

The University of Hong Kong

Professional Development Programme From Reading to Writing: Promoting Language across the Curriculum in the Junior Secondary English Classroom



Daniel Fung

Assistant Professor

Faculty of Education, HKU

Outline

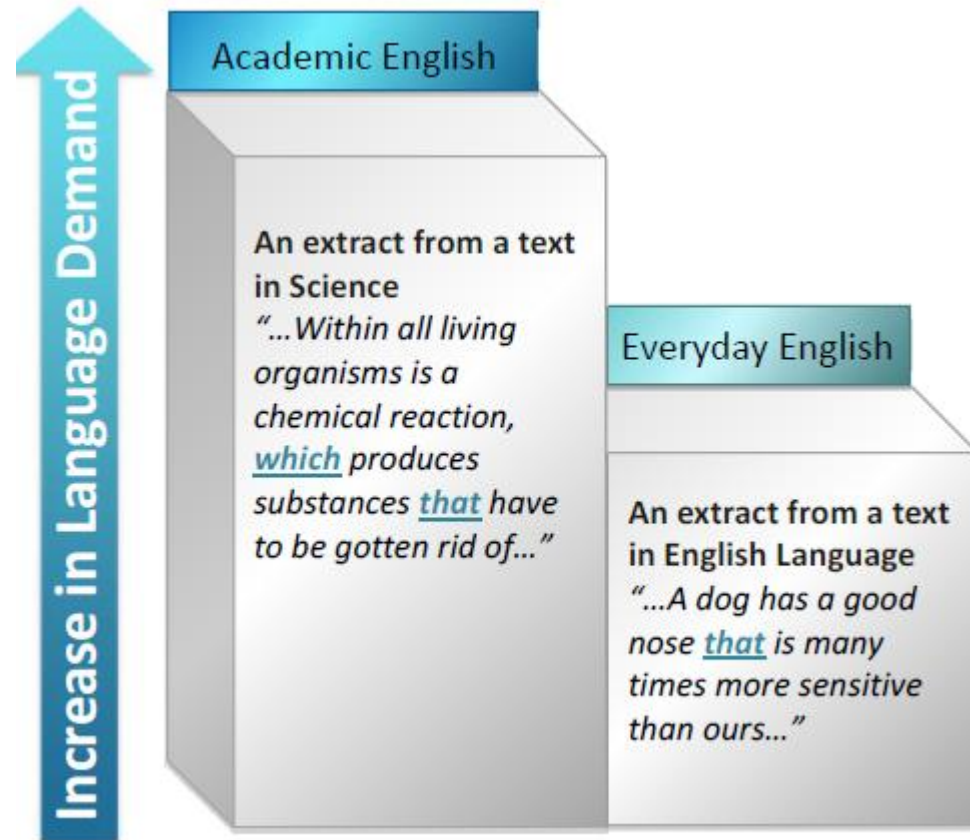
- **Language demand in secondary education**
- **Reading and Writing across the curriculum (RaC, WaC), and their connection**
- **Supporting students in LaC: Practical strategies and an example unit**
- **Designing meaningful activities in LaC**

Language demand across the curriculum

- An anecdote to share: I was having a conversation with a P5 student. The student was very interested in Science. He wanted to fix a toy train that involved programming, but he couldn't understand the English manual!
- Students encounter English language and texts in their daily lives, and these texts also appear in the curriculum, e.g., lab procedure, information reports, etc.

Language demand across the curriculum

- When students enter junior secondary education, they also start to deal with academic language to perform rhetorical functions (e.g., to describe, to explain cause and effects, to compare and contrast), and the demand of academic English is greater than that of everyday English.
- E.g., to describe living things, a science text and an everyday English text has different demands.



(English Language Education Section, Curriculum Development Institute, Education Bureau, 2020, p.3)

Language demand across the curriculum

- **Reading texts** for academic purposes could be challenging for students.
- **Writing texts** for academic purposes could be (even more) challenging.
- Are students prepared for these challenges across the secondary education?
- Let's take a look at what the end of senior secondary education is like (and consider how we need to get students prepared in the junior secondary).

Language demand across the curriculum

- The language challenges are present in vocabulary, sentence, and text levels.
- Fung and Chung (2024) analysed the vocabulary demand in Biology and Geography in senior secondary levels (HKDSE papers), and revealed that students need to master _____ word families in Biology and _____ word families in Geography.
- Among these word families, some are low-frequency words, i.e., words that students are less likely to encounter in their daily lives.

Language demand across the curriculum

- Around 25% of words are shared by two subjects.

	Biology	Geography	Appearing in both subjects (out of the total number of different word families in the subjects)
K1-K3	1,394	1,018	728 / 1,684 (43.23%)
K4-K8	477	281	64 / 694 (9.22%)
K9-K25	257	91	6 / 342 (1.75%)
Supp. lists	142	168	26 / 284 (9.15%)
Offlist	128	82	0 / 210 (0%)
Total number of word families	2,398	1,640	824 / 3,214 (25.64%)

Language demand across the curriculum

- Students also need to master academic words. 45% of these words are shared across subjects.

	Biology	Geography	Appearing in both subjects (out of the total number of different word families in the subjects)
AWL	292	218	159 / 351 (45. 30%)
Examples	Deduce, evolve, hypothesis	Constrain, evaluate, facilitate	Affect, identify, method

Language demand across the curriculum

- Some example academic words appearing with different frequencies.

