

Education Bureau Funded
Professional Development Programme on
English Language Learning and Teaching
— Enhancing the Learning and Teaching
of English Vocabulary
for Cross-curricular Learning
in the Secondary English Classroom



Nicole Tavares and Simon Chan
Faculty of Education, HKU

Outline

What can we expect from this workshop?

- Reflections on (cross-curricular) vocabulary and the teaching and learning of it
- Connection between English Language and non-language subjects in the development of vocabulary-building strategies
- Vocabulary building and development of reading and/or writing skills
- Demonstration on specific vocabulary-building strategies
- Recommendations on materials for vocabulary teaching
- ... anything else?

The power of cross-curricular vocabulary

Vocabulary Challenges:

1. 'thickened atmosphere'
= 'thickening the atmosphere'?
= 'increased air / atmospheric pressure'?
2. Does 'warm' collocate with 'atmosphere'?
3. 'lost four billion in market share'
= 'lost four billion'?
4. What does the word 'industry' mean?
How does it relate to 'companies'?

Reflection on (cross-curricular) vocabulary

Discussion Task (5 mins.):

'One small step for man, one giant leap for mankind'

- Which of the above words would you regard as 'vocabulary'? How do they affect the meaning of the whole expression? To what extent are they 'cross-curricular'?
- What is your definition of 'vocabulary'?
- Is there a vocabulary syllabus in your school's curriculum? If yes, to what extent are the above words covered?


Reflection on (cross-curricular) vocabulary

Discussion Task (Cont'd):

How about 'on earth'
vs 'on **the** earth'?

'One small step for man, one giant leap for mankind'

- Neil Armstrong, the astronaut who said the above immortal words, once revealed that there was miscommunication between him **on the moon** and the people **on the earth**, and that a word actually got missing from this famous quote! Do you know what word it is (find it out from the Internet if not)? Is the meaning changed by adding it back?

 To what extent is the above task contributing to our students' vocabulary learning? Any pedagogic implications?

From vocabulary to vocabulary teaching

To what extent do you agree with the following propositions ?

- a) Vocabulary teaching is a major part of my English lessons.
- b) Teaching vocabulary covers the spelling, pronunciation, and the dictionary meaning of words.
- c) Vocabulary treatment in the English language and other content subjects is different.
- d) Teaching vocabulary from content subjects would enhance students' general English proficiency.

Cross-curricular vocabulary and reading comprehension

5-second Reading Challenge:

You will only be given *5 seconds* to read the text below. Your task is to identify the topic and the genre of the text.

Cross-curricular vocabulary and reading comprehension

5-second Reading Challenge:

You will only be given *5 seconds* to read the text below. Your task is to identify the topic and the genre of the text.

Place plain flour and salt in a bowl and mix together. Add in warm water and press the mixture. If the mixture is too dry then add in a little more water. Keep the salt dough in the bowl and add some white paint. Add the white paint twice to get the desired whiteness of the salt dough. Press well until the white paint is thoroughly mixed then place on a surface.

IMPORTANT - At this point **WASH** your equipment and hands. Roll out to around 1/2cm thick. Cut out your desired shapes. Place them on a lined baking tray. Set the oven to 100°C. Put it into the oven for around 1 hour. Turn over and check that the mixture is thoroughly dried if not return and continue drying. Leave to dry in a warm dry place for around 12 hours.

Cross-curricular vocabulary and cross-curricular reading

- What type of text is it?
- What is the topic?
- What did you spot that makes you think so?

Vocabulary is an important resource for **reading**

=> **Cross-curricular vocabulary** is an important resource for **cross-curricular reading**

=> **Cross-curricular vocabulary** can best be taught through **cross-curricular reading**

Cross-curricular vocabulary and cross-curricular reading

White Salt Christmas Ornaments

Place plain flour and salt in a bowl and mix together. Add in warm water and press the mixture. If the mixture is too dry then add in a little more water. Keep the salt dough in the bowl and add some white paint. Add the white paint twice to get the desired whiteness of the salt dough. Press well until the white paint is thoroughly mixed then place on a surface. **IMPORTANT** – At this point **WASH** your equipment and hands. Roll out to around 1/2cm thick. Cut out your desired shapes. Place them on a lined baking tray. Set the oven to 100°C.

Put it into the oven for around 1 hour. Turn over and check that the mixture is thoroughly dried if not return and continue drying. Leave to dry in a warm dry place for around 12 hours.

Cross-curricular vocabulary and cross-curricular reading

White Salt Christmas Ornaments

- How cross-curricular is this text?
- Which subject(s)/KLA(s) can we cross it over with?

Cross-curricular vocabulary and cross-curricular reading

- Do you know who invented
the art of salt dough making?

Source: <https://heritage.warwickshire.gov.uk/downloads/file/3/ancient-egyptians-pdf-5-38-mb->



Ancient Egyptians is a topic in...?

