

CLIL4CHILDREN: Teaching Materials for CLIL Lessons in Maths, Geography and Science for Primary School¹

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Abstract | This article describes the didactic principles underlying the creation of a ready-made fifteen lesson plan package for primary CLIL (for Maths, Geography and Science) for pupils aged 5 to 12, developed through the collaboration of an international group of English and primary teachers, teacher educators, researchers and teaching materials developers across four European countries in the framework of the CLIL for Children (C4C) project (2015-2018) on educating teachers for CLIL teaching environments. These principles are presented in the framework of a brief state-of-the art discussion on the lack of ready-made teaching materials for CLIL, their importance for teacher development and quality teaching and learning in CLIL classrooms, and criteria they should conform to. The article proceeds by summarising the findings of two C4C surveys, one on best CLIL teaching practice through national reports of four European countries (Italy, Portugal, Poland and Romania) and the other on Open Educational Resources (OER) available for CLIL Maths, Science and Geography, as well as by drawing on C4C Guidelines. The article then demonstrates these principles in practice through a module of a three lesson plan sequence for CLIL Science on the topic “The World of Plants” by showing how language (vocabulary or content-specific terminology and language functions), specific communication skills, content and culture are integrated and developed through a child-centred, holistic (Brooks and Brooks), constructivist approach. Digital technologies are included as everyday learning processes for access to knowledge and playfulness in learning. Methodologies for active, experiential, discovery, problem solving and cooperative learning are foregrounded. The article further highlights how teacher cooperation and teacher identities (English and primary education teachers) as individuals with multilingual repertoires, expectations, and expertise are crucial for producing quality CLIL materials and resources.

Key words | CLIL, CLIL4CHILDREN, teaching materials, primary education

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1. Context: Teaching Materials for CLIL

Voicing the concerns of many teachers involved with the CLIL approach in Europe, both primary specialist teachers and EFL teachers, Catenaccio and Giglioni (207) claim that the availability of suitable ready-made materials and lesson plans is critical for teachers who want to engage with the CLIL approach because there is a lack of materials (lesson plans, visual aids, worksheets, tutorials) available that focus on content and language. This lack of materials renders CLIL time-consuming for teachers as they will need to create teaching materials from scratch. Additionally, suitable ready-made teaching materials are particularly relevant for quality teaching since primary specialist teachers may lack confidence in their language competence and/or EFL teachers may be retraining for primary CLIL and may not yet be confident on how to develop suitable classroom materials that simultaneously address content, communication, cognition and culture in an integrated way.

Practice has shown, through the BEP – Bilingual Education Project Spain, the BEI-IBI – Bilingual Education Italy – Insegnamento Bilingue Italia (Cavalieri and Stermieri) and through the EBP – Early Bilingual Education Portugal, that teachers who were involved in these national British Council sponsored programmes either developed their own original teaching resources and materials, relied on regional/national project groups who produced the materials, or sometimes also adapted existing resources to their needs. Gómez (14) reports a similar concern for the Educational Administration of the Southern European Region of Andalusia, in Spain, in order to respond to a general complaint of teachers about lack of materials and about the concomitant time-consuming task of designing brand new materials. The author, however, warns against the a-critical use of CLIL materials from other countries, which led to several maladjustments, inconsistencies and inaccuracies (20).

Cavalieri and Stermieri (221) also document, in relation to the Italian experience, that teachers were unwilling to share their original materials online for two reasons: they either felt exploited by others who would use their materials without sharing anything in return or they experienced problems with the webpage to share materials, due to technical issues or the

teachers' own limitations. This may be true for other teachers involved in these projects as well and thus points to a sensitive area of CLIL teaching: materials that are or have been developed by CLIL teachers are not reaching the CLIL teaching community, or are being inadequately used by them, thus rendering the production and use of teaching materials parts of the same critical issue.

Nonetheless, training programmes for teachers have tended to focus on developing the CLIL methodology on a par with introducing teachers to online resources suitable for CLIL lesson plan development (Catenaccio and Giglioni 197). These resources are presented as leading to better teaching, but also to teacher's language improvement and should be selected, claim the above authors, through 4 Rs, namely materials need to be **reliable**, **ready-made** (such as audio tracks that can be used immediately), "**readable-through**", as teachers are very busy and prefer hands-on learning, and, as a consequence, **rewarding** both for teachers and pupils (Catenaccio and Giglioni 205). Suitable ready-made materials may also counteract the "sense of incapacity in handling the challenge" (201) of quality CLIL practice.