	High	Moderate	Rare
Biology	structure deduce process investigate	hypothesis affect phenomenon identify	trend consequent impact
Geography	impact evaluate facilitate	affect trend identify process	trigger phenomenon

Language demand across the curriculum

- On the sentence and text level, students need to **read** and **write** sentences and short texts.
- In textbooks, students need to **read** e.g., description of flowering plants, explanation of the cause and effects of pollution, time sequence of a historical event, etc.
- Students also need to **write** e.g., lab reports, short essays comparing two different types of rocks, causes of a historical event.
- Lo and Fung (2020) analysed the language demand of Biology papers. The following example shows two typical questions in the HKDSE requiring comprehension and production of sentences and texts.

Excerpt 3. Questions from HKDSE Biology papers

- 7) Table I shows the number of deaths in Hong Kong caused by certain diseases. The deaths are categorised according to sex and age.

Cause of death	Sex	Age group						
		All ages	0	1–4	5–14	15–44	45–64	≥65
Heart disease	Male	3352	1	2	2	104	679	2564
	Female	2981	2	2	0	20	146	2811
Diabetes mellitus	Male	213	0	0	0	2	43	168
	Female	246	0	0	0	10	19	217
Colon cancer	Male	725	0	0	0	16	177	532
	Female	627	0	0	0	8	131	488

Table II shows the relative proportions of males and females in the above table who had particular life styles.

Lifestyle	Male	Female
Smoking daily	78.9%	21.1%
Never smoked	36.9%	63.1%
≥4 servings of processed meat per week	57.7%	42.3%

For the following diseases, explain how these lifestyles of the males and females are related to the number of deaths in Table I.

- Heart diseases
- Colon cancer

(HKEAA 2014 Biology Paper IB Q9c; HKDSE material is reproduced by permission of HKEAA)

- 8) Recently, some people have adopted a diet rich in lean meat in order to lose weight and build muscles. They may be able to achieve these aims but there are some health problems associated with this diet. Discuss the pros and cons of this controversial diet with regard to the nutritional needs of our body and protein metabolism.

(HKEAA 2014 Biology Paper IB Q11; HKDSE material is reproduced by permission of HKEAA)

(Lo & Fung, 2020)

- In these typical example HKDSE questions of non-language subjects, students are required to do explanation (no. 7) and discuss the pros and cons (no. 8) by applying their subject knowledge.**

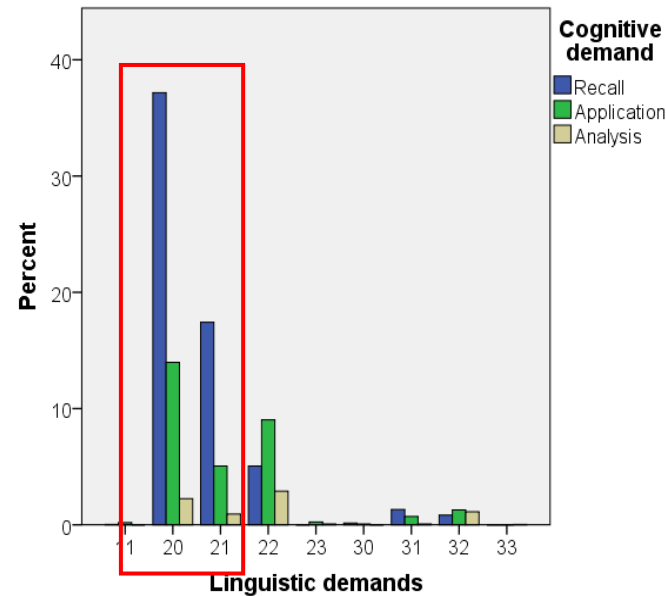
Language demand across the curriculum

- While students are asked to **write** a short text (e.g., in explaining, discussing pros and cons, etc.), students may not be sufficiently prepared to fulfil this demand.
- For example, the language items they need to present their ideas in **writing** may or may not be covered in the texts that they **read** in their learning.
- Even when these items are presented in some texts in the textbook / other learning materials, are students aware of the need to learn (and teachers, to teach) these rhetorical functions and language items while **reading**?
- Suggestions on how to narrow this gap between **reading** and **writing** will come in later slides.

Language demand across the curriculum

- These language demands are not only present in senior secondary education.
- In fact, in junior secondary education, students also encounter these vocabulary-, sentence-, and text-level demands.
- Lo and Fung (2020) also compared the demands when students transition from junior secondary to senior secondary, indicating a big leap required of students to not only **read** but also **produce** sentences and texts.