Cross-curricular vocabulary and cross-curricular reading

Personal, Social & Humanities Education
Key Learning Area

History Curriculum Guide (Secondary 1–3)



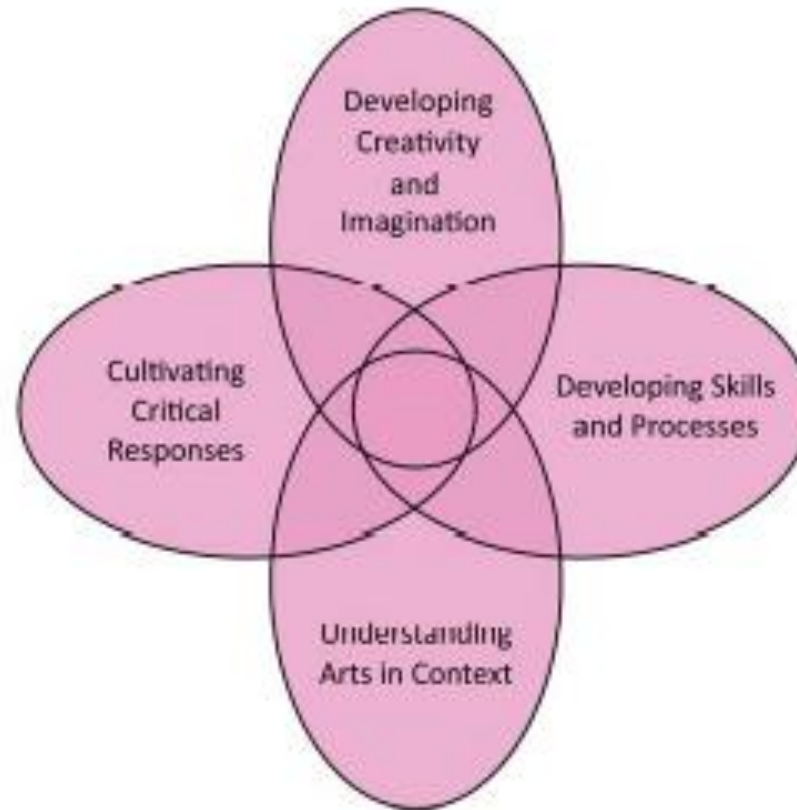
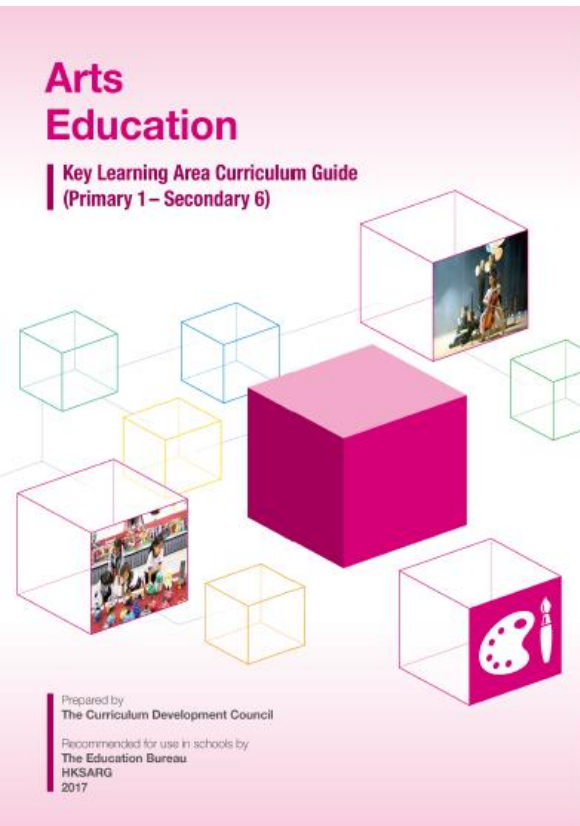
Prepared by
The Curriculum Development Council

Recommended for use in schools by
The Education Bureau
HK SAR
2019

Topic & enquiry questions	Learning points
<p>1. Human needs: past and present</p> <p>— What basic human needs led to the emergence of early civilisations? What are the main characteristics of early civilisations?</p>	<ul style="list-style-type: none"> • Development of the Stone Age: from nomadism to agriculture (using recent major archaeological discoveries of different places including Hong Kong as examples). • Rise of ancient civilisations, and the distribution and characteristics of the major world civilisations • <u>Case study: the Fertile Crescent / the Nile Valley / the Indus Valley/ the Huanghe Valley</u> (Choose 1 out of 4, study one more case for the extended part*)

Ancient Egyptians is a topic in...?

Cross-curricular vocabulary and cross-curricular reading



And there is potential in crossing it over with...

Learning Targets of the Arts Education Curriculum

Cross-curricular vocabulary and cross-curricular reading

A possible
alternative
cross-curricular
reading text:

Procedural text for
making Egyptian
style salt dough
scarab amulet

Source:

<https://heritage.warwickshire.gov.uk/downloads/file/3/ancient-egyptians-pdf-5-38-mb->

The Genre Egg Model

Curriculum Context
e.g. Science, Geography, Economics,
English language arts

Text Type

e.g. Procedural texts, Information reports, Short stories

Paragraph / Sentence
Grammar & Rhetorical functions:
e.g., Compare & Contrast,
Defining

Word

Lexical Phrases

Let's focus on
the **text-type**
and **word** levels
this time.

