | wing | | |



1. An insect's body has three main parts: the head, thorax, and abdomen.
昆蟲的身體通常由頭、胸和腹三個部分組成。
2. Some insects go through complete metamorphosis as they grow. This has four stages: egg, larva, pupa, and adult.
有些昆蟲成長時會經歷完全變態，這個過程包含卵、幼蟲、蛹和成蟲四個階段。
3. Bees are helpful to humans. They can provide us with honey.
蜜蜂對人類生活有益處，它們可以提供我們蜂蜜。
4. Mosquitoes are harmful to humans. They can spread dengue fever.
蚊子對人類生活有害，它們會傳播登革熱。

Science Videos Unit 3



3-1 Inspect an Insect



3-1 All about Insects for Children



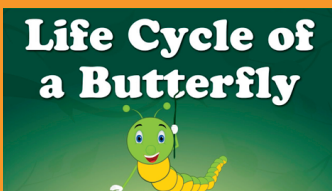
3-1 Insects (Body Parts)



3-1 10 Interesting Insects



3-2 From Caterpillar to Butterfly



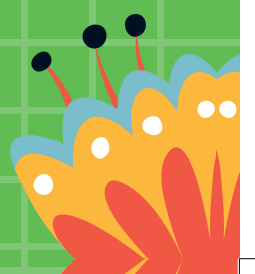
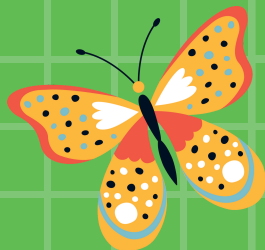
3-2 Life Cycle of a Butterfly



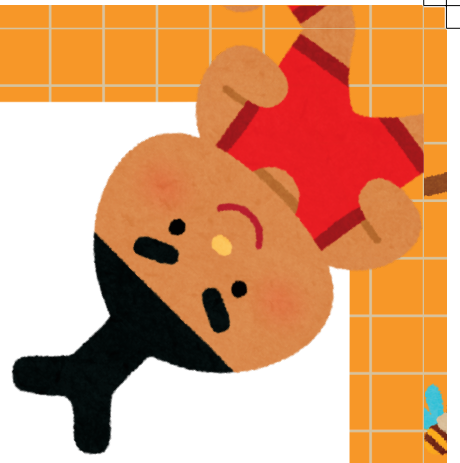
3-2 Life Cycle of European Rhinoceros Beetle



3-3 Why Are Insects Important?



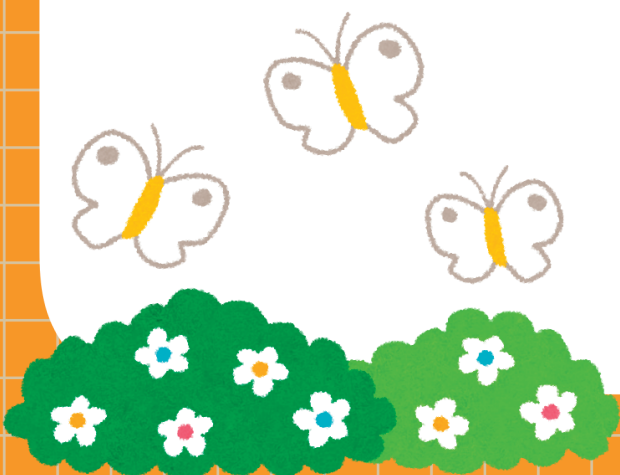
NOTES



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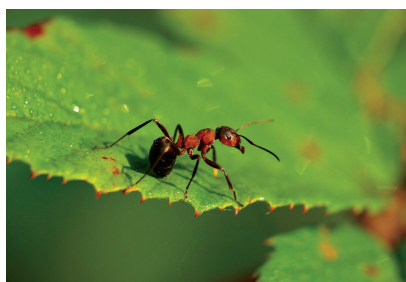


Activity 1

Where Are Insects?



