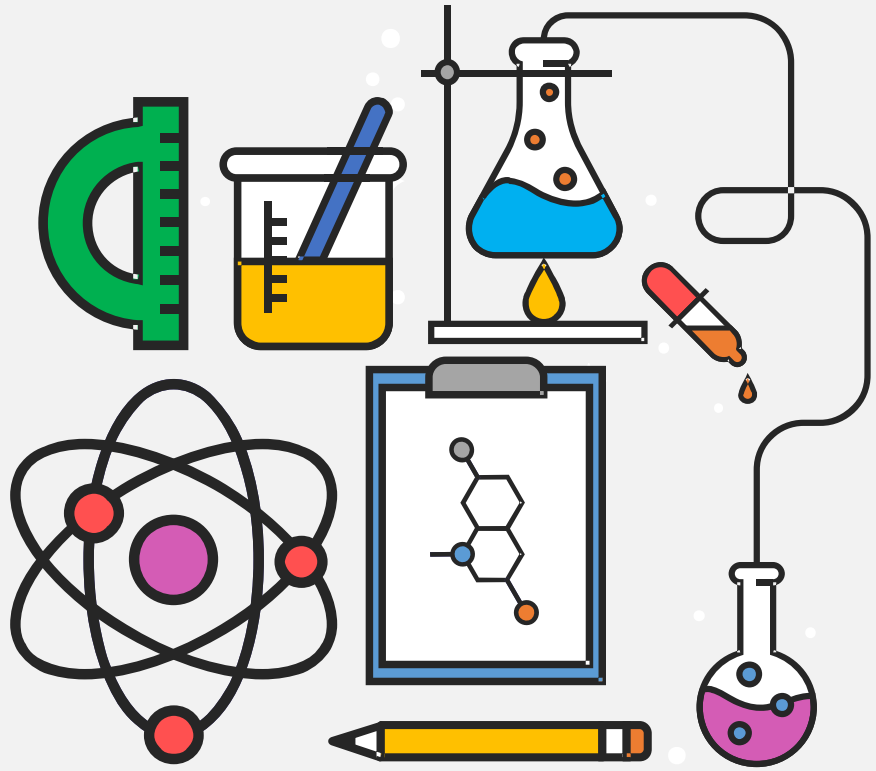
促進學生自主學習的 PowerPoint 教案
—— 課堂應用心得分享



麥永佳

退休資深初中科學老師

?!?!?!?!?!?!?!?!?!?!?!?!?!

真真假假！？

?!?!?!?!?!?!?!?!?!?!?!?!?!

真真假假！？

我的科學科課堂都很精彩

真真假假！？

我的科學科課堂都很精彩

我的學生都很喜歡上科學課

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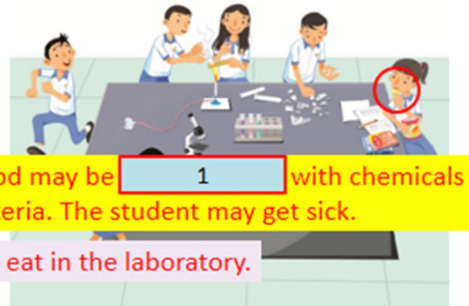
Activity 1.6

Potential dangers in the laboratory



The food may be 1 with chemicals or bacteria. The student may get sick.

Do not eat in the laboratory.

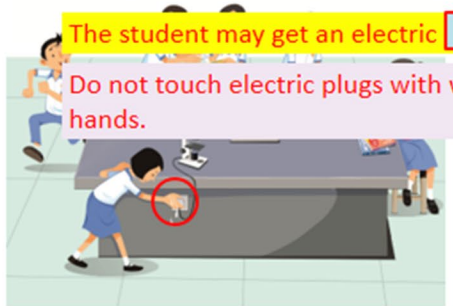
52

Activity 1.6

Potential dangers in the laboratory

The student may get an electric 1 .

Do not touch electric plugs with wet hands.



53

Cooperative question

Cooperative question

- There are 3 sets of questions. Divide each question for each member.
  - Level 1 x 1
  - Level 2 x 2
  - Level 3 x 1
- Discussion is not allowed. Write down the answers on your logbooks/ answer sheet.
- Your group will gain 10 marks if **ALL** questions are answered correctly.

54

- Level 1

Fire blanket is one of the fire equipment in the laboratory. True

- Level 2

We have to wear safety spectacles when heating and mixing substances.

- Level 3

The hazard warning label on the toilet cleaner should be

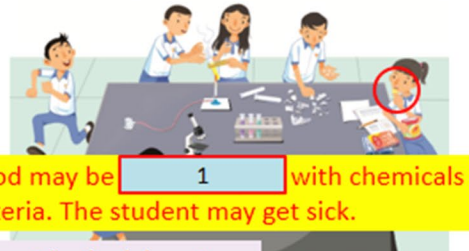
A B C D

55

Teacher's Activity	**Cooperative learning:** • Choose a number (1-4) by a lucky draw. • Take photos of each worksheet. • Show the suggested answers. • Marked the worksheets on the screen.
Student's Activity	**Lucky draw questioning:** Read P.51 for 1 min and drop notes on the logbook. Discuss in groups.
Teacher's Activity	**Lucky draw questioning:** Engage students on reading and note taking, for medium-level questions, enough waiting time before draw a number, students must get ready and answer at once when their number is drawn
Student's Activity	**Cooperative question:** • There are 3 sets of questions. Divide each question for each member. ■ Level 1 x 1 ■ Level 2 x 2 ■ Level 3 x 1 • Discussion is not allowed. Write down the answers on the logbooks/ answer sheet. • Groups will gain 10 marks if ALL questions are answered correctly. • Students check the answers by themselves and raise hands if all answers are correct.

Activity 1.6

Potential dangers in the laboratory



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OXFORD

52

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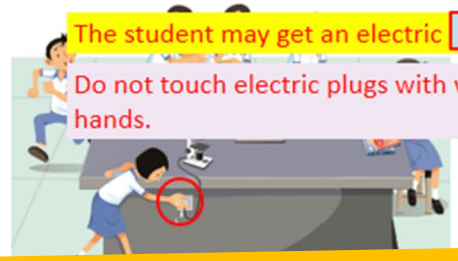
54 ★

Activity 1.6

Potential dangers in the laboratory



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A B C D

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Teacher's	**Cooperative learning:** • Choose a number (1-4) by a lucky draw.
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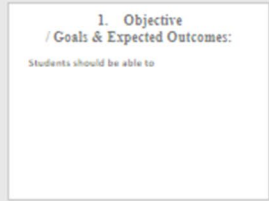
	...on the logbook. Discuss in groups.
	...note taking, for medium-level questions, ...aw a number, students must get ready and ...mber is drawn
Student's Activity	• There are 3 sets of questions. Divide each question for each member. ■ Level 1 x 1 ■ Level 2 x 2 ■ Level 3 x 1 • Discussion is not allowed. Write down the answers on the logbooks/ answer sheet. • Groups will gain 10 marks if ALL questions are answered correctly. • Students check the answers by themselves and raise hands if all answers are correct.

今年教得比去年好

Methods

1



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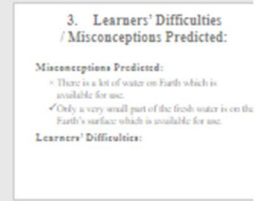

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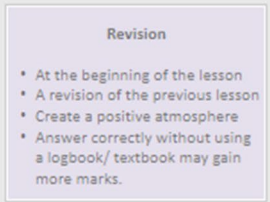
Revision



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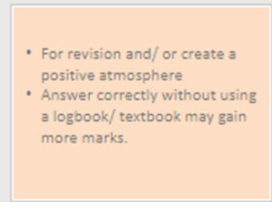

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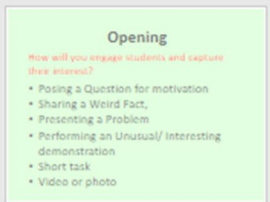
Opening: engage students



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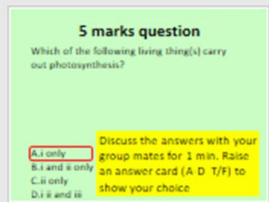
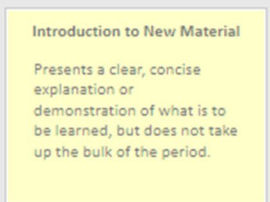


9 ★

10

New Material: what is to be learned



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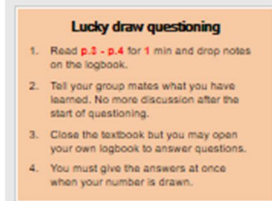
Lucky draw questioning



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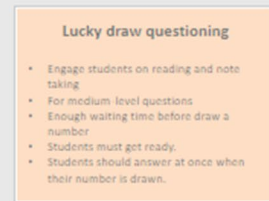
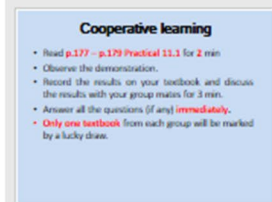


13

Cooperative learning



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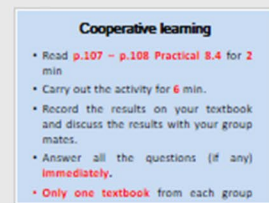

