HANDBOOK

Language in content instruction
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Foreword

One of the major developments in education across the world in recent years, affecting teachers of additional languages (whether these are ‘foreign’, ‘second’ or ‘other’), has been the teaching of other subject-content (e.g. geography, history, science) in whole or in part through the medium of an additional language. The development has attracted the interest not only of individual teachers and schools but also of major regional and national bodies within particular states and also of major transnational bodies such as the European Commission.

The approach contains within it two ingredients which in principle offer more than the conventional approach to teaching a foreign language as a school subject in its own right (based on relatively small amounts of time per week). These two ingredients are an increase in ‘time’ and an increase in ‘intensity of challenge’, the latter because students must strive to learn important subject-matter through the additional language, as well as learning the additional language. However, by themselves these two ingredients, important though they are, mean little or nothing. They are simply part of a formula – and to achieve success the formula must be successfully activated. This leads us to a key factor, the one which most directly activates the formula and which I call ‘quality of teaching’.

The initiative which is reported in the present publication was funded through the SOCRATES programme of the European Commission. It brings together experts from different parts of Europe and enables us to take an informed view of many of the key issues which arise when this sort of approach is implemented; and in addition it has benefited from an expert independent evaluation. In particular, it directly addresses in many different ways the key factor of ‘quality of teaching’ when other-subject content is being taught through an additional language.

As its title indicates, it is a Handbook with a specific focus on Language in Content Instruction. Any Handbook must stand or fall on the basis of its practicality, and in this sense I find the present Handbook to be impressive, offering as it does information, advice and encouragement on the everyday practicalities of a wide range of relevant matters such as the learning of vocabulary, the role of grammar, the teaching of listening, speaking, reading & writing, the development and the application of thinking skills and learning strategies, the opportunities offered through task-based instruction and the possibilities which arise in the area of assessment and evaluation. Equally impressive, though, is the research base which underpins each chapter, as is confirmed by the substantial set of references to international research studies and also by the helpful glossary of key terms.

A particular merit of the Handbook is the insight which it offers on inter-subject differences. In doing so it goes beyond a straightforward exposition of general thinking skills and general language skills and at least begins to address the particular types of discourse, the particular modes of language-use and the particular types of thinking skill which go with different subjects or areas of the curriculum. Much research and development needs to be done in this important area, and the Handbook provides an excellent starting point.

I congratulate the writers who have contributed to this impressive publication and would like to offer my sincere thanks to the editors for having invited me to set the scene for what I hope will be a large number of readers across Europe and further afield.

Professor Emeritus Richard Johnstone

Richard Johnstone is Emeritus Professor of the University of Stirling. He has directed the independent evaluation of several national and international initiatives in which other-subject content has been taught through additional languages, featuring English, French, Spanish, Italian and Scottish Gaelic.
Acknowledgments

LICI (Language in Content Instruction, 229850-CP-1-2006-1-FI-LINGUA-L2PP) is a 3-year Lingua 2 project, part of the Socrates programme, carried out between the years 2006 and 2009. The products of the LICI project are Handbook for language in content instruction, an accompanying DVD with samples of teaching materials and the LICI website (http://lici.utu.fi).

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Handbook

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The French translation of the Handbook was carried out by Teresina Barbero, Martine Corsain and Áine Furlong, and the German translation by Doris Sygmund.

DVD

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Heini-Marja Järvinen
Editor
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Contents of the DVD
The purpose of this handbook is to provide insights and tools to those who think that language learning and content learning might be promoted by emphasizing the language component of the duo. The theoretical basis that endorses the aforementioned goal is the idea of language as a meaning making resource. Consequently, by learning the language of a trade, more specifically the academic register of the content area, the learner's meaning-making resources are extended. It is not unusual that different disciplines think differently and formulate discipline-specific thinking in ways that are typical of the discipline. This requires the learners to learn the domain-specific thinking skills and strategies and related language repertoire.

In short, this handbook provides a theoretical-practical tool for a professional to understand what language learning is, how language is taught, what content-specific thinking means and how it can be taught by promoting language competence as well as content competence and how the two, language and content, integrate in learning, teaching and assessment.

This handbook is a product of a Socrates Lingua 2 project titled Language in Content Instruction, or LICI for short (229850-CP-1-2006-1-FI-LINGUA-L2PP), which was carried out during 2006–2009. The other products of the LICI project are a DVD to be found in the sleeve of the back cover of this book and a website to be found at http://lici.utu.fi.

Who is this handbook for?

This handbook is aimed at an audience who is interested in the learning and teaching of language in language-medium content teaching, more specifically in content and language integrated learning (CLIL). Such an audience is likely to consist of language and content teachers at primary, secondary and tertiary levels, teacher trainers, teacher trainees, researchers, and administrators, syllabi and curriculum planners.

CLIL takes place in a great variety of educational contexts, which means that an educational resource needs to address to the needs of a very different audience. When talking about teachers we mean language teachers and content teachers who are subject specialists. They may already be practicing their profession in CLIL education or just considering having a new challenge in their career by giving CLIL lessons. They may be student teachers in pre-service education or teachers involved in in-service CLIL training. The audience of the handbook may have very different backgrounds: they may be native or non-native teachers of one or more foreign languages and-or native or non-native content teachers.

The envisaged CLIL contexts are as follows:

Primary (approximately 5–11 years of age): recognizing the general need for learning languages at an early age. Natural integration of the language in the holistic context of primary education.

Secondary: (approx. 11–18 yrs, lower and upper secondary, differing national contexts): to empower language specialists to tackle the language and the content of another subject
and to empower subject specialists to use another medium of communication to teach their subjects.

Tertiary: (18+ yrs): language lecturers and subject specialists: The higher the level of content instruction, the higher the assumed language proficiency of the students. The use of a foreign language in teaching may be taken “as granted” especially at university level, where content is primary and language is seen as a vehicle.

**What is the handbook about?**

The handbook will serve as a reference book as well as a working tool for teachers, teacher trainers and teacher trainees involved in initial or in-service teacher training.

The handbook provides theoretical and practical support to teachers, teacher trainers and trainees in the form of a framework reflecting the main influences from the domains of second language learning and content-based teaching. The practical perspective is illustrated by applications of theories and research, e.g. implementations of language and content learning strategies in the classroom. The handbook is accompanied by a DVD, containing a variety of teaching materials in the subjects of science and social science for the primary and secondary sectors, and sociology, engineering and marketing for the tertiary sector. An associated website is available at http://lici.utu.fi

**What is CLIL?**

The following definitions articulate the concept of Content and Language Integrated Learning (CLIL).

CLIL is a dual-focused educational approach in which an additional language is used for the learning and teaching of both content and language (CCN 2008).

Content and Language Integrated Learning (CLIL) involves teaching a curricular subject through the medium of a language other than that normally used. The subject can be entirely unrelated to language learning, such as history lessons being taught in English in a school in Spain. http://ec.europa.eu/education/languages/language-teaching/doc236_en.htm

The above definitions are methodological rather than pedagogical in the sense that they refer to the use of an additional language in teaching, which is expected in the face of the short history of CLIL teaching in Europe and consequent shortage of long-term research related to learning outcomes of the method. However, the results of the research and the experiences accumulated so far have been positive and the experience of the CLIL method is primarily positive.

**Why CLIL?**

It has been found that content and language integrated instruction

- builds intercultural knowledge and understanding
- develops intercultural communication skills
- improves language competence and oral communication skills
- develops multilingual interests and attitudes
provides opportunities to study content through different perspectives
allows learners more contact with the target language
does not require extra teaching hours
complements other subjects rather than competes with them
diversifies methods and forms of classroom practice
increases learners’ motivation and confidence in both the language and the subject being taught


In addition to the above mentioned benefits, CLIL helps to achieve the objective agreed on by the European Commission that by the end of the secondary school studies students should be able to talk in two foreign languages apart from their mother tongue.

The mobility in workforce all over the world requires a greater flexibility of teachers: they may have to change the content or the medium of their teaching adapting to the changing needs in education.

CLIL is a means of motivating language and non-/language students to continue their language learning experience in a relevant manner, to better prepare students to go on Erasmus exchange programmes where they have to follow a lecture in the foreign language, Interdisciplinary contact leads to an increase in the visibility of languages in the institutions.

How does the handbook relate to CLIL?

The focus of the LICI project and its products is the language of learning and instruction in a CLIL environment. This does not mean that less emphasis is given to content, but the leading principle of the LICI project is that by enhancing language in content teaching, the dual focus of learning both language and content is realized optimally, as language and content are integrated in CLIL.

Language focus

The theoretical basis for focusing on language in content instruction endorsed in the LICI handbook is the idea of language as a meaning resource. Language and meaning are integrated, and by extending language, meaning resources extend accordingly. Although the focus is on all language competences, the main focus is on academic language and literacy skills, which are a natural part of subject teaching and CLIL teaching alike.

The language focus consists of the learning and teaching of language skills (listening, speaking, reading and writing), vocabulary and (relevant) grammar. The discourse offers a theoretical background and a selection of strategies, tasks or activities to assist the content teacher and/or the language teacher in the language-related decisions to be made when preparing and delivering CLIL. Additional guidelines for the successful planning and delivery of a CLIL lesson will also provide support for the teacher.

Mindful of the Common European Framework of Reference for Languages (CEFR), the LICI activities are presented according to the global scale and its six levels A1, A2, B1, B2, C1. Assessment is also linked to the CEFR.
Content focus

The theoretical basis for linking content with language is found in general and content-specific thinking skills and strategies. One of the major influences is Bernard Mohan’s Knowledge Framework, which offers a principled account of integration of language and content, more specifically it links thinking skills with corresponding linguistic expression. To take an example, the thinking skill related to Principles and Sequences is applied in e.g. history teaching by creating and explaining a timeline, or in science by explaining a cause-effect sequence. The integration of language and content concerns not only the levels of learning, teaching but also that of assessment. A chapter on assessment discusses ways of assessing language and content as an integrated whole by means of traditional but in particular alternative, authentic assessment.

The European Dimension

As a conclusion to the preface, the readers are reminded of three European documents that are relevant to content and language integrated learning. The most central one of them from the language point of view and one that is frequently referred to in this handbook is the Common European Framework of Reference for Languages. The document is downloadable from the Council of Europe website.

THE COMMON EUROPEAN FRAMEWORK OF REFERENCE FOR LANGUAGES (2001)
http://www.coe.int/t/dg4/linguistic/CADRE_EN.asp

The remaining two frameworks have a wider scope of reference. They function as an important complement to the CEFR, providing a framework for the variety of competences that are relevant in content and integrated instruction in the Europe of today.

KEY COMPETENCES FOR LIFELONG LEARNING — A EUROPEAN REFERENCE FRAMEWORK (2006)

THE EUROPEAN QUALIFICATIONS FRAMEWORK (2008)
ec.europa.eu/education/policies/educ/eqf/eqf08_en.
What does it mean to learn language in content instruction? How is it different from learning language in language lessons? How should language be taught in content instruction for the best possible result? There is no simple and straightforward answer to these questions, but instead there are many vantage points to explore the questions from and consequently there are many answers. The answers vary in accordance with the standpoint taken.

In the following, some core examples of the numerous theories and models of language learning are presented including the theoretical model adopted as part of the framework of this handbook.

What is language learning?

Attempts to describe language learning can be compared to the blind men of the tale who were led to a big elephant and asked to identify the object in front of them. Touching different parts of the elephant, each of the men got a different perception of the animal. One felt the trunk and was certain that it was a snake; another touched the ear and thought it was a hand fan, yet another grasped the tail and thought it was a rope. Each man “was partly in the right, And all were in the wrong! ("The blind men and the elephant" John Godfrey Saxe, 1816-1887; Elephant illustration © Jason Hunt). Similarly, there are different views on language learning. One is the view of language learning as a genetically encoded black box, another sees the source of language learning in the environment, yet another in the ambient input and implicit acquisition. There are the constructivists who build new knowledge upon existing memory schemata and the connectionists who rely on electro-chemical reactions in producing chunks of language for frequent automated use. The individualists believe in knowing one’s learning style and learning to use appropriate strategies on the way towards an autonomous learner. The action-oriented stress language use and active participation. There are those who see no learning without motivation and the right attitude and those who dovetail culture and identity with learning. Yet others envisage language learning as a fascinating chaos, steered by attractors and repellers on the bumpy road to learning.

How to teach language?

Given the multifaceted, complex and dynamic nature of language learning, how can it be taught? In spite of the apparent insuperability of the task, people have always learnt languages - probably by using the method that has instinctively best suited their individual ways of learning. They have eaten the elephant bit-by-bit, unaware of the daunting task and the distant goal. Perhaps the best way to go about teaching languages
is to learn from successful natural language learning and from the history of and research into formal language learning and teaching. To compress the above discussion and to operationalise it to fit classroom teaching, in a nutshell, successful language teaching contains the following ingredients: ample target language input to allow for implicit learning, in particular inference of regularities from the input, numerous opportunities to comprehend and produce interesting and meaningful discourse in different modes, representing a variety of genres and registers, opportunities to creative use of language, e.g. role playing and drama activities, opportunities to learn from each other (group work, reciprocal learning, task-based learning), opportunities to get targeted, tailored, timely feedback on one’s language usage (focus-on-form instruction, FFI), opportunities to get involved in limit-stretching, challenging tasks of language use, in particular at intermediate level and onwards, in order to facilitate negotiation and reflection and development of language proficiency. Last but not least, understanding the collocational nature of language translates into acknowledging the usefulness of "rote" and drill learning in the classroom, as means of learning functional and idiomatic language.

**What is language learning and teaching in content instruction?**

The view of language learning adopted in this handbook reflects the Hallydayan idea of language as a meaning making resource. (see e.g., Mohan, 1986; Halliday, 1993, 1994; Martin & Rose, 2003; Huang & Mohan, 2009). The basic idea is that language is a meaning potential used differently for different purposes and in different contexts. The fundamental tenets are:

- **Texts make meaning through words.**
- **Words give shape to meaning.**
- **Language is a meaning making resource.**
- **Language learning is extending language resources for making meaning in context.**
- **Language development can be seen as growing meaning potential.**

Language learning in the context of content learning is achieving the meaning potential of the content through the language resources that encode the specific content. More specifically, content-specific meaning potential is realized by means of content-typical language. This is called a register. In learning the meaning potential of specific content the learner is simultaneously faced with learning the strategic ways in which language encodes meaning as well as thinking skills and strategies that are embedded in content-specific discourse. To take an example: at an elementary level, comprehension and production of the language of historical causality means understanding and being able to use in production some of the following language: *so, because (of), to cause, to lead to, to result in, the cause, the result*. A more advanced learner will have to be able to detect the more implicit nuances of the many ways of expressing causality in history.

