

## Chapter 6

# Assessment Issues

### Chapter Overview

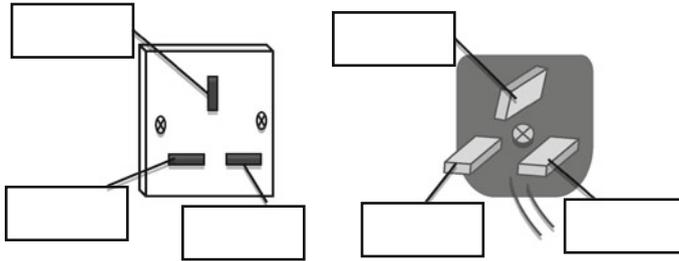
In this chapter, the general disconnect between what students are exposed to and what is assessed is addressed by focusing on how teachers can design content assessment tasks with academic language awareness. For example, teachers can use the Genre Egg (Fig. 3.4 in Chap. 3) to inform the planning and design of both formative and summative assessment in content subjects. How to cater for learner diversity with a differentiated approach to materials development is also discussed. Finally, how to prepare students for high-stakes examinations in different academic subjects is explored with examples from genre-based pedagogies.

### 6.1 Balancing Content and Language in CLIL Assessment

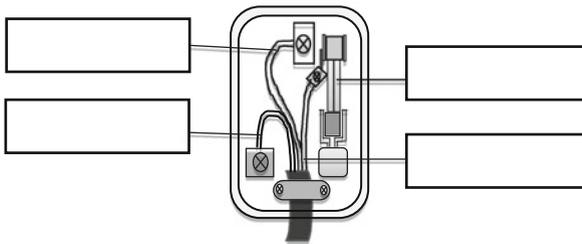
In Chap. 4, we discussed the various kinds of curricular and pedagogical disconnects which result in preparing students inadequately for their ultimate high-stakes assessment tasks. Typically, in many EFL/EAL contexts where students' English proficiency is basic and yet English is used as the medium of instruction (MOI) nonetheless (see Chap. 8 for a critical discussion of the 'access paradox' in the context of the global domination of English), very often the curriculum materials (e.g. textbooks, worksheets, exercises, assessment 'tasks') are characterized by what can be called a 'keyword approach' to content learning. Figure 6.1 shows an example of this common type of content learning tasks. It includes labelling, matching, and fill-in-the-blanks. Students in many junior secondary schools in Hong Kong are very much habituated to this type of content lesson tasks, and they are ill-prepared for the kind of much more challenging essay-type questions at the end of their secondary school career, like the one shown in Chap. 4.

Questions

1 Label the mains socket and the three-pin plug shown below (6 marks)



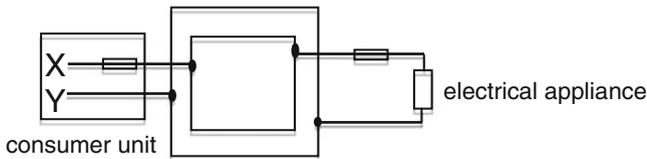
2 a Label the three-pin plug shown below



b Complete the table below

Wire	Colour of wire
Earth	
Live	
Neutral	

3 The diagram below shows the kinds of circuit used at home.



a Name this type of circuit

\_\_\_\_\_

Fig. 6.1 Common 'Keyword' type of tasks found in junior secondary content lesson materials in many English as an additional language (EAL) contexts

Teachers in EFL/EAL contexts are thus faced with this common dilemma: in order not to frustrate the junior secondary students, many of the content assessment tasks are simplified to the point of requiring only keyword responses. However, ultimately students need to face the reality of high-stakes challenging tasks in public examinations at senior secondary levels. Also, teachers teaching at primary and junior secondary levels are often disconnected from teachers teaching at senior secondary levels, and there are various kinds of curricular and pedagogical disconnects as discussed in Chap. 4. Thus, the dumbing down of assessment tasks will not help prepare students for subsequent challenges in their learning pathways.

To overcome these disconnects, it is important for teachers and curriculum planners to develop or adapt existing formative assessment tasks with academic language awareness and with systematic scaffolding built into the tasks. A formative assessment task is different from a summative assessment task in that summative assessment focuses on testing students' knowledge and skills, while formative assessment or *assessment as learning* focuses on helping students to learn through designing productive assessment tasks with built-in scaffolding and learning opportunities (Black et al. 2007; Carless 2011). Teachers need to recognize the fact that incorporating scaffolding elements into a formative assessment task is not 'cheating' as scaffolding helps to bring out the potential of the students (Coyle et al. 2010). As Mahboob and Szenes (2010)'s study convincingly shows, international students who are not using the dominant standard variety of English to write their answers consistently received lower grades. Mahboob and Szenes point out that:

... traditional and progressivist advocates of liberal multicultural education emphasise individual merit and motivation, equal opportunities and access to education and resources of society – as long as one works hard. However, the skills to produce written academic texts – the genres of power and access – are not equally available to students from minority, immigrant or marginalised groups (Mahboob and Szenes 2010, p. 350)

It is therefore important that teachers and curriculum planners provide ample language support in formative assessment tasks in their lessons and help their students to gradually master the language resources essential to writing appropriate responses to assessment questions. A distinction should be made between formative assessment tasks which take *assessment-as-learning opportunities* rather than merely testing. In this chapter, the perspective of *assessment as learning* underlies the recommendation that language support be built into content assessment tasks. This assessment-as-learning approach will gradually enable students to master the academic literacies to tackle the summative assessment tasks (e.g. in high-stakes public examinations) where language support is withdrawn. In what follows I shall first address some frequently asked questions in LAC/CLIL assessment contexts and then discuss how content assessment tasks can be designed with built-in scaffolding.

Some frequently asked questions in CLIL assessment usually include the following:

1. Do we assess language or content first?
2. Do we sometimes assess one and not the other? If so, which and when, why and how?

3. When do we assess?
4. How do we assess?  
(Summarized from Coyle et al. 2010, pp. 114–115)

The first two questions have to do with the overarching question of *what* to assess and the balancing between content and language in CLIL assessment. This can be addressed by considering what we set in the curriculum as learning outcomes, which should include both content learning outcomes and language learning outcomes. The content learning outcomes of different academic subjects are usually formulated drawing on some form of the Bloomian knowledge taxonomy (Bloom 1956) and can be broadly classified into those having to do with *recall* of information/concepts/theories, *application* of concepts/theories in novel contexts and *analysis* of novel problems using the concepts/theories/knowledge<sup>1</sup>. A task of the recall type focuses on getting students to reproduce information that they have memorized. It does not require them to apply the information, theories or concepts to solve a problem. In contrast, tasks of the apply type and analysis type do. The boundary between apply and analysis is, however, not always clear-cut, and it is best to consider them as lying on a continuum.

As for the language learning outcomes, they are not the same as those set in the language subject (although there should be some overlap, see Table 5.1 and discussion on curriculum mapping in Chap. 5). The language learning outcomes in LAC/CLIL curriculums should be specific kinds of academic language resources that are useful for deep learning of the academic content. Using the Genre Egg (Fig. 3.4 in Chap. 3) as a framework to understand the different layers of academic language resources, we can set our language learning outcomes accordingly, e.g. vocab level/sentence level/academic functions level/genre (text type) level (see Tables 5.1 and 5.2 in Chap. 5 for some examples of these different levels of language resources in a unit of work). We can further specify whether receptive (e.g. listening and reading) or productive (e.g. speaking and writing) aspects of these different layers of language resources are to be assessed.