In addition to
History and VA,
are texts of the
above type
found in *our*
English subject
as well?

What **kinds of**
vocabulary are
expected in all
these texts?

Cross-curricular vocabulary and cross-curricular reading

Vocabulary task suggestions: Useful for cross-curricular writing as well!

- Circle all the words suggesting the exact actions to be taken to make salt ornaments. What would be the grammatical pattern in which these words are shown in the text?
- Which of the following words do NOT show actions we have to take to make the ornaments: place, add, press, dry?
- What are your comments on the time/sequence expressions used in the text?
- Why is the word 'IMPORTANT' in capital letters? What does it mean in the text?

White Salt Christmas Ornaments

Place plain flour and salt in a bowl and mix together. Add in warm water and press the mixture. If the mixture is too dry then add in a little more water. Keep the salt dough in the bowl and add some white paint. Add the white paint twice to get the desired whiteness of the salt dough. Press well until the white paint is thoroughly mixed then place on a surface. IMPORTANT – At this point WASH your equipment and hands. Roll out to around 1/2cm thick. Cut out your desired shapes. Place them on a lined baking tray. Set the oven to 100°C. Put it into the oven for around 1 hour. Turn over and check that the mixture is thoroughly dried if not return and continue drying. Leave to dry in a warm dry place for around 12 hours. 17

Cross-curricular vocabulary and cross-curricular reading

What further potential is there for using the above text in promoting cross-curricular vocabulary learning?

- Vocabulary in *Technology and Living, Life and Society etc.*
- Action verbs in Science experiment procedures (e.g. add, mix, place)
- Time adverbials in Mathematics word problems (e.g. gradually, twice)

... also the potential for **teaching vocabulary in context** and **lexico-grammar** (e.g. action verbs in imperative structure)

Cross-curricular vocabulary and reading comprehension

- If you were to introduce the above text in your own language classroom, would you choose Version 1 or Version 2 (please refer to the handout)? Why?
- How about Version 3a, 3b and/or 3c?
 - 3a: <https://www.youtube.com/watch?v=iNnhBaYxWos>
 - 3b: <https://www.youtube.com/watch?v=L7sH9bj-fl0>
 - 3c: <https://www.youtube.com/watch?v=Ns1bweFRKf4>
- Do take into consideration how you would cater for learner diversity.

**Cross-curricular
vocabulary-building strategies:
Using graphic organisers for
meaningful vocabulary learning**

Graphic organiser 1: Mind maps

e.g.: Mind map for animal kingdom

Source: <https://aupriscilla.files.wordpress.com/2012/11/animal-mindmap2.jpg>

Graphic organiser 2: Concept maps

e.g.: Concept map for climate change

Source: <http://tonkaenergy.weebly.com/energy-concept-map.html>

Especially useful
for
cross-curricular
writing!

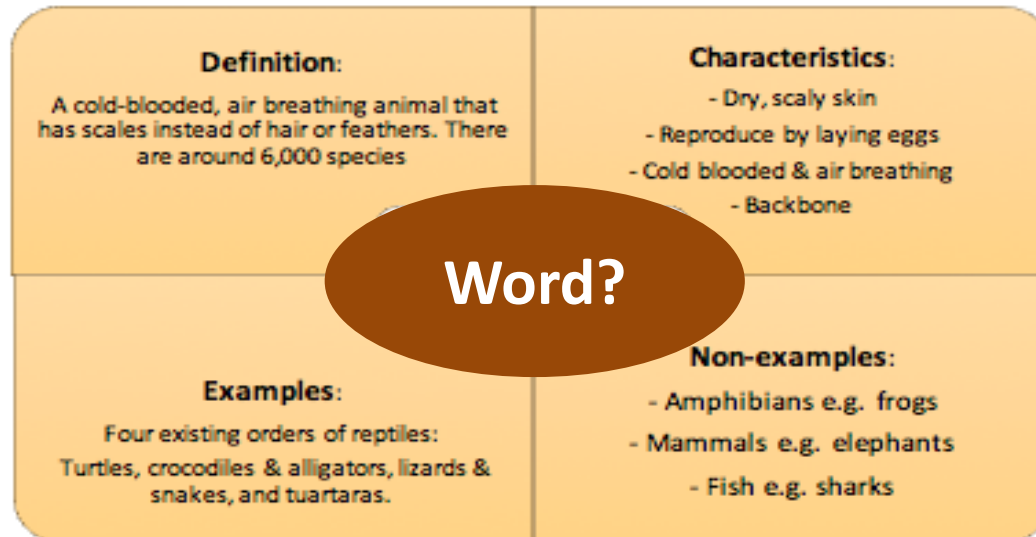
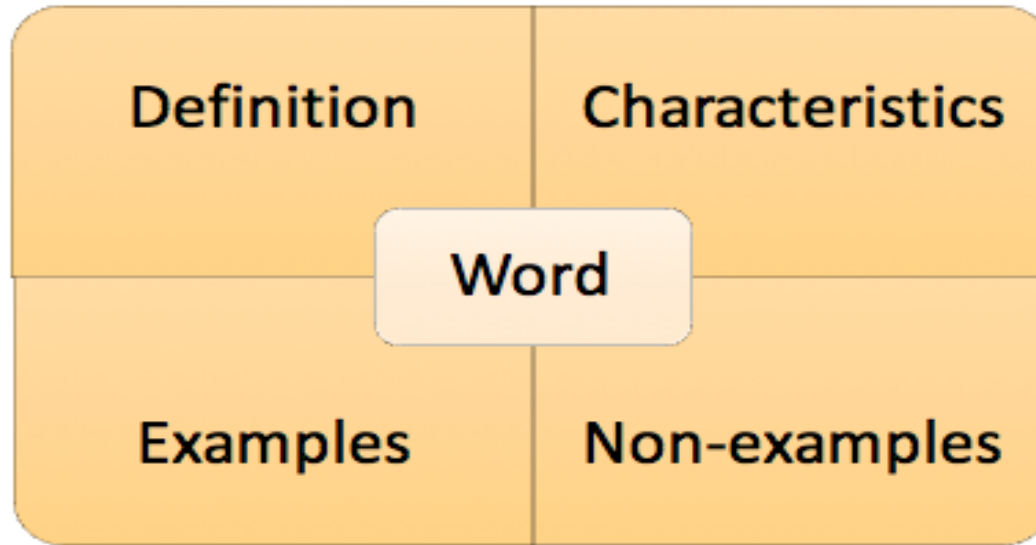
Graphic organiser 3: Venn diagrams

