Collaborative Research and Development ("Seed") Project

Extending English Learning to Content Subjects (ExEL2C)

2013/14 to 2016/17 school years

Evaluation Report

NET Section, CDI, EDB

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1. Background

Since the implementation of the fine-tuned medium of instruction (MOI) arrangements for secondary schools in the 2010/11 school year, schools have been given the flexibility to make professional judgement on the use of English or Chinese as the MOI of the non-language subjects at the junior secondary level. To provide students with more opportunities to be exposed to, and use, English in school, schools may opt to

- adopt English as the MOI of a non-language subject if the prescribed criteria for schools are met[1]; or
- adopt Chinese as the MOI (CMI) for a non-language subject but complement it with extended learning activities (ELA) in English that take up a maximum of 25% of the total lesson time; or
- transform the ELA time of the year level into teaching not more than two non-language subjects in English.

The NET Section's "Seed" project Extending English Learning to Content Subjects (ExEL2C) was designed to support schools in implementing the MOI arrangements above.

2. Participating schools

Nine public-sector aided schools were involved in the four years of the project for different periods of time. Their year(s) of participation, the non-language subjects involved in the project and the MOI arrangements concerned are tabulated on the next page.

[1] These criteria include student ability, teacher capabilities and school-based supports. The details of each are specified in Education Bureau Circular No. 6/2009 'Fine-tuning the Medium of Instruction for Secondary Schools'.

Project School	Participation (school years)				non-language subject(s) and year level(s) involved	Year level	MOI arrangements for the subjects	No. of ExEL2C classes
	2013/14	2014/15	2015/16	2016/17				
C&MA Sun Kei Secondary School	✓				Geography	S2	EMI	4
Chinese YMCA College	✓				Life and Society	S1	EMI (ELA time transformed)	2
Islamic Kasim Tuet Memorial College	✓				Liberal Studies	S1	EMI	3
HK Tang King Po College	✓				Geography	S2	EMI	2
					Life and Society	S2		2
		✓			Mathematics	S1		2
					Integrated Science	S1		2
					Geography	S2		2
					Life and Society	S2		2
TWGHs Wu York Yu Memorial College		✓			Geography	S2	EMI	4
Buddhist Hung Sean Chau Memorial College		✓			Integrated Science	S2	CMI with ELA	1
			✓		Physics	S3		1
				✓	Integrated Science	S2		1
Kiangsu-Chekiang College (Kwai Chung)			✓		Integrated Science	S1	EMI (ELA time transformed)	1
CCC Fung Leung Kit Memorial Secondary School			✓		Integrated Science	S2	CMI with ELA	1
				✓	Integrated Science	S2		1
St. Francis of Assisi's College			✓		Mathematics	S2	EMI (ELA time transformed)	1
				✓	Mathematics	S3		1

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3. Project description

3.1 Project objectives

The project objectives of ExEL2C are to:

- raise teachers' and students' awareness of the role of language and communication in content learning;
- enhance teachers' knowledge of the language specific to the non-language subject;
- encourage teachers to reflect on their current pedagogical practices and consider how to effectively support students' non-language subject reading and writing through effective classroom language use, questioning techniques and design of learning and teaching resources;
- develop school-based learning and teaching resources that will serve as exemplars for development of units of work that promote language across the curriculum (LaC); and
- facilitate cross-curricular collaboration and develop a workable model for the school to further carry out its plan to support LaC.

As a result of on-going project evaluation in the 2013/14 and 2014/15 school years, the last project objective above was redefined to include the development of an LaC resource person for the school as one of the support focuses. The LaC resource person was normally an English Language teacher and, in the project context, performed the role of an English language consultant who advised non-language subject teachers on language use and English language pedagogy. They did not have to be the English teachers of the project classes necessarily.

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3.2 Theoretical framework

The general approach adopted in the project is LaC that encourages the integration of language and content in non-language subject lessons. Although there are some well-established programme models and approaches to achieve such integration in the other parts of the world, they are all set in their own context. These include the "Sheltered Instruction Observation Protocol Model", "Content and Language Integrated Learning" or "English Language Development Across the Curriculum". However, to address the ExEL2C teachers' primary concern of how to make the project work in their own school context with specific MOI arrangements for the non-language subjects, emphasis was put on the practicality of the project. These specific models and approaches were not promoted to the project schools although some of their rationale and instructional approaches were adopted. For example, all the models/approaches highlight the importance of learning academic English in addition to the content concepts in a non-language subject if students are to learn the subject successfully. Explicit teaching of academic English is also promoted through the adoption of these approaches.

In all the project schools, the prominent language use in the target unit was teased out

and presented through scaffolded activities in the non-language subject lessons, and English lessons, if appropriate. The following table of lesson objectives shows the relationship between language and content in a typical ExEL2C non-language subject lesson.