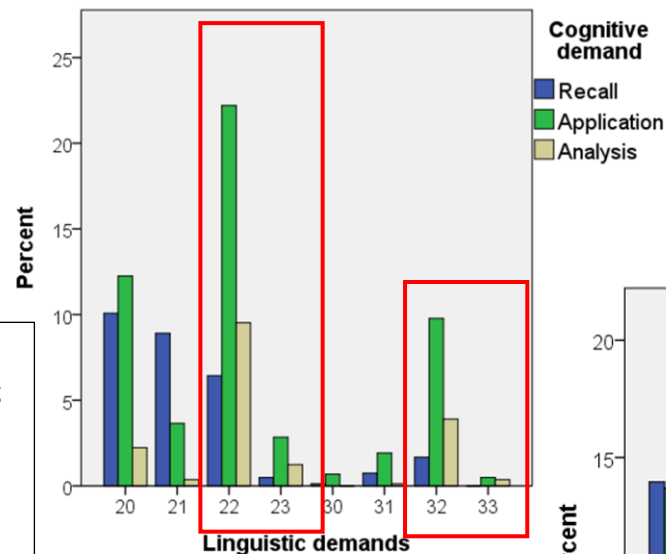
S1-S3 Science



Linguistic demands

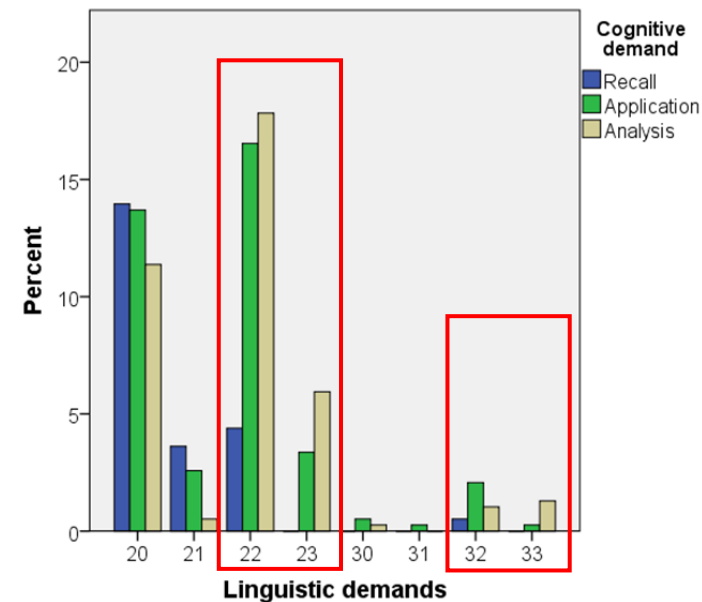
- 11: Receptive vocabulary, productive vocabulary;
- 20: Receptive sentence, no productive demand;
- 21: Receptive sentence, productive vocabulary;
- 22: Receptive sentence, productive sentence;
- 23: Receptive sentence, productive text;
- 30: Receptive text, no productive demand;
- 31: Receptive text, productive vocabulary;
- 32: Receptive text, productive sentence;
- 33: Receptive text, productive text

S4-S6 Biology



Are students prepared to tackle the language demand?

HKDSE Biology

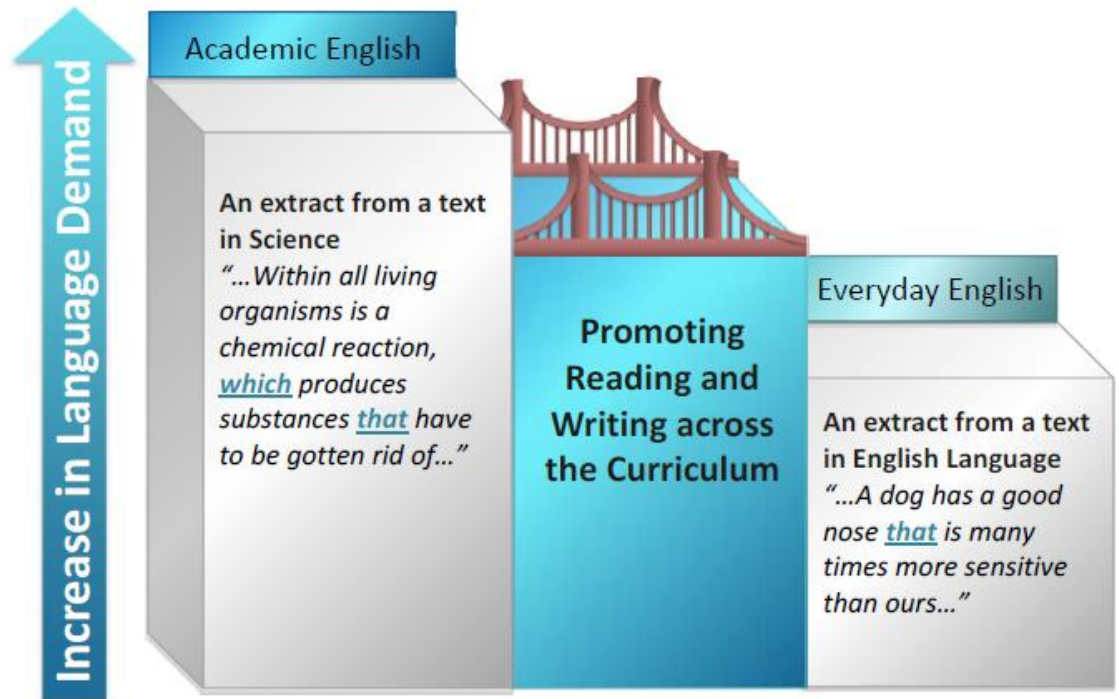


A big leap

(Lo & Fung, 2020)

Language demand across the curriculum

- Given the language demand across the curriculum, we can consider how to get students equipped with the necessary academic language through **reading** and **writing** across the curriculum starting from the junior secondary level.



(English Language Education Section, Curriculum Development Institute, Education Bureau, 2020, p.4)

Language demand across the curriculum

The growing language demand between the junior secondary and senior secondary levels in the English Language curriculum

- The growing language demand does not only appear in **non-language subjects**. It is also evident in the **English language curriculum**.
- Students may also come across texts with features of academic texts **in the English classroom** (e.g. academic vocabulary, text structures, rhetorical functions, knowledge structure). These text features can be found in the learning and teaching materials commonly found in the English classroom (e.g. newspaper articles or reading texts from the HKDSE papers).