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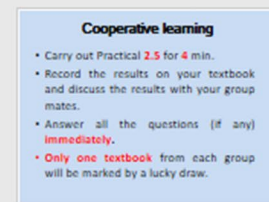
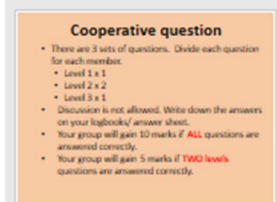


16

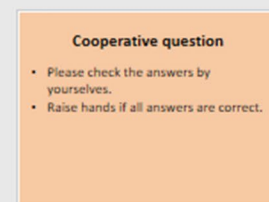
17

Cooperative question



18 ★

19 ★



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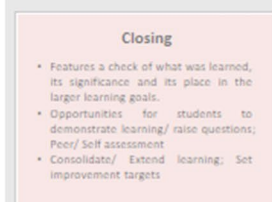
Closing: Assessment of learning progress



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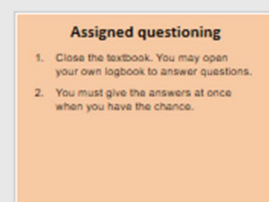

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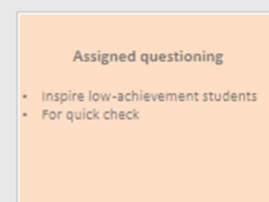

23

Methods


1


2


3


4


5


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7 ★

Revision


8


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10


11

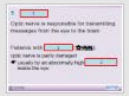

12 ★


13 ★


14 ★


15 ★


16 ★


17 ★


18 ★

Opening: engage students


19 ★


20

New Material: what is to be learned


21


22


23


24 ★


25 ★


26 ★


27


28


29


30


31 ★


32

Lucky draw questioning


33


34


35


36 ★


37


38


39 ★


40 ★

41

42 ★

43

44

45 ★

46


Methods
Revision
Opening: engage students
New Material: what is to be learned
Lucky draw questioning
學生容易掌握

備課資料

備註資料（隱蔽投影片  ）

LESSON 2
1.2 Practice of science

	Topic	Pre-Study	Pre-Exercise	Challenging Activity/ question
2 (2)	1.2 Practice of science P.16-26	P.22-23 Skill practice 1.1	• Activity 1.4 (P.17) • Activity 1.5 (P.20) • Skill practice 1.1 (P.23)	• The Accidental Discovery of Penicillin https://www.youtube.com/watch?v=llbm9TTOb8Q • Homework: Section exercise 1.2 P.27

OXFORD

1

1. Objective / Goals & Expected Outcomes:

Students should be able to

- Recognize that scientific knowledge is derived from systematic observation, experimentation and analysis, through which imagination and creativity is required
- Recognize the steps in scientific investigation
- Recognize the different types of scientific investigations (e.g. fair testing, classifying and pattern seeking)
- Identify the variables in a fair test

2

2. Learners' Prerequisite / Prior Knowledge:

- Fair is important element for competition.

3

3. Learner s' Difficulties / Misconceptions Predicted:

- Identify the variables in a fair test
- Use the slogan 'Cows moo softly IDC (I don't care)' to remember the variables in a fair test.

4

4. e-Learning/ Self-Learning/cooperative learning

- **e-Learning:** Students may watch the YouTube of the Challenging Activity: The Accidental Discovery of Penicillin
- **Self-Learning:** Students may pre-study the textbook according to the homework schedule
- **Cooperative learning:** Discuses the answers of Skill practice 1.1 and Test your skill-9.

5

5. Means of Questioning:

Five methods of questioning for different level students:

- Raising hand questioning: For revision and/ or create a positive atmosphere
- Challenging questioning: high level questions, students have to explain their answers or give examples.
- Lucky draw questioning: Engage students on reading and note taking, for medium-level questions
- Assigned questioning: Inspire low-achievement students, for quick check
- Cooperative questioning: There are 3 levels of questions, and all members of the group must answer correctly to gain 10 marks. Students must assign suitable members for suitable levels. Level 3 question is a high-order thinking question and is not mentioned in the lesson usually.

6

6. Catering for learner diversity

- Different tasks for different students.
  - All students should finish Skill practice 1.1.
  - High-ability students may finish the challenging question 'Section exercise 1.2-3'.

7

*

例子：第 1 課 第 1.2 節

隱蔽投影片

1. Objective / Goals & Expected Outcomes:

Students should be able to

- Recognize that scientific knowledge is derived from systematic observation, experimentation and analysis, through which imagination and creativity is required
- Recognize the steps in scientific investigation
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例子：第 1 課 第 1.2 節

隱蔽投影片

2. Learners' Prerequisite / Prior Knowledge:

- Fair is important element for competition.

例子：第 1 課 第 1.2 節

隱蔽投影片

3. Learners' Difficulties / Misconceptions Predicted:

- Identify the variables in a fair test
- Use the slogan 'Cows moo softly IDC (I don't care)' to remember the variables in a fair test.

Independent variable

Dependent variable

Controlled variable

例子：第 2 課 第 2.1 節

隱蔽投影片

3. Learners' Difficulties / Misconceptions Predicted:

Misconceptions Predicted:

- The temperature of water changes during the change in states.
  - Students study the fact by Practical 2.1 and find that the temperature of water remains unchanged during the change in states

例子：第 1 課 第 1.2 節

隱蔽投影片

4. e-Learning/ Self-Learning/cooperative learning

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隱蔽投影片

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隱蔽投影片

6. Catering for learner diversity

- Different tasks for different students.
  - All students should finish Skill practice 1.1.
  - High-ability students may finish the challenging question ‘Section exercise 1.2-3’.

例子：第 1 課 第 1.2 節

Cooperative learning

1. Read **P.23 to P.24** **5 Drawing a conclusion** for **1** min and jot notes on the logbook.
2. Discuss the answers of Skill practice 1.1 on P.23 with your group mates.
3. **Optional task:** You may finish the challenging question ‘Test your skills question 9 on P.77 also.
4. **Only one textbook** from each group will be marked.

Integrated Science S1 Homework schedule

1 Introducing Science

	Topic	Pre-Study	Pre-Exercise	Challenging Activity/ question
1 (3)	1.1 Learning about science P.2-13	• P.4 Science is based on evidence	• Activity 1.1 (P.5) • Quick check (P.6) • Activity 1.2 (P.8) • Activity 1.3 (P.13) • Quick check (P.14)	• The surprising cause of stomach ulcers - Rusha Modi https://www.youtube.com/watch?v=V_U6czbDHLE • Homework: Section exercise 1.1 P.15
2 (2)	1.2 practice of science P.16-26	• P.22-23 Skill practice 1.1	• Activity 1.4 (P.17) • Activity 1.5 (P.20) • Skill practice 1.1 (P.23)	• The Accidental Discovery of Penicillin https://www.youtube.com/watch • Home Sectio
3 (2)	1.3A Safety in the laboratory P.28-32	• P.32 General safety rules		• VR (p. Science Simulati Knowing your laboratory
	1.3B Safety			• How and When to Use Fire Blankets

Homework schedule

為學生提供備課資料

例子：第 1 課 第 1.2 節

LESSON 2
1.2 Practice of science

	Topic	Pre-Study	Pre-Exercise	Challenging Activity/ question
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Student Name List (2022-2023)

Class Teacher (s) :

Classroom :