It is, however, important *not* to see the content and language as two totally independent dimensions of the student's competence to be assessed, if we accept Halliday's proposal to see the language and content as two sides of the same coin—i.e. content (or our hypothesizing about and conceptualization of 'reality') cannot be separated from language or the kind of semiotic (i.e. meaning-making) resources we use to construe (i.e. construct and organize/classify) content (see discussion in Chap. 3). However, language is only one kind of semiotic resources (though often the main kind), and so it is possible to adjust the balance between the assessment of content and language with the incorporation of multimodalities (e.g. visuals, symbols, mind maps, and graphic organizers) into the design of assessment tasks.

The third and fourth questions have to do with *when* and *how* to assess. Assessment can be done informally, for example, in classroom lessons by questioning and giving feedback (see Sects. 5.2 and 5.4 in Chap. 5). It can be done more formally at the end of a lesson, unit, topic, school term or year. How to assess is usually related to the primary purpose of assessment: Is it assessment *of* learning

**Table 6.1** Grid for identifying and planning the content demands and language demands of LAC/CLIL assessment tasks

Content demands	Recall	Application	Analysis
Language demands productive (P)/receptive (R)			
<b>Vocabulary</b> P/R	#1	#2	#3
<b>Sentence patterns</b> P/R	#4	#5	#6
<b>Text types</b> P/R	#7	#8	#9

(i.e. summative assessment, such as tests and examinations), assessment *for* learning or assessment *as* learning? (i.e. formative assessment, such as worksheets, projects, portfolio assignments) (Stiggins 2005; Black et al. 2007; Berry 2008; Carless 2011). Summative assessment usually involves individual work, whereas formative assessment usually also involves collaborative, pair or group work.

Drawing on the content outcomes taxonomy of recall/apply/analysis and the academic language awareness framework of the Genre Egg (vocab/sentences/functions/genres), my colleagues and I (Lin et al. 2013) have developed an analytical grid to help teachers to analyse the content demands and language demands of a LAC/CLIL assessment task (Table 6.1).

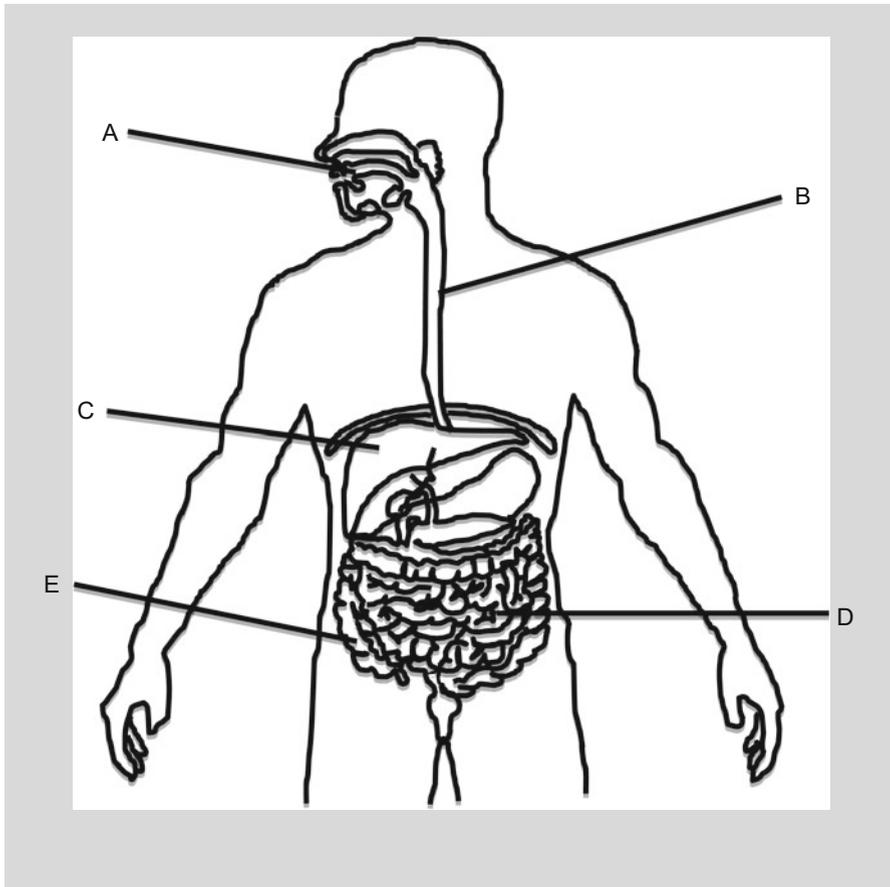
Using this simple  $3 \times 3$  matrix, teachers can evaluate their existing (e.g. textbook) assessment tasks in terms of the kinds of content demands and language demands of the tasks. In the following paragraphs, each grid in the  $3 \times 3$  matrix will be explained and illustrated with an example. The material presented below draws on a CLIL assessment paper that my colleague and I have worked on (see Lo and Lin 2014).

### 6.1.1 Grid 1: Recall-Vocabulary

One typical way to check students' grasp of key concepts and technical terms is to ask students to label a diagram, as shown in question type 1 below. For this type of task, students only need to recall the key terms corresponding to the appropriate parts of the diagram, and hence, the task belongs to the 'Recall-Vocabulary' grid. If some words are provided for students to choose from, the task will involve receptive skills; otherwise, students have to produce the words on their own, and the task will involve productive skills instead.

#### Question type 1

Name the structures labelled A to E in the diagram showing the human digestive system.

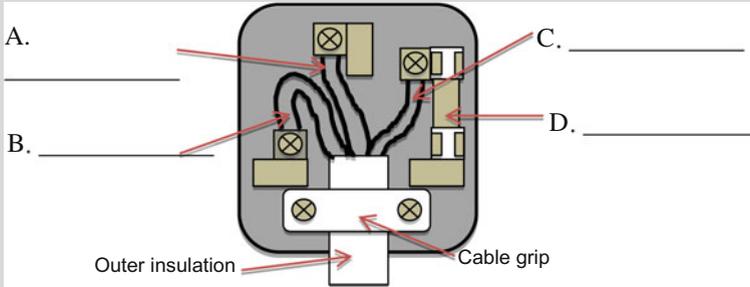


### 6.1.2 Grid 2: Application-Vocabulary

Question type 2 shows another diagram labelling task. What makes question type 2 more cognitively challenging when compared with question type 1? You will see that the example task under question type 2 requires students to understand the ways in which the three-pin plug is designed and represented visually in the diagram (as being seen through from the outside) in order to identify the three pins correctly. This requires some interpretation and application skills instead of just a direct factual recall.

**Question type 2**

The diagram shows a correctly wired three-pin plug. Label its key features A to D.



**6.1.3 Grid 3: Analysis-Vocabulary**

Can students perform high-order thinking skills by writing words only? Question type 3 shows one possible way of doing so. In this task, students have to compare and contrast the different aspects of breathed and unbreathed air. This is a cognitively demanding task even though in terms of language demands what they have to write down is simply ‘more’ and ‘less’ or ‘higher’ and ‘lower’, and these language items are already given to them in the table. In this way, students with basic L2 English proficiency can still be scaffolded linguistically to attempt a higher order thinking task. In terms of the content demands, they need to analyse the different characteristics of breathed air and unbreathed air.

**Question type 3**

Differences between unbreathed air and breathed air.

	<b>Unbreathed air</b>	<b>Breathed air</b>
Oxygen content	More	Less
Carbon dioxide content	1	2
Water vapour content	3	4
Temperature	5	6
Nitrogen	7	8

**6.1.4 Grid 4: Recall-Sentence**

Under the category of ‘sentence’, students will be required to read questions and/or write their answers in sentences. Quite a lot of typical question types belong to this

category, and it depends on the level of cognitive demands to further differentiate the tasks. For example, question type 4a shows a multiple-choice question which asks students to identify the main function of a substance. This basically requires students to recall the information that they have learned. In terms of language demands, students are required to comprehend sentences on the topic.