Content objectives (Related to the key concepts of the lesson)	**Language objectives** (Prepare students for the academic language they need to understand the content and perform the activities in the lesson)
For example: By the end of the I.S. lessons, students should be able to:	
● carry out the steps of mixing an acid with an alkaline solution safely ● observe the changes when an alkaline solution is mixed with an acid	● use action verbs (basic form) and sequencing adverbs to describe orally how to carry out the experiment ● use the passive voice to describe, in writing, the observations in a laboratory report

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3.3 Composition of the project team

An ExEL2C Support Team with members from the Regional NET Coordinating Team was set up to support the implementation of the project.

Each participating school was assigned one to two support officers. The core members of the school project team include:

- the non-language subject teacher(s) of the class(es) involved in the project; and
- at least one English teacher who was teaching the project class(es), or was the LaC Coordinator of the school, or had the role of the LaC resource person in the school.

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3.4 Implementation

The support officers visited the project schools to provide support in the following forms:

- school-based professional development (PD) workshops;
- collaborative lesson planning (CLP) meetings; and
- classroom support and post-lesson debriefing sessions.

School-based PD workshops were provided depending on the school needs to address the following, which were also the planning focuses of the CLP meetings:

- awareness and understanding of the language use in the target non-language subject(s);

- the need for explicit teaching of the target language; and
- teaching strategies and the rationale for material design for delivering both the language and non-language subject lesson objectives in the units of work.

The co-developed lessons from the CLP sessions were implemented with the officers' support. Post-lesson debriefings were conducted to review practices, inform future planning and provide PD.

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3.5 Evaluation

Baseline lesson observations were conducted at the beginning of the school year to inform the planning of the support focuses and strategies.

During the implementation of the project, on-going observations at CLP meetings and implementation lessons, teacher feedback and evidence of student learning were used to help refine the support plans and strategies in each project school. Experiences from the different project schools were conceptualised to shape the development of the project for the following school year.

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4. Positive impacts

4.1 Pedagogy, curriculum design and student learning

Most of the project teachers, English and non-language subjects, recognised the role of English language pedagogy in supporting the effective use of English in non-language subject lessons. They came to realise the importance of presenting the target language explicitly and systematically, visually and verbally, to the students as the language input for the subsequent learning tasks. They also acknowledged the value of recurring teacher-supported practice of the target language items before their students performed a task.

For example, in an ExEL2C school with Mathematics being an EMI subject, effort was put into the reviewing and refining of the lesson plans. The Mathematics teacher learnt to craft visuals to supplement her teacher talk to support the students to articulate the mathematical steps. She was pleased to see how a change to a more student-centred approach could bring about student interaction and formative assessment in her lessons. Equipped with the language to articulate the steps in solving the questions, the students could comment on one another's work in the lessons. Their thinking-aloud in turn allowed the teacher to understand if the students had grasped the relevant Mathematics concepts and give feedback to them accordingly.

In another project school, where I.S. was an EMI subject, although the students were expected to be able to answer the questions in complete sentences in English, the teachers tended to set multiple-choice questions, blank-filling items and questions requiring short answers in the exams before the school joined the project. The alignment of learning,

teaching and assessment was addressed in the project. The I.S. teacher not only changed his classroom practices and the design of the learning and teaching resources to provide language support for the students, but he also reconsidered how the exam questions should be set to encourage the students to use the language learnt to communicate their understanding of the subject knowledge being assessed. (See Appendix I for an example.) He became more aware of the language obstacles in the summative assessment papers provided by the publishers, which could have been taken away. With the project experience, he started to use the papers with caution and put more thoughts into modifying them.

The I.S. teacher of another ExEL2C school improved dramatically in her use of the blackboard, visualiser and graphic organisers to help her students visualise the new content and the language involved. She also became adept at using particular reading activities like jigsaw reading and multimodal resources like Spark Video to engage the students in learning the target topics in English.

As encouraged by the support officers and told by the non-language subject teachers, samples of student work, like elaborate writing tasks and video productions, are likely to be used as teaching resources in some project schools for the students in the following years when they learn the topics. A sample student-made video to dramatise and describe what would happen if there were no friction is attached as Appendix II.

When interviewed about their experience in the ExEL2C project, the students mostly appreciated how the language needed to study the target non-language subject content was taught. Some students shared that they had become more confident in learning a non-language subject in English when they realised that the language obstacles could be overcome. They also treasured the opportunities to use English to interact with other students in lessons other than English. In a project school where the target language was assessed in the exam, the students generally demonstrated a better understanding of the use of the language to communicate a concept, with some being able to apply the target structure in another topic.