**What is language teaching in content instruction?**

An important objective of the handbook is to support language and content integration by pointing out ways of helping the teacher to focus on ways of extending the learners' language resources for expressing content in context. This is done by becoming aware of the register of the field of knowledge that is taught. In other words, the teacher should survey the texts that s/he is using, thus identifying the language resources that are typical of the register of the domain. For the second, the teacher should devise tasks that help
students identify and learn the systematic form-meaning relations in the target language (meaning potential) of the particular field of knowledge. If the content teacher has the opportunity to collaborate with a language teacher, the integration of language with content can be shared between the two teachers. For the third, the learners should be guided to identify register-specific ways of making meaning in context. For the fourth, they should be supported in learning to use language as a meaning making resource with the ultimate goal of extending their language resources for making meaning. There is a crucial difference between learning language in the language classroom primarily for correct use of lexis and grammar rules or even learning language for communication, and learning language in the language and content classroom with the goal of widening one’s meaning potential. In the former case, learning language form is more pronounced than in the latter alternative, where meaning and language are intrinsically integrated.
Vocabulary learning and teaching

When asked which of the following are words:

| as far as I know; car; absolutely convinced; firstly; read; that'll do |

most people will answer car, read and firstly and perhaps pick up the single words¹ from the collocations² (as, far, as, I, know; absolutely, convinced) but not the whole groups of words. This is because a written word has been traditionally defined as a single stretch of letters divided by a blank space before and after the stretch.

Why is vocabulary important?

From the 80s, the significance of vocabulary (or lexis) as part of language proficiency and language learning has been understood differently from the earlier grammar-based view of language learning and teaching (e.g. Nation, 1990, Sinclair, 1991). It is now commonly believed that lexis is one of the most important components of language proficiency, more important than grammar, for example. With the development of statistical techniques, the measurement of vocabulary size and its relation to reading proficiency and measures of intelligence have become possible. It has been shown that vocabulary size correlates strongly with both reading comprehension and intelligence (Anderson & Freebody, 1981). It has also been shown that deficiencies in vocabulary knowledge are an important cause of academic failure and that teaching of content vocabulary, in particular direct instruction of word meanings improves academic success (Beck, Perfetti & McKeown, 1982; Baumann & Kameenui, 1991).

Vocabulary knowledge is important for both L1 and L2. Laufer (1996) suggests that L2 learners need a vocabulary size of about 5 000 words to be able to read without difficulty in their L2, unhampered by either lacking vocabulary skills in the L2 and/or deficient reading skills in their L1. In addition to vocabulary size, also vocabulary depth seems to be

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¹ Vocabulary is frequently used to refer to single words, whereas lexis refers to multi-word units and the word including its associations in the mental lexicon.

² Collocation is “the readily observable phenomenon whereby certain words co-occur in natural text with greater than random frequency” (Lewis, 1997:8)
Vocabulary learning and teaching

an important factor. For example, Qian (1999) proposes that knowledge of collocations, core meanings and syntactical restrictions may be instrumental in the relationship between reading proficiency and vocabulary knowledge.

The implications to content and language integrated instruction are obvious. Such programmes offer ample opportunities for the development of both receptive and productive vocabulary, which means that students’ vocabularies are extended and their meaning making skills are improved. It should, however, be noted that the growth of passive vocabularies must be accompanied by deliberate vocabulary work on productive vocabularies, particular attention should be paid to conceptual and collocational language. According to Takala (1989), some effective and economical ways of extending vocabulary size are learning and teaching compounds and affixes and adding the students’ inferential potential by introducing vocabulary in a number of languages simultaneously.

What is vocabulary?

The current understanding of the nature of vocabulary is that it consists not only of single words but also of multi-word chunks that act in much the same way as single-word units. For example, the order of items in multi-word units cannot be changed: *We’ve had our downs and ups. (We’ve had our ups and downs.)*; *Good morning, Gentlemen and Ladies (Good morning, Ladies and Gentlemen.) (Lewis, 1997).* These groups of words are prefabricated, which means that when a child learning her/his first language is exposed to huge amounts of input during a long time, s/he learns implicitly a great amount of language from the environment. The child is exposed to frequently occurring, relatively stereotyped, not original, chunks, such as *Would you like a cup of coffee?; I’ll get it; We’ll see; That’ll do; If I were you* (Lewis, 1997). The ambient language forms the raw data from which the learner implicitly acquires an array of frequently occurring unanalyzed chunks of language (Lewis, 1993). However, prefabricated language is not only typical of everyday language use but also of academic, subject-specific language, which makes its learning and teaching especially important in CLIL.

Lewis (1993, 1997) divides lexical items into words (*car, read*), polywords (*by the way*), collocations or word partnerships, typically adjective + noun or verb + noun, adverb + adjective combinations (*rancid butter, absolutely convinced*) and institutionalized utterances, such as the above mentioned chunks (*Would you like a cup of coffee?; I’ll get it; We’ll see; That’ll do; If I were you*). Finally, and importantly in CLIL context, sentence frames and text frames, such as *The fact/suggestion/problem/danger was; In this paper we explore; Firstly... ; Secondly...; Finally...*, are frequent in subject-specific discourse. There are sentence and text frames that are characteristic of academic discourse in general, but there are also specific types of institutionalized chunks that characterize subject-specific academic discourses. A native speaker “picks up” collocations from the environment as a result of an extended exposure to ambient language, but a second language learner usually has to put some effort into learning even commonplace collocations. Bilingual education, content-based instruction and CLIL contexts are likely to provide more opportunities to implicit learning of prefabricated language than formal language study, but the conventions of academic discourse are not implicitly acquired from the environment. Both native speakers and second language learners alike need to focus explicitly on the study of academic language.
How is vocabulary learned?

The role of formulaic, multi-word lexical units has been emphasized in both first and second language learning. Ample language input in CLIL contexts is necessary to provide learners with access to the numerous contacts with subject-typical prefabricated language that are needed for implicit learning to happen. Language input in class typically represents a spoken variety, whereas written subject-specific texts are useful sources of subject-specific lexical conventions, such as collocations, sentence and text frames (see below for examples).

It seems that a lot of lexis is learned as single words but also as prefabricated combinations of words. Furthermore, a lot of second language learning consists of (rote) learning of words and chunks. Numerous contacts with lexical material are needed to achieve automatization of the material. Automatization, in turn, makes possible the use of lexical units in further language learning. When automatized, chunks need less short-term memory capacity to be processed, which means that more capacity is relieved for cognitive processes, processing content matter in a CLIL class, for example.

Memory in vocabulary learning

It is important to note that not all lexical learning consists of automatizing prefabricated unanalyzed chunks, but memory processes are of key importance. How lexis is stored in long-term memory and how it is retrieved from long-term memory to be used in communication are key issues when considering individual and permanent learning of lexical units. Our knowledge of how memory works is increasing due to advances in neurobiology, but so far the knowledge that can be applied in the classrooms that we have about how lexis is stored in memory comes mainly from association tests. Word association tests typically consist of tests where a prompt word is provided and the testee is required to provide the first word that the prompt word triggers. The assumption is that prompts and triggered words are stored in the same place in memory. Association tests have shown – perhaps not surprisingly - that lexical units that belong together, that come from the same thematic field, for example, are stored together. It has also been shown that first language learners store antonyms (big-small) in one place. We also know that a well structured lexis is hierarchically organized and that it is useful to learn a word supported by many different associations (language associations, picture, sound sensation, tactile sensations, etc.), because successful retrieval of a lexical item needs only one association. Numerous associations also add to the richness of the lexical network and guarantee the access of a specific lexical item from a number of different networks.

Knowing a word

There are different degrees of knowing a word. A beginning learner may know only one meaning of a word, whereas an advanced one is likely to know the form, meanings and uses of the word (Nation, 2001), including the collocations and contexts of the word. CLIL vocabulary typically consists of either specific, scientific vocabulary, of Latin or Greek origin, such as auditory, clavicle, incubator, or of relatively common words that have special meanings in content-specific use, such as force (F), work and energy.

There are two kinds of vocabulary. Some vocabulary is learnt from being exposed to language, by “receiving” the words and understanding their meaning in context (receptive vocabulary). Such vocabulary may well remain at the level of comprehension only, but the
other type of vocabulary, productive vocabulary, is a product of practice and automatization, and lends itself to be used in spoken or written production. The more automated the vocabulary is and the better it is encoded in memory (equipped with associations) the quicker it is to retrieve from memory to use.

**Vocabulary and thinking**

Thinking skills can be promoted in vocabulary teaching in CLIL. In addition to words denoting specific thinking processes (see Thinking skills and strategies, Mohan, Bloom, and cubing), words can be divided into words that name the object, words that describe a process and concept words. Table 3.1 (see DVD for related teaching materials) provides some examples of the use of these words in class.

### Table 3.1. Taxonomy of scientific words

<table>
<thead>
<tr>
<th>Word categories</th>
<th>Examples</th>
<th>Strategies</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Naming words</strong></td>
<td>Strategy: Matching words and definitions: Trachea, meniscus, vertebra, pollen, saliva.... Synonyms of familiar words: windpipe, backbone, spit, Unfamiliar words: they refer to:</td>
<td>Matching words and pictures Matching words and definitions Labelling a picture Classifying vocabulary in categories Identifying prefixes and suffixes</td>
</tr>
<tr>
<td>These words denote identifiable, observable, real objects or entities. These words may be:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1. familiar objects words, synonyms for every day words</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2. unfamiliar objects words, objects pupils have never seen before, they are specific to the scientific world</td>
<td></td>
<td></td>
</tr>
<tr>
<td>NB, Some naming words may be developed as concept words.</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Process words</strong></td>
<td>• Evaporation, condensation, photosynthesis, fusion, vaporization, crystallisation, fusion, distillation • evolution</td>
<td>Linking words through diagrams to illustrate processes Representing processes through graphic organisers</td>
</tr>
<tr>
<td>They are words at a higher level of abstraction. They may be taught in different ways, according to their different level of abstraction:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1. Certain processes are “visible” or at least “showable”:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2. Other processes belong to a higher level within this category. Some of these words may also be “concept words”</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Concept words</strong></td>
<td>There are different categories of concept words:</td>
<td>Explaining concepts through graphic organisers</td>
</tr>
<tr>
<td>This is the largest category of words. Here most learning difficulties are encountered as:</td>
<td>• sensory concepts, directly derived from the experience: i.e. red</td>
<td></td>
</tr>
<tr>
<td>1. they denote ideas at gradually ascending level of abstraction,</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2. they are part of a network of other</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
words, all related together, the understanding of one word (i.e. power) depends on prior understanding of other words (i.e. work, energy)

| • words that have both a scientific and an everyday meaning: plant, nutrition, atom, electron, mass  
| • words used to denote theoretical constructs or unobservable constructs: atom, electron, element, compound |

(Adapted from Wellington & Osborne, 2001)

How to teach vocabulary

Vocabulary teaching should be based on what we know about vocabulary learning. The following practical applications are derived from vocabulary learning theory and research and they have been selected to fit in with vocabulary teaching in content instruction.

- **Input**
  When teaching vocabulary, one should provide a lot of input in the form of speaking but also and in particular in the form of written texts. Content-specific writing provides a model for the use of vocabulary in authentic content texts. This type of vocabulary is likely to result in receptive vocabulary learning, but it also provides an opportunity for implicit learning of language and a basis for ensuing practice and explicit learning of the language that needs to be learnt for productive use.

- **Noticing**
  The first step towards learning vocabulary is deliberate attention to vocabulary in context. Content expertise is needed to point out to students words, polywords, collocations, sentence and text frames that are typical of the content studied. Teaching materials should provide models and tasks for raising awareness of the forms, functions and meanings of subject-specific vocabulary.

  While listening or reading, the learner notices that a word is new or thinks, ‘I have seen that word before,’ or thinks, ‘that word is used differently from the ways I have seen it used before.’

  The teacher highlights a word while writing it on the blackboard.

  The learners negotiate the meaning of a word with each other or with the teacher.

  The teacher explains a word for the learners by giving a definition, a synonym, or a first language translation.

- **Working with language corpora**
  Useful tools for work on collocations are language corpuses that are accessible on the Internet (such as the British National Corpus [http://thetis.bl.uk/BNCbib/] or COBUILD Bank of English [http://titania.cobuild.collins.co.uk/])

- **Working with dictionaries and other reference tools**
  Dictionaries and encyclopaedias provide an important source for vocabulary learning in CLIL. Encyclopaedias offer definitions of concepts and explanations of processes. Monolingual dictionaries provide the definition of a lexical unit in the target language, and
bilingual dictionaries provide the first language equivalent. Tasks with practice of the use of reference tools need to be designed.

For materials writers, teachers and students working with authentic content materials, who focus on the academic language component, a resource is available at www.wordsift.com. This resource can be used to assess the occurrence of academic vocabulary in instructional texts, work on specific concepts and language and for many other purposes. See example 3.3 (Word map) below.

The Internet is a rich source of both general and special dictionaries and encyclopaedias. Some of them are listed below.

**General dictionaries**

en.wiktionary.org/wiki/
http://www.thefreedictionary.com/
wordnet.princeton.edu/perl/webwn
http://www.answers.com/
http://dictionary.reference.com/
http://www.yourdictionary.com/
http://www.merriam-webster.com/

**Dictionaries with specific content**

http://www.proofrock.com/construction_terms.htm#i
http://www.homebuildingmanual.com/Glossary.htm
pghbridges.com/termsMet.htm
http://www.excalibursteel.com/glossary.htm
http://www.learn4good.com/science/physics.htm
http://www.geocities.com/physolv/glossary.htm

**Encyclopedias**

en.wikipedia.org/wiki/
http://www.britannica.com/
http://www.encyclopedia.com/
http://encarta.msn.com/
Other useful sites

http://englishforuniversity.com/


http://owll.massey.ac.nz/index.htm

- Practicing

The goals of learning of important lexical units are quick retrieval from memory and fluency in production. Explicit teaching and learning can achieve these goals. The most frequent and useful vocabulary will need to be practised to a high level of automatization. If the goal is comprehension of a lexical unit in context, ample exposure through listening and reading combined with e.g. recognition, naming or matching activities may be sufficient.

- Production

Practising production of vocabulary in speaking and writing is effective for language learning. Speaking practise may trigger “language talk” (negotiation of form), which is also known as languaging (Swain, 2003). Fluent speaking relies on quick retrieval and automatization of language, especially prefabricated chunks. Such chunks consist of frequently occurring prefabricated spoken language, but also of communication or compensation strategies that come in handy when communication breaks down. Writing vocabulary differs from that of speaking: it is more formal and consists of nominal forms rather than verbs and clauses, and the writer has more time to think about the content of writing.

- Word inferencing

Read the text and infer the meaning of “ancon” on the basis of contextual and other information.