Match the pictures.



Ant 螞蟻



Rhinoceros beetle 獨角仙



Dragonfly 蜻蜓



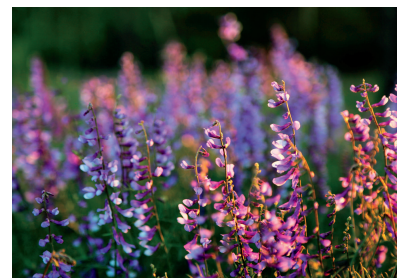
Butterfly 蝴蝶



Over the water
在水面上



In the trees
在樹上



Among the flowers
在花叢中



Activity 2

How Do Insects Grow and Change?

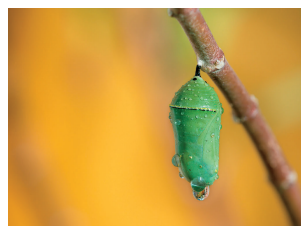
Fill in the _____ to complete the life stages of insects.

adult	nymph	egg
pupa	larva	

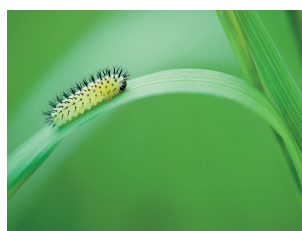
1.



_____ (卵)



_____ (蛹)



_____ (幼蟲)



_____ (成蟲)

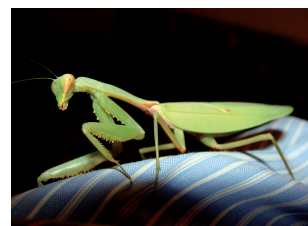
2.



_____ (卵)



_____ (若蟲)



_____ (成蟲)

Activity 3

Are Insects Important?

What can insects do? Circles the picture(s).



Dung beetles can break down wastes of animals.
糞金龜能分解動物排泄物



Some insects help flowers reproduce.
有些昆蟲幫助花朵傳播花粉繁殖



Insects can clean the air.
昆蟲可以淨化空氣

What are the influences insects bring to people? If it's good, put V into the ☐. If it's bad, put X into the ☐.