No	English Name	中文姓名	3	6	9	12	15	18	21	24	27	30			10	5	1	Total
1																		
2																		
3																		
4																		
5																		
6																		
		Group													10	5	1	
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		2																
		3																
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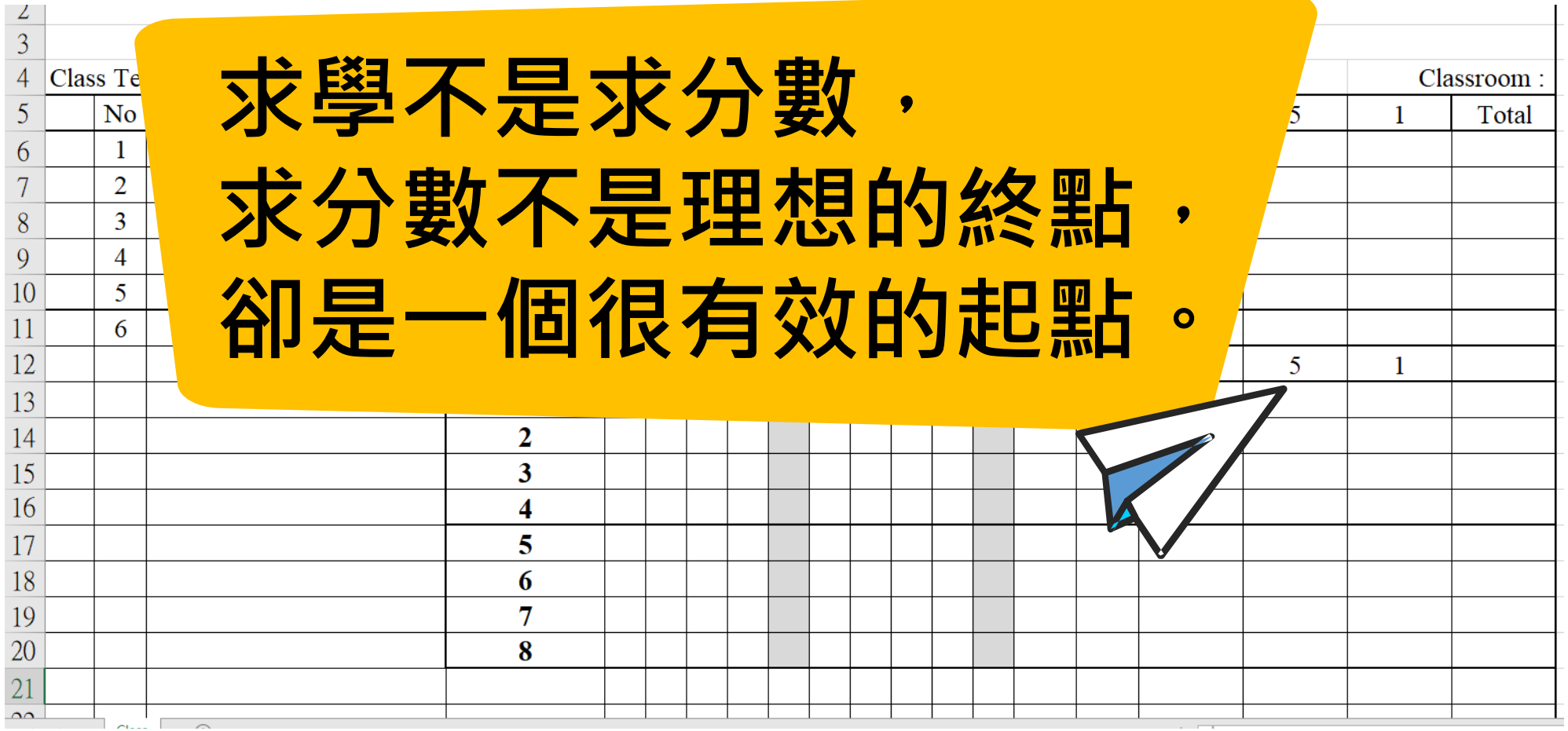
Class Te
Classroom :
No
5
1
Total
1
2
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6
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7
8
求學不是求分數，
求分數不是理想的終點，
卻是一個很有效的起點。

例子：第 10 課 第 10.2 節

隱蔽投影片

Revision

- At the beginning of the lesson
- A revision of the previous lesson
- Create a positive atmosphere
- Answer correctly without using a logbook/ textbook may gain more marks.

例子：第 10 課 第 10.2 節

Raising hand questioning

1. Close the textbook. You may open your own logbook to answer questions.
2. You must give the answers at once when you have the chance.

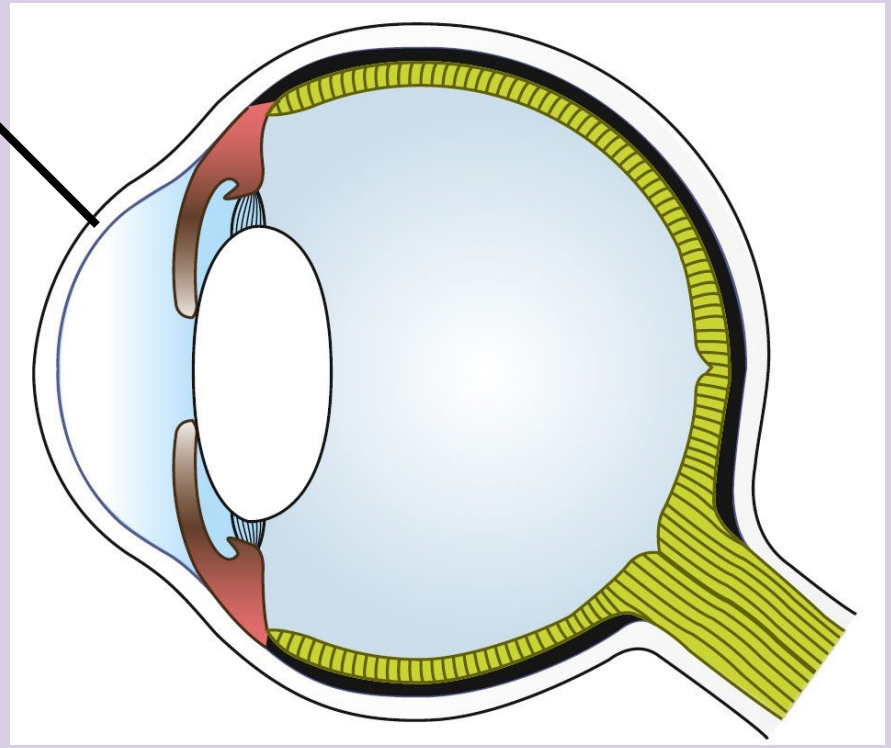
製造積極正面氣氛

例子：第 10 課 第 10.2 節

A Structure of our eye

Structure of the human eye:

1 [1]



Features and functions:

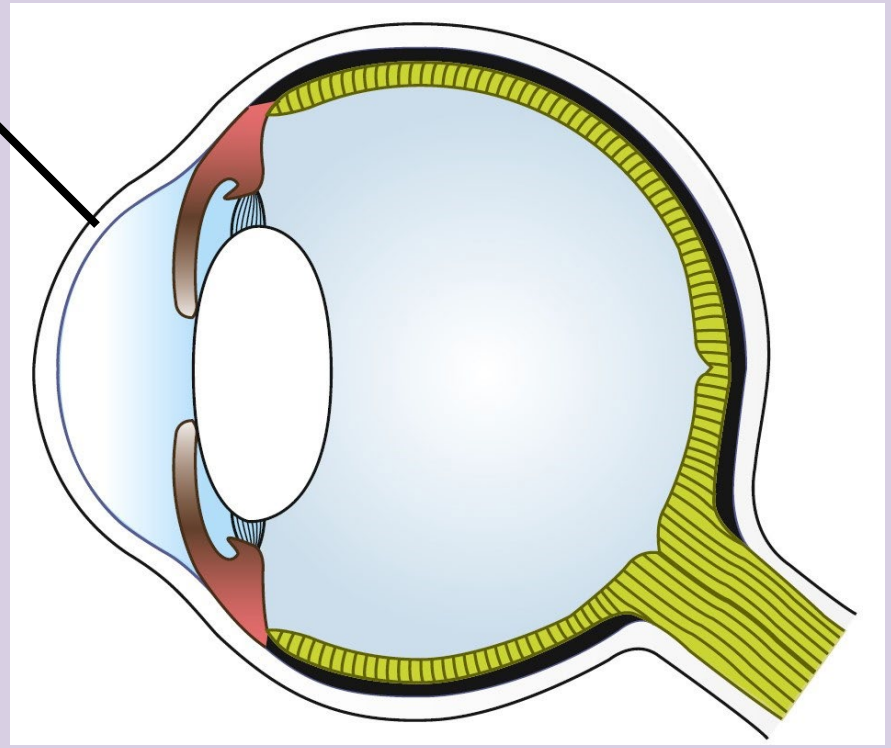
- A transparent layer.
- Allows light to enter the eye.
- Curved surface **helps** [2] (聚焦) **light** onto the retina.

例子：第 10 課 第 10.2 節

A Structure of our eye

Structure of the human eye:

1 Cornea



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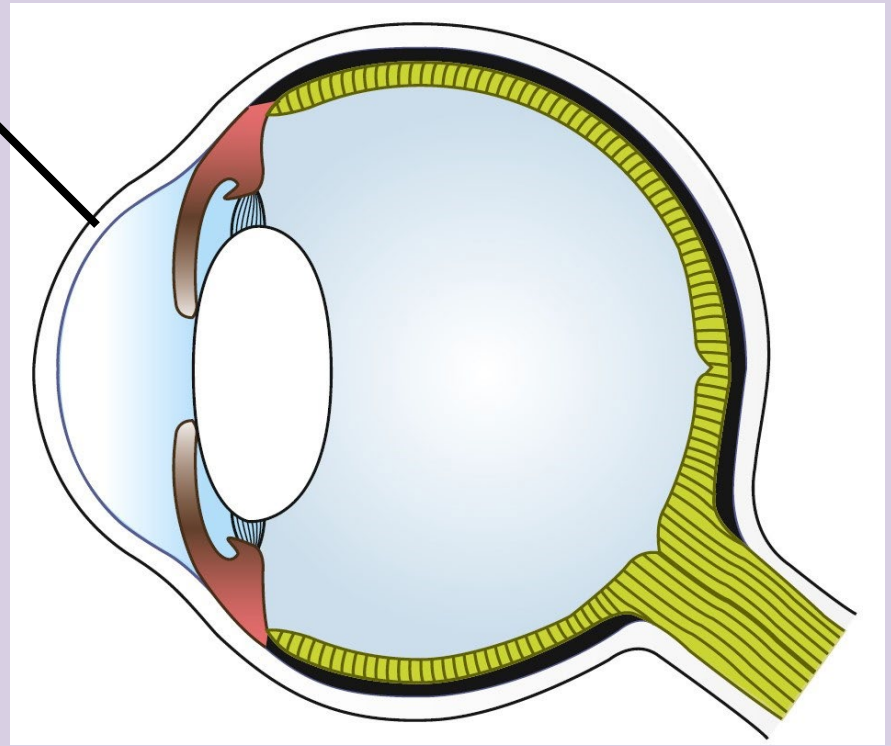

Features and functions:

- A transparent layer.
- Allows light to enter the eye.
- Curved surface **helps focus** (聚焦) **light** onto the retina.