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4.2 Language awareness

The increase in the language awareness of the project teachers of a large project team was naturally not as easily observable as that of a smaller team of 2-3 teachers. In the latter case, it was clear to the support officers that both the language and non-language subject teachers became more aware of the role of language in learning a non-language subject. They developed a better understanding of how content knowledge is acquired through language as well as the importance of students being able to use the language to communicate their subject knowledge. Appendix III illustrates how an I.S. teacher drew the students' attention to the language used in the topic being taught and then supported the students in using the language to communicate the subject content.

As one of the I.S. teachers reflected, he used to believe that teaching an EMI subject was simply to talk in English. He did not focus on the topic-specific language (e.g. using 'is classified into' consistently when focusing on classification of animals). When he marked students' elaborate answers in writing, he was just interested in words or phrases that were content-specific or contained key information. Through the project, the teacher realised that the intended meaning of an answer might be distorted because of misuse of grammatical items or language structures that hold the key words/phrases together. The project heightened his awareness of the need to pay more attention to how the subject-specific language works at the sentence and text levels to convey meaning.

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4.3 Teachers' confidence

Some project teachers expressed that they were unclear of what to do when the project started. However, as the project developed, they became more familiar with its design and aims and became more confident in how and what they could contribute. Some individual project teachers even took the initiative to trial the instructional approaches they learnt in the project in their non-ExEL2C classes/lessons.

Among all the project non-language subject teachers, one was initially very concerned that she had not spoken English for years. She did not like the fact that she had to use English only in her project implementation lessons. This was an impediment to progress in the early CLP sessions. As the project developed, she became more skilled in using strategies for teaching content and language (e.g. visualising) to make the lessons easier for the students to follow. She had more confidence in herself and felt much more relaxed towards the end of the project.

From the baseline lesson observations and the teachers' own reflection, the non-language subject teachers usually overestimated their students' ability in content learning but did not have much confidence in the students' ability to use the language involved. As the project evolved and matured, however, the project teachers began to notice the improvement in students' ability to use language for content learning. The ExEL2C Support Team felt that the teachers were indeed surprised by the evidence of student learning observed and, by the end of the project, had developed more confidence in the language ability of their students. For example, it was noticed in an I.S. teacher's ELA lessons that Chinese was used less by the end of the project as the teacher had a more favourable view on the language of her students. The I.S. teacher of another school felt encouraged when he saw that, compared with the same students' performance in the non-ExEL2C units, there were more students attempting the optional questions with higher language requirements and expressing the subject content more clearly with more accurate and more appropriate language.

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4.4 Cross-curricular collaboration

As the role of the project English teachers was redefined as a result of the revised project

objectives in the 2015/16 school year, the ExEL2C collaboration model was also revised accordingly.

Driven by the content objectives of the target unit, the ExEL2C English teachers and non-language subject teachers were expected to collaborate in identifying appropriate language elements to be incorporated into the project lessons to support the achievement of the content objectives. They then developed lesson plans and resources to be used in the content lessons. Where *appropriate*, the target language might be frontloaded in the English lessons in the general context of English teaching. Non-technical texts, thematically linked or not, and tasks would be used in the English lessons. The two parties would then evaluate the unit to complete the Planning-Implementation-Evaluation cycle. The diagram that follows illustrates how the project teachers were expected to collaborate in the project.

	Steps	Content subject teacher	English teacher
1	Identify the content objectives. ⇩	✓	
2	Identify language objectives that support the content objectives. ⇩	✓	✓
3	Develop lessons plans and learning and teaching resources to integrate language and content in the content lessons. ⇩	✓	✓
4	(OPTIONAL) Frontload the target language in English lessons. ⇩		✓
5	Implement the content lessons. ⇩	✓	
6	Evaluate the lesson plans and the lessons conducted.	✓	✓

Two of the four 2015-17 participating schools chose to have the target language pre-taught in the English lessons (i.e. Step 4 in the collaboration model was adopted.) while the other two schools selected the new option given (i.e. Step 4 was skipped).

All the four schools reported that the option they chose suited their school context. The primary role of the English teachers, including the support officers, in all these schools was to be the language consultant. The non-language subject teachers reported that they found the following contributions of the English teachers particularly useful:

- Providing information about the students' previous learning of the target language in the ExEL2C unit as pre-assessment;
- Communicating the students' language needs in content learning to the content teachers; and
- Advising on the pedagogy to be used to scaffold language learning.

In the two schools where the target language (except content-specific vocabulary), e.g. cause-effect relationships, was frontloaded in the English lessons in the G.E context, the non-language subject teachers regarded the set-up an advantage as it was a way to help them save their curriculum time. In the other two schools where the English lessons were not involved, the non-language subject teachers used examples and contexts from their own subjects to introduce the target language in the content lessons. They realised how important it was to introduce the target language to the students effectively from the beginning and use it consistently in all aspects of the lessons – teacher talk, PPT slides, worksheets, textbook, etc. They reported having benefited from more thorough planning of the language to be used throughout the series of lessons.