While these criteria are important from the point of view of teacher use and their support for quality CLIL practice, in an article on CLIL learning materials and criteria for their production in order to ensure quality teaching, Mehisto combines general principles with CLIL specificities with a focus on the learners. The general principles for learning material production are that they help learners build relationships between what they already know, the community and what the study programme intends them to learn. Their quality is high if students feel motivated and engaged, while being accorded the space to reflect on what and how they are learning. Furthermore, materials are stereotype-free and inclusive of diversity and promote media awareness and responsible citizenship (Mehisto 16-17).

As to the specific criteria of CLIL learning materials, Mehisto defines ten criteria, which are very briefly summarised below: (1) making the learning intentions of the teaching materials visible for students, as the latter will need to understand a learning goal in order to work towards achieving it; (2) promoting the learner's academic subject-specific language by contrast to everyday language through suitable activities and learning situations; (3) supporting students in

becoming autonomous learners through activities that will enable them to self-scaffold their learning; (4) including self, peer and other types of formative assessment activities, so learners can use feedback for learning; (5) helping create a safe learning environment that promotes positive learning without stress; (6) fostering cooperative learning through activities that seek learner engagement with peers, groups and interaction with others; (7) incorporating authentic language and authentic (context and subject-specific); (8) promoting critical thinking through focusing on applying, analysing, evaluating and creating something; (9) fostering “cognitive fluency through scaffolding a) content, b) language, c) learning skills development helping students to reach well beyond what they could do on their own” (*ibid* 24); and (10) making learning meaningful by, for example, organising the curriculum in topics or using cross-curricular approaches so that learners can make connections.

Although principles for organising teaching materials are valuable, teachers will probably respond better to practical examples of what teaching materials could look like, since they will have their own ideas about what works in teaching and may be struggling with specific features of the CLIL approach, such as cross-curricular topic integration, integrated learning of content and language, or bilingual student-centred learning (besides interactive pedagogies and student-centred learning approaches when these are not part of their educational contexts). Catenaccio and Giglioni, for example, claim that teachers need more “hands-on, task-based lessons” to increase student talk and collaboration (419). Bailey argues that teachers need “clear, practical indications of brief activities that they carry out daily in their classrooms in the various subject areas”, while also pointing out that teachers need to become familiar “with the resources that exist” (420).

The C4C (2015-2018) consortium thus sought to explore how best to support primary school teachers to improve and broaden their educational (CLIL) offer, while acknowledging their expectations regarding practices and intended outcomes of their new CLIL practice. It thus produced a ready-made fifteen lesson plan package for primary CLIL (for Maths, Geography and Science) for pupils aged 5 to 12, developed through the collaboration of an international group of

English and specialist primary education teachers, teacher educators, researchers and teaching materials developers across four European countries.

These materials respond to situated needs of primary school teachers in several national contexts. Teaching materials and the associated teacher education programme resulted from the interpretation and negotiation of a ‘community of practice’ of these specialist primary education teachers, EFL teachers, teacher educators, researchers, educational material developers and other stakeholders and were tested by them and other teachers in their own contexts.

In this article a sequence of three interrelated lessons on “The world of plants” will be foregrounded and commented on in connection with the principles for CLIL practice in primary education that this community of practice developed over the 2015-2018 period.

2. C4C: What Makes Good CLIL Practice: Methodology and Materials

It is difficult to acknowledge expectations of teachers regarding a new practice such as CLIL, especially when CLIL may be used to refer to a varied amount of exposure to L2. Teacher provision and education for CLIL may rely on specialist primary education teachers with an EFL competence from B2 to C2 or EFL teachers that may have had little training in primary education or lack an understanding of how children at an early age learn.

The C4C community of CLIL practice (11 researchers and over 80 teachers and teacher educators, among whom were educational materials developers) thus explored CLIL in primary education over a 3-year period through a mixed-method approach that involved online questionnaires to teachers, face-to-face-meetings, surveys, collaborative intensive sessions for materials development, pilots of materials, training programmes followed by teacher feedback collection and short dissemination actions with feedback collection. Through these methods, C4C developed a series of products that are used to describe principles for creating quality CLIL teaching materials: a C4C national state-of-the-art report was followed by a census on Open Educational Resources that led to a Concept Note on the main principles for CLIL. Two sets of Guidelines were produced, one on *How to Develop CLIL Materials and Lesson Plans in Primary*

Schools and the second set on *How to Use CLIL in Primary Schools*. These gave rise to the main C4C publication, a *Teacher's Guide on CLIL Methodology in Primary Schools*, with a first volume with a practical introduction to CLIL on how to develop CLIL materials for primary school use and a second volume with 15 lesson plans with teacher notes.