即時見效的筆記簿

Revision

- At the beginning of the lesson
- A revision of the previous lesson
- Create a positive atmosphere
- Answer correctly without using a logbook/ textbook may gain more marks.

8

Raising hand questioning

1. Close the textbook. You may open your own logbook to answer questions.
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9

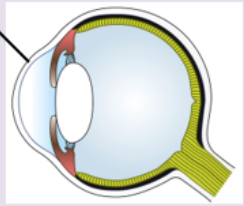
- For revision and/ or create a positive atmosphere
- Answer correctly without using a logbook/ textbook may gain more marks.

10

A Structure of our eye

Structure of the human eye:

1 [1]



Features and functions:

- A transparent layer.
- Allows light to enter the eye.
- Curved surface **helps** [2] (聚焦) **light** onto the retina.

11

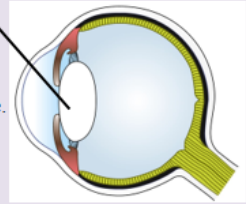
A Structure of our eye

Structure of the human eye:

4 [1]

Features and functions:

- Transparent, elastic and biconvex (雙凸) in shape.
- [2] **light** onto the retina.



12

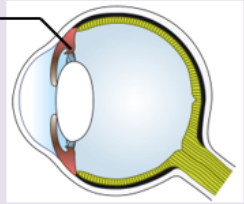
A Structure of our eye

Structure of the human eye:

5 [1] muscles

Features and functions:

- Change the thickness of the [2]



13

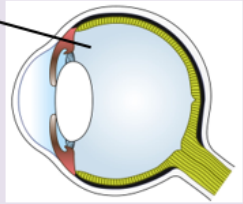
A Structure of our eye

Structure of the human eye:

6 [1]

Features and functions:

- [2] the shape of the eyeball.
- **Helps focus light** onto the retina.



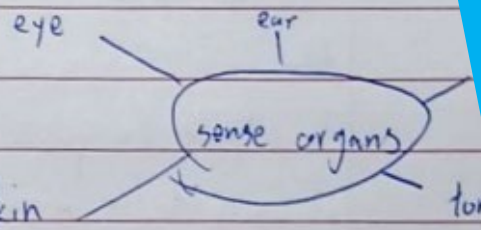
14

Cornell method

How is a sense produced?

stimulus → detected by specialized sensory cells in sense organ → sent messages to brain → produces sense

What are the five main sense organs?

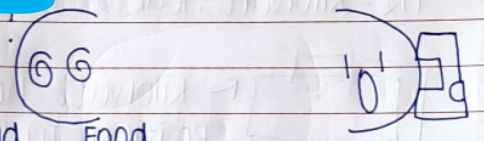


- Living things can detect and respond to changes in the environment. This ability helps them find food, find mates and escape from danger.
- Humans have specialized sensory cells in different sense organs to detect stimuli.

What senses can different sense organs produce?

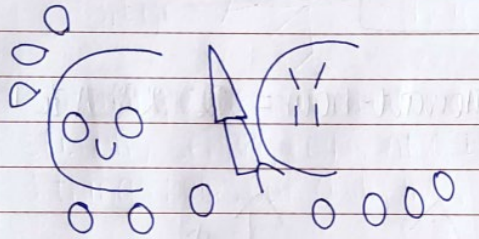
Sense organ	Stimulus / Stimuli detected	Sense(s) produced
Eye	Light	Sight
Ear	Sound	Hearing
Nose	Chemicals in air	Smell
Tongue	Chemicals in food	Taste
Skin	Touch, pressure, pain and temperature	Touch, pressure, pain, hot and cold

Why do we need sense organs?



1. Find Food
2. Find mates

2. How sense organ help living things?



3. Escape from danger

3. What is stimuli?

Sense & sense organs — Important for survival

Stimuli (Plural Form) — Detected by sense organs (sensory cells) / cells in different specialized sensory

4. What is sensory cells?

* Each type detects a particular stimulus (single form)

例子：第 11 課 第 11.6 節

隱蔽投影片

Opening

How will you engage students and capture their interest?

- Posing a Question for motivation
- Sharing a Weird Fact,
- Presenting a Problem
- Performing an Unusual/ Interesting demonstration
- Short task
- Video or photo

例子：第 11 課 第 11.6 節

爆笑人肉水火箭 (51”)

https://www.youtube.com/watch?app=desktop&v=Q7Avnk8aDiQ

例子：第 8 課 第 8.6 節

Socket

How many holes in the socket in Hong Kong?

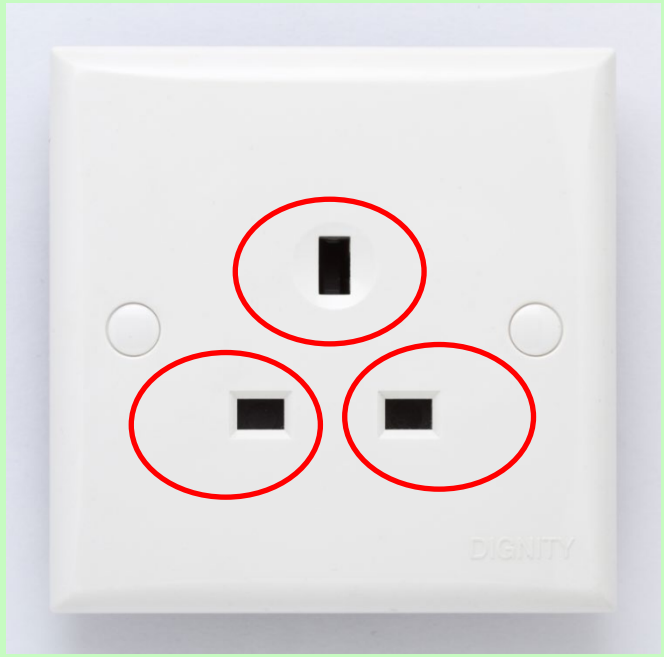
A 2　B 3　C 4　D 5

例子：第 8 課 第 8.6 節

Socket

How many holes in the socket in Hong Kong?

A 2　B 3　C 4　D 5



例子：第 8 課 第 8.6 節

5 marks question

How many holes in the socket in mainland China?

A 2　B 3　C 4　D 5

Raise an answer card (A-D) to show your choice

例子：第 8 課 第 8.6 節

5 marks question

How many holes in the socket in mainland China?

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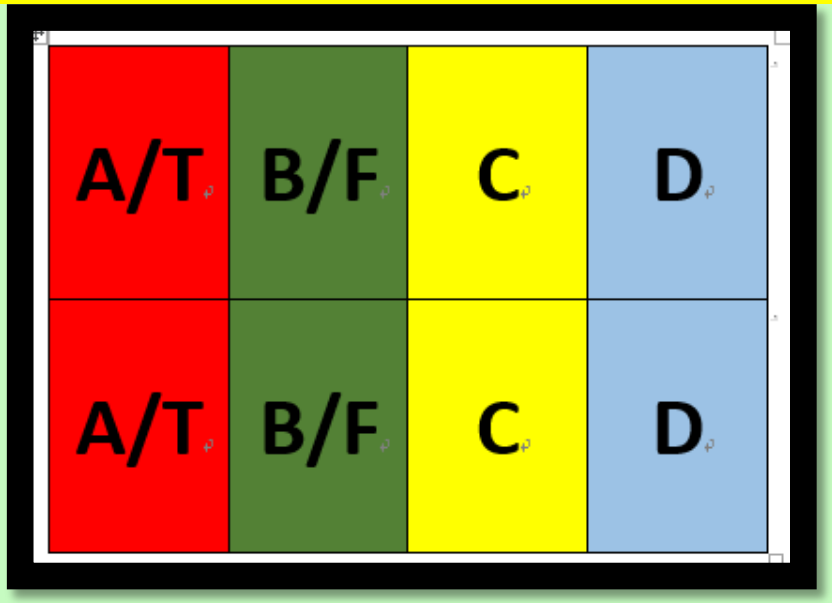


Raise an answer card (A-D) to show your choice

例子：第 8 課 第 8.6 節

5 marks question

How many holes in the socket in mainland China?

A 2　B 3　C 4　D 5

Raise an answer card (A-D) to show your choice

新聞預告
畫公仔畫出腸

New Material: what is to be learned

Introduction to New Material

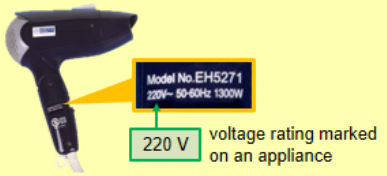
Presents a clear, concise explanation or demonstration of what is to be learned, but does not take up the bulk of the period.

20

A Mains voltage

In Hong Kong…

mains voltage (市電電壓) = 220 V

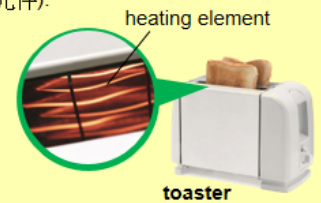


21

B Household electrical appliances

1 Using heating effect of current

Some appliances have a **heating element** (發熱元件).