Reading and writing across the curriculum (RaC, WaC)

- In the English language curriculum, we can promote students' RaC by having students read **topics** related to the content subjects that they take. (**theme-based alignment**) → support students in gaining academic content knowledge while facilitating their learning of the language involved
- Discussion task
- Please form into groups of 3-4, and discuss
- (1) what texts you usually ask students to **read** in junior secondary
- (2) how related these texts are to the topics they learn in content subjects (e.g., Science, PSHE, Geography, History, etc.)
- (3) if you want to pick a text that is related to a content subject, what might that be?

Reading and writing across the curriculum (RaC, WaC)

- Having used texts (authentic context to learn language) in RaC, we can also promote WaC and allow students to use the content and language they learnt in **producing texts**.
- Discussion task
- Please form into groups of 3-4, and discuss
- (1) what texts you usually ask students to **write** in junior secondary
- (2) how related these texts are to the topics they learn in content subjects (e.g., Science, PSHE, Geography, History, etc.)
- (3) if you want to set a **writing** task that is related to a content subject, what might that be?

Reading and writing across the curriculum (RaC, WaC)

- **Example from a frontline English teacher:**
- **(1) Students learn about lab safety rules in Science, and how to handle common lab accidents**
- **(2) Students in English lessons write a blog entry about an accident in the science laboratory (students will need to demonstrate their use of academic language, e.g., the nouns to describe items involved, adjectives and verbs) (e.g., gas leakage, Bunsen burner; toxic, flammable; inhale, sweep the floor)**

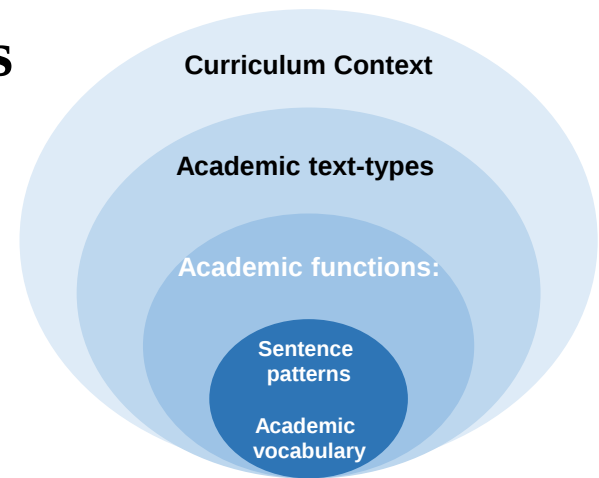
Supporting students in LaC

Some practical strategies that can be used to support students in LaC

- **(1) Deconstruction of text structures**
- **(2) Raising students' awareness of the connection between text structures, academic functions, and language items**
- **(3) Use of visual representation**
- **(4) Learning strategies**

Supporting students in LaC

- **(1) Deconstruction of text structures**
 - We can support students in deconstructing the text structures, e.g., an information report involves an introduction, followed by description, and then a conclusion.
- **(2) Raising students' awareness of the connection between text structures, academic functions, and language items**
 - An information report has the purpose to classify and describe things, and this purpose is linked to the text structure, the academic / rhetorical functions, and the language use.





Birds

Title

Introduction

General classification and definition

Birds are vertebrates. Like all vertebrates, birds have a backbone. Birds breathe with lungs and are warm-blooded. They come in different colours, shapes and sizes. In the world, more than 9000 different species of birds are known.

Written in the present



Genre :
Purpose:
Stages:

Description written in related groups of information

Appearance

Birds are different from other vertebrates as their bodies are covered with feathers. Different birds are in different shapes. They differ in the size, colours and shape of the beak, and in the length of the legs and neck.



Written in the 3rd person: they, it

Description written in related groups of information

Habitat



Birds are found on every continent of the world. Some birds can live in a freezing cold environment, while others can live in hot deserts. They can live anywhere such as in forests, in grasslands, on cliff faces, in river banks and many other places.



Description written in related groups of information

Movement

Birds have wings and they use wings to fly. Their bones are hollow and so this makes them lighter to fly.



Description written in related groups of information

Food

Different types of birds feed on different foods. Many birds live on insects or fish. Some eat small reptiles and mice. Some live on seeds and fruit. Some live on the nectar or honey in flowers.



Summarizing the descriptions in the report.

Conclusion

Birds are vertebrates which have a beak to feed, wings to fly, and feathers to keep warm. With their colourful wings and a body covered by feathers, birds are considered to be one of the most beautiful vertebrates in the world.



Birds

Title

General classification and definition

Description written in related groups of information

Description written in related groups of information

Introduction

Birds are vertebrates. Like all vertebrates, birds have a backbone. They come in many different shapes and sizes. There are more than 10,000 different species of birds in the world.

Introduction by classification

Written in the 1st person: I, we

Appearance

Birds are different from other vertebrates as their bodies are covered with feathers. Different birds are in different shapes. They differ in the size, colours and shape of the beak, and in the length of the legs and neck.

Describing the appearance of birds

Written in the 3rd person: they, it

Habitat

Birds are found on every continent of the world. Some birds can live in a freezing cold environment, while others can live in hot deserts. They can live anywhere such as in forests, in grasslands, on cliff faces, in river banks and many other places.

Describing the habitat of birds

Genre : Descriptive Report

Purpose: describing different aspects of birds

Stages: Introduction → Description → Conclusion

Description written in related groups of information

Movement

Describing the movement of birds

Birds have wings and they use wings to fly. Their bones are hollow and so this makes them lighter to fly.

Description written in related groups of information

Food

Describing the food of birds

Different types of birds feed on different foods. Many birds live on insects or fish. Some eat small reptiles and mice. Some live on seeds and fruit. Some live on the nectar of honey in flowers.