These will be briefly described as to their contribution to the development of C4C teaching materials.

2.1. C4C State of the Art Report

In 2016 the state of the art survey conducted by the partners of the C4C project highlighted a sample of successful examples of CLIL good practice in terms of pedagogic principles. Among these, it emerged that good CLIL practice is basically good teaching practice that is capable of integrating content and language learning, promoting communication and developing cultural awareness about using several languages in order to learn.

It was further recognised that CLIL practice worked best by aiding pupils to build their knowledge based on their own (local and social, school-related) funds of knowledge through experiential activities and cooperative work in cognitively rich learning environments. These findings are in line with Bailey (418) who argues that good CLIL practices are socio-constructivist teaching and learning methods, which promote interactive teaching and learning approaches.

The state of the art survey also highlighted the need for teachers (specialist primary education teachers and EFL teachers) to take a positive, critically reflexive stance towards emerging learning frameworks, such as CLIL, and cooperatively decide on how to appraise their strengths and weaknesses as teachers, as well as proceed with the necessary re-adjustments to teaching language and content in an integrated way.

2.2. Guide to OER (Open Educational Resources) on CLIL for Primary Schools

Through its initial survey into available quality Open Educational Resources on CLIL for Primary Maths, Geography and Science across a sample of European countries (the Czech Republic,

Italy, Germany, Poland, Portugal, Romania, and Spain), available online, the C4C consortium sought to identify available shareable lesson plans, materials and resources both for using with pupils directly in the classroom and to plan CLIL courses and lessons, as well as for the education and professional development of teachers for CLIL practice in schools.

In order to identify these OERs, the consortium pre-defined criteria that had to be met, namely that the OER takes the pupil's developmental stage, cognitive development and language competence into account; that it integrates content and language and demonstrates a good balance between them; that it encompasses a variety of learning activities that can engage pupils; that it combines mother tongue and English in the response expected of pupils; and that it includes suggestions on how to assess learning activities.

Furthermore, the selected OERs followed the criteria proposed by Ute Massler on relevance for primary school pupils, easiness of integration within the primary school curricula of the C4C countries (Italy, Poland, Portugal, and Romania), adaptability to the needs of primary pupils in those settings, visual attractiveness of materials, appropriate cognitive load of resources, accessibility, as well as potential for engaging and motivating pupils to learn.

This initial focus on OERs in their many diverse forms (course materials, streaming videos, multimedia apps, podcasts, and teacher-created resources) already highlighted the C4C consortium's focus on the need for teachers to use and adapt available online resources for their own practice. This is also an encouragement for teachers to innovate in their practice through incorporating digital content. Besides, OERs are cost-effective as teachers will not need to create materials from scratch, but just adapt existing materials to their classes' needs. One further advantage recognised in OERs is that they have been equally produced by specialist content teachers as well as by English as a Foreign Language (EFL) teachers, for contexts where English may be the mother tongue, L2 or FL, giving teachers opportunities to gain a better insight into each other's' perspectives on the subject matter to be taught and thus take advantage of cross curricular perspectives.

2.3. Guidelines on How to Develop CLIL Materials and Lesson Plans in Primary Schools

The *Guidelines on How to Develop CLIL Materials and Lesson Plans in Primary Schools* make it clear that the C4C consortium considers that the steps to be followed in CLIL class are basically the same as for any EFL class. There is a welcoming routine, an introduction to the lesson aim, including revision, presentation of new content; then there will be individual, pair or group work, supervised by the teacher. Added to this, there is some kind of formative assessment, such as checking if pupils have achieved the learning objectives, are aware of what and how they have learned, or have enjoyed learning or certain activities. At the end there will be a goodbye routine.

However, in order for planned integration of quality teaching materials, teachers will have to consider how specialist content may intersect with the A1 and A2 CEFR linguistic descriptors for primary, the learning interests of children, their suppositions and their learning needs.

Rather than focusing on lessons, teaching materials should be built around a topic and a learning sequence. The structure of a learning sequence includes lessons that grow from the more general to the more specific and eventually to a project the pupils will develop autonomously.