**Question type 4a**

What does the major element *phosphorus* do for the plant body?

- (A) It is used for the production of pigments in the leaves.
- (B) It is for prevention of chlorosis.
- (C) It is vital for the functioning of enzymes in the stem.
- (D) It is a component of DNA in plant cells.

Question type 4a is a 'Recall-Sentence' task, mainly involving receptive sentence reading skills. On the other hand, when students are answering question type 4b below, they have to describe what they have seen in one or two sentences. So question type 4b involves production skills as well.

**Question type 4b**

Put an egg into a beaker of tap water and then into a beaker of vinegar. Describe what you see.

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### 6.1.5 Grid 5: Application-Sentence

Question type 5 is a multiple-choice question requiring students to read the information given and choose the correct answer. In order to do so, students need to apply their knowledge of the relationship among wave speed, wavelength and frequency. So the question type 5a is 'Application-Sentence' involving receptive skills (as students need to understand the question sentence).

**Question type 5a**

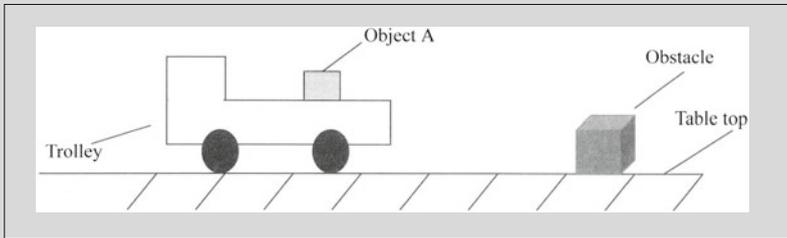
The wavelength and velocity of a wave are 2 m and 200 m/s, respectively, what is the frequency of the wave?

- (A) 100 Hz
- (B) 300 Hz
- (C) 50 Hz
- (D) 25 Hz.

On the other hand, when students are required to explain some phenomena by applying what they have learned, such as an application of Newton’s law of motion in question type 5b, their linguistic productive skills are needed.

**Question type 5b**

The following example illustrates a principle of motion in physics:



Assuming that the surfaces between Object A and the trolley are frictionless,

- (i) Will Object A move if the trolley starts to move forward? \_\_\_\_\_  
 If yes, will Object A move forward or backward? \_\_\_\_\_  
 If no, why? \_\_\_\_\_
- (ii) What will happen to Object A when the trolley hits the obstacle?  
 \_\_\_\_\_

**6.1.6 Grid 6: Analysis-Sentence**

To tackle question type 6, students need to not only apply their knowledge of genetics and blood-type profiles of parents and children, but also synthesize the given information to deduce the correct answer. So the question is an ‘Analysis-Sentence’ type and involves receptive sentence comprehension skills. If students are further asked to justify their answers, production (sentence or text) skills will also be involved.

**Question type 6**

A man with blood group B marries a woman with blood group A. Their first child is of blood type O. What can be determined about the blood types of any future children that this couple may have?

- (A) All their future children will be of blood group A.
- (B) Half of their future children will be of blood group AB.
- (C) The next child they have may be of blood group A.
- (D) It is not possible for their future children to be of blood group B.

### 6.1.7 Grid 7: Recall-Text

Under this category of tasks, students are required to tackle text-based questions. Usually, they are asked to read a piece of information (e.g. in the form of a short text), and then, they have to answer some questions related to the text.

#### Question type 7

In a physics paper in a high-stakes public examination in Hong Kong, one question includes a piece of text describing ‘bungee jumping’. The first part of that question asks the students to describe the acceleration of the bungee jumper during the first downward fall to the lowest point. Here, the cognitive demand does not look high, but it is linguistically challenging, as students have to understand the text and describe the process in a text. Hence, this task involves both receptive and productive language skills. One may wonder why this task belongs to the ‘text’ level instead of ‘sentence’ level. This is because when students attempt to describe the process, it is expected that they will organize their ideas in a coherent way, with temporal sequencing connectives such as *first, then, next, finally and during*. This is then beyond the sentence writing level. The question described above is thus an example of question type 7.

### 6.1.8 Grid 8: Application-Text

Under the category of Application-Text, students are usually required to apply what they have learned about a concept (e.g. movement of the earth’s crust) to formulate an explanation for a phenomenon (e.g. Why are marine fossils found in high mountains?). Students then need to express their answer in a short coherent text.

#### Question type 8

Why are marine fossils found in high mountains?

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### 6.1.9 Grid 9: Analysis-Text

Under the category of Analysis-Text, students can be asked to design and carry out an experiment and then write up a laboratory report on the experiment. Students have to draw on their knowledge of the topic and scientific investigation to design the experiment on their own. They also need to explain the results and draw some conclusions. All these require higher order thinking skills. Therefore, this question type falls into the most challenging grid in terms of both cognitive and linguistic demands. For instance, in the science papers of the Hong Kong Diploma of Secondary Education (DSE) public examination, the last question is usually an essay-type question, which expects students to write a piece of coherent text based on a given topic (e.g. discuss the impact of generating electricity with fossil fuels or nuclear energy on the environment). Explanation, discussion and evaluation are usually involved.

#### Question type 9

Fruits are known to contain reducing sugars. However, do different fruits contain the same amount of reducing sugars? Design and carry out a simple investigation to compare the amount of reducing sugars in two types of fruits of your own choice.

Hints:

- (a) Benedict's solution can be used to test for reducing sugars.
- (b) 1 M glucose solution can be used as a standard solution in your test.
- (c) The apparatus useful for this investigation includes measuring cylinder, test tube, water bath, mortar and pestles

Write down the steps of your investigation:

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Record your experimental results:

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State your conclusions:

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In the above section, we have explained the content demands and the linguistic demands of 9 broad types of assessment tasks using the  $3 \times 3$  CLIL assessment design matrix provided in Table 6.1. This matrix will serve as a useful tool when

teachers and curriculum planners want to ensure that their curricula include an even distribution of different task types both across different curricula at the same level and across different levels (i.e. to achieve both horizontal and vertical curricular coherence, see discussion in Chap. 4). Now are you ready to apply this assessment design matrix to analyse the different content demands and language demands of different assessment task types?

**Question A**  
*Sequencing Task:*  
 Think about how the two words in the following line are related. Then add words to the blanks to continue the sequence.

mouth, \_\_\_\_\_, stomach, \_\_\_\_\_, \_\_\_\_\_

**Question B**  
*Analogy Task:*  
 The first two words are related in a certain way. Analyse how they are related and then complete the blanks in the similarly related pairs of words in the line below.

fly : flycatcher  
 \_\_\_\_\_ : lion  
 grass : \_\_\_\_\_  
 \_\_\_\_\_ : spider

**Question C**  
 Read the following text about a place called 4th-Dimensional Land and answer the question below:

We live in a world with 3 dimensions: length, width and height. However, before Mr. Martyn came to the Sarasas Ektra School, he had dreamt of living in a place called 4-Dimensional Land. In 4-Dimensional Land, people travel freely back and forth along the time dimension. Time is the 4th dimension in 4-Dimensional Land. The other three dimensions are just like those in our world: length, width and height.

Question: Can you imagine a place with only 2 dimensions? Let's call this place Flatland. Please draw what people would look like in Flatland. Then please write a short paragraph to describe what people would look like in Flatland.