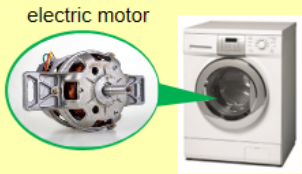


22

B Household electrical appliances

2 Using magnetic effect of current

Some appliances contain electric motors.

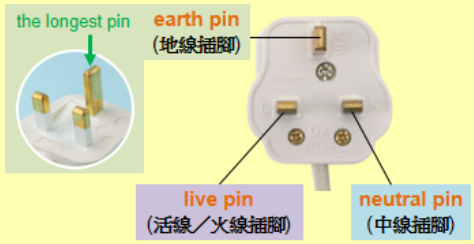


23

C Wiring of three-pin plugs

3D model

In Hong Kong, we use **three-pin plugs**.



24

Practical 8.15

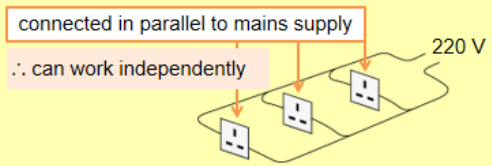
3 Write down the colours of each of the wires.

Wire	Earth wire	Live wire	Neutral wire
Colour	green and yellow	brown	blue

25

D Domestic circuits

It applies to the wall sockets that are connected to the mains supply.



domestic circuit (家居電路)

26

例子：第 8 課 第 8.6 節

隱蔽投影片

Introduction to New Material

Presents a clear, concise explanation or demonstration of what is to be learned, but does not take up the bulk of the period.

例子：第 8 課 第 8.6 節

A Mains voltage

In Hong Kong…

mains voltage (市電電壓) = 220 V

例子：第 8 課 第 8.6 節

B Household electrical appliances

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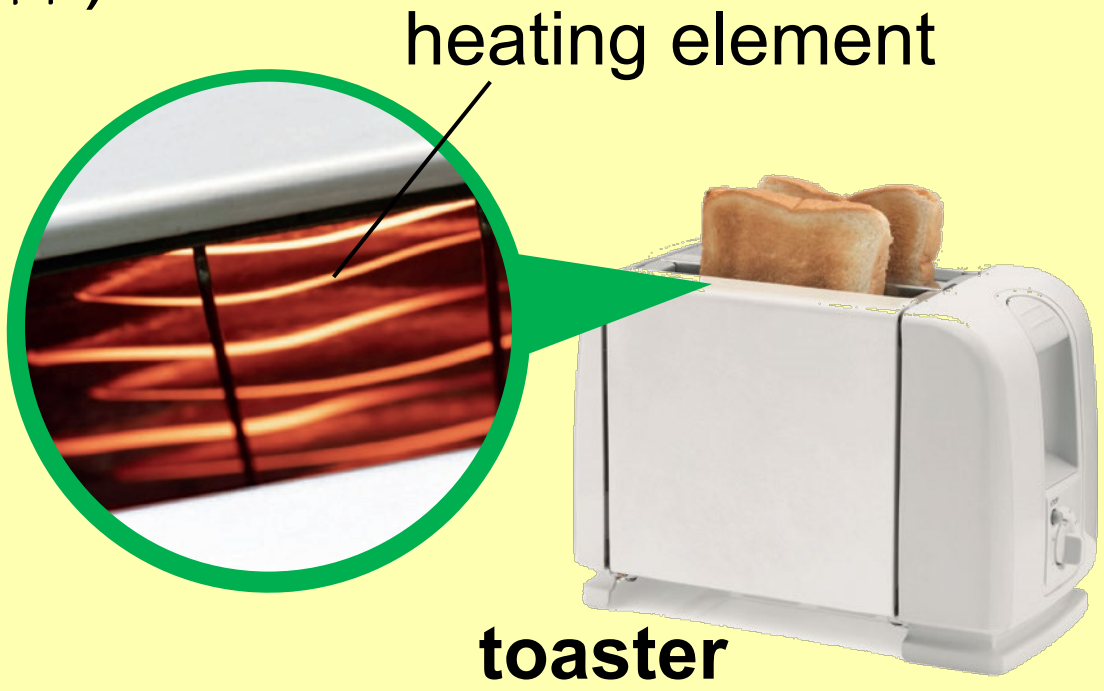


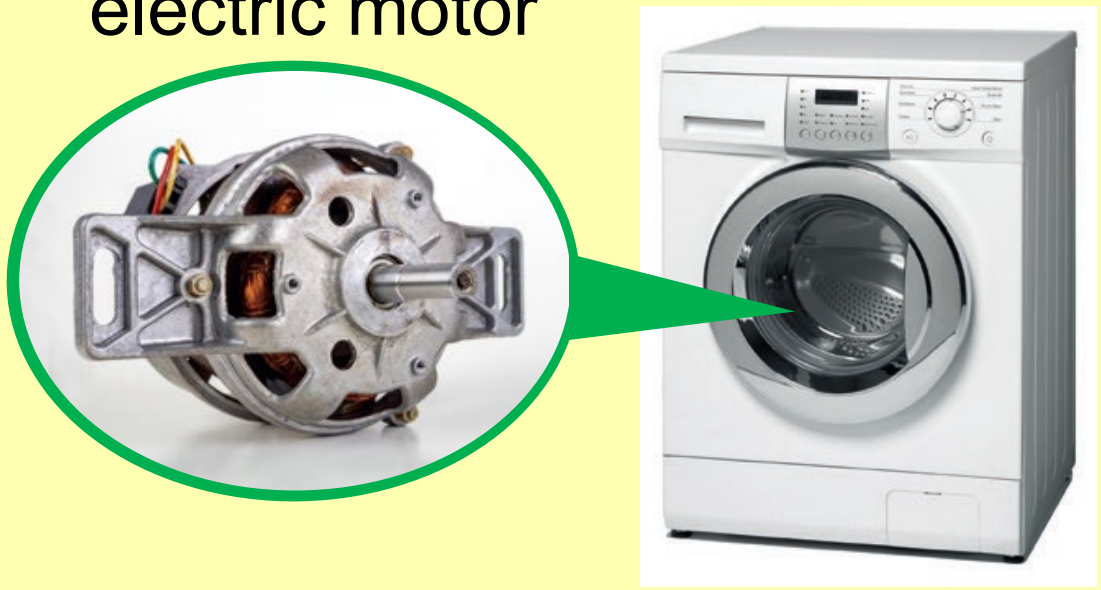
例子：第 8 課 第 8.6 節

B Household electrical appliances

2 Using magnetic effect of current

Some appliances contain electric motors.

electric motor

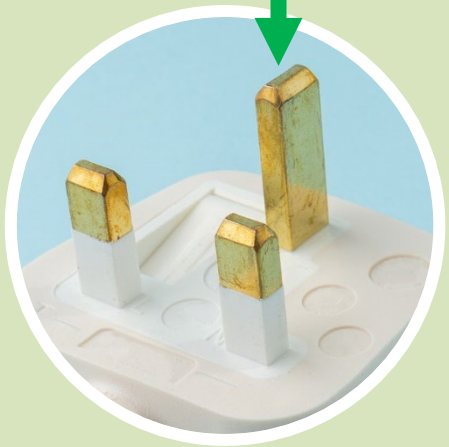


washing machine

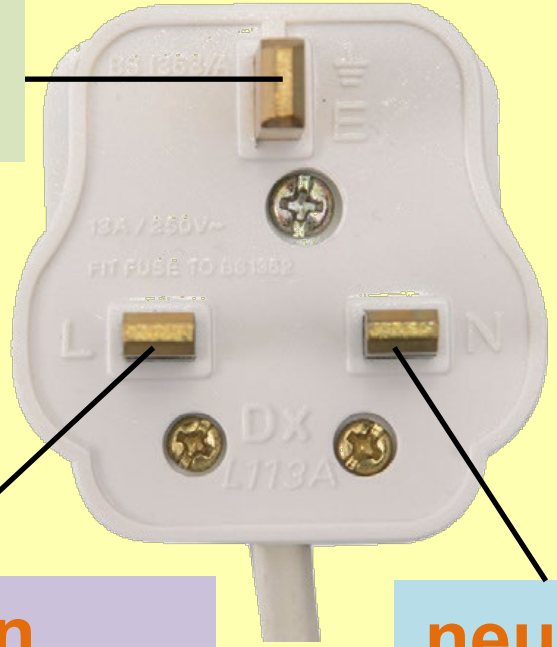
C Wiring of three-pin plugs

In Hong Kong, we use **three-pin plugs**.

the longest pin



earth pin
(地線插腳)



3D model

live pin
(活線／火線插腳)

neutral pin
(中線插腳)