However, linguistic and content objectives need to be planned together for the sequence. Thus, for each lesson the intended learning should be made clear: the vocabulary needed, linguistic and learning skills to be acquired, and linguistic functions pupils will learn, practice and recycle.

In the case to be described in this article, for Science CLIL and a module on “The World of Plants”, designed for Primary grades 2 or 3; Lesson 1, which is more general, is on the “Physical Size of Plants”; Lesson 2, already more specific, is on “Plant Parts and Life Cycle”; and Lesson 3 is on the topic “The Growth of a Plant” where pupils are expected to grow a plant, record its growth, and write/speak about it.

Table 1 below summarises the linguistic, content, communication, and cognition objectives for each of the lessons in the learning sequence, as is found in volume 2 of the *Teacher’s Guide on CLIL Methodology in Primary*.

Lesson 1 Physical size of plants	Lesson 2 Plant parts and life cycle	Lesson 3 The growth of a plant
Linguistic objective	Linguistic objective	Linguistic objective
Vocabulary: physical size: big/small, medium, short/tall; plant, tree (oak; orange tree; apple tree; pine; palm tree; olive tree), shrub (rosemary; lemon grass; grapevine; green peas; juniper; lavender) herb (lily; tulip; daisy; daffodil; grass; mint)	Vocabulary: students name anatomical parts of plants (seed, roots, stem, leaves, flower bud, flower) and learn verbs connected with the life cycle of a plant (drop, grow, the sun shines, the rain falls, the flower opens).	Vocabulary: soil, pot, make a hole, drop a seed, cover with soil, pour water, sunlight.
Skills: students understand simple information about size of plants (listening); students pick up words (tree, shrub, herb) from authentic source (video) (listening and speaking); students create short texts (writing) and read them (reading).	Skills: students understand simple information from the authentic video and from the story told by the teacher.	Skills: Students follow instructions for an experiment.
Functions: students name and describe selected plants according to physical size, e.g. This is an oak. It is big.	Functions: students label parts of plants and order the stages of a life cycle.	Functions: students create text for pictures (source: picture book by Helen Nicoll & Jan Pieńkowski: <i>Meg's Veg</i> – online version animation film).
Content objective	Content objective	Content objective
Students recognise and name a series of plants and take note of their physical size: trees, shrubs and herbs.	Students name parts of plants and understand the life cycle of a plant.	Students hypothesise about how a plant will grow; Students plant and record growth of a plant through observation.
Communication	Communication	Communication
Students talk about plants and students contribute to class plant clipbook.	Students talk about parts of a plant and the life cycle of a plant.	Students talk about the life cycle of plants.
Cognition	Cognition	Cognition
Students classify according to categories (physical size of plants).	Reasoning – Students put the stages of a plant life cycle in a logical sequence.	Perception: Students prepare a zigzag book to record the changes observed in a growing plant; they hypothesize about the growth of a plant.

Table 1. Linguistic, content, communication, and cognition objectives for each of the lessons in the learning sequence “The World of Plants”

2.4. Guidelines on How to Use CLIL in Primary School

One key point made in the *Guidelines on How to Use CLIL in Primary School* in relation to teaching materials, from the point of the view of the learner, is visualisation as a means to support pupil understanding of a written or oral text and also to increase pupil motivation. Visuals they will need to perform will be clearer than if there were only written or oral instructions.

Visual elements in CLIL teaching materials may also support teachers while preparing lessons, as few will boast of a similar competence in both content and EFL and thus their linguistic or subject content planning is supported by visual elements. Additionally, not many teachers have the technical expertise required to produce some online graphics and animations as the ones to be found in some OERs and thus teachers have the opportunity to use learning materials of high visual impact.

However, since pupils' needs may be very diverse in terms of EFL competence, content mastery, learning style and personal interests, while making use of ready-made visuals, it is crucial to learn how to select (or adapt) those that are best adapted to various students' needs.

Additionally, it is important to use auditory teaching resources, such as videos and songs from YouTube or other online sources; kinaesthetic activities and tactile complementary learning materials; as well as make extensive use of digital technologies to develop media literacy in children.

In sum, the main advice for materials development in this publication is to integrate the verbal medium with visual aids, media and technology.