e.g. Venn diagram for series circuits vs parallel circuits

Source: <https://learningcenter.unc.edu/tips-and-tools/using-concept-maps/>

Graphic organiser 4: Frayer model

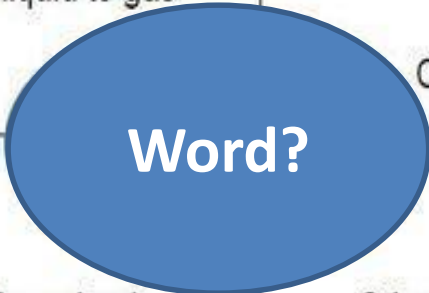
e.g. : Frayer model for



Graphic organiser task:

What is the target term below?

Definition (textbook) 'a type of vaporisation occurring on a liquid's surface as it changes into the gas phase' (mine) Phase change from liquid to gas	Characteristics A cooling process. Faster when it's warmer. Liquid seems to disappear. Can happen with or without boiling
Examples Puddles evaporating from the school playground. Wet clothes drying on a washing line.	Non-examples Other phase changes such as melting, freezing, condensation. Percolation – when a rain puddle disappears, some evaporates but some may soak into the ground.



Try to remember these words:

water	life	rabbit	line	home
field	ball	dog	apple	sheep
head	picture	year	sky	hill
cloud	horse	chock-a-block	pen	wind
pig	cow	foot	door	snow
flower	cat			



**You will now have
1 minute to write down
all the words
you can remember.**

What does this tell us?

water	life	rabbit	line	home
field	ball	dog	apple	sheep
head	picture	year	sky	hill
cloud	horse	chock-a- block	pen	wind
pig	cow	foot	door	snow
flower	cat			

**Now it's time
for some hands-on practice!**

Be as creative as you can be

Study the 2018 HKDSE Reading B1 text.

What insights do you have for exploiting the text for cross-curricular vocabulary teaching, learning, enrichment and consolidation?

As a team, select **ONE main area of teaching focus**.

Consider...

- ① what you will teach about the area, why and how,
- ② the linkage between this and (an)other subject(s) / KLA(s),
- ③ how you could extend your teaching to promote cross-curricular vocabulary development,
- ④ strategies for vocabulary building and consolidation, and
- ⑤ briefly sketch a task / an activity for one of the ideas above.

Teaching Points

- ✓ subject-specific vocabulary
- ✓ topical vocabulary
- ✓ parts of speech / word class // word formation
- ✓ collocation
- ✓ pronunciation & phonological cues
- ✓ synonyms (& antonyms)
- ✓ phrase level:
e.g. comparatives & superlatives, imperatives, ...
- ✓ sentence patterns, e.g. conditionals

The Language of Science

Draw a graphic organiser to show your understanding of the meaning conveyed in the text (and write a paragraph about it).

stinger

allergic reaction

pollinating

tweezer

colony

pharmacist

insect bites

insect stings

stinging
insects

species

sting sac

pump poison

bee stings

Word Class

	v.	n.	adj.	adv.
sting	sting stang stung	sting stings stinger	stinging	
itch	--- cause(d) itchiness	itch itching	itchy	
allergy	--- cause(d) allergy	allergy allergies	allergic	
react	react(ed) to	reaction	reactive	
swell	swell(ed)	swell swelling	swollen	
poison	poison(ed)	poison	poisonous	
inject	inject(ed) sth. into	injection		
pollen	pollinate(d) spread pollen	pollination pollinator	pollinating	
sensitive	sense(d) vs cause(d) a sensation	sensation vs sensitivity	sensitive sensational	
provoke	provoke(d)	provocation	provoking	