例子：第 8 課 第 8.6 節

Practical 8.15

3 Write down the colours of each of the wires.

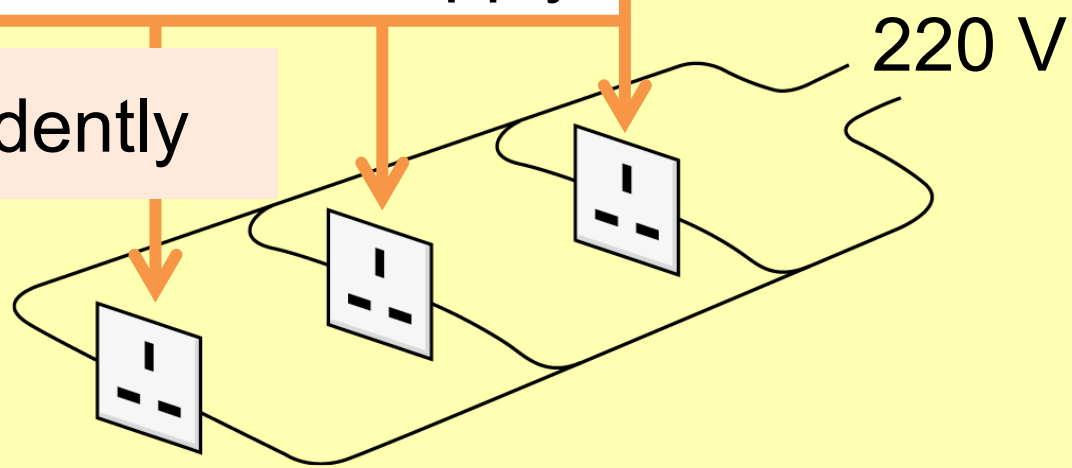
Wire	Earth wire	Live wire	Neutral wire
Colour	green and yellow	brown	blue

D Domestic circuits

It applies to the wall sockets that are connected to the mains supply.

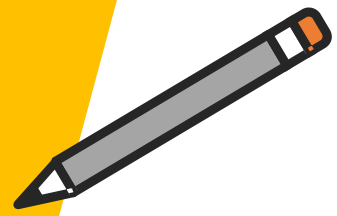
connected in parallel to mains supply

∴ can work independently



domestic circuit (家居電路)

透過閱讀及抄筆記學習



Lucky draw questioning

Lucky draw questioning

1. Read **P.178 - P.180** for 3 min and drop notes on the logbook.
2. Tell your group mates what you have learned. No more discussion after the start of questioning.
3. Close the textbook but you may open your own logbook to answer questions.
4. You must give the answers at once when your number is drawn.

47

Lucky draw questioning

- Engage students on reading and note taking
- For medium-level questions
- Enough waiting time before draw a number
- Students must get ready.
- Students should answer at once when their number is drawn.

48

2 Looking at living things ▶ 2.4 Classification of living things

Different groups of vertebrates

Fish

Examples:
Salmon, goldfish, shark

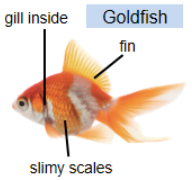
2.1 2.2 2.3 2.4 2.5 Concept map Answers

49

Different groups of vertebrates

Fish

- Live in **water**
- Have **slimy** [1]
- Have [2] (鰓) for breathing in water
- Have [3] for swimming

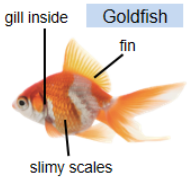


50

Different groups of vertebrates

Fish

- **Body temperature** [1] with the environment
- **Lay** [2] in water
- Examples: goldfish, salmon, sharks



51

2 Looking at living things ▶ 2.4 Classification of living things

Different groups of vertebrates

Amphibians

Examples:

2.1 2.2 2.3 2.4 2.5 Concept map Answers

52

Different groups of vertebrates

Amphibians

- Young forms live in **water**; [1] live mostly on **land**
- Have [2] but **no scales**
- Young forms have [3] for breathing; breathe with [4] (肺) and the [5]

53

Different groups of vertebrates

Amphibians

- Adults have **four** [1] (肢)
- **Body temperature** [2] with the environment
- **Lay** [2] in water
- Examples: frogs, toads, newts

54

Types of Reptiles

Crocodile

Different groups of vertebrates

Different groups of vertebrates

2 Looking at living things ▶ 2.4 Classification of living things

Birds

例子：第 3 課 第 3.2 節

隱蔽投影片

Lucky draw questioning

- Engage students on reading and note taking
- For medium-level questions
- Enough waiting time before draw a number
- Students must get ready.
- Students should answer at once when their number is drawn.

例子：第 3 課 第 3.2 節

Lucky draw questioning

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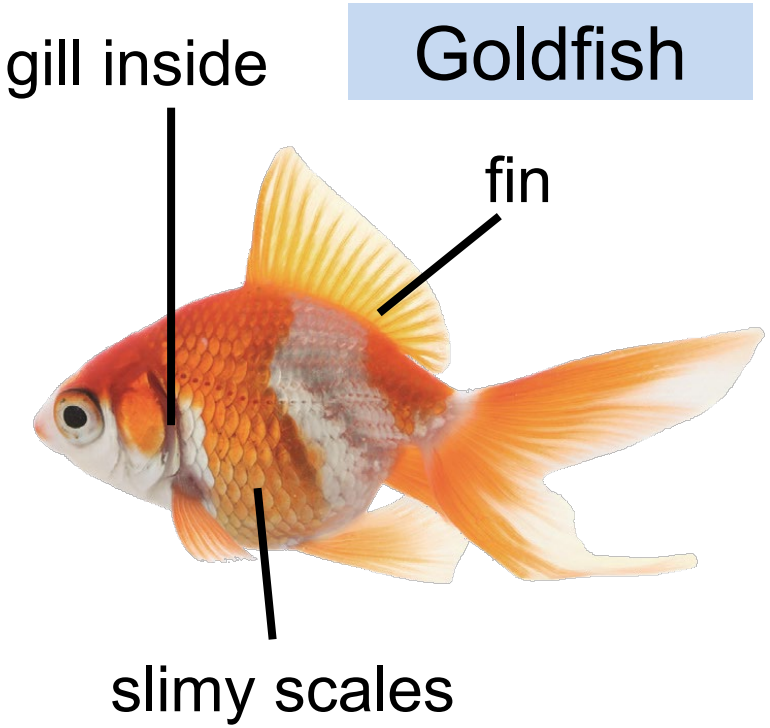
2. Tell your group mates what you have learned. No more discussion after the start of questioning.
3. Close the textbook but you may open your own logbook to answer questions.
4. You must give the answers at once when your number is drawn.

例子：第 3 課 第 3.2 節

Different groups of vertebrates

Fish

- Live in **water**
- Have **slimy** 1
- Have 2 (鰓) for breathing in water
- Have 3 for swimming

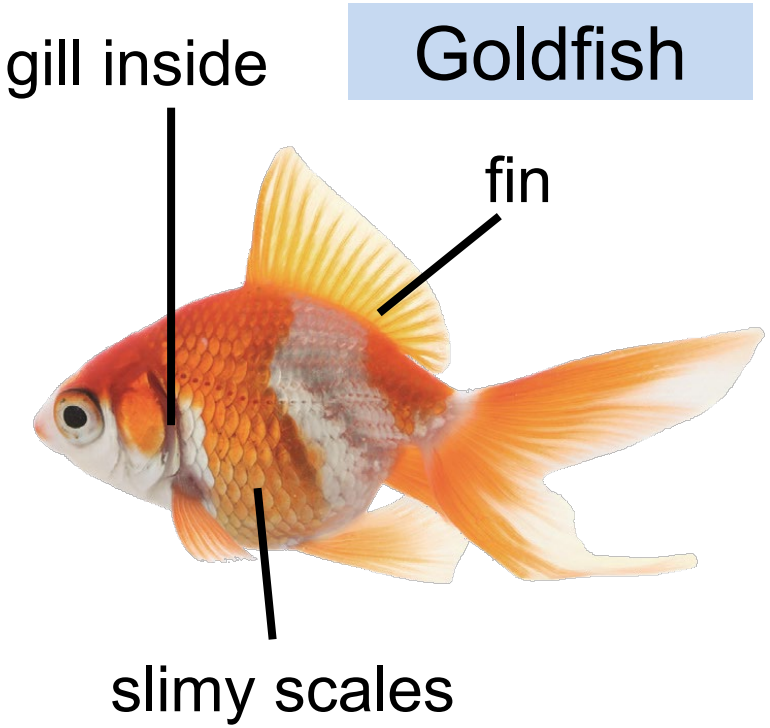


例子：第 3 課 第 3.2 節

Different groups of vertebrates

Fish

- Live in **water**
- Have **slimy scales**
- Have 2 (鰓) for breathing in water
- Have 3 for swimming