He was not ill, and of course the beds in the ancon are for ill people. As soon as he could walk, he left the ancon and started looking for a ship to take him back to England. (Webb 2007)

The text provides contextual hints (ill, beds, ill people, as soon as he could walk) and grammatical clues (definite article>noun) that help the reader to solve the meaning of the word (ancon=hospital). Inferencing skills seem to correlate with language ability: high-ability language learners are skilled inferencers (e.g. Read, 2000). Inferencing is a particularly useful skill in CLIL where concept-definitions and problem-solving skills are important. One way of teaching inferencing is modelling the process, i.e. “thinking out loud”. This would preferably be done by an expert (the teacher), who would scaffold heavily at the beginning of the process. S/he would “model modelling”, that is, s/he would reveal her/his thinking process and put them into words. In this way, an expert’s thinking process would be exposed to students. It must be noted that there is a difference between teaching=explaining and teaching=modeling=showing by example.
Word grouping

Since it is assumed that words are stored in groups, it is accordingly suggested that they should be taught in groups. Words can be grouped in a number of ways:

- all the words that belong to the same theme (concept maps 3.1. and 3.2)
- words that belong to the same grammatical category
- synonyms and antonyms
- collocations

Concept maps can be used in many ways. (Figure 3.1 illustrates two concept maps, one designed for primary level unit dealing with growth and the other for tertiary level steel construction. See DVD for related teaching materials.)

- They can be used as advance organizers (“This is a concept map of some important concepts in the unit we are going to study next. What do you think the unit is about?”)
- They provide an overview and introduction to a new topic (teacher can use the concept map as a visual support when introducing the topic).
- They may be used as a support for speaking or writing (giving a presentation on how humans grow, comparing plants and animals in writing).
- They may be used as gap-filling (or node-filling) exercises, or as note-taking/listening comprehension or reading comprehension exercises.
- They can be used in reviewing homework or the whole topic area at the end of the unit.

Figure 3.1 Two concept maps (Growing and Connections)
**Word Cards**

Word cards are a traditional way of teaching and learning meaning of words. Usually, word cards are used for combining word and picture, word and definition or word (in target language) and word (in first language) (see Primary level video 1 (Water Cycle) on the DVD for an example of the use of word cards in reviewing old information and teaching new concepts and Tertiary level video 1: news flash). Word cards can be used as quiz exercises, too. Examples in Steel material: Cold-formed steel structures Lesson 1: C. Post-tasks: Task 1, versions 1-4; Lesson 2: C. Post-tasks: Task 4 Quiz.

**Word Logs and Word Maps**

Learning concept words is of key importance in all content learning, but in particular in CLIL, where target language is involved. One drawback is shortage of pedagogically sound teaching materials for CLIL, which means that the teacher and the students need to find and modify teaching materials from textbooks used in target language contexts or from authentic sources, such as the Net. This circumstance need not be entirely negative, but it can help the students to create their own field-specific vocabularies and thus have an opportunity to deeper learning of the core concepts of the field. One way of improving vocabulary learning in CLIL is to have students keep their individual word logs, for example in the form of word maps (see Figure 3.3 below). In an “open” version, students would be able to write down the words they found interesting/ difficult or important and encourage autonomous and individual vocabulary work. In a more scaffolded version, the teacher decides at least partly which words s/he thinks students should learn. A template for a latter type is shown below. (Word map templates as well as cubing applications are found on the Internet.)
Using Internet tools in the construction of word maps

The following example presents a sample word map produced by means of a learning tool available at www.wordsift.com.

Word map sample (www.wordsift.com)

The source text that our fictitious student is working on is the first paragraph from COLD-FORMED STEEL STRUCTURES (LESSON 4) (see DVD for the whole teaching unit). The following text (Figure 3.4 was inserted into Wordshift (Figure 3.5):

Design and Failure modes

The use of thin material and cold-forming processes results in several design problems for cold-formed steel construction different from those of heavy hot-rolled steel construction. The differences between cold-formed and hot-rolled steel are not just in the thickness and the shapes. Since cold-formed steel members are formed at room temperature, the material becomes harder and stronger. One of the main differences between designing with cold-formed steel shapes and with hot-rolled structural shapes is that with the hot-rolled, one is primarily concerned about two types of instability—column buckling and lateral buckling of unbraced beams. The dimensions of hot-rolled shapes are such that local buckling of individual constituent elements generally will not occur before yielding. Buckling means a wrinkle, bulge or otherwise loss of the original shape of a member due to compressive bending, bearing or shear loads.
Figure 3.5 The text in Fig. 3.2 inserted into WordShift.

The programme will provide the most frequent words in the inserted text, marking academic words separately (in orange). Figure 3.4 shows the most frequent words for Design and Failure modes:

![Image of frequent words]

Figure 3.6 The most frequent words in Design and Failure modes

Our fictitious student selects the word *construction* to include in his private encyclopaedia. Figure 3.7 shows the hits in the visual thesaurus for the word construction. Our student can go on by clicking on the links that s/he finds relevant, such as *building* and *structure* for example, or s/he can look at the pictures or videos that WordSift provides to add a visual representation of the meaning/s of the word *construction*. 
Our student is now ready to fill in a page in her/his word map either copy-pasting the information from the Internet (see example in Demo at www.wordsift.com) or creating her/his own individual word map for construction or any other important item that s/he has selected or that the teacher has advised her/him to work on.

**Vocabulary activities**

Table 3.2 presents a selection of some commonly used activities for vocabulary learning. The assumption is that learning starts with noticing the word, paying first attention to the visual appearance of the word. At this point, the goal is to provide the learner with a first encounter of the word and start the learning process. The recognition phase (naming of the word) requires some more mental activity. To be able to name a word, one has to be able to discern it form other objects, yet at a relatively superficial level. The final stage of vocabulary learning is that of producing words independently or with minimal guidance.
Table 3.2 Vocabulary learning activities (modified from
http://esllanguageschools.suite101.com/article.cfm/how_to_teach_vocabulary)

<table>
<thead>
<tr>
<th>Learning activity</th>
<th>Tasks for vocabulary practice</th>
</tr>
</thead>
<tbody>
<tr>
<td>Noticing the word</td>
<td>• Flashcards, word cards</td>
</tr>
<tr>
<td></td>
<td>• Pictures</td>
</tr>
<tr>
<td>Recognizing &amp; Naming the word</td>
<td>• Classification</td>
</tr>
<tr>
<td></td>
<td>• True/False</td>
</tr>
<tr>
<td></td>
<td>• Matching</td>
</tr>
<tr>
<td></td>
<td>- L1 Word with L2 word</td>
</tr>
<tr>
<td></td>
<td>- L2 word with L2 definition</td>
</tr>
<tr>
<td></td>
<td>- Word and picture</td>
</tr>
<tr>
<td></td>
<td>- Adjectives and nouns</td>
</tr>
<tr>
<td></td>
<td>- Verbs and adverbs</td>
</tr>
<tr>
<td></td>
<td>- Opposites</td>
</tr>
<tr>
<td></td>
<td>• Multiple choice</td>
</tr>
<tr>
<td></td>
<td>• Drawing the word</td>
</tr>
<tr>
<td></td>
<td>• Bingo games</td>
</tr>
<tr>
<td></td>
<td>• Circle the word you hear</td>
</tr>
<tr>
<td>Producing words</td>
<td>• Dictation</td>
</tr>
<tr>
<td></td>
<td>• Answering questions</td>
</tr>
<tr>
<td></td>
<td>• Picture description</td>
</tr>
<tr>
<td></td>
<td>• Guessing games (I’m thinking of...)</td>
</tr>
</tbody>
</table>

These activities can be used in content and language integrated learning as well, but they are more typical in language teaching. The sequence from noticing, through recognizing and naming to producing the word adheres to the presentation-practice-production pattern, but it should be noted that this is a pedagogical sequence useful for teaching vocabulary in class, but whether learning takes place in a certain order such as the one exemplified in Table 3.2 is less certain.

- Elaboration

The language teaching application of the elaboration method (http://tip.psychology.org/reigelut.html) is based on how memory works in storing language. As the name reveals, elaboration is “working hard” in order to achieve permanent and deep learning. Elaboration builds on the schematic structure of memory. Existing schemata and scripts are used as scaffolds. New links between existing schemata are formed by means of elaboration tasks. Some examples of elaboration:

- (Oral elaboration) Teacher selects three words from the text (the sun, orbit, the earth). “Make a sentence using these words: the Sun, orbit and the Earth). Student 1: “The Earth orbits the Sun” Teacher: “Good. Can you make the sentence longer?” Student 2: “The Earth orbits the Sun in an elliptical orbit.” The activity continues like this until the teacher stops the activity.

- Adaptations: “Change the sentence” “Make an interview/a dialogue using the given words as prompts”

- (Written elaboration) Teacher selects 10 to 20 words or phrases from the text. “Write a passage using all these words. You can add as many words to build a coherent account.” If the words/phrases belong to a common theme, for example:
doctor, prescription, surgery, nurse, recipe, pills, headache, examine, it is likely that an existing schema is evoked and the written outputs are relatively similar. If the words/phrases are very different, for example the randomly chosen 12: each, east, roll, rice, mingle, misbehave, perspire, dryly, whimsical, tonsil, cloud, cereal, the outputs are likely to be very different, because there is no shared script/schema on which to build the story, but each writer works on their own schemata. The extra language that one needs to produce a coherent whole is repetition of already learned material and the new language (the words given) is learned better as part of the learner’s individual memory structure.

- A challenging but useful elaboration for intermediate and advanced students (B2) is one with phrasal verbs, for example: make do with, make for, make into, make it, make it up to, make off with, make out, make over, make up, make up for, make up to, make with.

Below is an example of written elaboration (Possible sentences) used as an advance organizer and predicting activity (cf. DVD Tertiary level science materials: Cold-Formed steel structures Lesson 1 Pre-tasks: Task 1)

**Possible sentences (activating prior knowledge)**

<table>
<thead>
<tr>
<th>Instruction. The words in the box below come from the text that you are going to study. Work in pairs or groups and write as many sentences as you can that show how you think the writer of the text used them in the text. Each sentence should contain at least two of the words given.</th>
</tr>
</thead>
</table>

| Cold-formed steel and its manufacture |  |
| --- | --- | --- |
| press-braking | feed | cold roll-forming |
| structural steel | type | hot-rolled steel |
| elevated temperatures |  |  |
| the most widely used method |  |  |

**Study task for the reader:**

You may want to try out your prediction skills and write some sentences using the above words / phrases. Then compare your sentences with two samples of authentic sentences produced by two groups of students below (Group 1 and Group 2). Discuss which of the sentences are likely to be correct and why. Finally, compare with the original text below
Student productions

Group 1
1. Steel is the most widely used material.
2. There are different types of steel structure.
3. Cold-formed steel shapes are formed at elevated temperatures.
4. The cold roll-forming is the most widely used temperature method.
5. The hot-rolled steel is a type of structural steel.
6. Press-braking is the commonest methods for manufacturing wall panels.

Group 2
1. Structural steel is the most widely used material in the elevation of tower.
2. Cold rolled-forming is a type of temperature method for making hard steel.
3. Raw steel is fed into furnace to form hot-roll steel.

Original text

In building and steel construction, there are primarily two types of structural steel and two main families of structural members: hot-rolled steel shapes and cold-formed steel shapes.

The hot-rolled steel shapes are formed at elevated temperatures while the cold-formed steel shapes are formed at room temperature.

Press-braking is often used for production of small quantity of simple shapes.

Cold roll-forming is the most widely used method for production of roof, floor and wall panels.

During cold roll-forming, sheet stock is fed longitudinally through a series of rolls, each of which works the sheet progressively until it reaches the desired shape.
Which one of the following descriptions of grammar do you agree more with?

1. Grammar is a system of rules.

or

2. Grammar is the engine of a language?

The first definition refers to a rule-based conception of grammar, which is taught explicitly and learned intentionally. Explicit teaching frequently means rote learning of grammar rules and exceptions to rules, but it may also include an element of problem solving and involvement of general learning processes. The goal of learning grammar rules is to learn the rules to a level of automatization and generalizability so that they can later be used to generate novel meanings in new contexts. This is called transfer of rules. The principle of transfer is derived from psychology and it is one of the hierarchical levels in Bloom’s taxonomy.

The other definition refers to a metaphor of language as a living organism and of grammar as the blood, heart and veins of it. This view reflects grammar as an integral part of language learning in which grammar learning is not separable from language learning in general and vocabulary learning in particular. First language grammar is typically learnt as a natural part of language learning. This type of grammar learning is implicit: it happens automatically and the learner is not aware of the learning process. Therefore, first language learners are not aware of relying on rules when learning their first language.

**Explicit and implicit learning of grammar**

The two views on grammar are related to two methods of learning grammar. Rule-based learning of grammar is deliberate and the learners are very much aware of the learning process and capable of directing their learning by adding effort, using an appropriate strategy, etc. Explicit learning is related to declarative learning, which means that grammar rules are stored as declarative knowledge. It is believed that declarative knowledge can turn into more fluent and more automatized processes included in proceduralized knowledge (Anderson, 2000). How this happens in the case of grammar rules is still an open question, but it is clear that explicit teaching of grammar facilitates the learning of second and foreign language grammar in formal learning (e.g. Scheffler, 2009), both by speeding up the learning process and improving the final outcome.
Why grammar?

There are those who think grammar should not be taught at all as it grows on the second language learner like the first language grammar on the first language learner. There are those who think that second language grammar is learnt in certain predictable phases (Pienemann, 1984, 1988) and that teaching can only speed up the process but not change the order of acquisition. Yet there are those – perhaps the majority - who think that explicit teaching of grammar rules can help grammar learning especially in otherwise meaning-oriented learning environment. There seems to be a consensus that the best way to learn grammar is in a meaning-based and communicatively orientated environment with brief interventions of grammar instruction embedded. This type of instruction is promoted by task-based learning of second language (Ellis, 2003).

Teaching grammar

The two views of learning grammar introduced above presuppose different kinds of teaching approaches. One should bear in mind, however, that the views presented here are derived from theories and models of learning and teaching and that they are abstractions and prototypes rarely implemented as such in classrooms (Eisenstein-Ebsworth & Schweers, 1997; Borg & Burns, 2009). However, they will provide an overall picture of grammar learning and teaching. It is up to the teachers to make their own decisions as to the implementation of these ideas.

Experiential teaching of grammar

The organic, implicit learning of grammar is best achieved by exposing learners to massive inputs of language. This experiential teaching of grammar may result in incidental and implicit acquisition of grammar rules, especially with younger students who are more apt to holistic learning and whose level of abstract thinking does not allow for advanced problem solving and rule transfer skills. Adults and adolescents with more advanced conceptual skills and language learning experience are likely to benefit from more rule-oriented explicit teaching of grammar. Earlier experience from bilingual programmes, primarily from Canadian immersion shows that if the students are entirely exposed to ambient language to learn language as a bi-product in content teaching, grammar is not learned adequately. Immersion students’ language shows signs of fossilized elementary errors.