Word Formation

	v.	n.	adj.	adv.
sting	sting stang stung	sting stings stinger	stinging	
itch	--- cause(d) itchiness	itch itching	itchy	
allergy	--- cause(d) allergy	allergy allergies	allergic	
react	react(ed) to	reaction	reactive	
swell	swell(ed)	swell swelling	swollen	
poison	poison(ed)	poison	poisonous	
inject	inject(ed) sth. into	injection		
pollen	pollinate(d) spread pollen	pollination pollinator	pollinating	
sensitive	sense(d) vs cause(d) a sensation	sensation vs sensitivity	sensitive vs sensational	
provoke	provoke(d)	provocation	provoking	

Collocation

	v.	n.	adj.	adv.
sting	sting stang stung	sting stings stinger	stinging	
itch	--- cause(d) itchiness	itch itching	itchy	
allergy	--- cause(d) allergy	allergy allergies	allergic	
react	react(ed) to	reaction	reactive	
swell	swell(ed)	swell swelling	swollen	
poison	poison(ed)	poison	poisonous	
inject	inject(ed) sth. into	injection		
pollen	pollinate(d) spread pollen	pollination pollinator	pollinating	
sensitive	sense(d) vs cause(d) a sensation	sensation vs sensitivity	sensitive vs sensational	
provoke	provoke(d)	provocation	provoking	

Behaviour of Words

	v.	n.	adj.	adv.
sting	sting stang stung	sting stings stinger	stinging	
itch	--- cause(d) itchiness	itch itching	itchy	
allergy	--- cause(d) allergy	allergy allergies	allergic	
react	react(ed) to	reaction	reactive	
swell	swell(ed)	swell swelling	swollen	
poison	poison(ed)	poison	poisonous	
inject	inject(ed) sth. into	injection		
pollen	pollinate(d) spread pollen	pollination pollinator	pollinating	
sensitive	sense(d) vs cause(d) a sensation	sensation vs sensitivity	sensitive vs sensational	
provoke	provoke(d)	provocation	provoking	

Pronunciation & Phonological Cues

	v.	n.	adj.	adv.
sting	sting stang stung	sting stings stinger	stinging	
itch	--- cause(d) itchiness	itch itching	itchy	
allergy	--- cause(d) allergy	allergy allergies	allergic	
react	react(ed) to	reaction	reactive	
swell	swell(ed)	swell swelling	swollen	
poison	poison(ed)	poison	poisonous	
inject	inject(ed) sth. into	injection		
pollen	pollinate(d) spread pollen	pollination pollinator	pollinating	
sensitive	sense(d) vs cause(d) a sensation	sensation vs sensitivity	sensitive vs sensational	
provoke	provoke(d)	provocation	provoking	

Which is the stressed syllable?

Nominalisation

Maths: addition, subtraction, multiplication, division, factorisation, simplification

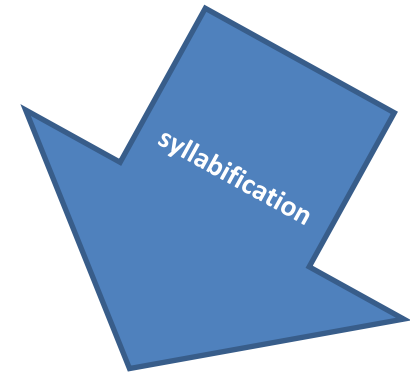
Science: evaporation, condensation, crystallisation, vaporisation, polymerisation

PSHE: colonisation, trade liberalisation, localisation, polarization,

CROSS-CURRICULAR COLLABORATION

Page 4 of 4

<p>equation (e/qua/tion)</p>	<p>word problem (prob/lem)</p>	<p>increased by (in/cr/ead)</p>
<p>decreased by (de/cr/ead)</p>	<p>cost (/cost/)</p>	<p>original (orig/inal) (orig/inal)</p>
<p>dozen (do/z/en)</p>	<p>following (fol/low/ing)</p>	<p>outline (out/line)</p>
<p>expressions (ex/press/ions)</p>	<p>fraction (frat/ion)</p>	<p>bars (bars)</p>



Word Class

adj.	adv.
	usually
	quickly
	promptly
immediate	immediately
	particularly
common	commonly

Synonyms

Find a word in the text / in Paragraph __ which has the same meaning as... *or*

Match the words that share the same meaning in the given context *or*

Read Paragraph __ and circle the word that best explains / conveys the meaning of 'xxx'.

relieve

ease, reduce

cause

result in

pump

inject

promptly

quickly

severe

serious

venomous

poisonous

humans

people

sensation

pain

Comparatives & Superlatives

What do we notice about the structure when **more / less** is used?