**Question D**  
 What steps would you follow to find the area of a rectangle? If you know the formula for finding the area of a rectangle, please feel free to use it in your description. Write sentences below, describing your answer.

**Fig. 6.2 Assessment tasks for analysis using the CLIL assessment design matrix** (Acknowledgements: Questions A and B are task types inspired by ideas found in A. Fredericks (1991). *Science Brainstretchers: Creative Problem-solving Activities in Science*. Culver City: Good Year Books. Questions C and D are task types codesigned by the author and Mr. Martyn Krügel, teacher of the Sarasas Ektra Bilingual School, Thailand)

***Application Scenario 6.1: Identifying and Varying the Content and Language Demands of Tasks***

Using the CLIL assessment design matrix in Table 6.1, analyse the content demands and language demands of the different assessment tasks (Questions A–D) in Fig. 6.2:

- Which one has both high content and language (hC + hL) demands?
- Which one has both low content and language demands (lC + lL)?
- Which one has high content demands but low language demands (hC + lL)?
- Which one has low content demands but high language demands (lC + hL)?
- Can you think of ways to adapt the hC + hL task into: (a) lC + hL and (b) hC + lL?

It is worth noting that some of the questions in Fig. 6.2 do not impose very high linguistic demand on students, but they may assess different levels of cognitive skills. As long as the teachers explain the instructions clearly, students should understand how to attempt those questions. This may give some new ideas for content subject teachers working with English language learners (ELLs) or English as Additional Language (EAL) students who have a basic L2 proficiency. This brings us to the topic in the next section: how to build in scaffolding elements in a formative assessment task.

## **6.2 Designing Formative Assessment Tasks with Scaffolding**

It is possible to design assessment tasks with built-in scaffolding so as to achieve *the high-challenge, high-support principle* of bridging pedagogy that Gibbons (2009) proposes (see Chap. 5). Instead of being presented with dumbed-down tasks, students can be led gradually towards higher levels of performance through carefully designed tasks with built-in language and cognitive support. In what follows, two such strategies will be discussed: (i) designing *parallel tasks* and (ii) providing ‘*sentence-generating powerhouses/tables*’.

One strategy of providing both content and language scaffolding to students is to design parallel tasks. Parallel tasks operate on the principle of *repetition with variation*. In the first task, a lot of content and language resources are provided (serving as an example); in the second task, which resembles the first task except for some variation, students can draw on both content ideas and language patterns from the first task to accomplish the second task.

For example, let us revisit the burning candles task first mentioned in Chap. 5 (Fig. 5.2—experiment redesign task: burning candles). The burning candles task

was designed by Ms. Cheung, a Grade 7 integrated science teacher in a Hong Kong school. In the first task, the students are presented with an experimental design which contains a problem (an important variable, the amount of water, is not controlled). In the first task, both the content and language of an experimental design are provided to the students. The cognitive/content demand is that of *apply + analysis*, students need to apply the concept of the ‘fair test’ and analyse the flaw in the design of the experiment. A ‘fair test’ is a difficult technical concept for many students as it is not what we are used to doing in our everyday common-sense world. A ‘fair test’ is a test carried out under ‘fair conditions’ (for more details see Sect. 5.1 in Chap. 5). To help students to express the flaw in the experimental design, some useful sentences (or sentence-generating boxes) can be provided to the students; for example:

There was **more** \_\_\_X\_\_\_ in tube B **than** tube A.  
 There should be **the same amount of** \_\_\_X\_\_\_ in tube B and tube A.

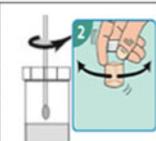
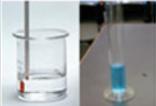
When students redesign the experiment (i.e. doing the parallel task), the writing frame in the parallel task sheet provides writing scaffolding in terms of the genre structure (how to organize information in an experimental design), the relevant functions and sentence patterns (e.g. how to write the experimental procedure using imperative sentences, see Fig. 6.3) and key vocabulary (e.g. words useful in writing the experimental design).

To provide further language support to students (e.g. in a class of basic L2 proficiency students), teachers can provide further *sentence-generating tables* to assist students in generating appropriate sentences to write up the section on observation and results; for example:

The temperature of water *rose* \_\_\_ °C in tube A and \_\_\_ °C in tube B, *respectively*.  
 The water temperature in tube A *rose* \_\_\_ °C and the water temperature in tube B *rose* \_\_\_ °C.  
 The *water temperature rise* in tube B *is higher than* the water temperature rise in tube A *by* \_\_\_ °C.  
 The *water temperature rise* in tube B *is higher than* that in tube A *by* \_\_\_ °C.

In the same vein, useful sentence-generating powerhouses can be provided to students to assist them in writing the conclusion section:

A bigger candle *thus* \_\_\_ gives/does not give a hotter flame.  
 A bigger candle *therefore* \_\_\_ gives/does not give a hotter flame.

Diagrams					
	add	5 g of solid A	into	a test tube/ test tube P	
	drop	5 cm <sup>3</sup> 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	
 	stir	the solution the mixture			
	shake				
	filter				
	boil				
	heat				until it melts
	cool				until it freezes
  	observe	the change	of	the solid the solution substance B	
	measure	the volume			the time
		the length			
	the temperature				
	the mass				

**Fig. 6.3** Sentence-generating tables designed by a science teacher to help students generate sentences for writing the experimental procedure (reproduced by permission of Ms. CHEUNG Tung-ping, Munsang College, Kowloon, Hong Kong)

A hotter flame *is thus/therefore* given by a bigger candle.

A hotter fame *is thus/therefore not* given by a bigger candle.

In this way, science teachers can help students to use the logical connectives, *thus/therefore*, to show that the conclusion follows logically from the preceding section on observation/results and that the writing template is not just a form for students to fill in but both a cognitive and language scaffold to help students present

experimental information leading to a logical conclusion. A usual pitfall associated with the use of writing templates is for teachers and students to treat the template as merely a *form* to fill in or as a fill-in-the-blanks type of exercise without treating it as a scaffold to generate a logical presentation of information supporting an argument or leading to a logical conclusion. A genre structure presented merely as a writing template becomes ‘dead’ if it is not seen as *a strategy* to help students to use writing to achieve a communicative goal or social purpose (e.g. to build an argument and to persuade people about one’s position).

Similarly, a usual pitfall associated with sentence-generating tables is to use them merely as grammatical drills taken out of context. These sentence-generating tables are much more meaningful to the students when they are provided *just in need* and *just in time* (e.g. in the middle of completing a task) when students need them as potential resources to express the meanings required by the task in hand (as shown above).

In this way, parallel tasks can provide both cognitive and language scaffolding to students, and although there is *repetition*, there is also important *variation* (Lemke 1990) so that it is not perceived as boring (i.e. offering little cognitive challenge) as students need to identify the problem in the first task and think of things to improve in the second similar but somewhat different task.

*In-task* sentence-generating tables are especially useful in helping students to *repack* meanings presented in notes, visuals and graphic organizers into appropriate academic language required by academic tasks. In Chap. 5, we have discussed the use of the *Multimodalities–Entextualization Cycle (MEC)* as a bridging pedagogy. Using the above parallel task as an example, we can further extend it by embedding an MEC in it. For example, in the Discussion/Reflection Section, we can include a table on the different variables in a fair test (as exemplified in the burning candles experiment):

Then, we can provide some sentence-generating tables to help the students to *entextualize* the information contained in Table 6.2 (i.e. expressing/recoding the information from notes, visuals, mind maps and graphic organizers in appropriate academic language):

In this experiment,		
<i>the independent variable</i>	is	candle size;
<i>the dependent variable</i>	is	water temperature;
the controlled variables	are	the amount of time used to heat tube A and tube B, and the amount of water in tube A and tube B.