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5. Difficulties encountered

5.1 Flexibility of the curriculum

As the additional objective to raise students' language awareness was dealt with in the content lessons, regardless of the implementation model adopted, some lesson time was bound to be taken up. Non-language subject teachers cited the packed school-based curriculum as a deterrent to better paced, scaffolded lessons. In those schools where ExEL2C was not implemented across the whole year level, the situation was complicated when the issue of alignment of tests and exams of the classes was considered.

It is clear that if non-language subject teachers aimed to better integrate content and language teaching, the concern could be addressed to a certain extent by having more thoughtful lesson planning. This would involve the use of effective teaching strategies, well-thought out teacher talk, engagement of students in learning activities that involve active language use, and alignment of learning, teaching and assessment. The ExEL2C Support Team was aware that it would take considerable time for a teacher to grasp all these.

Trimming the content in the school-based curriculum is a possible way to create space for the integration of language into the content lessons. Panel members are encouraged to discuss which part of the content could be omitted, or what can be done to the trimmed content. The challenge for the support officers, whose specialism was English language teaching, was that they were not in a position to advise on content retention and omission as they were not the authorities in the disciplines concerned.

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5.2 Teacher readiness

(a) Personal factors

As in most, if not all, school support projects, project teachers' motivation and interest contributed to a large part of the success of the project. This can be seen in a project school with an inexperienced young teacher whose pedagogical approach was lacking at times. While she made improvement during the project with the help of the support officers, it would not have happened if not for her confidence, open attitude and great willingness to improve her own planning and teaching.

Low teacher readiness being an obstacle to the project success was observed in other cases. For example, in the school that was on ExEL2C for three years, a different English teacher was involved every year. In one year, it was felt that the teacher's motivation and interest in relation to LaC was low. This put the onus on the content teacher and much less was achieved when compared with the year when the implementation of the project was particularly smooth with a highly engaged and supportive English teacher.

(b) Professional baggage

Teachers' understanding of and experience in LaC developed from previous school-based LaC projects could become a burden to the project. In one ExEL2C school, the key teachers had been developing their own LaC projects for a few subjects. These projects were designed to involve students in using non-language subject content to complete General English language tasks, which generally did not require the use of any academic English. For example, the students might be asked to create a short story using a historic figure in the modern world. This task required the students to have a good understanding of the historic figure for the content of the story. Language-wise, some key language features such as descriptive language and story elements are not usually the language for communication in History. Despite the ExEL2C support officers' effort to explain the role of language in content learning and the non-language subject teachers' role in teaching the language involved in the subject, these teachers would rather hang on to the established practices of confining LaC to the English classrooms and playing down the role of the non-language subject teacher in raising students' language awareness in his/her lessons.

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5.3 Size of the project team

In the first two years of the project, the size of the school project teams was usually large with at least 5 teachers. This made it difficult for the support officers to manage the collaboration and move the project forward at a satisfactory pace as each teacher might have their own understanding and expectation of the project. As teachers from two disciplines had very different training and established practices, they had very different starting points. As opposed to a small project team that allowed the support officers to have more interaction with each project teacher within the given CLP time, a large

project team presented more obstacles for the support officers to ensure that the project teachers truly understood the crux of the professional discussions.

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5.4 Textbooks

The textbooks of the ExEL2C subjects taught in English were often written in oversimplified language. They did not provide adequate language input for students to support their revision, nor did they provide writing models for them to develop academic literacy. (See examples in Appendix IV.)

In the schools where the ExEL2C content subject was taught in Chinese with ELA, the issue concerned the difficulty in finding suitable texts for the students.

In both situations, it took the project teams extra time to research resources online or in other reference books. More often than not, the level of difficulty of the content and/or the language in the resources needed to be adapted to suit students' ability and English proficiency. If the non-language subject in question was a CMI subject, some materials would be translated into English.

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5.5 School priorities

When the project was concluded in the schools, while some teachers reported that they would continue with the established ExEL2C practices at the school or at the department level in the following school year, there were teachers who were uncertain about their school priorities. It was particularly disappointing for the project when a school decided to shift the resources from LaC to another school development focus. In this school, administrative support measures that facilitate cross-curricular collaboration, such as timetabled CLP sessions, were expected to be removed. There were also implications for the ExEL2C project teachers' workload after the change, making them less motivated to continue to review and develop resources and practices on their own.