Summarizing the descriptions in the report.

Conclusion

Conclusion by summarizing the descriptions

Birds are different from other vertebrates as they have wings to fly, and a beak. They can live in many different habitats and a lot of different places. There are many different species of birds in the world and one of them is the cockatiel.

Birds

Title

General classification and definition

Description written in related groups of information

Description written in related groups of information

Introduction

Birds are vertebrates. Like all vertebrates, birds have a backbone. Birds breathe with lungs and are warm-blooded. They come in different colours, shapes and sizes. In the world, more than 9000 different species of birds are known

Written in the

Appearance

Birds are different from other vertebrates as their bodies are covered with feathers. Different birds are in different shapes. They differ in the size, colours and shape of the beak, and in the length of the legs and neck.

Written in the 3rd person: they, it

Habitat

Birds are found on every continent of the world. Some birds can live in a freezing cold environment while others can live in hot deserts. They can live anywhere such as in forests, in grasslands, on cliff faces, in river banks and many other places.

Raising awareness of language used to describe birds

Description written in related groups of information

Movement

Birds have wings and they use wings to fly. Their bones are hollow and so this makes them lighter to fly.



Description written in related groups of information

Food

Different types of birds feed on different foods. Many birds live on insects or fish. Some eat small reptiles and mice. Some live on seeds and fruit. Some live on the nectar or honey in flowers.



Summarizing the descriptions in the report.

Conclusion

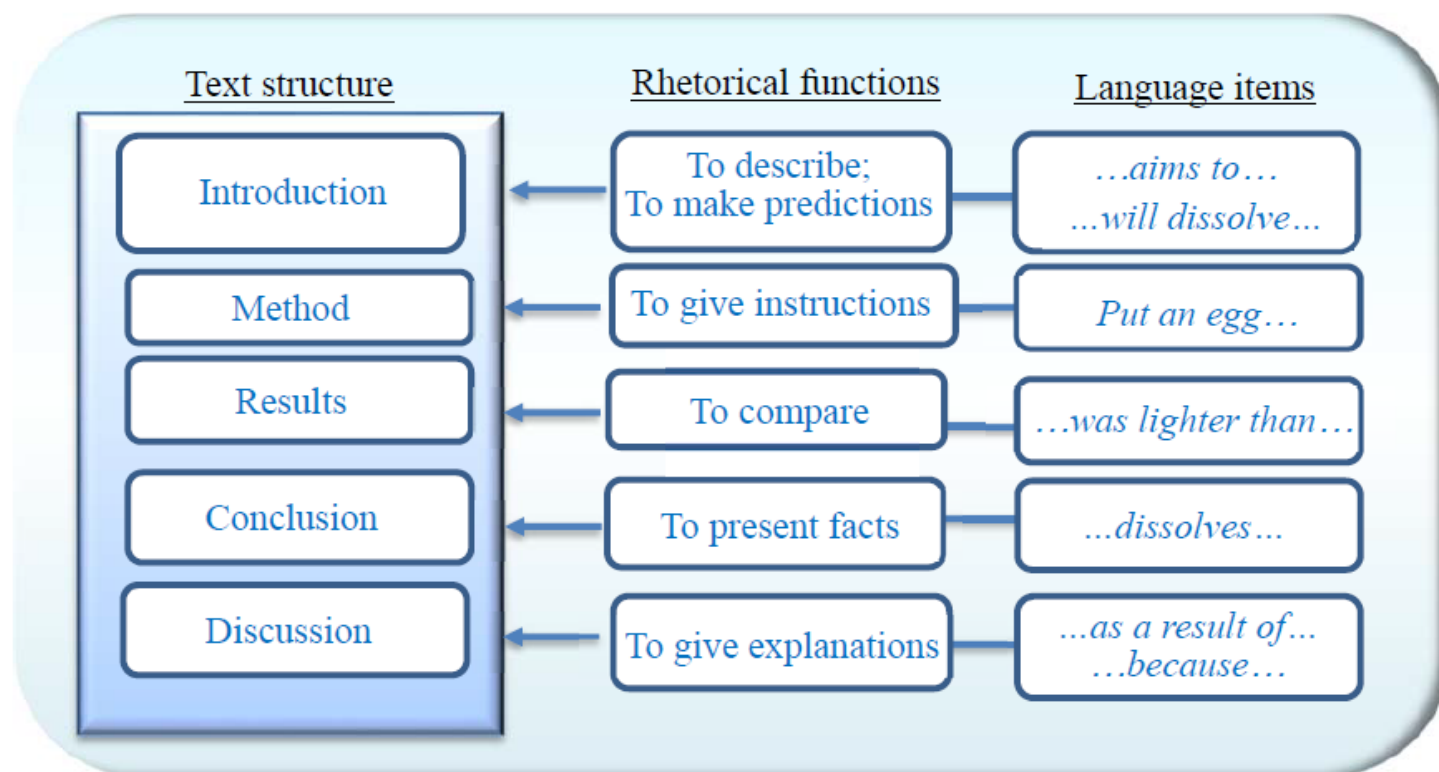
Birds are vertebrates which have a beak to feed, wings to fly, and feathers to keep warm. With their colourful wings and a body covered by feathers, birds are considered to be one of the most beautiful vertebrates in the world.



Supporting students in LaC

- (2) Raising students' awareness of the connection between text structures, academic functions, and language items

Figure 7: An Example of a More Complex Academic Text (e.g. a report on an experiment)



Introduction

(Aim)

This experiment aims to find out the effects of vinegar on eggshells...

(Hypothesis)

The eggshell will dissolve...