2.5. Teacher's Guide on CLIL Methodology in Primary Schools

In chapter 3, "Some principles and language for CLIL lesson planning" (section 3.2.) of the *Teacher's Guide on CLIL Methodology in Primary Schools* some practical principles for developing teaching materials are laid out, namely integrating the 4C's of CLIL (content, cognition, communication and culture), linking them with the prior knowledge of pupils, while also fostering pupils' experiences in connection to the new knowledge to be learned.

Visual, aural, and authentic materials are shown to be highly relevant for the CLIL approach because they contain unknown vocabulary for learners and thus can be used to teach them how to overcome fear of unknown linguistic structures by focusing on what they already know. While it is important for pupils to learn new lexical items before they can actually use them, it is equally important for them to infer meaning from context. Visual and illustrative elements will help with the development of this strategy.

However, it is also highly relevant that each learning sequence contains activities that address the diverse learning styles of children (Bandler and Grinder), so all can be actively involved in learning. Thus, learning activities presented either invite pupils to watch a movie, memorise one or two words or phrases, perform parts of the lyrics of a song by using gestures, draw objects, use diagrams and charts, solve a problem or to guess answers for a quiz. The excerpt below gives a concrete example of a learning sequence on a module on Science on “The World of Animals”.

In Volume 2 in the Module on Science: The World of Animals – Lesson 2, on the Anatomical Parts of Animals, there is a selection of activities that address diverse learning styles. In the Introduction, students select an animal from a bag and talk about it; in Activity 1 drawings are used to learn and practise speaking about body parts of animals; in Activity 2 students stand in a circle, listen to a melody and mime action in a TPR exercise; in Activity 3, students in groups have cards with riddles and pictures and get involved in a guessing game; in Activity 4 students match body coverings of animals with animals on flashcards; in Activity 5, students complete a grid with body parts, coverings and animals by ticking boxes; for fast finishers there is a memory game with cards to be played in pairs. (31)

Another principle for developing teaching materials is to devise real communication and task-based learning. A suggestion is offered to make extensive use of learning activities with an information gap so that pupils will need to collaborate to complete missing information.

One last point made in this section is to support and challenge pupils in terms of language and cognition by creating extra options for fast finishers or more competent learners in terms of

language (or even older learners). Planning for extra activities will keep faster or more advanced learners interested in the learning process. For example, at the end of Lesson 1 of the learning sequence “The World of Plants”, the whole class is involved in typing information to create an online class flipbook and individually each pupil is working on the cover competition for the flipbook. For fast finishers, it is advisable to plan an extra activity, such as reading the flipbook texts aloud in English and recording them for the class clipbook, which thus will be enriched with an audio version.

3. A Step by Step Description of a Learning Sequence

As mentioned above, the learning sequence that will be described is called “The World of Plants”, available from volume 2 of the *Teacher’s Guide on CLIL Methodology in Primary Schools* (8-21). As with all 15-lesson plans, this learning sequence was jointly created by a mixed group of specialist primary education teachers, EFL teachers, teacher educators and researchers. It was then piloted and implemented across several schools in Europe during 2017 by EFL teachers or specialist primary education teachers using a CLIL approach and English as the language of instruction. Their feedback was used to test what worked and did not work in all these different classrooms according to the principles agreed on and described above. These classrooms were both EFL and CLIL, taught by either EFL teachers in EFL classes in primary, specialist primary education teachers in CLIL primary classrooms, or by EFL and specialist primary education teachers in tandem in so-called bilingual or CLIL classrooms.

3.1. Lesson 1: “Physical Size of Plants”

The first lesson topic, “Physical size of plants”, addresses a difficult scientific concept for EFL teachers, who will categorise plants according to several “common language” concepts and not necessarily as “trees, shrubs, herbs”, as is commonly learnt in the primary science curriculum. For example, they may find it hard to categorise a flower, such as a daisy, as ‘herb’. Thus, quality teaching materials prepared through the collaboration of specialist primary education teachers

and EFL teachers will significantly aid integration of content and language and guarantee specialist terminology and concepts.

For the lead-in activity, the teacher prepares six-piece puzzles of photographs of plants in the three categories (with an English label), which children will assemble and read out to the rest of the class. The teacher then tells them what they are going to learn about in the lesson.

For increased motivation and pupil engagement, these puzzles may be prepared based on photos taken by the children themselves from their school garden or community on a previous occasion.