less dangerous than

(much) more sensitive to... than

(much) less likely

not as sharp as

more than a minute / day

Comparatives & Superlatives

Unit 8.4 Voltage

Copy _____ times

Word List

1. Voltage	2. voltmeter (V)	3. unit: volt (V)	4. positive pole
5. Voltage is the electrical push that makes electrons flow in a circuit.		6. negative pole	
*7. The higher the voltage of a dry cell, the greater is the electrical push.		8. positive terminal (red button)	
9. negative terminal (black button)		10. pointer	
11. The red positive terminal of the voltmeter should be connected to the positive pole of the dry cell.			
12. The black negative terminal of the voltmeter should be connected to the negative pole of the dry cell.			
13. Button cell	14. Accumulator	15. Solar cell	16. Car battery
17. electrical appliance	18. ammeter A	19. unit: ampere (A)	20. current
*21. The bulb will be brighter /bright.		22. The bulb will be dimmer /dim.	
*23. The brightness of the bulb increases /is high.		24. The brightness of the bulb decreases /is low.	
25. are connected in the same direction		26. ...are connected to ...	

27. **are** connected in opposite directions.

*28. When more cells are connected in the same direction, the voltage will be higher.
The current will be greater and therefore the bulb will be brighter.

29. voltage can cancel each other if the cells are connected in opposite directions.

30. The voltage and current will be larger if the dry cells are joined in the same direction.

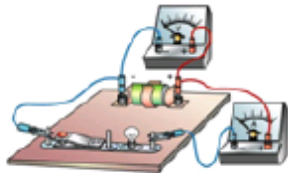
31. **Measure** the **voltage** across point A and point B.

*32. **The higher the voltage, the larger is the size of the current.**

V ↑ ⇒ I ↑

33. V=voltage; I=current

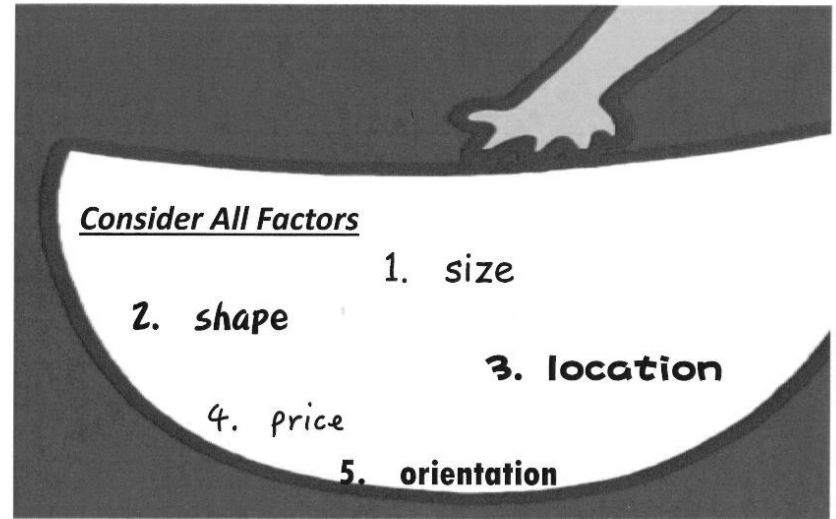
Draw the circuit diagrams (p. 104)

Circuit	Circuit diagram
Circuit A	

Comparatives & Superlatives

Collaboration between a Maths and an English teacher

"Help Bag"



Answer

The area of Flat A is _____.

The area of Flat B is _____.

Which flat is bigger?

Think Aloud - Consider All Factors

Factor	Comparison between Flats A & B

I will buy Flat _____.

This is because _____

Adjectives to Make Comparisons

1. big / large / small / same
2. regular / irregular
3. convenient / far / close
4. cheap / expensive / dear
5. good / bad

Sentence Patterns to Make Comparisons

- Flat A is as _____ as Flat B.
- Flat A is **not** as _____ as Flat B.
- Flat A is **(more)** _____ than Flat B.
- Flat A is **(less)** _____ than Flat B.

→ I will buy Flat _____ because of the above reasons.

1.	
2.	
3.	
4.	
5.	
→ I will buy Flat _____ because of the above reasons.	
44	

Verb Phrases

Imperatives


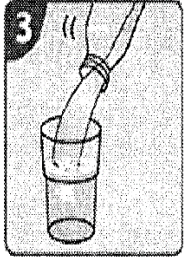
To clean the wound, wash it with soap and then reduce swelling...

To relieve itching, apply anti-histamine cream... or
take an oral anti-histamine tablet.

If the itching is severe, consult your pharmacist about...

Call an ambulance immediately if...

Imperatives

Diagrams					
 	add	5 g of solid A	into	a test tube/ test tube P	
	drop	5 cm ³ of solution B		a boiling tube	
	transfer	5 drops of liquid C		a beaker	
	put	5 pieces of solid D		a flask	
	pour (liquid)			test tubes P & Q respectively	

Acknowledgement: Miss Cheung of Munsang College, Hong Kong

Verb Phrases

by

It stings **by** injecting...

... reduce swelling **by** bathing... or **by** covering it...

result in

The effect is immediate and **results in** a sharp, burning, sensation.

Bee stings have the potential for an allergic reaction, **resulting in** anaphylactic shock, a serious medical condition that...

Sentence Patterns

Conditional Sentences

If stung by a bee, the pain will be reduced significantly **if** the stinger is removed promptly.