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6. Conclusion

The project provided a productive opportunity for the Regional NET Coordinating Team to work with schools trying to teach non-language subjects in English. The experience across the nine project schools and seven non-language subjects with different MOI arrangements gave all the participants an opportunity to enhance their understanding of what language and pedagogy were needed to deliver non-language subjects in English in ways that would maximise student learning.

6.1 What works and what doesn't

The following two lists – "What works" and "What doesn't work", summarise the ExEL2C Support Team's experience in the past four years.

(a) What works

- **A common platform**. The project brought the English department and other subject departments together for professional dialogues on promoting and implementing LaC. The timetabled CLP meetings helped to avoid the administrative trouble of coordinating meeting time. When the planning sessions were formal and overseen by a middle/senior manager of the school, the results were far better in terms of attendance and sharing of duties.
- **The right personnel**. It is important to have teachers who are experienced and knowledgeable about LaC on board. Non-language subject teachers who are new to LaC but have good pedagogy in the first place would find it easier to integrate language objectives in the content lessons. However, more importantly, project teachers should be motivated, engaged and amenable to advice and suggestions in the project throughout.
- **Professional development**. The on-site professional development opportunities, especially through planning meetings, helped teachers to understand better the role of language in the learning of non-language subjects. The professional development input also helped to clarify misconceptions in relation to content learning. Examples of these misconceptions might include:
  - The participating subjects need to be aligned thematically.
  - Teaching a non-language subject in English is only about delivering the lessons in English or teaching content-specific vocabulary.

- **Manageable size**. Keep the size of the co-planning team small especially when there are new-comers to LaC to make it easier to get everyone on the same page. Keep the scale of try-out units manageable to allow time for ongoing reflection before systemic implementation is considered. The non-language subject teachers were also more prepared to trial the LaC units if they came in small doses.

(b) What doesn't work

- **English teachers' assumed roles.** English language teachers are not necessarily knowledgeable enough to take the lead in analysing the language needs of non-language subjects, nor do they feel that it is their role to support learning in non-language subjects. Same as non-language subject teachers, English teachers also have a packed curriculum to "cover" in some schools. It may be challenging for the English teachers to set aside some English lessons to frontload the language needed in the forthcoming content lessons.
- **Reliance on textbooks as language input.** Some of the language used in non-language subject textbooks is not representative of the language used in the discipline for various reasons (e.g. oversimplification, pervasive use of non-disciplinary language). This posed difficulty in basing the project implementation on these textbooks.
- **Assumed flexibility in the school-based content curriculum.** Attempts were

made to trim the content of the ExEL2C units to accommodate the language focuses. However, the non-language subject teachers concerned were often found to be reluctant to do so. Even for those who were convinced that teaching - of both content and language - should be done thoroughly, rather than just skimmed through, it was often a struggle to trim some content to allow more quality time in class.

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6.2 Way forward

(a) The project schools

Advice and recommendations were given to the ExEL2C schools interested in continuing the LaC practices after the conclusion of the "Seed" project. They could also apply for the RNCT's School-based Support Services, which provide less intensive support for schools.

At the teacher level, a few project teachers have adopted the ideas and strategies presented in the 2015/16 ExEL2C School Sharing. It is hoped that these teachers will advance in their LaC practices and share them with their panel members.

(b) ExEL2C Support Team

The resources and experience developed in the "Seed" project have been used in CPD workshops and those schools requesting school-based support in LaC. They will continue to be used in the latter situation to benefit local schools in the wider context.

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Appendix I: Example of alignment of summative assessment with learning and teaching

Year level:	S1
Subject:	Integrated Science
MOI of the subject:	English
Chapter:	Living things

Before the project

Students were expected to be able to describe, verbally and in writing, how living things are classified. However, they were not taught the language needed and their short answers, which contained only the keywords, were always accepted by the teachers as correct.

In the project

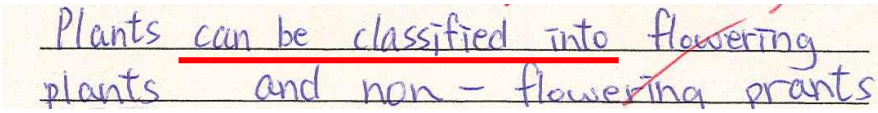
The target language was taught explicitly to the students with practice opportunities built into the topic about animals and vertebrates. The table below shows an example of the corresponding content and language objectives in the lessons.