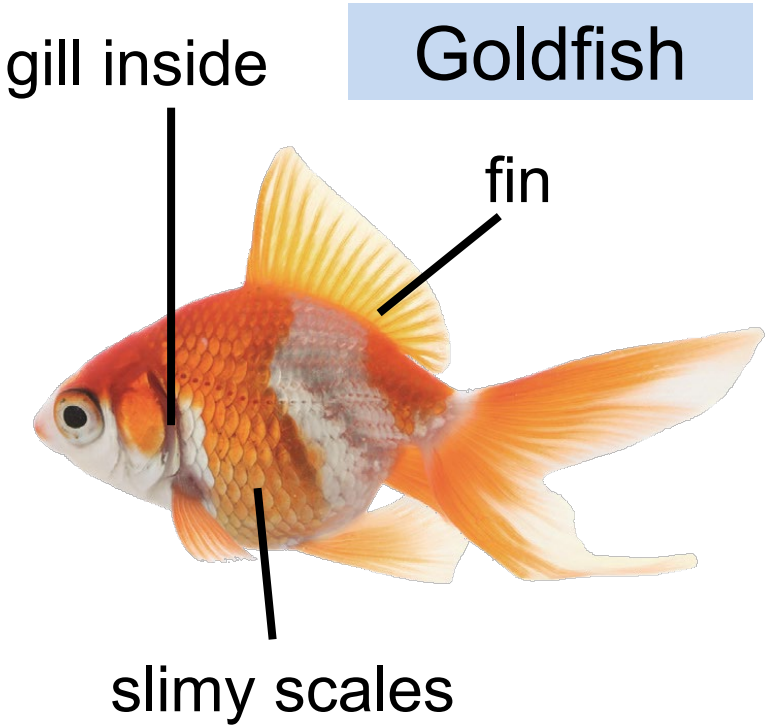


例子：第 3 課 第 3.2 節

Different groups of vertebrates

Fish

- Live in **water**
- Have **slimy scales**
- Have **gills** (鰓) for breathing in water
- Have 3 for swimming

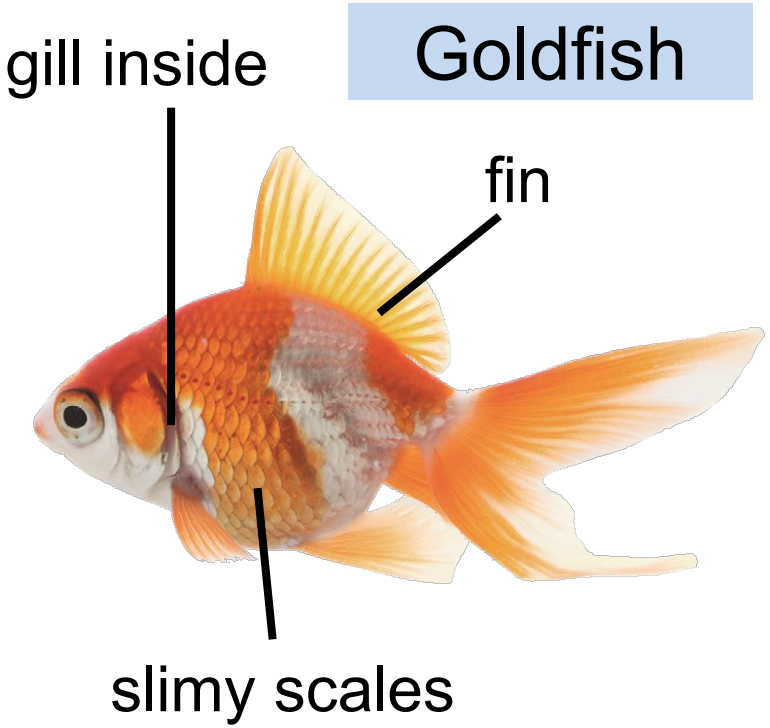


例子：第 3 課 第 3.2 節

Different groups of vertebrates

Fish

- Live in **water**
- Have **slimy scales**
- Have **gills** (鰓) for breathing in water
- Have **fins** for swimming



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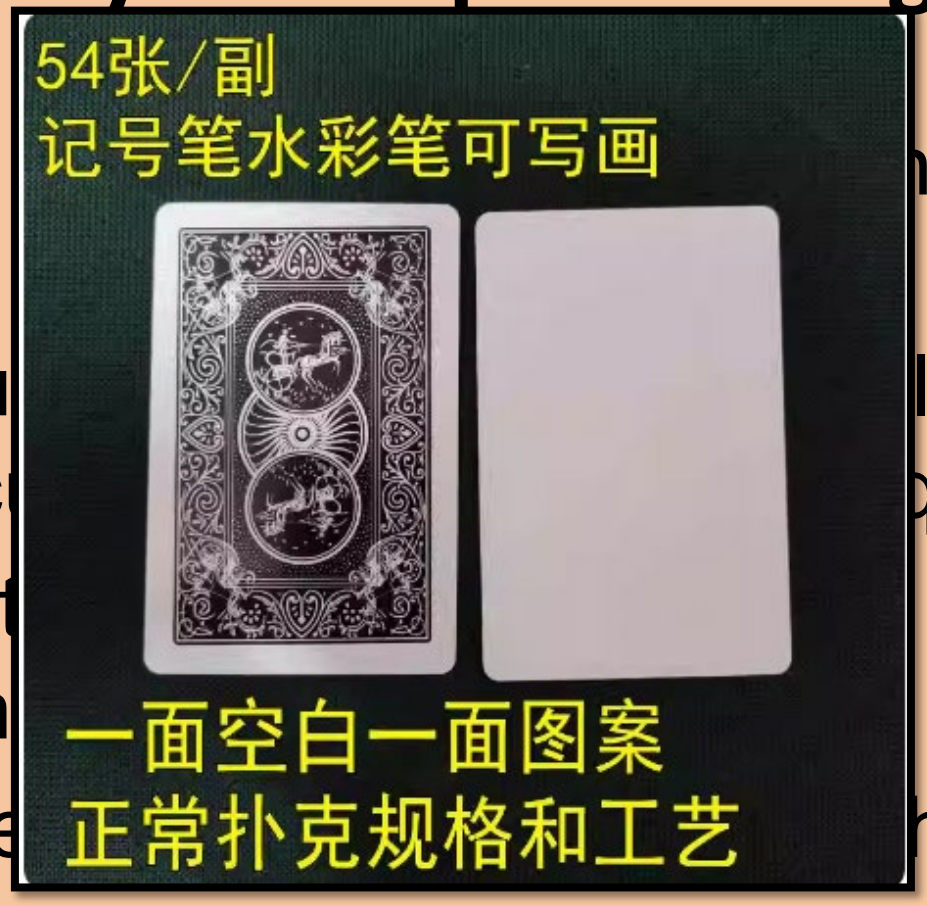


讓同組同學鼓勵鄰舍

Cooperative learning

Cooperative learning

- Carry out the activity for **4** min.
- Record the results on your textbook and discuss the results with your group mates.
- Answer all the question (if any) **immediately**.
- **Only one textbook** from each group will be marked by a lucky draw.

47

Cooperative learning

- After the activity, students may discuss the answers in their groups.
- Choose a number (1-4) by a lucky draw.
- Take photos of each logbooks selected.
- Show the suggested answers
- Marked the textbooks on the screen.

48

Practical 7.10

Results

Flask	Oxygen content	
	At the beginning	After 10 minutes
A		
B		

49

Practical 7.10

Discussion

What can you tell about the gas exchange of leaves from the results?

50

Practical 7.10

In flask A, the oxygen content __increases__ (increases / decreases). This shows that under light conditions, the green leaves __give out__ oxygen.

In flask B, the oxygen content __decreases__ (increases / decreases). This shows that under dark conditions, the green leaves __take in__ oxygen.

51

例子：第 7 課 第 7.4 節

隱蔽投影片

Cooperative learning

- After the activity, students may discuss the answers in their groups.
- Choose a number (1-4) by a lucky draw.
- Take photos of each logbooks selected.
- Show the suggested answers
- Marked the textbooks on the screen.

例子：第 7 課 第 7.4 節

Cooperative learning

- Carry out the activity for **4** min.
- Record the results on your textbook and discuss the results with your group mates.
- Answer all the question (if any) **immediately.**
- **Only one textbook** from each group will be marked by a lucky draw.

例子：第 7 課 第 7.4 節

Practical 7.10

Results

Flask	Oxygen content	
	At the beginning	After 10 minutes
A		
B		

Practical 7.10

Discussion

What can you tell about the gas exchange of leaves from the results?

例子：第 7 課 第 7.4 節

Practical 7.10

In flask A, the oxygen content increases (increases / decreases). This shows that under light conditions, the green leaves give out oxygen.

In flask B, the oxygen content decreases (increases / decreases). This shows that under dark conditions, the green leaves take in oxygen.

例子：第 3 課 第 3.2 節

Cooperative activity

- Carry out the activity for 5 min.
- Classify the 12 animals into groups.
- Place the photos of the same group in different rows and ask your teacher to check it.
- If your answers is not correct, you may try again.
- Groups that finish the task on time will earn 5 marks.

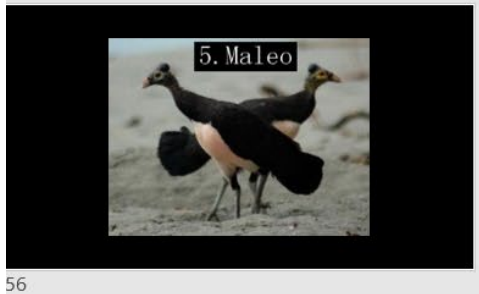
例子：第 3 課 第 3.2 節

52

53

54

55



56

57

58

59

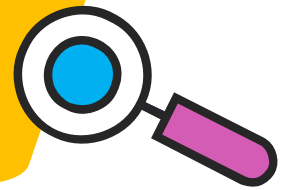
例子：第 3 課 第 3.2 節

Invertebrate

例子：第 3 課 第 3.2 節

mammary gland of pangolin

基礎學生需要成功感，
尖子學生喜歡挑戰。



Cooperative question

Cooperative question

- There are 3 sets of questions. Divide each question for each member.
  - Level 1 x 1
  - Level 2 x 2
  - Level 3 x 1
- Discussion is not allowed. Write down the answers on your logbooks/ answer sheet.
- Your group will gain 10 marks if **ALL** questions are answered correctly.
- Your group will gain 5 marks if **TWO levels** questions are answered correctly.