**Table 6.2** Tabulating different kinds of variables in a fair test

Variables	Independent variable (the variable to be changed)	Dependent variable (the variable to be measured)	Controlled variables (variables to be kept constant)
1. Candle size			
2. Rise in water temperature in each tube			
3. Amount of water in each tube			
4. Amount of time in heating each tube			

### 6.3 Building Student Confidence and Capacities in Tackling High-Stakes Assessments

While we can design formative assessment tasks with both cognitive and language scaffolding built into them, high-stakes public examination tasks are not formative tasks and they usually do not offer such scaffolding. Teachers need to help students tackle such challenging tasks well before the examination so that by the time students need to attend these high-stakes (public or national) examinations, they will have developed confidence and capacities to tackle them independently.

One approach to tackling these high-stakes examination tasks can be summarized in a 3-step acronym: *APPS* (Lin and Cheung, 2012), as described below:

*APPS* (as a set of strategies that students can use to tackle examination tasks):

*AP*: Analysing the Prompts

*P*: Planning

*S*: Scaffolding.

#### 1. Analysing the Prompts

The first step is to analyse the question prompts in high-stakes examinations. As in many such examinations, the questions are formulated in recurrent types of formats and wordings and it is thus productive to analyse these recurrent wordings together with students. For example, in a question in the integrated science paper in the Hong Kong Diploma of Secondary Education (DSE) examination in 2012, students are asked to describe two measures that are used in nuclear power plants to ensure the safe use of nuclear energy ('Describe...'). They are also asked to discuss whether using nuclear energy is better than using fossil fuels for generating electricity with reference to the impact of nuclear energy and fossil fuels on the

environment ('... and discuss...') (to see the entire question, please consult 'Hong Kong DSE Examination—Integrated Science Paper, Question 11', published by the Hong Kong Examinations and Assessment Authority 2013).

We can underline the two key words in the question prompt: describe and discuss. *Describe* (*Describe two measures...*) indicates to us that a description text is required; likewise, the keyword *discuss* indicates to us that a discussion text is required. The response to this question should thus consist of two parts: Part 1: a description of the two measures taken in nuclear power plants to ensure the safe use of nuclear energy; Part 2: a discussion of the different sides/angles on the thesis/position: *Using nuclear energy is better than using fossil fuels for generating electricity*. Thus, the response should be written in a *macro-genre* (Martin and Rose 2012) consisting first of a *description* and then of a *discussion*.

## 2. Planning

The next step is to plan the response to the question. Here, we can use the Multimodalities–Entextualization Cycle (MEC) (see Chap. 5) to help us do so. For instance, in an examination preparation practice stage, teachers can model the use of a graphic organizer (or a simple table) to brainstorm and chart out together with students (i.e. joint construction) a map of the key ideas and the logical relationships among them. With repeated practice of joint/guided construction, students will learn how to independently brainstorm ideas and make notes for a response in summative assessment situations (e.g. in a high-stakes public examination) (see Table 6.3).

Many students might have a more visual learning style, and visual graphic organizers/mind maps might be more helpful to them. Students can, for example, be asked to work in groups or pairs to generate a visual mind map to brainstorm the ideas before making a table of notes.

## 3. Scaffolding

The next step in the MEC is to *entextualize* the ideas/notes in the visuals and graphic organizers into a coherent piece of academic writing. This entails scaffolding students to write using the appropriate academic genre conventions to achieve their communicative purposes, e.g. to describe (description text) and then to persuade (discussion text). Here, we can adapt David Rose's Reading to Learn (R2L) Cycles (see Chap. 5) to provide scaffolding to students. In particular, we can use the joint construction stage from the cycle to co-construct the response to the examination question with students. First of all, in order to use the table of ideas (Table 6.3) as a table for guiding students to write in the appropriate genre, we need to add the necessary genre element, *Introduction*, to the table (see Table 6.4).

Then, the teacher can engage students in a lesson conversation (e.g. Lesson Conversation 5.1 in Chap. 5) to jointly construct the essay from the table of notes (see Lesson Conversation Example 6.1).

**Table 6.3** Using a table to brainstorm ideas and make notes for the response

Genre	Stages	Key terms
Describe	Measures—during normal operation:	(a) Control rods (in the reactor) → control nuclear fission rate → control energy release rate (b) Pressurized water: circulated → cools the reactor
	Measures—during emergency:	(a) Radioactive water: sealed in concrete containers and buried underground → prevent leakage (b) All control rods: inserted to the reactor → shut it down
Discuss	Controversial issue:	Nuclear energy ≫ fossil fuels → generate electricity?
	Side 1 position: supporting details	More environmentally friendly because: (a) burning fossil fuels → air pollutants; e.g. SO <sub>2</sub> , nitrogen oxides → air pollution, acid rain → harms vegetation, human health versus nuclear energy: no air pollutants during nuclear fission (b) Burning fossil fuels → carbon dioxide → greenhouse effect → global warming versus no greenhouse gases during nuclear fission
	Side 2 position: supporting details	Nuclear wastes disposal, accidents → leakage of radioactive substances → serious, long-lasting damage to environment because: (a) Some radioactive substances: long half-lives; e.g. Cs-134: 30 years → persist in the environment for a long time → accumulate along the food chain → harm consumers at higher trophic levels; (b) Organisms nearby: exposed to radiation → fetal diseases; e.g. trauma/develop abnormal features
	Conclusion	Nuclear energy ≫ fossil fuels (during energy production) but need safety measures to prevent leakage/accidents, or else: serious, long-term impact on the environment

**Table 6.4** Adding notes for writing an introduction to the essay

Introduction	– Outline the major topic/issue	Fossil fuels running out → nuclear energy: powerful alternative energy source; but safety and environmental concerns
	– Give an overview of the structure of the essay	First, safety measures will be described Then, different views on nuclear energy use and its environmental impact will be discussed
Describe	...	...
Discuss	...	...

### Lesson Conversation Example 6.1: Teacher Guiding Students to Co-construct a Text from Notes

**T:** Okay, let's try to write a response to the exam question using the notes we've just made. Who wants to be the scribe? Jessica, can you be our scribe? {Jessica comes out to the blackboard}

**T:** First of all, look at our notes table, {T pointing at the Introduction in the table of notes made on the board} in the first paragraph, what should we have?

**S1:** Introduction!

**T:** Yes, Introduction. In the beginning of our essay, we shall introduce the topic. Now, for this essay, we have a controversial topic, that is, a difficult issue, what is the issue, what is it? {T pointing to the relevant words in the notes on the board}

**S2:** fossil fuels running out...

**T:** Yes, the fossil fuels are running out... As the fossil fuels are running out in this world, what can be an alternative energy source {T pointing to the relevant words in the notes on the board}

**S3:** Nuclear energy!

**T:** Very good, nuclear energy. Okay, we can start the Introduction of our essay by outlining the main topic or issue. We can start by writing: As fossil fuels are running out in this world, nuclear energy can be a powerful alternative energy source {T pointing to the relevant words in the notes on the board} {T gesturing Jessica to write down the sentence} {Jessica finishes writing the sentence}

**T:** Very good! Thank you, Jessica.

**T:** As fossil fuels are running out in this world, nuclear energy can be a powerful alternative energy source {T points to and reads out the words of the sentence that Jessica has just written}. However, there is a problem about nuclear energy, what is it? {T pointing to the relevant words in the notes on the board}

**S4:** Safety! Safety!

**T:** Excellent! There are concerns about its safety and what? {T pointing to the relevant words in the notes on the board}

**Ss:** Environment! Environment!

**T:** Yes, very good, and its impact on the environment. What is the whole sentence now? There are concerns about its safety and impact on the environment. {Jessica writes the sentence on the board} {As Jessica is writing, other students are also writing the sentence in their own notebook}

**T:** Oh, we need to add 'However' here {T pointing to the beginning of the sentence that Jessica has written on the board}. As fossil fuels are running out in this world, nuclear energy can be a powerful alternative energy source. **HOWEVER** {T stressing the word}, there are concerns about its safety and impact on the environment.