In spite of the cons listed above, experiential grammar teaching has major advantages. One of them is the opportunity to learn grammar in a meaning-oriented context which provides for immediate practice and use (Mitchell, 2000).

Explicit teaching of grammar

Rule-based, explicit teaching of grammar can take many forms. Two approaches are typical: deductive and inductive teaching of grammar. In the deductive approach, rules are introduced and practised first in familiar context and then applied to form new meanings in new contexts. The goal of deductive language teaching is full transfer of the rule. Rules can also be learnt through inferencing them from a number of examples. This type of learning is called inductive learning and it, more than the deductive approach, deals with problem solving and discovery processes. Both approaches - or more likely a mixture of
them - are used in teaching foreign language grammar in foreign language classrooms. The deductive method favours more advanced, older learners with developed abstract thinking skills, whereas the inductive method (supported and scaffolded by the teacher) can be used to teach grammar to younger and beginning language learners.

**Form-Focused Instruction (FFI)**

Form-focused instruction (see Doughty & Williams, 1998, for review) is a term used for language training that focuses on language form in the context of meaningful communication. It is believed that some degree of deliberate attention to language form is necessary for learning. The goal of form-focused teaching is to provide learners with opportunities to “notice” (Schmidt, 1990) the form in the input, perceive the difference between the input form and their own conception of the form and ultimately learn the target-like use of the form.

Attempts to increase learners’ opportunities to attend to form incorporate for instance increased frequency of the targeted item in the input, correcting the student’s output and providing the rule or giving metalinguistic explanations. Typical of spontaneous in-class form-focused instruction is that the intervention is relatively brief and that it arises from the individual learner’s immediate need.

**What to teach: rule difficulty**

On the assumption that some grammar is learnt implicitly and some needs explicit teaching to be learnt, one may ask what are some characteristics of grammar rules that can be learnt as a result of explicit teaching. What makes grammar easy or difficult to learn? There is no simple answer to the question, partly because individuals differ, first languages differ and target languages differ, and the experienced difficulty or easiness is related to individual (analytic) ability and the distance between the first and target language. In addition, not enough is known of the psycholinguistic processes that are involved in determining rule difficulty, which is shown by the inconclusive and controversial research results (Ellis, 2006; Spada & Lightbown, 2008).

However, results have consistently shown that explicit grammar teaching is important (Scheffler, 2009) and that the more difficult the rule is the more important explicit teaching is (de Keyser, 2003; Scheffler, 2009). It also seems that learners’ first language plays a major role in how difficult versus easy grammar is experienced. In Scheffler’s (2009) study, for example, the most difficult items in English grammar for Polish learners were tenses and modal verbs, which Scheffler explains by the differences between the Polish and English verb phrase and the lacking modal auxiliaries in Polish. Interestingly, articles were not among the most difficult ones, although Polish does not have articles (Scheffler, 2009).

There is no consensus as to what are some “universal” criteria of grammar rule difficulty, but instead it seems that there are a number of factors at play, many of them idiosyncratic and context-bound (see Form-focused instruction above). The best piece of advice is for the teacher to find out about the specific difficulties her/his students have and try to adapt one’s teaching accordingly.
Teaching grammar in CLIL

In sum, meaning-based and form-focused grammar teaching serves the needs of CLIL teaching. In terms of content teaching, the approach necessitates some knowledge of language as a system and interest in incorporating formal aspects into one’s teaching. In terms of formal language teaching, more focus on subject specific texts and their features can be placed on in language classes. If language and content teachers can work together on an integrated unit, form-focused and meaning-focused approaches may be fruitfully combined in teaching.

There are no methodological approaches to meaning-centered grammar teaching but the following examples may provide some clue as how to organize for form-focused instruction. Here are some practical principles:

1. Select typical subject-specific texts for teaching grammar in content teaching.
2. Make sure that the meaning is clear (this is focus-on-form in content, not focus-on-forms in spite of content)
3. Increase text salience for the selected structure, by e.g. highlighting the structure in the text, providing short explanations, definitions or rules in the marginal.
4. Alternatively, highlight the first (couple of) occurrences and let students find the rest.
5. Let students find the commonalities / regularities that the highlighted examples share.
6. Let them infer the rule. Scaffold as much as necessary.
7. Let students practice the rule in parallel contexts.
8. Let students create their own examples using the learned structure.
9. Generalize the use of the learned structure to other contexts.
10. Make sure that meaning is clear all through the sequence by making continuous form and function connections.

All of the ten steps are not necessary to go through. If the learning goal is to understand the structure in the context of occurrence, the first four steps may be enough. If the purpose is to learn the structure to be used later in production and transferred, ample production practice in various contexts is necessary.

Examples: the passive form

A good rule is to avoid the passive voice and use the active instead. In scientific writing, however, the passive voice is common and more acceptable, (it is even considered a must in some genres of scientific writing) since using it allows one to write without referring to people as actors, but instead stress the object in an objective, fact-based discourse. For example, in 100 votes are required to pass the bill the emphasis is on the number of votes, whereas in The bill requires 100 votes to pass, emphasis is on the bill and not the most important piece of information, namely the number of votes that are required. The passive sentence allows for emphasis on the object but also for de-emphasis on an unknown actor (subject)
The use of passive voice is also a common procedure when describing processes, e.g. the photosynthesis of plants, or a manufacturing process such as cheese making, or when writing e.g. a report to describe the results of a test or laboratory experiment. (http://owl.english.purdue.edu/handouts/grammar/g_actpass.html)

The excerpt 4.1 below is taken from the sorbet material (see DVD). Example 4.2 is the same text with the verbs turned into passive.

4.1 Place the sugar and water in a small saucepan, over low heat, and stir until the sugar is completely dissolved (about 3-5 minutes). Boil the mixture for one minute then remove from heat. Pour the sugar syrup into a heatproof container, and place in the refrigerator until completely chilled (about an hour or so).

http://www.joyofbaking.com/StrawberrySorbet.html#ixzz0K0D966RF&amp;D

4.2 The sugar and water are placed in a small saucepan, over low heat, and stirred until the sugar is completely dissolved (about 3-5 minutes). The mixture is boiled for one minute and removed from heat. The sugar syrup is poured into a heatproof container and placed in the refrigerator until completely chilled (about an hour or so).

These examples can be used in a number of ways in form-focused instruction. Some suggestions:

1. Students (in pairs) compare the two versions and identify the differences.
2. Students read the passive version 4.2. and convert it into a typical recipe (example 4.1)
3. Students get only the verbs (are placed, are stirred, (is dissolved), is boiled, is removed, is poured, is placed, is chilled). In pairs or groups they reconstruct the text.
4. Students fill in the passive forms in a gapped text (4.2). They have text 4.1 as support.
5. Students convert text 4.1 into passive.

Another example of the use of passive in scientific writing can be found in the material of cold-formed steel structures (see DVD, e.g. Lesson 1). The CLIL teacher can draw the students' attention to passive structures (i.e. to help them notice) e.g. by asking students to identify (and underline) passive sentences in the text and even translate them from L2 to L1. The teacher can also make an exercise (e.g. sentences) in L1 containing passive structures taken from the text and ask students to interpret them in L1.

The following example is taken from the French materials (L'information genetique, see DVD). The teacher distributes the text (below) and introduces the rule (a. Observez). The arrows show how the subject in the active sentence becomes the subject of the passive sentence.
Des cellules d'une glande mammaire, productrices de lait, sont prélevées chez une brebis blanche puis mises en culture dans un milieu approprié pendant quelques jours.

Parallèlement, après stimulation des ovaires chez une brebis à tête noire, des ovocytes sont recueillis, puis énucléés.

Les cellules de glande mammaire et les ovocytes énucléés sont mis en contact et fusionnés.

Sur les 247 cellules ainsi obtenues, seuls 29 embryons se développent. Ils sont réimplantés dans l'utérus de 13 brebis à tête noire. Cinq mois plus tard, après une gestation de durée normale, l'une d'elles donne naissance à une brebis blanche appelée Dolly.

Observez :

Des cellules d'une glande mammaire, productrices de lait, sont prélevées chez une brebis blanche....

= On préleve des cellules d'une glande mammaire chez une brebis blanche....

Les scientifiques prélevent

Le chercheur écossais préleve

Relevez dans le texte d'autres phrases identiques.
Transformez-les comme dans le modèle.
What is listening?

Listening is everywhere: adults spend 40-50% of communication time listening (Gilman & Moody, 1984). Speaking and listening are the two sides of a coin: without one the other would be futile. Spoken interaction relies on mutual collaboration of turn-taking in listening and speaking. Even one-way communication (e.g. radio broadcasts, flight announcements, academic lectures) is aimed at a listener. The message is aimed at a listener to comprehend the message and act accordingly.

Moreover, listening is a skill, which means that it can be developed through practice. In language teaching as well as in content integrated language teaching it is important that students are provided with ample target language to listen to, both as teacher’s input and as peer input and interaction.

Listening is an interactive process. Listening is interaction of top down and bottom-up processes. There are two distinct processes involved in listening comprehension, top down and bottom-up.

**Top-down listening**

Listeners use ‘top-down’ processes when they use prior knowledge to understand the meaning of a message. Prior knowledge can be knowledge of the topic, the listening context, the text-type, the culture or other information stored in long-term memory as schemata (typical sequences or common situations around which world knowledge is organized). Listeners use content words and contextual clues to form hypotheses in an exploratory fashion.

Top down skills according to Peterson (1991), and Brown (2001) could be listed as follows:

- discriminating between emotions
- getting the gist
- recognizing the topic
- using discourse structure to enhance listening strategies
- identifying the speaker
- evaluating themes
- finding the main idea
• finding supporting details
• making inferences

**Bottom-up listening**

On the other hand, listeners also use ‘bottom-up’ processes when they use linguistic knowledge to understand the meaning of a message. They build meaning from lower level sounds to words to grammatical relationships to lexical meanings in order to arrive at the final message. Listening comprehension is not either top-down or bottom-up processing, but an interactive, interpretive process where listeners use both prior knowledge and linguistic knowledge in understanding messages. The degree to which listeners use the one process or the other will depend on their knowledge of the language, familiarity with the topic or the purpose for listening.

Bottom up skills according to Peterson (1991), and Brown (2001) are listed below:

discriminating between intonation contours in sentences
discriminating between phonemes (i.e. the smallest phonetic unit in a language that is capable of conveying a distinction in meaning)

• listening for word endings
• recognizing syllable patterns
• being aware of sentence fillers in informal speech
• recognizing words, discriminate between word boundaries
• picking out details
• differentiating between content and function words by stress pattern
• finding the stressed syllable
• recognizing words with weak or central vowels
• recognizing when syllables or words are dropped
• recognizing words when they are linked together in streams of speech
• using features of stress, intonation and prominence to help identify important information

**Why listening?**

Listening has been a “neglected” skill in the field of language teaching and learning until lately when we learnt that listening and reading which had been called “passive” and “receptive” skills actually are active, complex psycholinguistic processes. The old view of listening as a passive receptive process has been replaced by a more recent constructivist view: listening is an active process of interpretation in which listeners match what they hear with what they already know (Vandergrift, 1999).

Listening is a key factor in a number of language learning theories and models, such as Krashen’s Input Hypothesis/ Comprehension Approach and Asher’s Total Physical Response. Both of these approaches draw on early first language acquisition, which is characterized by long silent periods during which the child is mostly listening to ambient
language. Some of these theories have been influential in language teaching methodologies (Burt and Dulay's Natural approach) as well as in CLIL, where ample comprehensible input in class is emphasized.

Listening is an important skill in CLIL contexts. The youngest CLIL students rely entirely on (the teacher's) oral input for content and language learning and teacher talk continues to be a major mode of input in CLIL classrooms throughout the educational path. At tertiary level, if not earlier, lectures are a principal means of information delivery. While excessive passive listening to teacher talk with few opportunities for student participation is not considered beneficial for learning in first language content classrooms, listening in a CLIL environment serves as a channel for implicit learning of language as well as content. (For suggestions how to teach listening in CLIL classrooms, see discussion below)

How to teach listening

It is imperative to teach students how to listen. This shifts the emphasis of listening practice from product to process and the responsibility of learning from the teacher to the student, thereby helping students become self-regulated learners. Listening can be taught by teaching useful strategies that the students can use to improve listening comprehension.

Scaffolding listening

Of all the sub skills (listening, speaking, reading and writing), teaching listening in a student-centred environment in which the goal is an autonomous and resourceful learner is probably more like scaffolding than the teaching of any other sub skill. This is because listening is a receptive skill, taking place inside the listener's head, as a seemingly passive process, hidden from the observer.

What is important in teaching listening is making the students aware of the metacognition and strategies they use, then teaching them a repertoire of effective listening strategies and finally practicing them, gradually removing supporting structures. Ultimately, the choice and use of listening strategies is entirely up to the autonomous learner.

Language scaffolding

A CLIL teacher is constantly providing students with language scaffolding when s/he is teaching comprehensibly. Repetition, rephrasing, use of synonyms and antonyms, circumlocution, questions, elicitation and oral feedback are some examples of oral language support.

Visual scaffolding

Some examples of visual scaffolding are pictures, maps, charts, tables and other graphic organizers that help the listener to structure the information that she/he is listening to and pay attention to the key content. Specific genres of listening, such as lectures can be scaffolded by visuals, such as T-list (i.e. 2 columns are drawn, each containing key headings; learners add relevant information under each heading. This helps students to clarify, compare and prioritise) or Venn Diagrams, which can be used to guide students to compare and contrast two or more objects, phenomena or periods in history, for example. They also help to identify overlaps.
How to teach listening strategies

What are listening strategies?

Listeners use metacognitive, cognitive and socio-affective strategies to facilitate comprehension and to make their learning more effective. Metacognitive strategies are important because they oversee, regulate or direct the language learning process. Cognitive strategies manipulate the material to be learned or apply a specific technique to a listening task. Socio-affective strategies describe the techniques listeners use to collaborate with others, to verify understanding or to lower anxiety (O’Malley & Chamot, 1990; Vandergrift, 1997).

What research says about teaching, learning and using listening strategies

Research shows that skilled listeners use more (metacognitive) strategies and are more flexible in the use of them than their less-skilled counterparts (e.g., Goh, 1998). It seems that the high-scoring listeners are able to select from a large repertoire of strategies and use appropriate strategies selectively and flexibly in accordance with the task demands and that the low-scoring listeners have few strategies and they fail to choose appropriate strategies for the task at hand. It also seems that strategic activity tends to be relatively permanent if the learners are not scaffolded in the selection and use of the strategies and sometimes in spite of the assistance they receive working on the task. One of the difficulties in strategy instruction is the nature of the skill of listening: it is ephemeral and non-visible, which is likely to affect students’ low assessments of their listening skills and consequently to low motivation and poor success in foreign-language listening comprehension (Graham, 2006). The results of strategy instruction are controversial, but there is some evidence that consistent, long-term strategy instruction is able to improve learners’ strategic activity and lead to better learning outcomes (Graham & Macaro, 2007; Graham et al., 2008).