☐ Making honey
製造蜂蜜



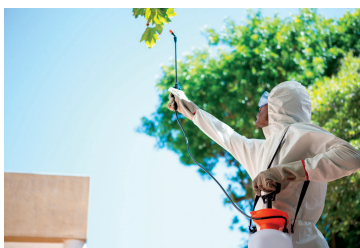
☐ Eating crops
吃掉農作物



☐ Making silk used in clothing
吐出用於製作衣物的絲線



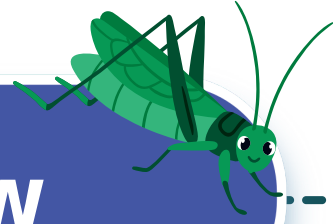
☐ Spreading dengue fever
傳播登革熱



☐ Being Pests
是害蟲

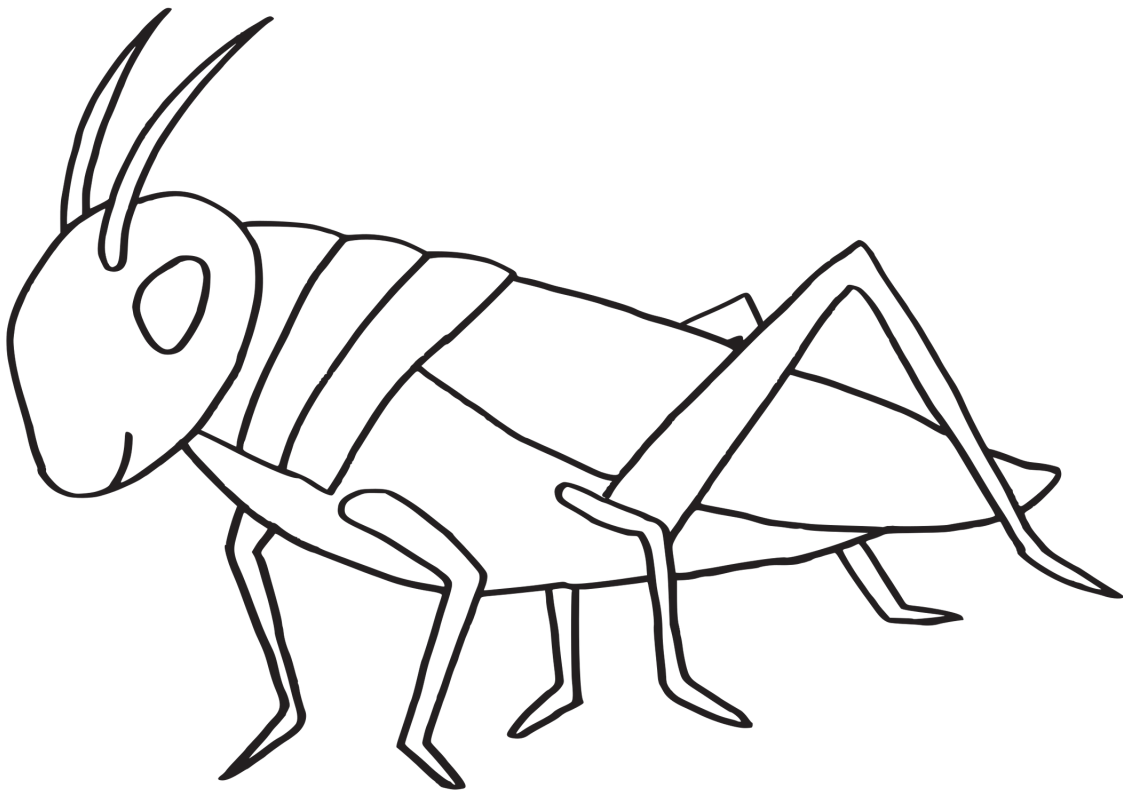


Let's Review

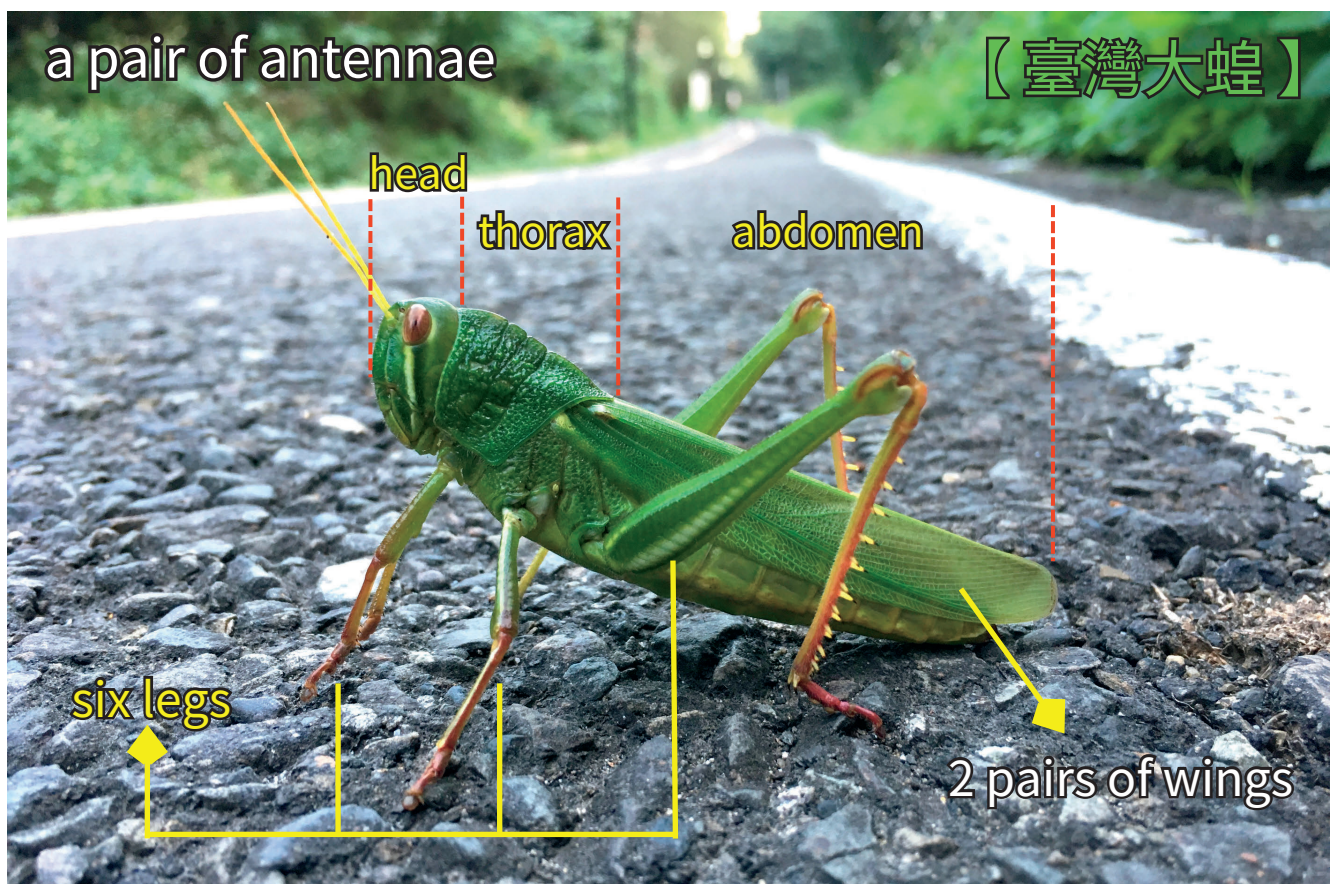


This is a grasshopper. It has three body parts: the **head**, **thorax**, and **abdomen**.

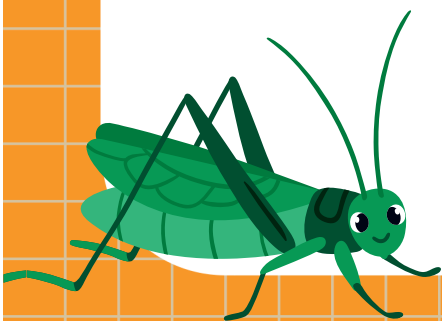
Color the **head** red. Color the **thorax** orange.
Color the **abdomen** yellow. Color the **eye** green.
Color the **antennae** blue. Color the six **legs** purple.
Color the **wings** pink.



Let's Review



圖片提供 / 苗栗大山國小徐慶宏校長

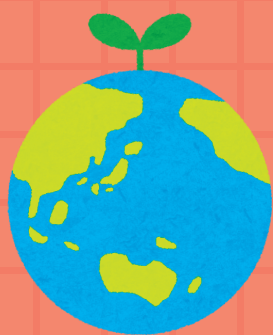




Unit 4

Utilization of Natural Resources

自然資源與利用



Survival
生存

Humans need food.

人類需要食物

Plants need sunlight.

植物需要陽光

Work
運作

Cars need gasoline and a battery to run.

汽車行駛需要汽油和電池。

Waterwheels need water to spin around.