**T:** Why do we need to add the LINKING WORD, 'HOWEVER'? {T writes on the board: 'linking word' → However} Why?

{No response from the students}

**T:** It is used to show a different view, right? It's like saying: Yes, ... **BUT**... Yes, nuclear energy can be good, **BUT** it has problems. When we write formal essays like exam essays, we often use 'However', when we speak, we often say 'but'.

**T:** Okay, in the Introduction, after outlining the topic, we need to give an overall idea about the essay so that the readers can have a bird's eye-view of our essay {T pointing to the relevant words 'Give an overview...' in the notes on the board}, what can we write in the next sentence then to give an overview? {T pointing to the relevant words 'First, safety measures...' in the notes on the board}

**T:** Andy, can you try?

**Andy:** First... safety measures... will be... described.

**T:** Very good! We can write: In this essay, some nuclear energy safety measures will first be described. {T gesturing Jessica to write the sentence on the board}

**T:** Then, what will be discussed? April, can you try? Then, what will be discussed? {T pointing to the relevant words in the notes on the board}

**April:** Then, different views on... nuclear energy use... and its... environmental impact... will be discussed. {April reads out the notes on the board as the T points to the notes word by word to guide her}

**T:** Excellent, April! Now, class, we have written our Introduction, let's read our Introduction together {T leads the whole class to read out the first paragraph that Jessica has written on the board}

**T:** Very good! Now, after introducing the topic and giving an overview of the essay, what should we do next, Martin? {T pointing to the relevant words in the notes on the board}

**Martin:** Describe.

**T:** Very good, Martin! We have now moved onto the next stage of the essay. In this stage, we shall DESCRIBE the safety measures for nuclear energy. Let's have a new scribe for this new stage of the Essay. Thank you very much Jessica, you've done a wonderful job! Now, Jason, can you be our next scribe? {Jessica goes back to her seat, and Jason comes out}

**T:** To start the stage Description, we need a topic sentence to introduce the topic of safety measures, we can say: Regarding the safety issue, scientists have developed some measures to ensure the safety of nuclear energy.

{T writes the words: 'Regarding', 'scientists', 'developed' on the board, and gestures Jason to write the whole sentence to start a new paragraph}

{Jason then finishes writing the sentence on the board after referring to the notes on the board several times to find the spellings of words; T guides him by pointing to the relevant words in the notes}

**T:** Well-done Jason! Now, the next sentence: During normal operation, what are used to control the rate of nuclear fission? William, can you try? {T pointing to the relevant words in the notes table on the board}

**William:** control rods...

**T:** Yes, control rods in the reactor are used to... to do what?

**William:** to control nuclear fission rate

**T:** Yes, to control the nuclear fission rate, can you give me the whole sentence? During normal... {T pointing to the relevant words in the notes table on the board}

**William:** During normal operation, control rods... in the reactor... are used to... control... nuclear... fission... rate... {T pointing to the relevant words in the notes table on the board to guide William as he's trying to put the sentence together}

**T:** Yes, to control the nuclear fission rate.

**T:** Class, can you say the whole sentence for Jason to write it out?

**Ss:** During normal operation... control rods in the reactor...are used to... control the nuclear... fission... rate.

{T then writes a sentence-generating box on the board—see Table 6.5}

**T:** Okay, class, to finish writing the Description of safety measures, you can use this sentence-generating box to help us write sentences. For example, we can say: During normal operation, control rods in the reactor are used to control the nuclear fission rate, which in turn controls the energy release rate. And pressurized water is circulated to cool the reactor. {T pointing to the relevant words in the box as he speaks out the sentences}

**T:** Amy, can you make a sentence using the box? During emergency... {T pointing to the relevant words in the box to guide Amy}

**Table 6.5** A sentence-generating table to scaffold students' writing

<u>During...</u>	X	/be/	/V + ed/	<u>to do Y.</u>
normal operation,	control rods in the reactor	are	used	to control the nuclear fission rate, which in turn controls the energy release rate.
	pressurized water	is	circulated	to cool the reactor.
emergency,	radioactive water	is	sealed in containers and buried under-ground	to prevent leakage.
	all control rods	are	inserted into the reactor	to shut it down.

**Amy:** During emergency... radioactive ...water is sealed in... containers and... buried... underground... to prevent... leakage.

**T:** Well-done Amy! Class, can you say the sentence together?

**Ss:** During emergency... radioactive ...water is sealed in... containers and... buried... underground... to prevent... leakage.

**T:** Very good! What is the next safety measure during emergency, Eric? And... {T pointing to the relevant words in the box to guide Eric as he tries to make the sentence}

**Eric:** And... all the rods... are... inserted into the... reactor... to shut it down.

**T:** Excellent! Class, have you got the Description written? Jason, have you got the sentences written? {T gestures Jason and the class to write down the sentences to complete the Description}

{Jason finishes writing the Description on the board}

**T:** Thank you, Jason! Class, we have written the first part of our response to the exam question. Let's read it together {T guides the whole class to read the first part of the essay co-constructed; T stopping at times to highlight the different stages of the essay: Introduction, Description}

**T:** You've done a good job class. We have finished the first part of the essay. Now, let's write down this new text in your note-book. Also keep the notes table in your notebook and we shall finish writing the second part of the essay together in the next lesson.

We can see in Lesson Conversation 6.1 that the teacher is scaffolding students to write the essay by referring to the notes table on the board and by providing them with a sentence-generating box (Table 6.5) to generate useful sentences to do the writing. Throughout the text coconstruction (or guided writing) process, the teacher prepares students well to answer his questions by pointing to the relevant words in the notes table or in the sentence-generating box on the board. As ample preparation and scaffolding are provided, most students can respond to his questions successfully and get affirmed by the teacher. This kind of scaffolding is especially useful for EFL/EAL students with a basic or intermediate proficiency level. For more English-proficient students, the whole essay can be assigned as an independent

writing task, or the second part of the essay can be assigned after the first part has been jointly constructed.

In Lesson Conversation 6.1, some parts are underlined to indicate that these parts can be done in the students' familiar languages (e.g. L1 or local languages) if students' L2 proficiency is very basic and might not understand these parts if they are done entirely in L2. For example, in the following exchange, the teacher wants to explain why the logical linking word, 'however', needs to be added and this metalinguistic knowledge is crucial in students' future independent writing. The underlined parts can be spoken in the students' local or familiar language(s) to ensure students' understanding of the function and usage of 'however' in formal academic writing and to contrast it with the everyday, less formal, spoken usage of 'but':

T: Oh, we need to add 'However' here {T pointing to the beginning of the sentence that Jessica has written on the board}. As fossil fuels are running out in this world, nuclear energy can be a powerful alternative energy source. HOWEVER {T stressing the word}, there are concerns about its safety and impact on the environment.

T: Why do we need to add the LINKING WORD, 'HOWEVER'? {T writes on the board: "linking word" → However} Why?  
{No response from the students}

T: It is used to show a different view, right? It's like saying: Yes, ... BUT... Yes, nuclear energy can be good, BUT it has problems. When we write formal essays like exam essays, we often use 'However', when we speak, we often say 'but'.