In sum, it is likely that students who have been exposed to the foreign language of instruction for a long time and are used to focusing on content in the acoustic input are better equipped with listening strategies than those students whose exposure to language is more restricted. A CLIL environment provides students with ample opportunities for the development and use of listening strategies, which makes it possible for all students, but especially for the less successful strategy users to develop core comprehension strategies (prediction and identifying core vocabulary (Graham & Macaro, 2007)) as a by-product of content learning during a relatively long exposure to aural input.

Listening is an important skill in a CLIL context, as provision of comprehensible input is central for implicit acquisition of language. In addition to teacher talk, other means of providing aural input should be used, such as videos, podcasts, films and documentaries, in particular if the teacher is a non-native speaker of the target language. Such authentic content-related listening materials provide accurate and up-to-date information about the theme studied, provide samples of different speaking styles and thus offer practice for the students to learn to understand individual and regional varieties of the target language. In addition, authentic samples of content-area listening (viewing) materials provide samples of linguistic features typical of the register and display models of the academic register for the students to adopt.
Obviously, the teacher will have to adapt the materials to be optimal for the target students. While it is not possible to “tamper upon” the original video or audio materials in the same way as one may modify written materials, the teacher can provide scaffolding tasks to accompany the materials, such as pre-, during and post-listening activities and pre-teaching of core vocabulary. Another option for increasing students’ learning potential is strategy instruction as discussed below.

**Listening strategy instruction**

It seems that learners differ in terms of strategic repertoires (e.g., Graham et al., 2008). This means that teaching learners to become more strategic listeners has to start from finding out what strategies they have and how they use what strategies they have. After that, strategies are taught in connection with actual classroom teaching. The best results are likely to be achieved if enough class time is devoted to strategy instruction and if the instruction is carried out systematically (Graham & Macaro, 2007). Based on the results of their study, Graham and Macaro (2007) offer the following suggestions concerning strategy instruction in class:

1. Use texts and tasks which you would normally be using with your class so that learners accept the strategy training more readily.

2. Read the transcript and listen to the tape to try to anticipate what difficulties learners will have, beyond obviously unknown vocabulary. These may include: liaison and similar factors that make known words difficult to understand, or that make it more difficult for learners to detect the start and end of sense-groupings; a lengthy text in which the most important details are not self-evident.

3. Be wary of over-emphasizing the use of context or ‘common sense’ to work out the meaning of a text. This often leads learners to make erroneous assumptions and to ignore what the text actually says.

4. Start with simpler strategies such as predicting likely content and vocabulary, followed by ‘checking out the evidence’—through attention to features such as negatives and adverbs.

5. Supplement such strategy work with ‘ear training’ that helps learners to break down the language they are hearing and gives them more mental processing space to concentrate on strategy use.

6. Once you have introduced a strategy, remind learners to try it on other listening tasks. Gradually make these reminders less frequent, as learners need to be able to use strategies independently. (Graham & Macaro, 2007, pp. 168 –169).

It seems that promising results have been achieved in teaching metacognitive knowledge and metacognitive strategies to listeners of foreign languages. The best known classification of metacognitive knowledge is Flavell’s (1976) classification of metacognition into three categories: person, task and strategy knowledge.

- **Person knowledge**: individual and universal traits that influence learning
- **Task knowledge**: the purpose, the demands, and the nature of learning tasks
- **Strategy knowledge**: approaches and techniques that are likely to be effective in accomplishing a task or a goal
High levels of metacognitive knowledge are important for autonomous learners, who are able to take charge of their own learning. By helping learners to understand what kind of learners they are, how they learn best (person knowledge) and to guide them to assess what is required for a successful performance of a certain task (task knowledge) and finally, to teach them to select the most appropriate strategies and techniques to perform the task (strategy knowledge) has been found to improve learning and empower learners (Goh & Taib, 2006).

**Metalinguistic Awareness Listening Questionnaire (MALQ)**

The MALQ is a validated listening questionnaire for assessing second language listeners' metacognitive awareness and use of strategies (Vandergrift et al., 2006). It is a 21-item instrument with items tapping into problem-solving, planning and evaluation, mental translation, person knowledge, and directed attention. Figure 5.1 below presents the entire questionnaire that can be used to assess learners' metacognitive awareness and thus provide the learners information about themselves as learners (person and task/strategy knowledge, Flavell, 1979; Vandergrift et al., 2006): what they know and what they need to learn to become better listeners.

Table 5.1 below presents a comprehensive selection of listening strategies and suggestions for their use in CLIL classrooms.

<table>
<thead>
<tr>
<th>Type of task</th>
<th>Malcognitive Awareness Listening Questionnaire (MALQ)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Planning/evaluation</td>
<td>I think back to what I have learned, and about what I might do differently next time.</td>
</tr>
<tr>
<td>Directed attention</td>
<td>I set a clear goal as I listen.</td>
</tr>
<tr>
<td>Person knowledge</td>
<td>I think about what I have learned, and about what I might do differently next time.</td>
</tr>
<tr>
<td>Directed attention</td>
<td>I try to get back on track when I lose concentration.</td>
</tr>
<tr>
<td>Problem-solving</td>
<td>I translate word by word as I listen.</td>
</tr>
<tr>
<td>Person knowledge</td>
<td>I adjust my interpretation if I realize that it is not correct.</td>
</tr>
<tr>
<td>Directed attention</td>
<td>I start thinking in my head for how I am going to listen.</td>
</tr>
<tr>
<td>Problem-solving</td>
<td>I use my experience and knowledge to help me understand.</td>
</tr>
<tr>
<td>Mental translation</td>
<td>I translate key words as I listen.</td>
</tr>
<tr>
<td>Directed attention</td>
<td>I try to get back on track when I lose concentration.</td>
</tr>
<tr>
<td>Problem-solving</td>
<td>I close my eyes and concentrate.</td>
</tr>
<tr>
<td>Person knowledge</td>
<td>I focus on the task at hand.</td>
</tr>
<tr>
<td>Directed attention</td>
<td>I try to get back on track when I lose concentration.</td>
</tr>
<tr>
<td>Problem-solving</td>
<td>I use the general idea of the text to help me guess the meaning of the words that I don’t understand.</td>
</tr>
<tr>
<td>Mental translation</td>
<td>I translate word by word as I listen.</td>
</tr>
<tr>
<td>Problem-solving</td>
<td>I close my eyes and concentrate.</td>
</tr>
<tr>
<td>Person knowledge</td>
<td>I think about what I have learned, and about what I might do differently next time.</td>
</tr>
<tr>
<td>Directed attention</td>
<td>I set a clear goal as I listen.</td>
</tr>
<tr>
<td>Problem-solving</td>
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<td>Problem-solving</td>
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</tr>
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<td>Mental translation</td>
<td>I translate word by word as I listen.</td>
</tr>
<tr>
<td>Problem-solving</td>
<td>I close my eyes and concentrate.</td>
</tr>
</tbody>
</table>
Table 5.1 Listening Comprehension Strategies and Practice Activities


<table>
<thead>
<tr>
<th>Strategies for Listening</th>
<th>Applying the strategies to the CLIL classroom</th>
</tr>
</thead>
</table>
| Activating prior knowledge outside the listening material or conversational context to construct meaning or to fill in missing information | Use prior knowledge and knowledge about the target language to elaborate and complete interpretation.  
(Elicit prior knowledge by questions, quizzes, etc.)                                      |
| Using acoustic, vocal, or lexical information within the listening material to guess the meaning of unfamiliar language items, or to fill in missing information | Infer missing or unfamiliar words using contextual clues, familiar content words, visual clues.  
Draw on knowledge of the world.  
Apply knowledge about the target language.  
Encourage students to make informed guesses by comprehension questions, true or false questions, gap-filling tasks, etc. |
| Using mental or visual images to represent information                                     | Visualise scenes, objects, events, etc. being described.  
(Make students draw what they hear or provide them with images to be put into an order of appearance in the text, or into a chronological or cause-effect order.  
Show only a fragment of a picture and they have to complete it. Let them complete a picture puzzle while listening. |
| Making a mental or oral summary of the information presented in a listening task          | Reconstruct meaning using words heard.  
Guide students with charts, diagrams or questions to focus on the gist of the listening material. |
| Place input in a social or linguistic context, find related information on hearing a key word, relate one part of text to another. | Relate limited interpretation to a wider social/linguistic context.  
Tell students to imagine the linguistic and social context, the environment, the speakers and listeners of the listening passage. |
<p>| Classifying, organizing information to be retained in ways that enhance comprehension and retention. | Students should prepare graphic organizers to process the information. It can be done as project work. |
| Repeating a word or phrase in the target language mentally or orally.                     | Create opportunities to process the text linguistically as well, eg. repeating words or phrases to practise pronunciation or listening to the text more than once. |
| Pointing out the central point needed to be resolved in a task, or identifying an aspect of the task that hinders its successful completion | Assess the importance of problematic parts and decide whether to ignore them or actively seek clarification. |
| Verifying one’s schematic representation of the text                                       | Ask specific questions about facts in the listening material                                              |</p>
<table>
<thead>
<tr>
<th>Changing words, phrases or sentences into L1 before interpretation.</th>
<th>Find L1 equivalents for selected key words. Translate a sequence of utterances. Work on the vocabulary and the phrases in the text by matching the L1 equivalents with the target language expressions before, during or after listening.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Anticipating contents before and during listening</td>
<td>Predict general contents before listening using contexts and prior knowledge. Predict details and unfinished utterances using contexts and prior knowledge. Show students a visual or introduce key vocabulary to let them predict the topic of the listening task.</td>
</tr>
<tr>
<td>Developing an awareness or an action plan of what needs to be done to accomplish a listening task, or making predictions while listening.</td>
<td>Preview contents in different forms. Rehearse the pronunciation of potential content words. Establish purpose for listening. Do perception practice regularly (listen to how new vocabulary items are pronounced, follow along with transcript of recording, write down content words from short passages, identify meaning groups in sentences of varying lengths, identify tones and their communicative value, identify common discourse markers and their functions, identify common phrasal verbs and their meaning, identify the most prominent word in short utterances.) Make sure students understand what is expected from them by getting them to repeat the instructions or asking them questions about the instructions.</td>
</tr>
<tr>
<td>Writing down key words and concepts while listening.</td>
<td>Take short notes of important content words. Agree on symbols to be used at note taking in general and before each listening task in particular.</td>
</tr>
<tr>
<td>Using knowledge of one language to facilitate listening in another</td>
<td>Make a list of cognates</td>
</tr>
<tr>
<td>Using available references about the target language, including textbooks or the previous tasks.</td>
<td>Provide opportunities for the students to flip through relevant information in their textbook, workbook, notes, previous exercises or handbooks and the internet.</td>
</tr>
<tr>
<td>Checking, verifying, or correcting one’s listening comprehension while performing a task, maintaining awareness of the task demands</td>
<td>Check current comprehension with context of the message and prior knowledge. Continue to listen for clarification in spite of difficulty. Redirect attention to task. Encourage note taking of difficult expressions or ideas to return to after listening.</td>
</tr>
<tr>
<td>Checking the concentration or assessing one’s strategy use, evaluating task completion.</td>
<td>Evaluate comprehension using contexts, prior knowledge and external resources. Determine potential value of subsequent parts of input.</td>
</tr>
<tr>
<td>Focusing on specific information anticipated in the message.</td>
<td>Listen selectively according to purpose.</td>
</tr>
<tr>
<td>Focusing more generally on the task demands and content.</td>
<td>Listen for gist. Determine the potential value of subsequent parts and vary intensity of attention accordingly. Memorise words or phrases for later processing.</td>
</tr>
</tbody>
</table>
**Teaching listening**

<table>
<thead>
<tr>
<th>Listening to chunks of the language (phrases or sentences) instead of single words</th>
<th>Pay attention to discourse markers, visuals and body language, tones and pauses. (Use multi-channel listening activities with video, TV or DVD as frequently as possible.)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Showing the &quot;speakers&quot; that they did not get the message across</td>
<td>Paraphrase what speakers say to check understanding.</td>
</tr>
<tr>
<td>Giving comments about the aural text.</td>
<td>(Discuss the listening experience with the students.)</td>
</tr>
<tr>
<td>Using kinesics and paralinguistics to signal the “interlocutor” to go on.</td>
<td>Use gestures and non-verbal communication</td>
</tr>
<tr>
<td>Asking for explanation, verification, rephrasing, or examples about the language and/or task.</td>
<td>Ask speaker for clarification and repetition. Use language for negotiating meaning (Speaking, 3.2.3) (Teach and practise how to ask for repetition and clarification.)</td>
</tr>
<tr>
<td>Getting into the right mood for listening and maintaining it during listening.</td>
<td>Learn to relax before and during listening. Encourage oneself to continue listening.</td>
</tr>
</tbody>
</table>
What is speaking?

Oral communication is an interactive process in which an individual alternately takes the roles of speaker and listener, and which includes both verbal and nonverbal components. Oral discourse, such as conversations, discussions and debates, contains more interactive features, more paralinguistic clues and non-verbal communication than oral production. In the case of oral production, the audience is not present and/or the spoken production does not depend on interaction, such as in public announcements, speaking on the radio or TV, sermons, formal speeches, presentations and lectures.

In a CLIL context, whatever language objectives might be, they are derived from the content. This means that speaking in CLIL classrooms consists of academic language and fulfils academic language functions rather than social and conversational language functions. The use of academic language is linked with developing cognition, so secondary level content teaching is obviously a more natural platform for learning and teaching academic speaking than primary level, where learners’ cognitive development and language skills are less advanced. At primary level, social communicative interaction is the primary goal of language learning, but in content teaching academic language functions embedded in a scaffolding context of content teaching should be introduced as early as possible and increased gradually throughout the primary and lower secondary education.

Why speaking?

Using language to communicate meaningful content is likely to enhance the learning of both language and content. CLIL calls for an interactive teaching style: students have more opportunities to participate verbally by interacting with the teacher and other fellow-students using L2. Since the working language is not the students’ L1, CLIL students need a lot of opportunities to discuss the content matter with each other and with the teacher (negotiation of meaning). This is how misunderstandings can be settled and the students as well as the teacher can ascertain that what the students learn is correct. In trying to cope with challenging content matter the students will be involved with working on language, they are using and expanding their language resources, and it is likely that they are learning language at the same time. In discussing how to find and select the linguistic resources to express content matter that is often demanding, the students are likely to discuss the language form as well. This is an active process during which the students become aware of the formal features of the message they are conveying. They also become aware of the linguistic problems they face in
conveying the message. Finally, they will be able to tackle these problems and try to solve them. Feedback from peers helps them adjust the message and aid the speaker in solving problems with language. This is what Merrill Swain (2006) calls *languaging* (formerly: (challenging) output). It is also called *negotiation of form*. In particular, advanced students are likely to benefit from discussing the formal aspects of the language of learning.