There are 3 interconnected learning activities:

Activity 1

In the first activity the teacher asks pupils to categorise the plants they have assembled in these categories: TREES / SHRUBS / HERBS. Then pupils watch a video online about these categories. The teacher then uses flashcards with additional plants for pupils to categorise; plays a guessing and a TPR game with those flashcards for pupils to have the opportunity to read the name of a plant, pronounce it and classify it in one of the three categories.

Activity 2

The teacher models a series of very simple descriptive sentences for students to use with the plants on other flashcards, first orally and then writes it down:

- *I like tulips.*
- *Tulips are herbs. They are small plants.*
- *Tulips are red or yellow.*

Activity 3

The teacher and pupils prepare an online flipbook together, after showing an example (such as “The Life Cycle of a Butterfly” on *Storyjumper*²). The teacher also announces a competition for the best cover. When ready, this flipbook will be shared with the school community, including

parents, as it will be online. During the school year additions can be made to it on a regular basis either through pair or group work.

For this lesson there is an online public *Kahoot* quiz through which pupils, in a fun way, in pairs or individually, can assess their learning by participating with their mobile devices. They can also do so with their parents at home. Being allowed to bring their own digital device to school (BYOD) may be part of a digital learning strategy to encourage pupils to use mobile devices responsibly.

3.2. Lesson 2: "Plant Parts and Life Cycle"

The topic of the second lesson in this learning sequence is "Plant Parts and Life Cycle". The teacher starts by drawing a schematic picture of a plant on the board with *seed, roots, stem, leaves, flower buds* and *flowers* and tells the pupils what they are. Pupils learn the names of the parts. The teacher then numbers these parts 1 to 6, removes the names of the parts from the board and when a number is called, the name of the part has to be guessed by students. Several guessing games can be played with these parts and numbers, by focusing on either the number or the name of the plant part.

Activity 1

After watching a video about the life cycle of a plant,³ a Total Physical Response (TPR) game follows, of which a suggestion is transcribed below. Note that each teacher may create their own gesture code.

Children show parts of the plant using their bodies: seed - they sit on the floor with arms around their knees; roots – they stretch their legs and feet; stem – they stand up; leaves – they open their arms and hands; flower buds – make fists; flower – they shake heads. While doing these movements, children drill the vocabulary. (15)

After this game, pupils engage in a whole class activity with cards with parts of a plant facing down. In turn, each pupil takes one card and mimes the part of the plant using the gesture-

-part association they learned before. If the guessing pupil gets the name of the part of the plant right, s/he wins the card.

Activity 2

The teacher tells a brief story, using gestures for children to copy, about how a bird drops a seed, roots grow out of it, the sun shines, then rain falls and a flower opens. The bird comes back and looks down at it.

Activity 3

Using a worksheet with drawings from the story, pupils put the story in order as the teacher reads it out again, after which pupils work in pairs to match jumbled sentences from the texts with the ordered pictures from the story.

Activity 4

The teacher distributes roles to pupils (bird, sun, rain, plants) and reads the story while pupils act it out.

At the end of this lesson there is another public online *Kahoot* quiz for pupils to use to assess their learning in a fun, interactive, and digital way.⁴

3.3. Lesson 3: "Plant Parts and Life Cycle"

In this project-based third lesson of the learning sequence about "The World of Plants", the lead-in is again a short video available on YouTube on "The Parts of a Plant".⁵ Only part of it is watched by the pupils, who are invited to associate certain body actions to the parts of the plant. This is followed by a matching game of words, pictures and sentences (for more detail see volume 2 of the *Teacher's Guide on CLIL Methodology in Primary*).

Activity 1

The teacher shows pupils and issues instructions on how to grow a plant on a PowerPoint slide show and while doing so, elicits what the pupils already know and pre-teaches new lexical items such as *pot, soil, seed, water, sunlight*.

In order to prepare for writing up their experiment on the growth of a plant, the pupils follow instructions and a demonstration on how to make a zigzag book divided into six parts. Pupils are invited to make observations every three days and write them on each page of their zigzag books with the following data: date, drawings of the parts of the plant they can see, and labels for those parts.

Pupils make predictions about the growth of their plants following prompts from the teacher such as: *How long will it take to grow a stem? How long will it take to grow leaves? etc.*

Activity 2

In groups, pupils label the pictures downloaded from an animation movie based on Helen Nicoll & Jan Piéncowski's *Meg's Veg* – online version.