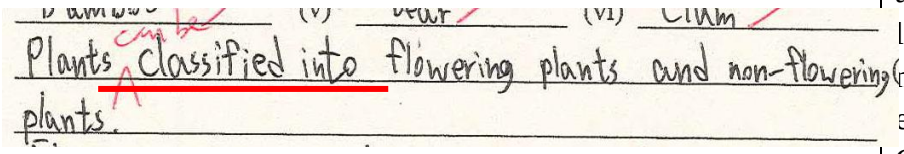
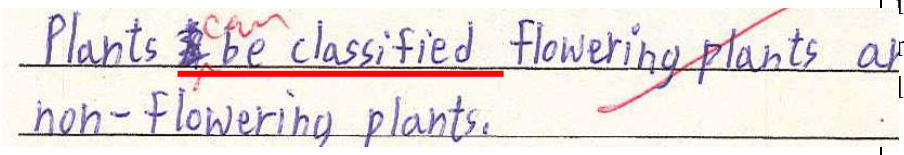
By the end of the I.S. lesson, the students should be able to:

Content objective	Language objective
● classify vertebrates into different groups	● describe how vertebrates are classified using the pattern "can be classified into"

In the examination, after completing a classification diagram using the photos of living things given, the students were asked to describe the classification of plants and flowers in complete sentences.

The scripts below show the different levels of mastery of the target language the students had when they applied it to a topic that they had not written about. The student answers were analysed and used to inform the teacher about what needs to be reinforced when teaching the target language the following year.

Student scripts	Observations
Student A  Plants can be classified into flowering plants and non - flowering prants	The student could use the target language correctly to communicate ideas.

Student B  Plants can be classified into flowering plants and non-flowering plants.	The student was aware of the target language and could master it to a certain extent. Communication of the meaning is not impeded despite the mistake in language.
Student C  Plants can be classified flowering plants and non-flowering plants.	

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Appendix II: What would happen if there were no friction (Student-made video)

Link to the video: https://www.youtube.com/watch?v=hZwiXf1bUAs

Appendix III: Sample lesson: From language awareness to language application

Year level:	S1
Subject:	Integrated Science
MOI of the subject:	English
Chapter:	Water

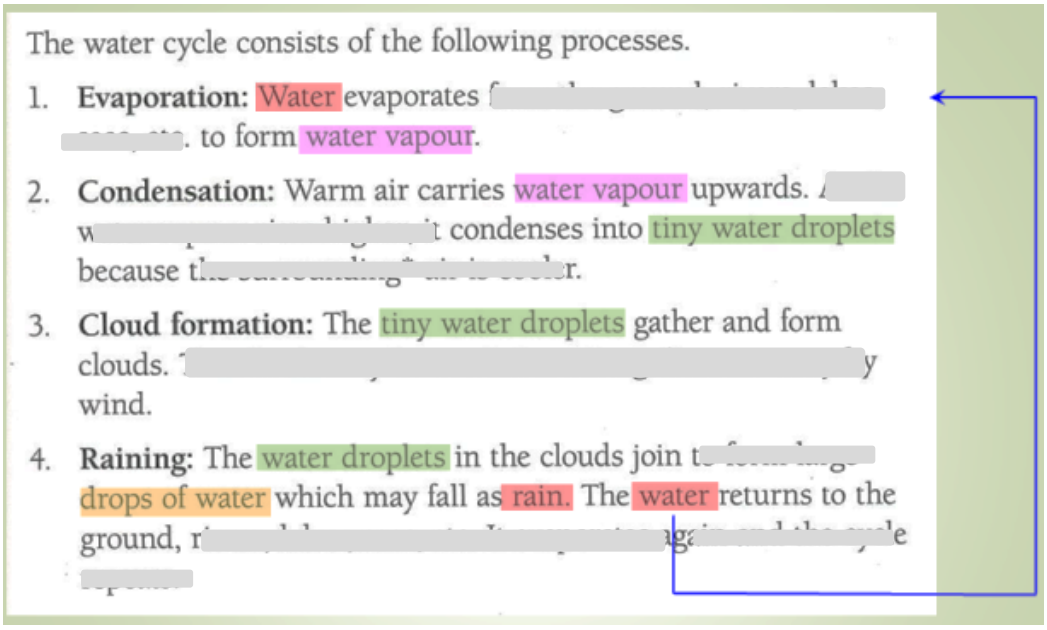
The teacher had taught the students how the water cycle is formed in a previous lesson using a video. In this lesson, he went from scaffolding reading a water cycle text (see below) to scaffolding writing a description of the water cycle in students' own words.

The text is an explanation sequence, which is very common in the science world. The salient language item involved is the theme-rheme pattern that goes through the whole text. The pattern is:

A causes or becomes B,
which in turn causes or becomes C,
which in turn causes or becomes D, etc.

A → B
B → C
C → D

An excerpt from the textbook that contains an example of the theme-rheme pattern.