水車轉動需要水。

Energy
能量

Sources of energy
能源

Sun
太陽

Wind
風

Water
水

Natural gas
天然氣

Oil
石油



Unit 4
Utilization of
Natural
Resources
第四課
自然資源與利用

Natural
resources
自然資源

Biological
resources
生物資源

Plants and animals
植物和動物

Non-biological
resources
非生物資源

Coal, oil, sunlight, wind, and
water
煤、石油、陽光、風和水



Environmental
action
環保行動

Save water and electricity.
省水省電。

Bring reusable water bottles, bags,
or utensils with you.
自備水壺、環保袋或餐具。

Use public transportation more often.
多搭乘大眾運輸工具。

Recycle.
資源回收。

off



UNIT 4

Utilization of Natural Resources

日期： /

應聽懂及認讀的生字

- | | | | |
|-------------------------------------|----------------------------|-------------------------------------|--------------------------|
| <input type="checkbox"/> 1. 能量；能源 | energy | <input type="checkbox"/> 24. 消耗 | consumption |
| <input type="checkbox"/> 2. 自然資源 | natural resource(s) | <input type="checkbox"/> 25. 電 | electricity |
| <input type="checkbox"/> 3. 生物資源 | biological resource(s) | <input type="checkbox"/> 26. 可再生能源 | renewable energy |
| <input type="checkbox"/> 4. 植物 | plant | <input type="checkbox"/> 27. 不可再生能源 | nonrenewable energy |
| <input type="checkbox"/> 5. 動物 | animal | <input type="checkbox"/> 28. 化石燃料 | fossil fuel(s) |
| <input type="checkbox"/> 6. 非生物資源 | non-biological resource(s) | <input type="checkbox"/> 29. 煤炭 | coal |
| <input type="checkbox"/> 7. 陽光 | sunlight | <input type="checkbox"/> 30. 汽油 | gasoline |
| <input type="checkbox"/> 8. 風 | wind | <input type="checkbox"/> 31. 天然氣 | natural gas |
| <input type="checkbox"/> 9. 水 | water | | |
| <input type="checkbox"/> 10. 燃料 | fuel | | |
| | | | |
| <input type="checkbox"/> 11. 能量形式 | form(s) of energy | <input type="checkbox"/> 32. 環境問題 | environmental problem(s) |
| <input type="checkbox"/> 12. 光能 | light energy | <input type="checkbox"/> 33. 過度開發 | overexploitation |
| <input type="checkbox"/> 13. 熱能 | heat energy | <input type="checkbox"/> 34. 污染 | pollution |
| <input type="checkbox"/> 14. 動能 | kinetic energy | <input type="checkbox"/> 35. 空氣污染 | air pollution |
| <input type="checkbox"/> 15. 勢能(位能) | potential energy | <input type="checkbox"/> 36. 水污染 | water pollution |
| <input type="checkbox"/> 16. 聲能 | sound energy | <input type="checkbox"/> 37. 塑膠垃圾 | plastic waste |
| <input type="checkbox"/> 17. 核能 | nuclear energy | | |
| <input type="checkbox"/> 18. 地熱能 | geothermal energy | | |
| | | | |
| <input type="checkbox"/> 19. 食物 | food | <input type="checkbox"/> 38. 環境保護 | environmental protection |
| <input type="checkbox"/> 20. 衣服 | clothing | <input type="checkbox"/> 39. 減少 | reduce |
| <input type="checkbox"/> 21. 住房 | housing | <input type="checkbox"/> 40. 回收 | recycle |
| <input type="checkbox"/> 22. 運輸 | transportation | <input type="checkbox"/> 41. 重複利用 | reuse |
| <input type="checkbox"/> 23. 日用品 | daily necessities | | |



本頁完成日期： /

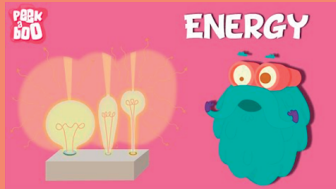
1. The Sun is the main source of energy on Earth. Plants and animals need sunlight to grow.
太陽是地球主要的能量來源。植物與動物依賴陽光成長。
2. There are two types of natural resources on Earth: biological and non-biological.
地球的自然資源可分為生物資源與非生物資源。
3. Plants and animals are biological resources. The Sun, wind, water, and fuels are non-biological resources.
植物和動物是生物資源；太陽、風、水和燃料是非生物資源。
4. Overusing energy can make our energy sources run out and cause environmental pollution.
過度使用能源會導致資源耗竭和環境汙染。
5. To protect natural resources, we need follow eco-friendly rules, such as the 3Rs principle—Reduce, Reuse, and Recycle.
為了保護自然資源，我們應該要遵守環保原則，例如3R原則—垃圾減量、重複利用和資源回收。