**How to teach speaking?**

Working with spoken academic language in class may be challenging. It is a common finding that teachers do the talking in class and that students’ talking time makes up a very small percentage of class time. What is more, student talk consists of one-word answers to teachers’ questions, and students seldom initiate interaction or author questions in class. The majority of questions are initiated by the teacher and require straightforward factual answers directly based on the taught material. In addition, there are no systematic studies on thinking skills and related academic language functions in CLIL contexts but it can be assumed that such activities are infrequent in both mainstream and CLIL classrooms. Christiane Dalton-Puffer’s study on questions and academic language functions (definitions and explanations) showed that the typical questions were factual and that definitions and explanations were very infrequent in her data (40 lesson transcripts). For example, Dalton-Puffer could not identify any occurrences of defining in 17 (42%) lessons. Meta talk was non-existent: the word *definition* did not occur at all and the word *define* only once in the entire data (Dalton-Puffer, 2007, p. 132).

The view of language in content instruction as a meaning-making resource would imply that teaching content-specific and general academic language functions would be an integral part of language and content integrated learning. By providing explicit instruction in academic language functions and by providing (spoken) activities that would enhance thinking skills, such as the following sample tasks (Table 6.1) would increase the amount of student talking time in class and perhaps lead to better integration of language and content and ultimately better learning.

**Table 6.1 Thinking skills and academic language functions (modified from Zwiers, 2004)**

<table>
<thead>
<tr>
<th>Thinking skill</th>
<th>Sample tasks</th>
<th>Scaffold vocabulary</th>
<th>Scaffold phrases</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Analyzing</strong></td>
<td>Describe the process of cheese making.</td>
<td>Analyze, analysis, analyses, breakdown, parts, elements, components, aspects, dimensions, categories, relationship</td>
<td><strong>When we break it down into the components of.., we can see that,</strong></td>
</tr>
<tr>
<td></td>
<td>Describe the process of purification of water</td>
<td></td>
<td><strong>The elements are related in the following ways:</strong></td>
</tr>
<tr>
<td></td>
<td>Imagine that you are your heart and describe what happens when you make 10 push-ups</td>
<td></td>
<td><strong>Can we break down these components even further?</strong></td>
</tr>
<tr>
<td></td>
<td>Write a dialog for Freud and Maslow on opposing views on human needs. Act out your dialogue in pairs.</td>
<td></td>
<td><strong>This is related to..</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td><strong>The function of <em>is</em>..</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td><strong>Each component plays a key role. First...</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td><strong>If we take a closer look at..</strong></td>
</tr>
<tr>
<td>Analyze the effects of cold-forming on steel as a building material</td>
<td>There's another aspect to it... The first stage is... Then it is broken up into... This stage takes about three hours The stages of processing are... It is divided into four main stages/ processes In the following stage/ The following stage is... There is a change in the properties of... It increases... As a result of x, y is increased</td>
<td></td>
<td></td>
</tr>
<tr>
<td>---</td>
<td>---</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Compare the average ages of marriage in the different European countries. Compare two animals (e.g. otter and beaver) (scaffold: Venn diagram or a grid) Compare two diets (balanced meal vs. junk food)</td>
<td>They are similar, because... It is like a__ but differs in that... In contrast to what ___ (name) says, I... The two differ, because one... while the other... It is important to distinguish between... This finding is inconsistent with that one because... Despite these similarities, the two differ...</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Debate the following problem: junk foods effects on health (two teams: pro &amp; con) You have 30 minutes to find solutions to the problem of global warming Debate the issue: Should cloning be banned?</td>
<td>The main problem is... I think the answer is... because... The conflict is between... This is a major problem... (for several reasons)... There are different ways to solve it. The best solution is... I hypothesize that... The negatives of such a solution are...</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Persuade your teacher to give you a day off</td>
<td>I have several reasons for arguing this point of view... My first reason is... Another reason is... Although not everybody would...</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Teaching speaking

- Convince your parents to let you buy an expensive garment/bike/camera...
- Persuade a meat eater to taste some tofu
- maintain, hold, reason, (dis)advantages
- agree, my position is...
- There is a lot of discussion about whether...
- These (facts, reasons, data) strongly suggest that...
- Some argue that...
- Granted, I admit that...
- Then again...
- It’s also vital to consider...
- That is a good point, but I think that the evidence shows that

Oral interaction and production activities

The following table exemplifies some activities that can be used to enhance speaking in content classes. A practical rule of thumb is that the more advanced the students are, the less scaffolding they need and vice versa. Advanced students should focus on challenging production activities, such as giving speeches, both impromptu and prepared, and they should be required to produce longer and more elaborate utterances in class than younger and beginning learners, who need more support. Obviously, all CLIL students benefit from scaffolded content-specific language aids, such as frames and graphic organizers.

Table 6.2 Activities for speaking in content learning

<table>
<thead>
<tr>
<th>Activity</th>
<th>Context</th>
<th>Scaffold</th>
</tr>
</thead>
<tbody>
<tr>
<td>reading a written text aloud</td>
<td>letter, joke, newspaper article</td>
<td>Letter, joke, newspaper article on paper</td>
</tr>
<tr>
<td>carrying out experiments and explaining the procedure orally</td>
<td>lab experiment, lab demonstration, any process description e.g. water purification</td>
<td>Lab report, flow chart/ diagram or pictures of a process</td>
</tr>
<tr>
<td>Describing the process orally</td>
<td>lab experiment, lab demonstration, any process description e.g. water purification</td>
<td>Lab report, flow chart/ diagram or pictures of a process</td>
</tr>
<tr>
<td>giving oral presentations</td>
<td>giving a speech, presentation, demonstration</td>
<td>speaking from notes or from a written text or visual aids</td>
</tr>
<tr>
<td>putting a case debates</td>
<td>debate, role play</td>
<td>Role card</td>
</tr>
<tr>
<td>interacting with fellow pupils in group work or project work,</td>
<td>any group work situation, cooperative work groups</td>
<td>Group support, social strategies, manipulatives</td>
</tr>
<tr>
<td>role-plays, simulations,</td>
<td>any group work situation, suitable for social sciences, empathizing: imagine you are a cell, an angry customer, a famous pop singer</td>
<td>Role cards, group support, social and affective strategies</td>
</tr>
<tr>
<td>games</td>
<td>any content that can be turned into a game, guessing games, board games</td>
<td>Game structure, board, game cards, clues</td>
</tr>
<tr>
<td>negotiating texts by reformulating and exchanging drafts</td>
<td>Negotiation of form, lab reports, worksheets, process writing</td>
<td>Language of negotiations &amp; feedback, writing frames</td>
</tr>
</tbody>
</table>
Teaching strategies

When s/he speaks, the learner must be able to *plan and organise* a message (cognitive skills), *formulate* a linguistic utterance (linguistic skills), *articulate* the utterance (phonetic skills).

To carry out the task successfully, - according to its nature and the learner’s level - production strategies must be mobilised.

<table>
<thead>
<tr>
<th>STRATEGIES</th>
<th>Applying the strategies to the CLIL classroom</th>
</tr>
</thead>
<tbody>
<tr>
<td>planning</td>
<td>recall and rehearse an appropriate set of phrases of his/her repertoire, looking for information or help when dealing with a deficit, considering audience</td>
</tr>
<tr>
<td>compensating</td>
<td>use an inadequate word and use gesture to clarify what he/she wants to say, foreignise a mother tongue word and ask for confirmation, use circumlocution and paraphrase to cover gaps in vocabulary and structure</td>
</tr>
<tr>
<td>monitoring and repair</td>
<td>start again using a different tactic when communication breaks down, correct errors he/she becomes conscious or because they have led to misunderstandings</td>
</tr>
<tr>
<td>developing a lexical competence</td>
<td>memorise lexical elements -fixed expressions, fixed frames, fixed phrases - used in L2.</td>
</tr>
</tbody>
</table>

Below you will find a table which will help you to teach speaking by relying on a variety of strategies. These strategies come under the umbrella of scaffolding. Scaffolding supports and encourages the learner to build on prior knowledge with the help of the teacher and more knowledgeable peers.
Scaffolding speaking for oral production

<table>
<thead>
<tr>
<th>Strategies for oral production</th>
<th>Applying the strategies to the CLIL classroom</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Scaffolding</strong></td>
<td></td>
</tr>
</tbody>
</table>
| **Provide visuals**           | pictures, maps, diagrams, graphs, charts not only illustrate but also help learners to organise their speech by showing information structure in a text (a tree-diagram classifies, a flow diagram can show cause and effect). Visuals provide good supports for descriptions, explanations, comments, comparisons, analyses or discussions in most subjects. Here are some examples:
  - in History: it is possible to describe, understand, comment an engraving, a picture, a propaganda poster, a cartoon...
  - in Geography: it is possible to understand a map, comment a population pyramid, analyse a diagram, analyse a landscape from a photo...
  - in History, Geography, Sociology: it is possible to describe and compare two images in order to explain, justify an evolution...
  - in Sciences: it is possible to describe an experience, a natural phenomenon. |
| **Provide recordings**        | A tape or a video can be helpful by giving input, models the learners may use after for their own benefit. |
| **Provide speaking supports** | • Mind maps,  
  • Charts that summarise advantages and disadvantages, causes and effects,  
  • Notes,  
  • Lists of key points to put in order (logical, chronological...)  
Reading and filling in the chart helps the learner to see the structure of ideas in the text. The chart reflects visually the discourse function of the text or the thinking process it reflects. |
A chart enables the learner to focus on connections between concepts and provide language support (see below, Keith Kelly, NILE 2003).
Scaffolding speaking for interaction

Learning to interact involves more than learning to receive and to produce utterances. The role of teacher-students and student-students interaction is crucial in learning to use the language of learning. The socio-cultural view of learning views interaction in the zone of proximal development essential to learning. The following quote from the Council of Europe pages describes the strategic activity that the interlocutors are involved in interaction:

In interactive activities, the language user acts alternately as speaker and listener with one or more interlocutors so as to construct conjointly, through the negotiation of meaning following the co-operative principle, conversational discourse. Reception and production strategies are employed constantly during interaction. There are also classes of cognitive and collaborative strategies (also called discourse strategies and co-operation strategies) concerned with managing co-operation and interaction such as turn taking and turn giving, framing the issue and establishing a line approach, proposing and evaluating solutions, recapping and summarising the point reached, and mediating in a conflict.


Activating prior knowledge

It is obvious that interacting in a foreign medium is not as easy as in the first language. The following strategies are of use in helping learners to become competent interlocutors.

1. by helping them to be aware of what they know,
2. by helping them to find the main ideas, identify the context, be aware of the text organization and structure, build up meaning,
3. by teaching them how to negotiate the meaning and handle exchanges.
Table 6.5 indicates how learners’ awareness of prior knowledge and context is activated.

<table>
<thead>
<tr>
<th>STRATEGIES</th>
<th>Applying the strategies to the CLIL classroom</th>
</tr>
</thead>
</table>
| Helping learners to become aware of what they know activating prior knowledge (brainstorming) | - *listening to or reading*: after skimming or listening a text once, each learner gives a word or words he/she understood. The teacher collects them on the board. The class tries to connect the words together and to guess the global meaning. Learners first must negotiate and construct the meaning and check after comparing with the original document.  
  - *vocabulary*: which words do you know? Which words have you learned? which words have you memorised?  
  - *grammar*: underline an analogy with L1.                                                                                       |
| Helping learners to become aware of the context or the problem              | - Identifying the topic of a conversation from snatches: *what do they speak of?*  
  - Identifying the problem: *what’s the topic?*  
  - Writing the key words: 3/5 words that show….  
  - Identifying the type of speech: formal, informal…  
  - Outlining the context: identifying what happens, where, when, who is involved…  
  - Building the context from incomplete data, guessing what happened before, what will happen next |
| Helping learners to become aware of the text organization and structure     | - Identifying the type of text: descriptive, narrative, informative, persuasive…  
  - Finding the sections: what are the signals of organization?  
  - Finding out how drawing attention, underlining an important point, changing subject. |

**Negotiating meaning**

In case of misunderstanding during a conversation, a learner may:

1. correct what he/she said because his/her partner didn’t understand and asked him/her to repeat

2. be corrected: the partner retells the information with substitutes, the learner gets a new “input” he/she can memorise and try to use again.

**Example 1:**
The windows are crozed  
- The windows are what?  
- *Closed.*  
- Crossed? I’m not sure what you’re saying here.  
- *Windows are closed.*  
- Oh, the windows are closed, oh, OK, sorry.

(Pica, 1994)

**Example 2:**
- He is on the tree.  
- He is standing on the tree?  
- Yeah, standing on the tree.

(Mackey, Gass, McDonough, 2000).
Table 6.6 shows how learners may negotiate meaning.

<table>
<thead>
<tr>
<th>STRATEGIES</th>
<th>Applying the strategies to the CLIL classroom</th>
</tr>
</thead>
</table>
| **Building up to meaning** | Small groups or peer-to-peer tasks: each partner has an information that is unknown to his/her partner(s): each partner is obliged to interact and cooperate. Examples:  
- Match a word to its definition  
- Match a word with its synonym  
- Match words and pictures  
- Match texts and pictures: each learner or group of learners has one image and one text (legend, description, comment...) that don’t match. They must describe the picture, read the text, ask questions to get the missing half.  
- Explain a map, graph or table to a partner.  
*Trivia search:* “Three things you know” and “Three things you want to know” with support for making questions.  
*Word guessing games:* teams have one minute to guess as many words as possible and get one point for each correct guess. |
| **Negotiating the meaning** | Small groups or partners in pairs:  
- make predictions from the title of a written text: what are you likely to find, what is the topic about, was the title justified, would you like to change it?  
- fill in a text: learner A is given a text with gaps, learner B is given the list of missing information. Learner A starts reading. Learner B proposes a word. Learners A and B have to decide whether the proposal is good or not according to the context.  
- complete a written text or a speech (the middle or the end): establish relationships between ideas, find a good transition between two paragraphs/sentences and continue or conclude.  
- make predictions about causes and consequences of facts.  
- ask for clarification: ask for explanation, verification, repeating, rephrasing, ask for clarification or verification about the task.  
- discuss two target language sentences, a correct and an incorrect version of the original sentence. The task is to identify the correct one and explain what the mistake is in the incorrect one and why it is not correct, by providing a grammar rule, for example.  
*Question loops:* questions and answers, terms and definitions, halves of sentences can be exploited to create a question loop. |
Handling exchanges
- Identifying the type and topic of a discussion
- Establishing contact, following changes of topic, turn taking and turn giving, keeping conversation
- Expressing agreement and disagreement
- Expressing feelings
- Problem-solving tasks: in pairs or small-groups students collaborate to solve problems, e.g. evaluating historical sources, finding out how a machine, organism works.
- Testing hypotheses solving mathematical word problems.
- Hypothesizing tasks: collaborating in groups or pairs to create hypothetical scenarios: What if Germany had won World War II?