If the itching is severe, consult your pharmacist about steroid creams.

Call an ambulance immediately **if** someone has a severe reaction to an insect sting.

Conditionals

How is rain formed?

1. **When** the sun heats up the water in oceans, rivers and on land, water evaporates to form water vapour.
2. The water vapour is carried upwards by warm air.
3. **When** the water vapour rises higher, it condenses into tiny water droplets because the surrounding air is cooler.
4. **When** the tiny water droplets gather, they form clouds.
5. **When** the water droplets in the clouds form large drops of water, they fall as rain.

Comparatives, If & Imperatives

211. Vivian buys a carton (盒) of apple juice. She reserves 400 mL for herself, and then fills 10 cups of 120 mL for the rest. How much apple juice does she buy?
212. In a shop, if we buy a carton of apple juice, we can get the second carton at half price. If 2 cartons of apple juice cost \$33, find the original price of a carton of apple juice.
213. Grandmother is 45 years older than Bobby. Her age will be 4 times of Bobby's age 3 years later. How old is Bobby now?
214. Grandmother is 52 years older than Bobby. Her age was 5 times of Bobby's age 5 years ago. How old is Bobby now?
215. Mr. Yip buys 8 mangoes and 6 pears in a supermarket. The cost of a mango is \$2 more than a pear. Mr. Yip pays \$100 for the fruit and the change is \$14.
- (a) How much is a pear?
 - (b) If an orange is \$1 cheaper than a pear, how many oranges can be bought with \$100?
 - (c) If an apple is \$1 more expensive than a mango, how many apples can be bought with \$100 at most?
216. In a shop, there are 2 types of pens: Brand A and Brand B. 80 pens are sold and the revenue (收入) is \$475. If the price of Brand A pen and Brand B pen cost \$8 and \$5 respectively, how many Brand A pens are sold?

Others

A Guide to Bee Stings

Bees are **known for** their role **in** producing honey and pollinating flowers **to** produce fruit.

While some insects sting as a form of defence, some bite to draw blood.

The most common insects **that** sting **are** wasps...

Sentence-making Tables

Defining

Specific term	Is / means/ refers to ...	General noun (a class)	Defining relative clause
Ingestion	is	the process	which takes food into the alimentary canal through our mouth.

Classifying

General noun (a class)	Verb phrase (adverbs)	Number	Nouns (referring to groups)
The food substances	are (normally) classified into	seven	types.

Exemplifying

Name of the example	Verb phrase (adverbs)	Noun	General noun (the group that it belongs)
Vinegar	is	an example	of food preservatives.

Wrapping up with a few highlights

What *must* be taught?