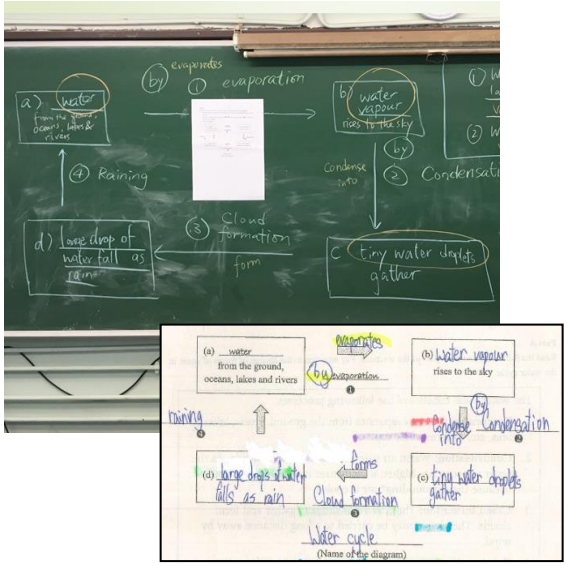

The water cycle consists of the following processes.

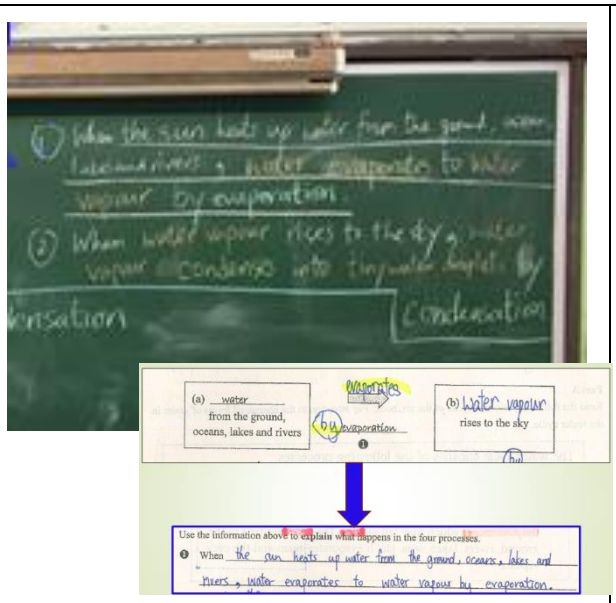
1. **Evaporation:** Water evaporates [redacted] to form water vapour.
2. **Condensation:** Warm air carries water vapour upwards. [redacted] condenses into tiny water droplets because [redacted].
3. **Cloud formation:** The tiny water droplets gather and form clouds. [redacted] wind.
4. **Raining:** The water droplets in the clouds join [redacted] drops of water which may fall as rain. The water returns to the ground, [redacted]

Lesson objectives:
At the end of the **water cycle** lessons, the students should be able to:

Content objective	Language objective
• explain how the water cycle is formed	• explain the sequence of what happens in the water cycle (i.e. an explanation sequence)

The table below outlines the lesson flow and states the purposes of the specific teaching steps.

Step	Purposes
1. Refer to the slide on the previous page. Ask well-crafted questions that make use of the theme-rheme pattern to consolidate content learning and draw the students' attention to the use of the language pattern.	• Make use of the language visual to help students *see* how the language pattern works. • Teach the students explicitly how the theme-rheme pattern is used to help organise the process in the explanation sequence. • Students learn to use the language to help them understand an explanation sequence when they come across one. • They also use the language to help them organise and recall the sequence in the process.
 2. Deconstruct the text with the students using a graphic organiser.	• Encourage re-reading of the text to consolidate learning. • Focus the students on the key information and key words in this topic.

 3. Co-construct with the students to describe the processes of the water cycle.	• Model how to use the theme-rheme pattern to re-establish the events in the explanation sequence. • Model writing sentences.

Appendix IV: Examples of language-inadequate textbooks

Sample 1

Subject:	Life and Society
Year level:	S1
Chapter:	Interpersonal relationship

In this example, there is minimal information and language for the students to learn about the behavioural signs of bullies and victims. Unlike the "Behavioural signs of bullies", which are introduced by a verb, the "Behavioural signs of victims" are variably introduced by a verb, a noun and an adjective. The inconsistency makes the text unsuitable language models for students.

Behavioural signs of bullies

1. Like…
2. Are …
3. Hang …
4. Lack …

Behavioural signs of victims

1. Have
2. Feel
3. Alienated …
4. Fear of …

Despite the lack of elaboration, these points all begin with a verb that the students can use to reconstruct the signs into sentences systematically beginning with "Bullies".