Method

(Materials/Apparatus)

- 2 raw eggs
- 2 beakers
- Some vinegar

⋮

(Procedures)

1. Put an egg in each of the beakers.
2. Pour some vinegar into one of the beakers until the egg (Egg A) is covered.
3. Add nothing to the other beaker (Egg B, the control).
4. Record the observation for Eggs A and B after 48 hours.

⋮

Results

Some bubbles came out from the surface of the eggshell. The colour of the eggshell of Egg A was lighter than that of Egg B. Part of the eggshell disappeared...

Conclusion

Vinegar dissolves the eggshell...

Discussion

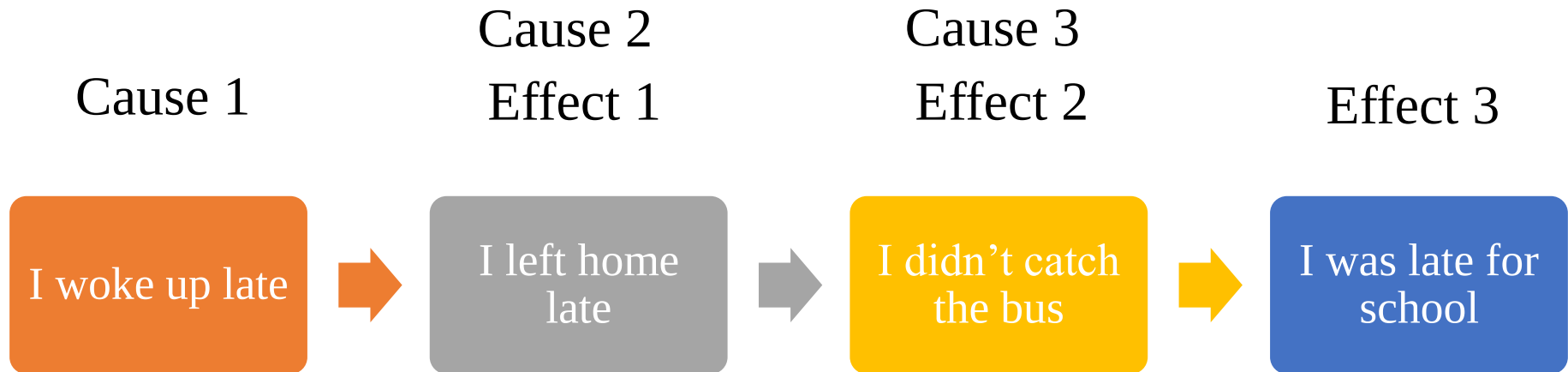
Eggshells contain calcium carbonate, which reacts with the acetic acid in vinegar. The eggshell is dissolved because the acetic acid breaks up the calcium and carbonate in the eggshell. The bubbles on the eggshell are carbon dioxide generated as a result of the reaction between the carbonate and the acetic acid...

The experiment can be improved by...

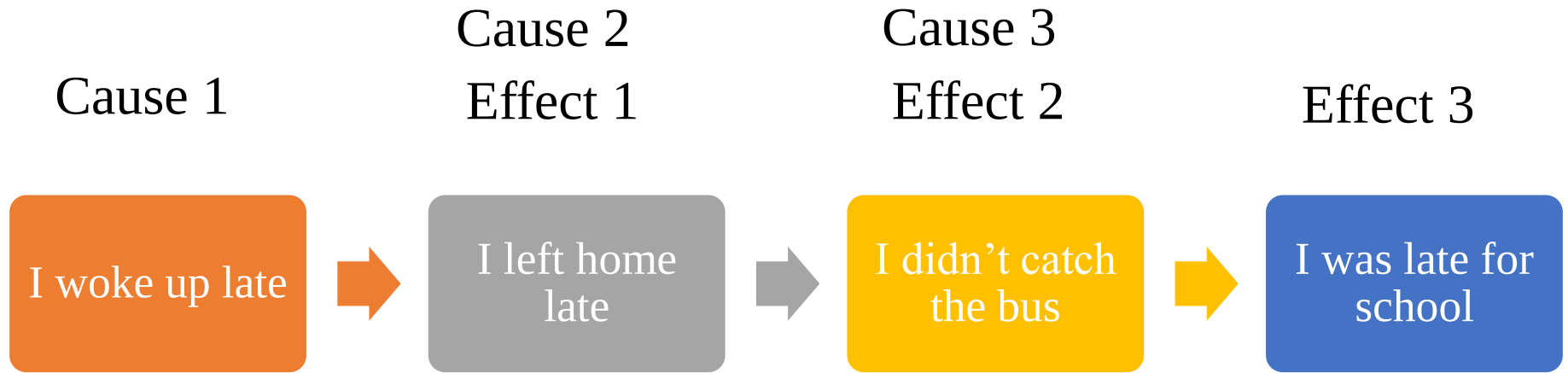
(English Language
Education Section,
Curriculum Development
Institute, Education Bureau,
2020, p.18)

Supporting students in LaC

- **(3) Use of visual representation**
 - When reading texts, students can be asked to deconstruct the text into main ideas and visually represent the relationship among them.
 - E.g., in representing a sequence of cause and effects:



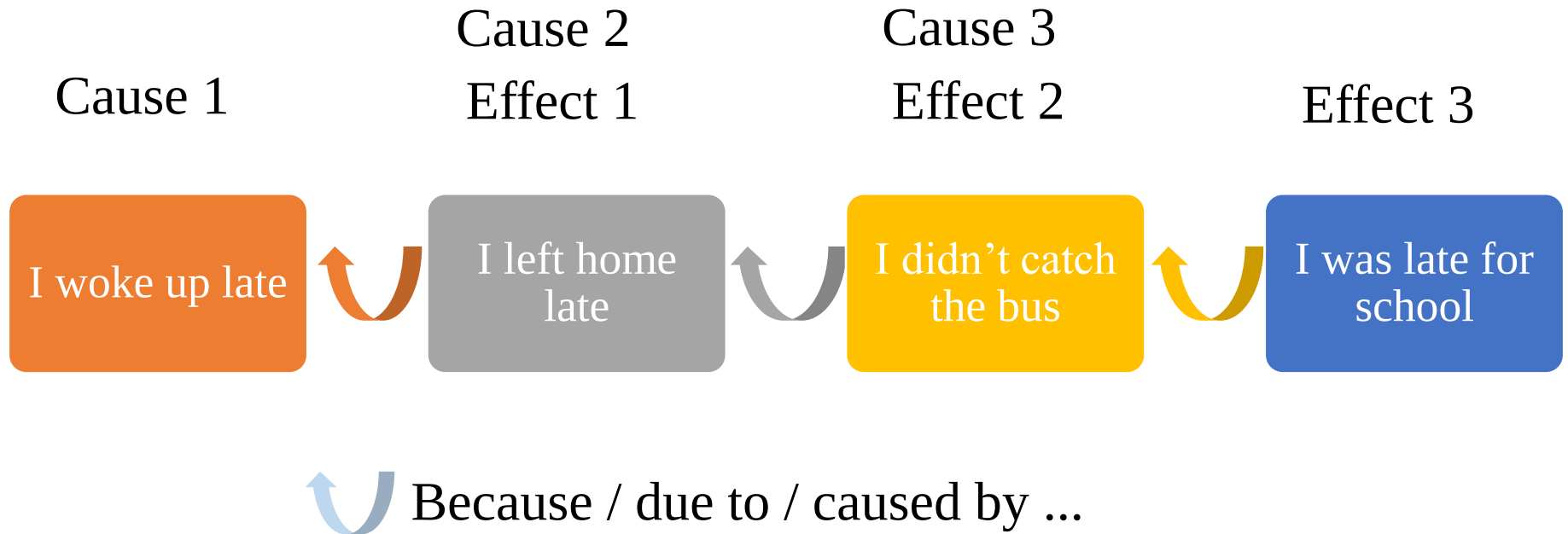
Supporting students in LaC



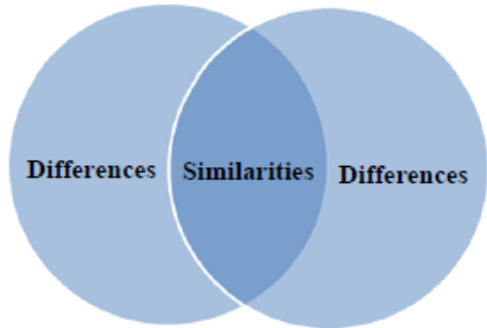
➡ Cause / so / thus / lead to / therefore / result in / have a consequence of...

- **I woke up late and so I left home late. Therefore, I didn't catch the bus. This leads to my lateness for school.**

Supporting students in LaC



- I was late for school because I didn't catch the bus.
This was due to the fact that I left home late, caused by my lateness in waking up.

Rhetorical Function (Examples)	Language Item (Examples)	Visual Representation (Examples)												
To compare/contrast	<u>To present similarities</u> • “Both”, “like”, “likewise”, “resemble”, “similarly”, “the same as” <u>To present differences</u> • “Different from”, “however”, “but”, “while”, “despite”, “more, less/fewer, taller than, the tallest” (the use of comparatives/superlatives)	<u>Venn Diagram</u>  <u>Table</u> <table border="1"> <thead> <tr> <th>Information/Events/Ideas</th><th>Similarities</th><th>Differences</th></tr> </thead> <tbody> <tr><td> </td><td> </td><td> </td></tr> <tr><td> </td><td> </td><td> </td></tr> <tr><td> </td><td> </td><td> </td></tr> </tbody> </table>	Information/Events/Ideas	Similarities	Differences									
Information/Events/Ideas	Similarities	Differences												

To sequence	• “Before”, “after”, “finally”, “to begin with”, “following”, “later”, “first, second, next”, “initially”, “at the same time”, “simultaneously”, “eventually”	<u>Flow Chart</u>  <u>Timeline</u>  <u>Cycle</u> 
-------------	---	--

(English Language Education Section, Curriculum Development Institute, Education Bureau, 2020, p.28)

Supporting students in LaC

- **(4) Learning strategies**
 - **Students can be explicitly taught and guided to practice reading strategies when performing reading in the English classroom. They can then apply these strategies when reading texts in content subjects. For example,**
 - **Skimming a text by taking note of headings and identifying topic sentences**
 - **Scanning for specific information**
 - **Making inferences to guess unfamiliar language items based on context and parts of speech (e.g., where the word appears and knowledge of word formation, and the frequent occurrence of nominalization).**
 - **These strategies can serve as a bridge from **reading** to **writing** (e.g., using topic sentences, repeating specific words key to the passage, changing word forms)**

Supporting students in LaC

- (4) Learning strategies
 - Students can also be guided to develop **metacognitive** strategies in **reading**
 - Planning – Assisting students in setting goals (e.g., “What do you know about this topic?” **before** reading)
 - Monitoring – Prompting students to monitor their understanding (e.g., “Let’s pause for a minute, what do you understand so far?” “Let’s verify your understanding as you continue to read the rest of the text” **when** reading)
 - Evaluating – Guiding students in evaluating their understanding (e.g., “How much did you understand?” “What were some problems you encountered?” “Let’s summarise what you’ve learnt from the text” **after** reading)
 - Similarly, in writing, teachers can guide students in planning, monitoring, and evaluating – some metacognitive strategies that are transferrable from **reading** to **writing**.
 - → Help students connect what they know and what they are doing.