Science Videos Unit 4

4-1 Energy



4-1 What Is Energy



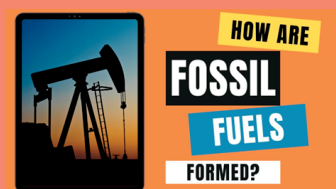
4-1 What Are Sources of Energy?



4-1 Renewable Energy Sources



4-1 How Are Fossil Fuels Formed?



4-3 Environmental Protection



4-3 How to Take Care of the Environment



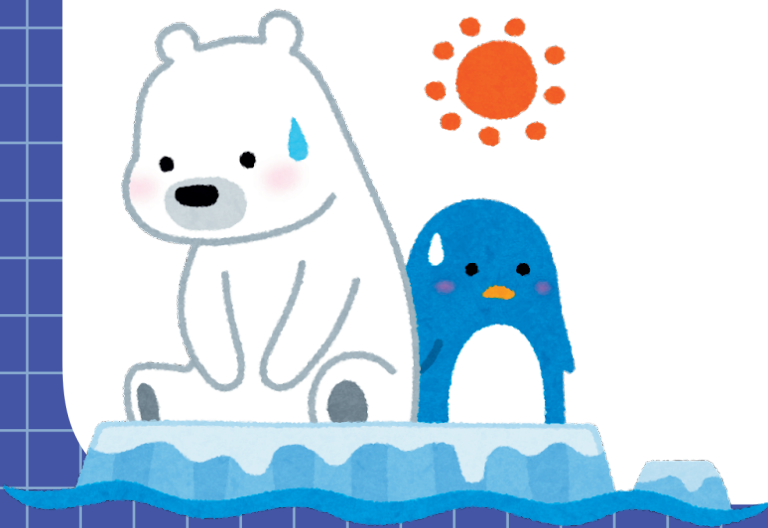
4-3 Reduce, Reuse and Recycle, to Enjoy a Better Life



4-3 Climate Change and the Greenhouse Effect



NOTES





NOTES



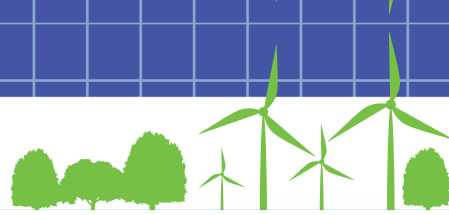
NOTES





NOTES





Activity 1

Types of Energy

What types of energy do you see in the pictures below?
Fill in the _____ with the correct answers.

electrical energy light energy heat energy
nuclear energy potential energy sound energy



_____ (勢能、位能)



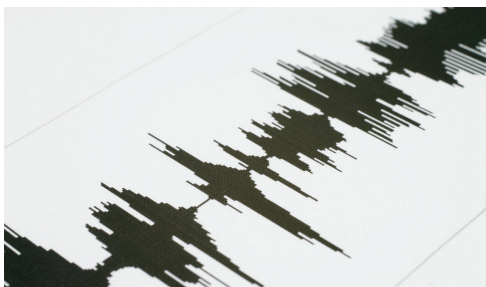
_____ (熱能)



_____ (光能)



_____ (電能)



_____ (聲能)



_____ (核能)

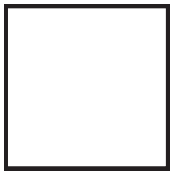


Activity 2

Types of Natural Resources

Draw ● if they are biological resources.