Activity 3

Pupils watch the animation video *Meg and Mog's Veg*⁶ and compare it with the stories they have created. Each group has to describe a difference between the story they watched and their own story (in their mother tongue or English).

Since the animation movie includes witchy spells for plant growth, pupils practise saying the spells (from the animation movie) aloud and next, in groups, create their own spell for their own plants, which they will use when watering them.

For assessing pupil learning there is a third online public *Kahoot* quiz.⁷

4. Conclusions

As shown from the brief descriptions of all C4C publications and a sample of a learning sequence on “The World of Plants”, C4C teaching materials are clear, practical, hands-on resources created on the principles of holistic learning and constructivist theory. As they are resources that can be easily adapted by teachers to their contexts, these teaching materials also familiarise teachers with available online resources and how they can be used productively as part of a learning sequence developed around a cross-curricular topic.

The general underlying principle for the learning sequence described is to structure content, language, communication, culture and cognition around big ideas and not small pieces of information (Taylor and MacKenney 144). This means that pupils can see the point in learning the particular elements of the bigger picture and do not have to do it by separating reality into disciplinary areas.

Learning activities address the learner as a whole, their bodies, their motivations, interests and experiences creating opportunities for social interaction and communication. Furthermore, the learning sequence suggests how to link learning about “The World of Plants” to pupils’ lives and experiences through, for example, collecting photos of plants around them or growing a plant themselves.

These teaching materials also enable cognitively-rich learning environments for pupils to be formed, in which the English language and content are systematically integrated. Content, linguistic, communication, and cognition objectives are made explicit for each lesson, which renders the integration of them easier to understand for teachers. Teacher notes that describe learning activities in detail and offer suggestions for fast finishers also make these materials teacher-friendly in the sense of easy to adapt (as appendices contain downloadable and printable resources) and covering a variety of pupils’ needs.

New and recycled lexical items introduced depend on the learning activities developed by the children in the sense that children construct their own learning gradually and from what they already know. Sufficient time is allowed in each learning activity for pupils to interact with one another or to produce an end product of their own. Thus, the learning sequence fosters

meaningful, integrated child-centred learning and supports pupils in acquiring the language and the knowledge they will need to describe, analyse and communicate with others.

Learning activities, which are task-based and child-centred, build on each other, are cognitively challenging, playful, and account for several learning styles (visual, auditory, kinaesthetic) and methods, such as exploration, discovery, experimentation, TPR, and interaction, which keep pupils interested in learning.

Visuals are used to introduce new topics and are used throughout each lesson as aids to memory and learning, as well as ways of organising knowledge (through graphs and drawings).

Each lesson introduces several opportunities for pupil interaction in pairs and groups, elements of playfulness, and authentic resources found on the Internet (videos, songs, etc.). Thus, digital integration in learning and teaching is enhanced in a natural way.

Formative assessment of learning is promoted through an online quiz that involves elements of competition and fun although each learning activity described can also be used for self- or peer assessment or by the teacher. Assessment occurs in the context of daily classroom learning and not as a separate event. Pupils' developing competence can be observed along with the task they are trying to complete. Therefore, their performance should be assessed as the sum of effort made during the whole process rather than on the basis of a singular test.

Notes

¹ The C4C-CLIL for Children project is funded by the Erasmus+ EU programme and was developed during 2015-2018 – number 2015-1-IT02-KA201-015017. All resources and materials mentioned are available on the project's website at www.cil4children.eu. The resources developed for the project are copyright of the whole C4C consortium and the author would like to acknowledge the contributions of all colleagues involved. Disclaimer: The views expressed in this article are the responsibility of its author.

² Storyjumper can be found at <https://www.storyjumper.com/book/index/18764938/The-Life-Cycle-of-a-Butterfly#page/14> _

³ The video is available at <https://www.youtube.com/watch?v=dJjNh2pMSB8>

⁴ The Kahoot quiz can be found at <https://create.kahoot.it/#quiz/c43ca08a-c0ee-408b-900b-d378309be7fc>

⁵ This video can be found at https://www.youtube.com/watch?v=ql6OL7_qFgU

⁶ The video can be found at <https://www.youtube.com/watch?v=wnJiS3paaOk>

⁷ The Kahoot quiz is available at https://create.kahoot.it/?_ga=1.45826407.252536295.1460483479&deviceId=d76388bf-f389-4f92-a5e6-e679917b95b7#quiz/c26629ee-b1f1-452a-85b6-ab73b75758ae

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