S1 Language across the Curriculum (LAC) Programme Example unit Endangered Species

[LAC_S1_Student_worksheet_Endangered_Species_example_unit.doc](#)

Endangered Species

Activities	Skills involved
Activity 1: What's an endangered species? •Read a manga story •Discuss the meaning of endangered species	Getting to know the topic
Activity 2: Why are some animals in danger? •Read an explanation text •Extract key information with a graphic organiser	Reading an explanation text Discussion
Activity 3: Reading a report •Understand structure of information reports •Read about some endangered species and prepare for a mini-presentation	Reading information reports Organising information with a graphic organizer
Activity 4: •Give a mini-presentation on endangered animals	Delivering a presentation
Extended activity: Ways of conserving wildlife •Design and create a poster on conserving wildlife	Designing posters

Supporting students in LaC

In the exemplar unit, what are some ways / strategies used to facilitate students' learning in LaC?

Designing meaningful activities in LaC

- **(1) Cross-curricular mapping between English and other subjects**
- **(2) Consider diverse activities to create opportunities for students to read and write in LaC**

Designing meaningful activities in LaC

- (1) Cross-curricular mapping between English and other subjects
- Discussion task
- Please form into groups of 3-4, and
- (1) read the following topics in English and other subjects (the topics have been mapped to some extent already)
- (2) consider the common topics that can be used for cross-curricular writing tasks.
- (3) design a writing task for students (i.e., what do you want students to write about? What text type?)

Junior Form Content Curriculum Mapping

Form	Term	English	Geography	History	Int. Science	Cross-Curricular Writing
F1	1 st	Chp 1 A Fresh start Chp 5 Out and about	Chp 1 Using urban space wisely	Introduction to history study	Scientists (Nobel Prize winners)	
	2 nd	Chp 6 Hong Kong Stories	Chp 9 Taming the sand	Topic 2 Traditional rural life of HK	Food labeling	
F2	1 st	Chp 2 Arts for all Chp 4 Incredible people	Chp 3 The trouble with water Chp 4 Scramble for energy	Topic 1 The Renaissance	Air pollution index	
	2 nd	Chp 8 Going green Chp 7 Extreme nature	Chp 5 Living with Natural hazard	Topic 5 Growth and development of HK up to the early 20 th century	Acids and alkalis	
F3	1 st	Chp 2 Healthy body, healthy mind Chp 3 The best jobs in the world	Chp 2 Food problem Chp 11 Changing climate, changing environment	Topic 2 HK in the 20 th century	Food (Bio) Digestion (Bio)	
	2 nd	Chp 7 Our beautiful planet Chp 8 The world of the future	Chp 5 Living with natural hazard	Topic 1 Major achievement in the 20 th century		

Designing meaningful activities in LaC

- **(2) Consider diverse activities to create opportunities for students to read and write in LaC**
- **Various activities can also contribute to LaC within the classroom, e.g., the exemplar unit we just experienced, and Part 3 of the resource book on RaC and WaC:**
- **https://www.edb.gov.hk/attachment/en/curriculum-development/kla/eng-edu/references-resources/RWaC/RWaC_JS.pdf**

Designing meaningful activities in LaC

- Co-curricular activities outside the formal classroom can also be considered, e.g., STEM activities, project-based learning, visits to museums.
- Discussion task
- In your group, discuss the following questions.
- (1) What co-curricular activities do your school organises for students?
- (2) Are the activities happening at a time when students are learning something relevant in their English and/or content subject classes?
- (3) How can RaC and WaC be promoted through these activities? Has something already been done or is there something else you think you could do to help promote the use of academic language?

Summary

- **Language demand in secondary education could be challenging for students, particularly when students transition from junior secondary to senior secondary – start getting students gradually prepared from junior secondary.**
- **Recognising the importance of RaC, and its relationship with WaC, it's helpful to consider the alignment among English and other content subjects in terms of what students read and write.**
- **When trying to facilitate students' learning in LaC, some practical strategies include deconstructing texts, raising students' awareness of language use / rhetorical functions, using visuals / graphic organisers, and teaching learning strategies.**
- **It is also important to consider curriculum-mapping across subjects when designing cross-curricular writing and offering co-curricular activities for students.**

References

- English Language Education Section, Curriculum Development Institute, Education Bureau (2020). *Connecting Students' Learning Experiences through Promoting Reading and Writing across the Curriculum in the Junior Secondary English Classroom*. Education Bureau.
https://www.edb.gov.hk/attachment/en/curriculum-development/kla/eng-edu/references-resources/RWaC/RWaC_JS.pdf
- Fung, D., & Chung, E. (2024). Defining language goals in EMI: Vocabulary demand in a high-stakes assessment in Hong Kong. *Language and Education*, 38(2), 188-202. <https://doi.org/10.1080/09500782.2023.2219654>
- Lo, Y.Y. & Fung, D. (2020). Assessment in CLIL: The interplay between cognitive and linguistic demands and their progression in secondary education. *International Journal of Bilingual Education and Bilingualism*, 23(10), 1192-1210. <https://doi.org/10.1080/13670050.2018.1436519>