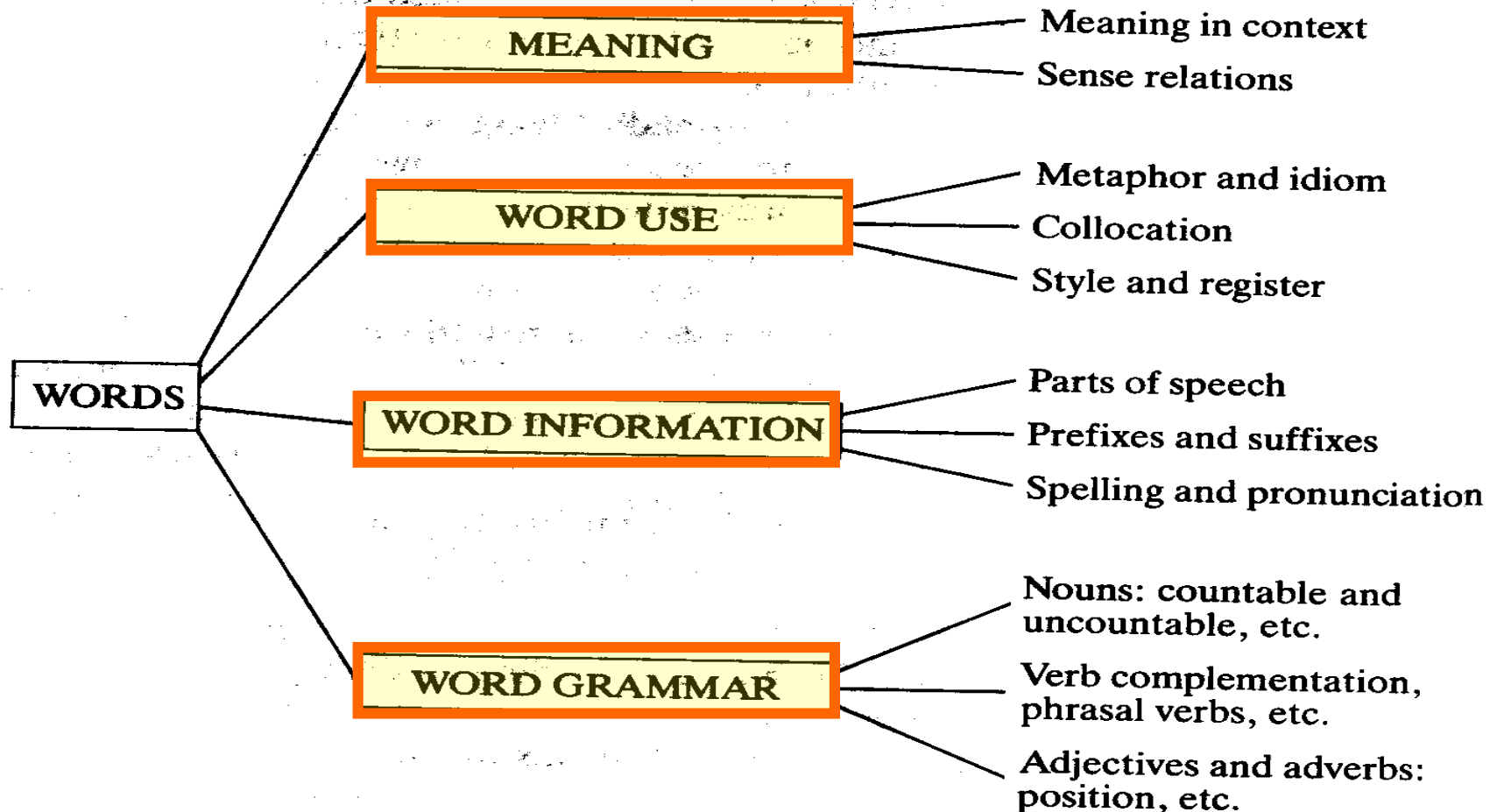


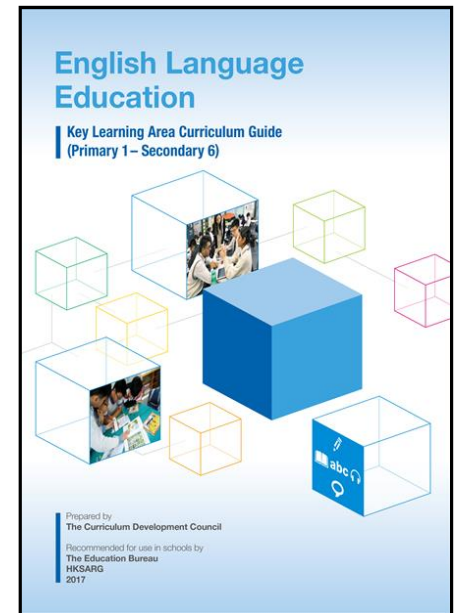
Figure 17 Knowing a word

Recommendations on EDB materials for vocabulary teaching

1. *English Language Education Key Learning Area Curriculum Guide*

https://www.edb.gov.hk/attachment/en/curriculum-development/kla/eng-edu/Curriculum%20Document/ELE%20KLACG_2017.pdf

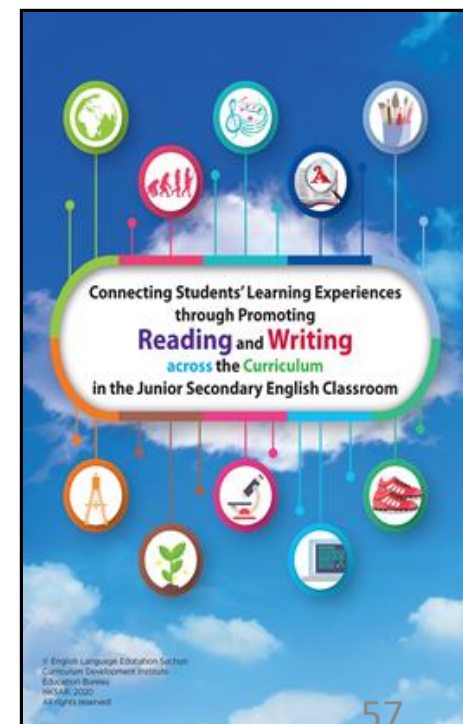
(e.g. vocabulary-building strategies on p. 21; Example 2: Connecting Students' Learning Experiences between English Language and Non-language Subjects through Promoting Language across the Curriculum at the Junior Secondary Level)



Recommendations on EDB materials for vocabulary teaching







3. Connecting Students' Learning Experiences through Promoting Reading and Writing across the Curriculum in the Junior Secondary English Classroom (2020)

https://www.edb.gov.hk/attachment/en/curriculum-development/kla/eng-edu/references-resources/RWaC/RWaC_JS.pdf



Some Final Tips

on how to enhance collaboration between teachers of English and those of non-language subjects in facilitating students' development of vocabulary building skills / cross-curricular learning

-  Lesson-focused
(e.g. Algebraic expressions, comparatives / quantifiers)
-  Project-based (e.g. Statistics + Visual Arts + English)
-  Cross-curricular collaboration
(e.g. Technology and Living + BAFS + Maths + English)
-  Curriculum alignment
-  Consultation on material selection
-  Cross-curricular assessment

Conclusion

- Connection between the English Language and non-language subjects in the development of vocabulary-building skills
- Importance of raising students' awareness of vocabulary-building strategies introduced in the English Language, which are transferrable and can be applied in decoding unfamiliar words across subjects and in their everyday life.