These parts are located in the 'Elaborate' phase of the task structure (see Chap. 5—Sect. 5.3) and provide more information to the students. If this information can be made comprehensible to the students using their L1 or local, familiar language(s), it serves the scaffolding function, while L2 can be maintained or maximized for use in the core phases (i.e. 'Focus' and 'Task') of the task structure.

### ***Application Scenario 6.2: Completing Lesson Conversation 6.1***

Suppose you are a science teacher teaching a class of EFL/EAL students with basic English proficiency, can you complete the Design Lesson Conversation 6.1 to continue to scaffold students to write the rest of the essay? You might also need to design sentence-generating boxes to help students to generate some of the useful sentences for their writing. Remember, it is okay to 'design' lesson conversations as part of the lesson planning and of course all teachers know that there will be contingencies during the actual classroom conversations and teachers will not be speaking from scripts like actors/actresses. Nonetheless, having gone through the process of 'designing', a lesson conversation will considerably increase the teacher's confidence and fluency in carrying out the dialogue in the 'actual' classroom.

If there is not enough lesson time to do joint construction of the whole essay (as it is often the case in content subjects), the teacher can consider providing the second half of the essay to the students while highlighting important genre structure knowledge and logical connectors (linking words). Table 6.6 shows how the genre structure, notes and essay can be tabulated side by side to help students to grasp the textual features of the essay and to see how the notes in point form can be fleshed out into a coherent text through the use of logical connectors as well as topic sentences.

In Table 6.6, there are three columns. The leftmost column presents the different genre stages (and phases in the stages) that students can go through in organizing the ideas of a discussion essay logically and coherently. In the second column, students are shown the key notes (with key vocabulary and useful lexical phrases) which are needed to construct the key ideas that constitute the arguments of the essay. How these notes are fleshed out and realized in a coherent text is shown in the third column. This approach is designed to provide both top-down (genre structure) knowledge and bottom-up (lexico-grammatical—vocab/sentence patterns) knowledge to students regarding how a bunch of content ideas in note form can be *entextualized* into a coherent text. It exemplifies the integrated approach to language learning discussed in Chap. 3.

## 6.4 Designing Scaffolding for Tackling Assessment Genres Across the Curriculum

In the above sections, we have discussed how teachers can design materials with built-in scaffolding and also provide oral scaffolding in lesson conversations to guide students in a process of co-constructing a text (i.e. guided writing) based on notes and graphic organizers. These two kinds of scaffolding can prove very powerful if they are done consistently across different subjects in the curriculum. In Chap. 5, we have discussed some ideas on how to do curriculum mapping. In this section, I shall continue with the topic of curriculum mapping and specifically discuss how curriculum mapping in relation to assessment tasks across the curriculum will be particularly helpful for students.

In Chap. 4, we have identified different kinds of curricular and pedagogical disconnects. Scaffolding reading and writing in assessment genres across different academic subjects and across different levels will help us overcome these disconnects. Again, we can use the Genre Egg (Fig. 3.4 in Chap. 3) as an organizing framework to help us do curriculum mapping of the different assessment genres across different subjects. Table 6.7 shows some common assessment genres across different subjects and levels, while Tables 6.8 and 6.9 show some common language functions and general academic vocabulary useful across different academic subjects, respectively. To do this kind of assessment genres/functions/vocabulary

**Table 6.6** A writing frame to guide students' construction of a discussion essay

Stages	Notes (key vocab/lexical phrases)	Full text
Introduction – Main topic – Essay overview	Fossil fuels running out → nuclear energy: powerful alternative energy source; but safety and environmental concerns First, safety measures will be described Then, different views on whether using nuclear energy is better than using fossil fuels for generating electricity will be discussed	<p><i>As fossil fuels in this world are running out, nuclear energy can be a powerful alternative energy source. However, there are concerns about its safety and impact on the environment. In this essay, some nuclear energy safety measures will first be described. Then different views on whether using nuclear energy is better than using fossil fuels for generating electricity will be discussed.</i></p>
Describe safety measures	During normal operation: (a) control rods (in the reactor) → control nuclear fission rate → control energy release rate (b) pressurized water: circulated → cools the reactor (c) radioactive water: sealed in concrete containers and buried underground → prevent leakage During emergency: all control rods: inserted to the reactor → shut it down	<p><i>Regarding the safety issue, scientists have developed some measures to ensure the safety of nuclear energy. For example, during normal operation, control rods are used to control the rate of nuclear fission in the reactor which in turn controls the rate of energy release in the reactor. In addition, pressurized water is circulated to cool the reactor. Apart from these, radioactive water is sealed in concrete containers and buried deeply underground to prevent leakage. During emergency, all control rods will be inserted into the reactor to shut it down.</i></p>
Discuss – Controversial issue Side 1 position – Supporting details	Nuclear energy ≫ fossil fuels → generate electricity? More environmentally friendly because: (a) burning fossil fuels → air pollutants; e.g. SO <sub>2</sub> , nitrogen oxides → air pollution, acid rain → harms vegetation, human health versus nuclear energy: no air pollutants during nuclear fission (b) burning fossil fuels → carbon dioxide → greenhouse effect → global warming versus no greenhouse gases during nuclear fission	<p><i>Considering the impact on the environment, it is debatable whether using nuclear energy is better than using fossil fuels for generating electricity</i></p> <p><i>On the one hand, generating electricity with nuclear power is more environmentally friendly for two reasons. First, burning fossil fuels generates air pollutants like SO<sub>2</sub> and nitrogen oxides. These pollutants may cause acid rain, which harms vegetation. In contrast, no air pollutants are produced in the process of nuclear fission, and so it is less likely to result in air pollution. Second, burning fossil fuels emits carbon dioxide, which is a greenhouse gas speeding up global warming. On the contrary, there is no emission of greenhouse gases during nuclear fission, and so using nuclear energy is more environmentally friendly.</i></p>

(continued)

Table 6.6 (continued)

Stages	Notes (key vocab/lexical phrases)	Full text
Side 2 position – Supporting details	Nuclear wastes disposal, accidents → leakage of radioactive substances → serious, long-lasting damage to environment because: (a) some radioactive substances: long half-lives; e.g. Cs-134; 30 years → persist in the environment for a long time → accumulate along the food chain → harm consumers at higher trophic levels; (b) organisms nearby: exposed to radiation → fetal diseases; e.g. trauma/develop abnormal features.	On the other hand, if nuclear wastes are not disposed of properly or when there are accidents involving leakage of radioactive substances from the nuclear power plants, the negative impact of nuclear power on the environment will be much more severe and long-lasting than that of using fossil fuels for two reasons. <u>First</u> , some radioactive substances have very long half-lives (e.g. 30 years for Cs-134). This allows these substances to persist in the environment for a long time. They may be accumulated along the food chain and harm the consumers at the higher trophic levels. <u>Second</u> , organisms living nearby the source of leakage may be exposed to lethal doses of radiation. They may then suffer from fetal diseases (e.g. trauma) or develop abnormal features.
Conclusion	Nuclear energy ≫ fossil fuels (during energy production) But need safety measures to prevent leakage/accidents, or else: serious, long-term impact on the environment	To conclude, nuclear energy has the potential to alleviate the problem of energy shortage and it is more environmentally friendly than fossil fuels during the process of electricity generation. However, we have to take precautionary measures to ensure its safe use. <u>Otherwise</u> , leakage of radioactive wastes will result in irreversible long-term disasters to the environment