90 ★

- Level 1

When dilute acids react with metals, carbon dioxide is produced. False

- Level 2

Reaction between a dilute acid and a carbonate produces carbon dioxide, a salt and water .

- Level 3

Why are metal pots not preferred to cook pork knuckles and ginger stew?

The acids may corrode the metal and some harmful substances may be produced.

91 ★

Cooperative question

- Please check the answers by yourselves.
- Raise hands if all answers are correct.

92

例子：第 9 課 第 9.4 節

Cooperative question

- There are 3 sets of questions. Divide each question for each member.
  - Level 1 x 1
  - Level 2 x 2
  - Level 3 x 1
- Discussion is not allowed. Write down the answers on your logbooks/ answer sheet.
- Your group will gain 10 marks if **ALL** questions are answered correctly.
- Your group will gain 5 marks if **TWO levels** questions are answered correctly.

Cooperative question

Answer sheet

Class: _____ Group number: _____ Name: _____ Class No.: _____

Level 1 Answer:

_____

Cooperative question

Answer sheet

Class: _____ Group number: _____ Name: _____ Class No.: _____

Level 2 Answer:

_____

Cooperative question

Answer sheet

Class: _____ Group number: _____ Name: _____ Class No.: _____

Level 3 Answer:

_____

_____

例子：第 9 課 第 9.4 節

- Level 1

When dilute acids react with metals, carbon dioxide is produced.

- Level 2

Reaction between a dilute acid and a carbonate produces _____, a _____ and water.

- Level 3

Why are metal pots not preferred to cook pork knuckles and ginger stew?

例子：第 9 課 第 9.4 節

- Level 1

When dilute acids react with metals, carbon dioxide is produced. False

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Reaction between a dilute acid and a carbonate produces carbon dioxide, a salt and water.

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例子：第 9 課 第 9.4 節

Cooperative question

- Please check the answers by yourselves.
- Raise hands if all answers are correct.

重要的事說三遍

Closing

- Features a check of what was learned, its significance and its place in the larger learning goals.
- Opportunities for students to demonstrate learning/ raise questions; Peer/ Self assessment
- Consolidate/ Extend learning; Set improvement targets

84

Assigned questioning

1. Close the textbook. You may open your own logbook to answer questions.
2. You must give the answers at once when you have the chance.

85

Assigned questioning

- Inspire low-achievement students
- For quick check

86

B Free fall

Key point

Free fall is a non-uniform (uniform / non-uniform) motion.

87

C Mass and weight

However, mass and weight are **not the same** in science.

Mass

- 1 in the object
- measured in **kilograms (kg)** or **grams (g)**

Weight

- **force of gravity** acting on the object
- measured in 2 **(N)**

88

C Mass and weight

Key point

- The force of gravity experienced by an object increases (increases / decreases) with its mass.
- The weight of an object may vary from place to place in space but its mass mains unchanged.

89

例子：第 11 課 第 11.4 節

隱蔽投影片

Closing

- Features a check of what was learned, its significance and its place in the larger learning goals.
- Opportunities for students to demonstrate learning/ raise questions; Peer/ Self assessment
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例子：第 11 課 第 11.4 節

隱蔽投影片

Assigned questioning

- Inspire low-achievement students
- For quick check

例子：第 11 課 第 11.4 節

Assigned questioning

1. Close the textbook. You may open your own logbook to answer questions.
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例子：第 11 課 第 11.4 節

B Free fall

Key point

Free fall is a _____ (uniform / non-uniform) motion.

例子：第 11 課 第 11.4 節

B Free fall

Key point

Free fall is a
___non-uniform___ (uniform / non-uniform)
motion.

例子：第 11 課 第 11.4 節

C Mass and weight

However, mass and weight are **not the same** in science.

Mass

- [1] in the object
- measured in **kilograms (kg)** or **grams (g)**

Weight

- **force of gravity** acting on the object
- measured in [2] **(N)**

C Mass and weight

However, mass and weight are **not the same** in science.

Mass

- **amount of matter** in the object
- measured in **kilograms (kg)** or **grams (g)**

Weight

- **force of gravity** acting on the object
- measured in 2 **(N)**

例子：第 11 課 第 11.4 節

C Mass and weight

However, mass and weight are **not the same** in science.

Mass

- **amount of matter** in the object
- measured in **kilograms (kg)** or **grams (g)**

Weight

- **force of gravity** acting on the object
- measured in **newtons (N)**

例子：第 11 課 第 11.4 節

C Mass and weight

Key point

- The force of gravity experienced by an object _____ (increases / decreases) with its mass.
- The _____ of an object may vary from place to place in space but its _____ mains unchanged.

例子：第 11 課 第 11.4 節

C Mass and weight

Key point

- The force of gravity experienced by an object ____increases____ (increases / decreases) with its mass.
- The _____ of an object may vary from place to place in space but its _____ mains unchanged.

例子：第 11 課 第 11.4 節

C Mass and weight

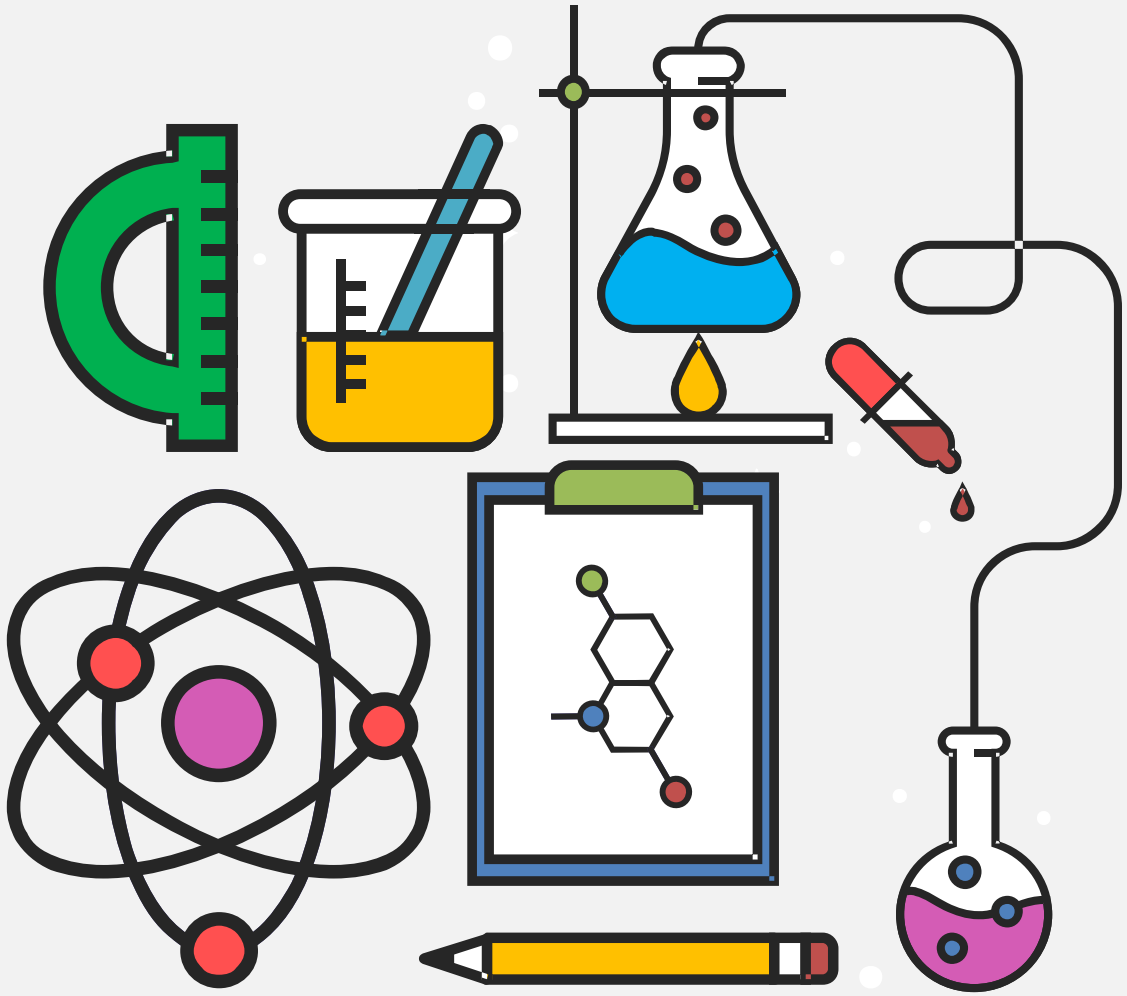
Key point

- The force of gravity experienced by an object _____increases_____ (increases / decreases) with its mass.
- The _____weight_____ of an object may vary from place to place in space but its _____ mains unchanged.

C Mass and weight

Key point

- The force of gravity experienced by an object ___increases___ (increases / decreases) with its mass.
- The ___weight___ of an object may vary from place to place in space but its ___mass___ mains unchanged.



Thank you!