Class surveys: use questionnaires to guide pupils in asking set questions of their classmates.

Useful language for negotiating meaning

Find below some conversation gambits:

<table>
<thead>
<tr>
<th>Expressing understanding</th>
<th>Expressing misunderstanding</th>
<th>Expressing agreement</th>
<th>Expressing disagreement</th>
</tr>
</thead>
<tbody>
<tr>
<td>I understand</td>
<td>I don’t understand</td>
<td>Me too</td>
<td>Me neither</td>
</tr>
<tr>
<td>I see</td>
<td>I don’t quite understand</td>
<td>I agree</td>
<td>I disagree</td>
</tr>
<tr>
<td>I got it</td>
<td>I don’t/didn’t get it</td>
<td>So do/did I</td>
<td>Neither do/did I</td>
</tr>
<tr>
<td>Uh-huh</td>
<td>Huh?</td>
<td>I think so, too.</td>
<td>I couldn’t agree more.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>That’s a good point.</td>
<td>That’s not how I see it</td>
</tr>
<tr>
<td></td>
<td></td>
<td>I (completely) agree (with you).</td>
<td>I’m afraid I can’t agree with you.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>That’s true.</td>
<td>I’m not sure I quite agree with you.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>That makes sense.</td>
<td>I see what you mean, but . . .</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>I doubt it</td>
</tr>
</tbody>
</table>
## Clarifying

<table>
<thead>
<tr>
<th>Asking questions</th>
<th>Making statements</th>
</tr>
</thead>
<tbody>
<tr>
<td>Could you repeat that?</td>
<td>I mean...</td>
</tr>
<tr>
<td>What do you mean by...?</td>
<td>What I mean is.../What I meant was...</td>
</tr>
<tr>
<td>Sorry, but I don’t see what you mean.</td>
<td>Let me put it (say it) another way.</td>
</tr>
<tr>
<td>Could you be more specific?</td>
<td>What I’m trying to say is ...</td>
</tr>
<tr>
<td>Could you explain that in more detail?</td>
<td>In other words, ...</td>
</tr>
<tr>
<td>Do you mean ...?</td>
<td>I didn’t mean to say that.</td>
</tr>
<tr>
<td>If I understand you correctly...</td>
<td></td>
</tr>
<tr>
<td>What you’re saying is...</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Asking for suggestions, advice</th>
<th>Giving opinions</th>
</tr>
</thead>
<tbody>
<tr>
<td>What do you think about......?</td>
<td>I think that...</td>
</tr>
<tr>
<td>How about you?</td>
<td>For me...</td>
</tr>
<tr>
<td>What’s your opinion?</td>
<td>In my opinion...</td>
</tr>
<tr>
<td>Do you agree?</td>
<td>I believe ...</td>
</tr>
<tr>
<td>Do you have any suggestions?</td>
<td>As far as I’m concerned. ...</td>
</tr>
<tr>
<td>What would you do?</td>
<td>Personally, I think ....</td>
</tr>
<tr>
<td></td>
<td>It seems to me that ...</td>
</tr>
<tr>
<td></td>
<td>I honestly feel that</td>
</tr>
<tr>
<td></td>
<td>From my point of view</td>
</tr>
<tr>
<td></td>
<td>I strongly believe that...</td>
</tr>
<tr>
<td></td>
<td>I personally think /feel /believe that...</td>
</tr>
<tr>
<td></td>
<td>I’m convinced that ...</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Interrupting</th>
<th>Refusing interruptions</th>
</tr>
</thead>
<tbody>
<tr>
<td>Uh, may I ask a question?</td>
<td>Please let me finish.</td>
</tr>
<tr>
<td>May I interrupt for a moment?</td>
<td>Just let me finish my point; I’ll get back to you.</td>
</tr>
<tr>
<td>Pardon/excuse me, but...</td>
<td>I’d like to finish what I was saying.</td>
</tr>
<tr>
<td>Sorry/Excuse me for interrupting, but ...</td>
<td>Could I just finish my point?</td>
</tr>
<tr>
<td>May I add something?</td>
<td></td>
</tr>
<tr>
<td>I’d like to comment on that.</td>
<td></td>
</tr>
<tr>
<td>I’d like to say something here.</td>
<td></td>
</tr>
<tr>
<td>Could I just jump in here?</td>
<td></td>
</tr>
<tr>
<td>What about ...?</td>
<td></td>
</tr>
</tbody>
</table>
What is reading?

The most elementary type of reading consists of identifying individual letters and then recognizing strings of letters forming words. Gradually recognizing fixed combinations of words becomes automatic, which makes it possible for a reader to identify the different meanings of the letters \(a\), \(t\) and \(p\), for example. This makes it possible for a reader to make a difference between the words tap, pat and apt. This type of reading which may be relatively fast, accurate and fluent, is called mechanical reading (decoding). In spite of the fluency and speed the reader reads for recognition, not for comprehension. Mechanical reading skills are perfectly adequate and purposeful, if the function of reading is to find information quickly, e.g., in a timetable.

Quick and fluent mechanical reading is necessary for reading for comprehension (encoding) to develop. Reading in CLIL contexts is typically reading for comprehension. Learners read to learn both subject matter and language. Reading to learn is an active process. It is not the kind of passive transfer of knowledge from book pages into readers' (empty) heads that people assumed takes place when people read. Instead it is an interactive process in which the reader's purpose of reading, prior knowledge (schemata), strategies and text type interact and produce understanding and learning. Recently, a simultaneous interaction of a number of factors at many levels has been stressed rather than the contribution of individual subskills (Alderson, 2000).

Like listening, reading can take place in a bottom-up or top-down fashion. Bottom-up reading focuses on letter, syllable or word level and it is regarded as a relatively elementary and inefficient way of approaching text. For a long time, top-down reading was considered a more effective approach than the behaviourism-influenced bottom-up view. Recently, interest in bottom-up processes has arisen, partly due to eye-movement studies showing that focusing on small units and reading carefully seems to be typical of good readers. In addition, the schema-theoretic model underlying top-down reading has lost significance in failing to explain how the schematic prior knowledge is activated. Another assumption is that activation of background or subject-specific knowledge is not necessary when readers read for everyday purposes, not for learning (Alderson, 2000). However, it has been shown that prior knowledge is an important facilitator of content-area reading. If the reader uses her/his previous knowledge about the topic of the reading passage and about the structure of the text (text type) to aid comprehension, s/he is likely to comprehend the passage better than if s/he lacked this knowledge.

According to the current view, the most important components of reading are second language linguistic knowledge, in particular vocabulary knowledge, a general cognitive
skill and first language reading skill (Anderson, 2000). Of these components, target language vocabulary is an important one in teaching content reading. Vocabulary is teachable unlike the general cognitive skill, an implicit skill which is not related to language learning directly, and first language reading. In addition, vocabulary is of key importance if the goal of reading is to learn and understand subject matter at a deep conceptual level.

Why reading?

People read a variety of things in their L1 every day even if they are not aware of it. They read newspapers and magazines, text messages and emails, signs and notes, advertisements etc. We read for a number of different purposes. The Common European Framework (CEFR, pp. 68 – 69) lists the following reading activities:

- reading for general orientation;
- reading for information, e.g. using reference works;
- reading and following instructions;
- reading for pleasure

In CLIL contexts, reading for information and eventually learning are likely to be the most common purposes for reading. It is important to be aware of the purpose of reading as the reason why a text is read determines the strategies one uses in approaching the text. One can read

- for gist;
- for specific information;
- for detailed understanding;
- for implications, etc. (CEFR, pp. 68 – 69)

Typically, reading for gist calls for a strategy called skimming, whereas reading for specific information calls for scanning. The remaining two goals, reading for detailed understanding and for implications, relate to reading for learning. In reading to learn, the reader integrates the learned with the old information (schemata) that the reader has about the theme or topic of the text. The interactive view of reading implies that there is a number of factors at work when one reads. These are

- the purpose of reading
- the reader's background knowledge
- the reader's reading strategies
- the text

All these factors need to be taken into account for a successful reading outcome.

How to teach reading?

A CLIL teacher can facilitate her/his students’ understanding of text and learning of content matter by focusing on the different factors that influence content reading. Teaching materials for CLIL should also be written with these components in mind.
Reading to learn means to link new information to previous knowledge and apply appropriate strategies.

**Linking to previous knowledge**

Activating the existing relevant knowledge of the topic to be learnt is an important step in starting to build new knowledge structures from content reading. Activating existing schemata may take place through pre-reading activities (prediction, previewing, semantic mapping and reconciled reading). In prediction, readers predict what the reading passage is about by limiting the number of non-relevant hypotheses on the basis of their prior knowledge. Prediction can be narrowed down by providing readers with pictures and titles of the reading passage (previewing). Semantic mapping is a technique that can be used to activate the readers' previous knowledge. Readers produce “maps” of concepts, words and terms that they already know. Finally, reconciled reading refers to an activity where comprehension questions are presented at the beginning of the chapter instead of at the end of it, which is where they are usually placed. The pre-text placement of questions turns them into a predicting activity.

Once background knowledge and relevant existing schemata are activated, new schemata are being built by means of during-reading and post-reading activities. Some examples of during-reading tasks are questions to self (metacognitive strategy) or peers (collaborative, social strategies) about text content, prepared or student-made true/false, multiple-choice or open questions about text content. Post-reading tasks typically cover the entire text and beyond: they are geared towards internalizing, i.e. learning content as well as building novel knowledge structures. Some examples of post-reading tasks are comprehension questions, summaries, knowledge transfer tasks: transferring text content into another format, for example text into picture/s, table or figure, map, flow chart or other graphic organizer, changing text genre (narrative into expository), changing timeframe or angle or stance.

**Text type**

Familiarity with the type and structure of the text that one is reading aids understanding. Werlich’s (1976) classification of texts into instructive, narrative, expository and argumentative text types is a pedagogically sound due to clarity and relative simplicity. Text types structure information differently. The most familiar text type, the narrative, typically consists of a timeline, a person line and possibly a place line. In addition, narratives have what is called story grammar structure (Rumelhart, 1975), which consists of successive episodes. An episode contains a problem that is solved after which the next episode follows. Fairytales are prototype narratives. Examples of instructive texts are instructions for use and recipes. Instructive text type typically consists of short imperative sentences that make up a sequence. The most common text type in content teaching is the expository text type. Expository texts show a variety of features, but typically they contain the explanation of a phenomenon, causes and/or background factors affecting the phenomenon, consequences and/or results of the phenomenon, related phenomena, factors working pro and against the phenomenon. Finally, argumentative texts typically contain two lines of arguments, chains of counter-arguments and warrants. Argumentative text type is typical of social sciences, law and philosophy.

All the above text types may be called macro texts. Macro texts contain micro text types, such as different sequences (cause-consequence, general-particular, particular-general,
hypothesis-evidence, evidence-conclusion). In CLIL, text types, both micro and macro, can be illustrated, taught and learnt by means of a variety of graphic organizers for example.

**Reading strategies**

Below is a table divided into two sections: on the left, you will find a list of reading strategies to help learners to cope with authentic and sometimes difficult texts in the target language; in the right-hand column, you will find the corresponding application of the strategies for the CLIL classroom.

Table 7.1 Suggestions for the reader

<table>
<thead>
<tr>
<th>Strategies for reading</th>
<th>Applying the strategies to the CLIL classroom</th>
</tr>
</thead>
</table>
| Using dictionaries, encyclopedias, electronic dictionaries and other Internet sources (see Ch. 2.2 p. xx for a list of some sources) | • make a list of predictions about the meaning of some words and check them with peers or teachers  
• ask learners to guess meanings of words and put a list of suggestions on the board  
• skim-read and identify the difficult words and find out their meaning |
| Knowing the context first  
Relating the content to your own experience and/or knowledge of the subject  
-top-down reading: previous knowledge about the topic allows you to make predictions about the text  
-bottom-up reading: focus on letter or word level  
(Paige, Cohen, Kapper, Chi, Lassegards, 2006, pp. 225-36) | •  
• skim-read to understand the context  
• read through all headings  
• jump to the end to see if there is a useful summary, discussion or conclusion  
• outline the main sections of the text  
• make a list of what you are likely to find in the text  
• make a list of the words you are likely to find in the text  
• look at finer details (usually after top-down reading) |
| -Monitoring your comprehension  
-Guiding your reading  
-Re-reading difficult passage  
-Highlighting keywords and phrases  
-Using colour-code information  
(Cottrell, 2003, pp. 121-26) | • Read a few sentences and then stop. Without looking back at the text, sum up what you have read in just a few words  
• Set yourself specific questions to start off your reading. Write them down. Adapt the questions as your reading progresses  
• Look at headings, first and last phrases  
• Select key words, underline, double underline, star and highlight (be selective)  
• Make faint wavy lines at the side of fairly important passages  
• Use different colours for different kinds of information  
• Keep your eyes moving forward reading to the end of a sentence (to the next full stop). You can read the whole sentence again if necessary  
• Scan rapidly to find key words  
• Write questions |
Awareness of text structure

Graphic organizers

Patterns in text structure play an important role in how readers read and write. Texts following certain organizational patterns are easier to comprehend and remember. There is a relatively small number of text structures (perhaps 12 to 15); therefore teachers can provide explicit instructions to students about these text structures. They can be depicted in the form of graphic organizers (GOs) to represent the interrelationships among ideas and patterns of discourse organization. In an L2 context, GOs help comprehension and can be used as pre-reading and post-reading tasks.

In the following you can see examples of various graphic organizers.

1. Definitions

   ________ is a ________ that ___

   Examples for definitions:

   A desiccator is a device that ___ used for drying things.

   A centrifuge is a device that ___ used to separate substances.