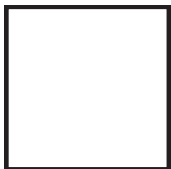
Draw ▲ if they are non-biological resources.



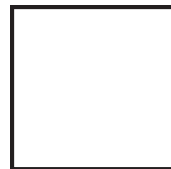
Animals



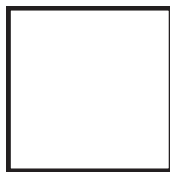
Sun



Coals



Plants



Oil





Activity 3

Environmental Action

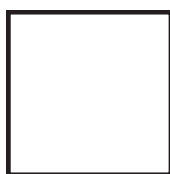
If it is good for the environment, draw



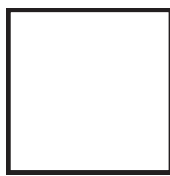
If it is bad for the environment, draw



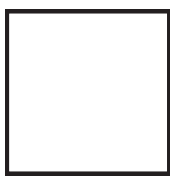
Overuse plastic products
過度使用塑膠產品



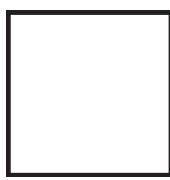
Take public transportation
搭乘大眾交通工具



Overfish
過度捕撈



Use rice washing water to water plants
用洗米水澆花





Let's Review



grow work

What is energy?

Energy is the power or ability to do _____.

The Sun is the main source of energy on Earth. Plants and animals need sunlight to _____.

What energy do they need?

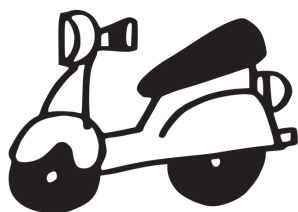
1. Match each item below with the correct type of energy it needs to work.
2. Are these different types of energy renewable? Please check ☒ the boxes ☐ below. (R=Renewable, N=Non-renewable)
3. If the energy is not renewable, what can we do to save the energy and protect the environment? Circle the correct answers.



Solar energy

☐ R ☐ N

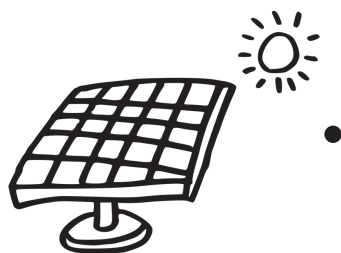
What to do to protect the environment:
Install(安裝) **more / less**
solar panels(太陽能板)



Petroleum Energy

☐ R ☐ N

What to do to protect the environment:
Drive your own car /
Take public transportation

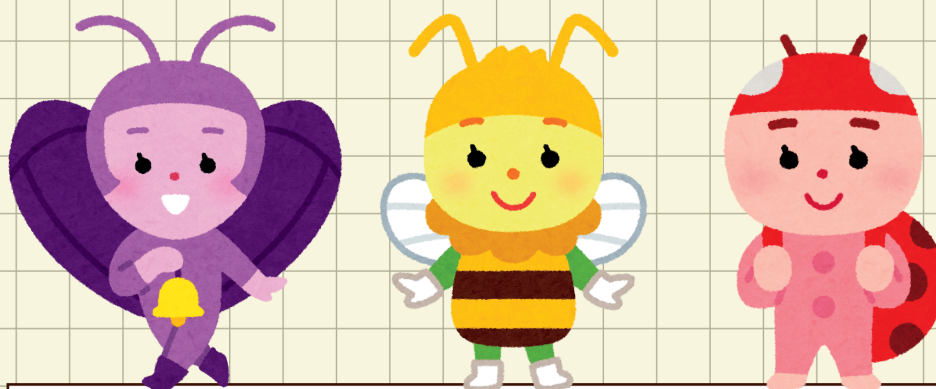


Electrical Energy

☐ R ☐ N

What to do to protect the environment:
Turn on / off the light when you leave
the room

[illegible]



Science Notes

Bilingual Science

4th Grade

2nd Semester

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