Key Topic sentences useful for introducing a topic or marking transition to a new topic are italicized; logical connectors (linking words) are underlined

**Table 6.7** Some common assessment genres across different subjects and levels

	Math	Science	Social studies	History	English
Junior primary				Narrative	Narrative
Senior primary		Procedure		Recount	Recount Procedure
Junior secondary	Procedure	Description Explanation	Description	Description	
Senior secondary	Explanation	Discussion Exposition	Discussion Exposition	Discussion Exposition	

**Table 6.8** Example of a language function that is useful across different subjects

*Defining (language function) can be realized by sentence pattern 1*

Technical term	Relating verb(s)	General class	Specific details
Globalization	is/ means/	the process	by which countries or regions in different parts of the world become more integrated
Photosynthesis	refers to/ is defined as/...		by which solar energy is converted to chemical energy by green plants

*Defining (language function) can also be realized by sentence pattern 2*

General class	Specific details	Relating verb(s)	Technical term
The process	by which countries or regions in different parts of the world become more integrated	is called/	globalization
	by which solar energy is converted to chemical energy by green plants	is referred to as/ is known as...	photosynthesis

**Table 6.9** Some general academic vocabulary useful across different academic subjects

Verb form	Noun form	Adjective form
Analyse	Analysis	Analytical
Attain	Attainment	Attainable
Define	Definition	Defining/definable
Develop	Development	Developing/developed
Estimate	Estimation	Estimated
Increase	Increase	Increasing
Justify	Justification	Justifiable/justified/justifying
Maintain	Maintenance	Maintained/maintaining
Rely	Reliability	Reliable
Validate	Validity	Valid/validated

mapping across the curriculum, there are some practical steps that teachers can use the following:

1. Collect examples of the major assessment tasks in each academic subject both at the same level and across different levels (e.g. junior primary/senior primary/junior secondary/senior secondary); these assessment tasks can include semester-end examination questions and high-stakes public examination questions.
2. Analyse the language demands of these tasks using the Genre Egg, e.g. identify the genres and language functions (and useful sentence patterns realizing these functions) as well as key vocabulary, including the three types of academic vocabulary: field-specific vocabulary, general academic vocabulary and logical connectors (see Chap. 3).
3. Tabulate the common genres, functions (and useful sentence patterns) and vocabulary across the subjects (similar to what is done in Tables 6.7, 6.8 and 6.9)
4. Design cross-curricular materials to scaffold students' learning of these common genres, functions (with useful sentence patterns) and vocabulary items. These materials can include (but not limited to) parallel tasks with language and content support built into the tasks and sentence-generating tables.

Table 6.7 shows some common assessment genres found in different subject areas. For example, in junior and senior primary English, students usually need to write narratives (stories) and recounts for their assessment and assignment tasks. The same genres are also used in History assessment and assignment tasks. Likewise, description texts are usually required in assessment tasks in junior science, social studies and history subjects. If teachers teaching different subject areas can discuss both the common and different genres (text types) used in their assessment and assignment tasks, initiatives supporting students in learning these genres across the curriculum can be designed (see discussion in Chaps. 3 and 4).

Table 6.8 shows an example of a useful language function (defining) and two frequent sentence patterns that are used to realize this function in different subject areas. For example, in social studies, there are many subject-specific terms to define such as 'globalization'. In science, many technical terms need to be defined and these are usually built into assessment tasks (e.g. students are asked to define technical terms in tests and examinations). If teachers teaching different subject areas can identify a number of useful language functions across different subject areas (e.g. defining, exemplifying, expressing cause and effect, comparing and contrasting, see more details in Chap. 3), then the sentence patterns useful in realizing these different language functions can be taught to students across different subject areas—i.e. teaching language functions across the curriculum (I call these functions 'academic functions' in the Genre Egg because they are language functions useful for academic purposes). Students will find that these generic functions are useful for writing assessment and assignment tasks in many different

academic subjects and they will be able to make connections between what is learned and assessed across different subject areas.

Table 6.9 shows examples of some general academic words useful for writing assessment tasks across different subject areas. Each word is shown in its different grammatical forms (e.g. verb, noun, and adjective). If teachers across different subject areas can work together to identify a number of useful academic words and teach them in different forms in their respective subject contexts, then students will have repeated practice and explicit instruction on how to use these terms to write their assessment and assignment tasks.

***Application Scenario 6.3: Identifying common genres, functions and academic vocabulary across different subjects and levels***

In Table 6.7, some common assessment genres across different subjects and levels are listed. The table is not complete. Can you complete the table by referring to the curricular and assessment materials in your own school context?

In Tables 6.8 and 6.9, examples of some common language functions and academic vocabulary useful across different academic subjects are listed. Can you enrich these two tables by adding more common language functions and academic vocabulary found in different subjects (especially in assessment and assignment tasks) in your school?

It will be a more productive exercise if you can talk to colleagues from different subject areas and analyse and identify these different genres, functions and vocabulary together with them.

**Note 1:** I am indebted to my colleague in science education, Dr. Dennis Fung, who provides me with this framework.

***Chapter Summary Points***

- Formative assessment and assessment as learning are different from summative assessment. In formative assessment and assessment-as-learning tasks, language support and scaffolding are built into the assessment tasks (which are also used as classroom tasks) to help students learn as they are doing the tasks. With repeated practice through ‘parallel tasks’, students are gradually guided to develop both the confidence and the knowledge and skills to tackle summative tasks without language support/scaffolding.
- The 3 × 3 CLIL assessment design matrix can be used to analyse both the content demands and the language demands of assessment tasks in content subjects. It is a useful tool to assist teachers and curriculum designers in planning a good distribution of different kinds of task types across different subject areas and different levels to achieve both horizontal and vertical curricular coherence.

- ‘APPS’ is an acronym for a useful set of strategies that students can use to tackle summative assessment tasks in high-stakes examinations.
- Teachers can guide students in making notes and planning their writing in response to an assessment question. With repeated practice in teacher-guided writing (i.e. joint construction of text), students will gradually gain confidence and knowledge/skills in their own independent writing.
- Working with colleagues across different subject areas to identify the different assessment genres, functions and vocabulary across different curricula is a productive practice in planning LAC/CLIL initiatives to support students in tackling different assessment and assignment tasks across the curriculum.

### *End-of-Chapter Discussion Questions*

1. Some subject teachers believe that language is simply a tool and the sophistication of academic language can be learned by students themselves. In addition, they may think that the amount of effort and time put into the task design with more language support seems to outweigh the gains. How could we ease the teachers’ worries and troubles in the design of language support in assessment tasks and turn this into an interesting and rewarding process?
2. In your opinion, is the use of writing frames in the ‘joint construction’ a hindrance or help to students’ writing development? At the sentence level, how do we help students repackage (‘repack’) the notes into academic language besides using the sentence frames? What other resources can you draw upon (e.g. in other chapters)? If students overuse the frames or the typical linking words, what can we do to remedy this?
3. What is a ‘parallel task’ and why is it useful? In your own teaching or learning experience, have you used any parallel tasks? In this chapter, examples of parallel tasks from the same subject area (Science) are discussed; do you think you can design parallel tasks across different subject areas? Can you use curriculum mapping (see Chap. 5) to explore how parallel tasks can be designed across different subjects (e.g. English and science)?
4. After doing the curriculum mapping and identifying the common assessment genres across subjects, how should these genres be arranged or sequenced for instruction by different subject teachers? For example, should English teachers take most of the responsibility for teaching all the common genres? How could different subject teachers work together effectively to teach similar genres across subjects? And how do we balance the amount of coverage on vocabulary, sentence patterns and language functions if we adopt the holistic framework?

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