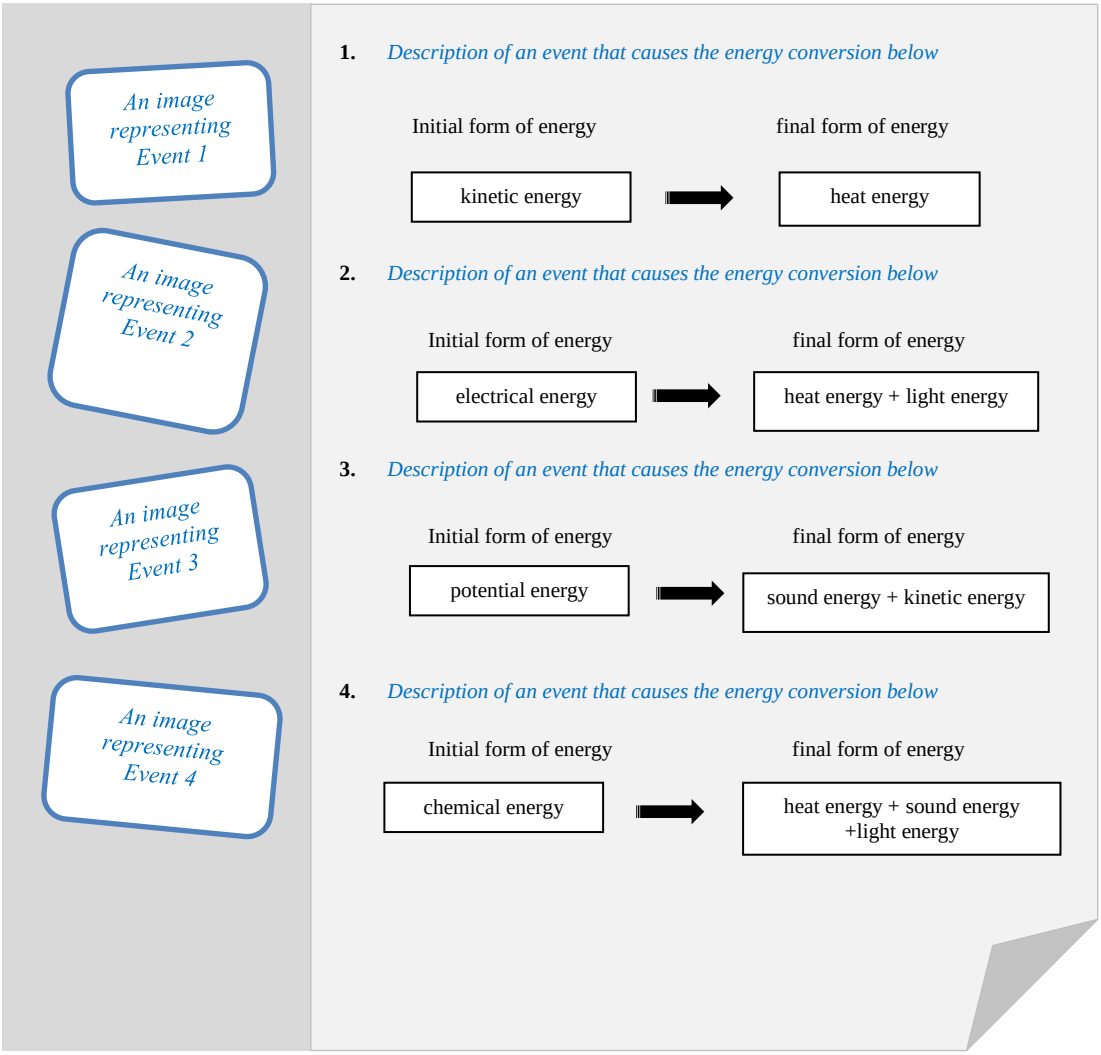
These points begin with different parts of speech, making it difficult for the language-challenged students to reconstruct the points into sentences on their own.

An excerpt from the unit on Interpersonal Relationship of an Life & Society textbook

Sample 2

Subject:	Integrated Science
Year level:	S1
Chapter:	Energy

In this example, a simple flow chart is used to present energy conversion. It is an effective way to use graphic organisers to focus students on the key information and key words to be studied. However, minimal accompanying language means that the students are not presented with the language they can use to talk about energy conversion (e.g. Kinetic energy is converted to heat energy.).



An excerpt from the unit on Energy of an Integrated Science textbook

Sample 3

Subject:	Geography
Year level:	S2
Chapter:	Climate

When students study this topic, they are usually asked to use the information in the climate graph to describe the temperature and rainfall of a place. However, in this example, the textbook focuses students on the data only. There is no language model that the students can refer to when they are required to give such a description verbally or in writing.

Temperature of Hangzhou
Student read a line graph showing mean monthly temperature and extract factual information to complete the gap-filling exercise.

Rainfall of Hangzhou
Student read a bar graph showing monthly rainfall and circle the correct answers.

Students' attention is drawn to the subject content and not the language that they need for describing the temperature and rainfall of a place.

An excerpt from the unit on Climate of a Geography textbook