   A spectrophotometer is a device that ___ used to measure the amounts of elements in solutions.
2. Cause-effect

The effect of nitrogen on the cold-forging properties of steel

<table>
<thead>
<tr>
<th>CAUSE:</th>
<th>EFFECT:</th>
</tr>
</thead>
<tbody>
<tr>
<td>nitrogen</td>
<td>• increase in the strength of steel</td>
</tr>
<tr>
<td>increased</td>
<td>• decrease in ductility</td>
</tr>
<tr>
<td>temperature</td>
<td>• decrease in the strength</td>
</tr>
<tr>
<td>increased</td>
<td>• initial decrease in ductility</td>
</tr>
<tr>
<td></td>
<td>• later increasing trend in ductility</td>
</tr>
</tbody>
</table>

3. Process and sequence

Example of process and sequence:

Cheese-making process

cooking → moulding → preliminary pressing → pressing → salting → cellaring

4. Description and classification

Properties of concrete

<table>
<thead>
<tr>
<th>strength</th>
<th>durability</th>
<th>thermal properties</th>
</tr>
</thead>
<tbody>
<tr>
<td>abrasion resistance</td>
<td>chemical corrosion</td>
<td>thermal conductivity</td>
</tr>
<tr>
<td>compressive strength</td>
<td>frost resistance</td>
<td>fire resistance</td>
</tr>
<tr>
<td>tensile strength</td>
<td></td>
<td>thermal expansion</td>
</tr>
<tr>
<td>shear strength</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Awareness of discourse structure

Sequencing (Jigsaw task)

Sequencing tasks help learners to see the organisation of ideas in texts by getting them to search for clues which signal this, such as connectors or words and lexical connections.

Below there is a sequencing activity in road construction which requires students to look for lexical clues and focus on the key concepts.

Students perform sequencing tasks either by numbering the sections in the correct order, or by moving cards on a flat surface. The latter mode requires the teacher to cut out a number of cards and put them in envelopes – one for each group.

This takes time to prepare. The former mode is easier to prepare but is slightly more difficult to for students to do. To make an activity of this kind, it is important that there should be enough content clues or discourse clues in each sentence for the learner to recognise sequence (Barbero and Clegg, 2005).
A sequencing task: Building a road

Road base is the layer which receives the load of the traffic.

It is a term referring to the existing ground or soil on which the road is built.

This term describes the layers that form the running surface on the road base.

A road consists of many layers or courses.

The running surface consists of two courses, a base course and a wearing course.

To finish the road surfacing is needed.

The construction of a road is often started by improving the strength of the subgrade

Sub-base which is usually made of gravel is built between the blanket course and road base.

A layer called the blanket course is put on top of the subgrade.

Focus on meaning and concepts

Gap filling

Gap-filling tasks help learners to read carefully in order to focus on the meaning of missing words. Making a gap-filling exercise means deciding to stimulate learners’ knowledge of subject-matter or language or both.

This task from chemistry supports learners at the level of vocabulary and requires them to focus on subject-matter concepts. To make a gap-filling task, short items (normally one or two words) are omitted from the text. Gap-filling tasks are not difficult to make but are used very frequently in both language and subject textbooks, often to the exclusion of other types of task.
A gap-filling task

Periodic table

Understanding the Organization of the Periodic Table

Ions, shell, atomic number, groups, vertical, elements, metal, Similar properties, periods, rows, group, electrons.

Cloze test

1. The modern Periodic Table shows the ______ in order of ______ __________.
2. The Periodic Table is laid out so that the elements with ________ ________ form in columns.
3. These _______ columns are called ________ and Roman numerals are often used for them.
4. For example, the group II elements are ______, _______, _______, _______, and ______. They’re all _______ which form 2+ _______ and they have many other _______.
5. The ______ are called periods. Each new _________ represents another full shell of ________.
6. The elements in each ________, all have the same number of electrons in their outer ____________.

Focus on connections between concepts

There are many kinds of matching task, activities: e.g. match picture and word, word and word, sentence beginning with sentence ending, heading with text, etc.

A matching activity in science which requires the learner to match one clause with another. It gives support for vocabulary, grammar and cause/effect connectors between clauses. It enables the learner to focus on connections between subject concepts.
A matching task

**pH testing acids and alkalis**

The pH scale measures how acidic substances are.

<table>
<thead>
<tr>
<th>pH</th>
<th>1-4</th>
<th>5-6</th>
<th>7</th>
<th>8-10</th>
<th>11-14</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Strong acid</td>
<td>Weak acid</td>
<td>Neutral</td>
<td>Weak alkali</td>
<td>Strong alkali</td>
</tr>
<tr>
<td>Example</td>
<td>Sulphuric acid</td>
<td>Orange juice</td>
<td>Water</td>
<td>toothpaste</td>
<td>Sodium hydroxide</td>
</tr>
</tbody>
</table>

**a) True or false?**

- Water has a pH of 7
- Orange juice has a pH of about 5. It is a strong acid.
- Acids have a high pH.

**b) Match a sentence from Box 1 with a sentence from Box 2**

**Box 1**

- Vinegar has a pH of about 4.
- Sodium hydroxide is a strong alkali.
- Sulphuric acid and hydrochloric acid have a pH of 1-2.

**Box 2**

- it has a pH of 12-14
- so, it’s a fairly strong acid
- so, they are both weak alkalis

**Organising a set of concepts**

**A card-sorting task**

Card-sorting tasks help learners think about relations between a set of concepts within a subject by organising a set of concepts. The concepts are printed on cards, which allows the learner to try out various types of organisation on a flat surface. Card-sorting tasks are not easy for any teacher to make. The teacher needs first to imagine a set of key concepts within a topic and how they relate to each other – e.g. as a sequence, a classification, etc. Then the concepts need to be written, the cards cut out and put into envelopes with instructions – one for each group.

**Coal**

Task 1. In groups, decide which of the following cards are relevant to the question.

- Put the cards that aren’t relevant on the **not relevant** card.
- Sort the remaining cards under the following headings **Disadvantages** and **Advantages**.
- Rank the cards you have selected under each heading in order of importance and divide both groups of cards into **Important** and **Relatively unimportant** groupings as below:

<table>
<thead>
<tr>
<th>Disadvantages</th>
<th>Advantages</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Important</strong></td>
<td><strong>Important</strong></td>
</tr>
<tr>
<td><strong>Relatively unimportant</strong></td>
<td><strong>Relatively unimportant</strong></td>
</tr>
</tbody>
</table>

- Now decide on a sentence to introduce each of the four groups of cards you have selected and write your sentences on whiteboards.

- Be prepared to discuss your selection and sentences with the class. The best suggestions will be put on a grid.

**Question:** What are the disadvantages of coal as a way of generating electricity and why, even so, is it such a popular way of generating electricity in the UK?

- Coal is cheap to mine or import.
- Coal gives off soot when you burn it.
- Burning coal causes carbon dioxide (CO2) to be released into the atmosphere.
- Coal is fossilized trees.
- Coal gets you dirty when you handle it.

- Coal burns very slowly and gives off heat when it is burnt.
- UK engineers know a lot about the technology involved in building a power station.
- You can only burn coal once.
- There is a limited supply of coal on the earth.

- Not relevant to this question.
- Disadvantages
- Important
- Relatively unimportant
- Advantages
- Important
- Relatively unimportant
Problem-solving

Jigsaw

It is a technique that involves close attention to text, oral exchange of information.

A needs information that B has, and vice versa: the information gap principle and often a problem solving element.

The activity requires several linked texts. These can be separate texts all dealing with linked situations, or parts of a single text. The point of the activity is that unless you have information from all the texts you cannot understand some key aspects of the situation, or perform some tasks. It can be used at all levels (Nuttall, 1986, pp. 209-10).

- Divide the students into three or more groups (A, B, C....). NB. In a big class, to keep the groups small, you can have as many A, B and C groups as you like, as long as there are the same number of each.
- Each group gets a different linked text with one or two tasks relating to it (some people do not include tasks for this first stage) and also one task (usually common to all the texts) that cannot be satisfactorily answered from any text alone.
- Each group read their own text and then discuss the questions.
- Then rearrange the class so that students are sitting in groups of three, with one A, one B and one C student in each.
- The task is now for each little group to exchange information orally, without looking at one another’s texts, until they are able to work out the answer the common task.
What is writing?

Writing is an important skill. Mastering writing is not only about learning to write but also and more importantly about writing to learn. In CLIL teaching, writing is a particularly useful learning tool. Writing is a challenging skill to teach.

- Written tasks require accuracy (in language and in content).
- Written tasks need careful and precise use of vocabulary and grammar to describe processes authentically.
- Written texts are products, often of permanent nature, written to be assessed or discussed by an audience.
- Writing in CLIL is more versatile and complex than in “traditional” language teaching, as content matter texts adhere to content-specific writing conventions.

Why writing?

Writing can be used to practice linguistic means to express content-specific thinking skills in the target language, higher-order thinking skills in content and language integrated classes. Writing has many advantages:

- Writing leaves a permanent trace.
- Writing makes one’s thinking visible.
- Writing helps one view and (re)order facts, processes, inferences and opinions.
- Writing prompts questions and feedback from others (readers of written texts).
- Writing stimulates higher order thinking and creativity.
- Writing is holistic: the brain, the hand and the eye are involved.
- Writing helps one understand the principles, system and logic of a given discipline.
- Writing is an essential job skill.
How to teach writing?

The form of writing in science is different from the general written genres e.g. narrative or argumentative writing. There are some special features of scientific writing which differentiate it from general writing grammatically (e.g. the use of passive voice, nominalizations), lexically (e.g. the use of technical terms or lexical items that refer to content) and stylistically (e.g. avoiding the use of colloquial forms and figurative language).

Scientific writing also uses other modes of communication i.e. pictures, graphs, charts, diagrams and equations (Wellington & Osborne, 2001, pp. 63-65). Students/pupils need help in learning to write in science. In CLIL lessons students/pupils are learning both the content and language and this means that they have less mental processing capacity than learning through the L1. Therefore students need language support from the teacher. To be able to provide language support the teacher has to analyse the language demands and cognitive demands of the lessons. (Clegg, J. n.d. p. 1).

Language demands mean the language abilities which a student needs to possess to be able to learn a subject or content. (Teaching Knowledge Test. Content and Language Integrated Learning. Glossary May 08. p. 3)

The CLIL teacher has to analyse the language demands of writing tasks and think of the type or form of language support that could be given to guide writing. There are various strategies and forms of language support that can be given to students to help them in writing. They will be discussed below.

Writing strategies

Writing skills for CLIL pupils/students differ greatly in scope and diversity from those of EFL students more than in listening, speaking and reading. Reading strategies (skimming and scanning for instance) work extremely well with CLIL texts, but the requirements for successful text production in CLIL classes are different. Reading and writing are connected with each other. Therefore some of the strategies or language support tasks used in helping reading comprehension can also be used in helping writing. Texts usually follow a certain organizational pattern and there are certain text structures which can be depicted in the form of graphic organizers. Graphic organizers can represent specific text structures. These graphic organizers can be used by students to plan their writing.

In the following there are examples of two graphic organizers (concept maps of microbes and an event in history) that could be used in planning and structuring the content of a piece of writing.
Various strategies help students to become successful writers of texts focusing on non-fiction subjects.

Below you will find a table which is divided into two sections: on the left there is a list of writing strategies to help students to write and on the right there are ways of applying strategies to the CLIL classroom.
Table 8.1 Writing strategies and examples of applications (modified from O’Malley & Chamot 1990, pp. 137–39)

<table>
<thead>
<tr>
<th>Strategies for writing</th>
<th>Applying the strategies to the CLIL classroom</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Meta-cognitive strategies</strong></td>
<td></td>
</tr>
<tr>
<td>1. organizational planning</td>
<td>writing a to do list, revision of relevant vocabulary (conjunctions etc), outlining, scheduling individual and group work, learning logs</td>
</tr>
<tr>
<td>2. self-monitoring</td>
<td>dictionary work, peer evaluation, monitoring text production from initial draft to final product (drafting, revising, editing)</td>
</tr>
<tr>
<td>3. self-evaluation</td>
<td>follow the 5 phases of process writing - rehearsing, drafting, revising, editing and publishing (Teaching and Learning strategies for the thinking classroom, 2005, p116)</td>
</tr>
<tr>
<td><strong>Cognitive strategies:</strong></td>
<td></td>
</tr>
<tr>
<td>resourcing</td>
<td>• note-taking, summarising, using graphic organisers e.g. to show cause and effect or comparison and contrast</td>
</tr>
<tr>
<td>translation</td>
<td>• dictionary work, emphasis on register, false friends, similarities between L1 and L2</td>
</tr>
<tr>
<td>deduction</td>
<td></td>
</tr>
<tr>
<td>substitution</td>
<td></td>
</tr>
<tr>
<td>elaboration</td>
<td></td>
</tr>
<tr>
<td>summarizing</td>
<td></td>
</tr>
<tr>
<td><strong>Resourcing:</strong></td>
<td></td>
</tr>
<tr>
<td>using available reference sources of information about the target language. including dictionaries, textbooks, and prior work</td>
<td></td>
</tr>
<tr>
<td><strong>Translation:</strong></td>
<td></td>
</tr>
<tr>
<td>rendering ideas from one language to another in a relatively verbatim manner</td>
<td></td>
</tr>
<tr>
<td><strong>Deduction:</strong></td>
<td></td>
</tr>
<tr>
<td>consciously applying learned or self-developed rules to produce or understand the target language</td>
<td></td>
</tr>
<tr>
<td><strong>Writing examples:</strong></td>
<td></td>
</tr>
<tr>
<td>organizational planning: proposing strategies for handling an upcoming task; generating a plan for the parts, sequence, main ideas, or language functions to be used in handling a task</td>
<td></td>
</tr>
<tr>
<td>self-monitoring: checking, verifying or correcting one's comprehension or performance in the course of a language task</td>
<td></td>
</tr>
<tr>
<td>self-evaluation: Checking the outcomes of one’s own language performance against an internal measure of completeness and accuracy, checking one’s language repertoire, strategy use, or ability to perform the task at hand.</td>
<td></td>
</tr>
</tbody>
</table>
Substitution: selecting alternative approaches, revised plans, or different words or phrases to accomplish a language task

Elaboration: relating new information to prior knowledge; relating different parts of information to each other

Summarizing: making a mental or written summary of language and information presented in a task

Socio-affective strategies help the learner to collaborate with others, to verify understanding or to lower anxiety.

- compile a glossary of topic related terms, use of monolingual dictionaries
- dual-entry diary (on the left side the students describe their service experiences etc, on the right side they discuss how the first set of entries relates to key concepts, class presentations etc (Teaching and Learning strategies for the thinking classroom, 2005, p119).
- using writing frames e.g. the main headings, sections, connections, phrases for classification and sentence starters
- present and list key items in a written form
- getting feedback from others, dictionaries and various resources.
- getting additional verification from a teacher or other expert or peer.
- learning blogs

Writing Tasks for CLIL Classes

In a CLIL lesson the (subject) teacher may want the pupils/students to write a passage on the topic or subject-matter of the lesson using the new concepts learned during the lesson or write something on the concepts and terms of a particular topic. The type of writing task depends on the subject or content and the level i.e. whether it is primary, secondary or tertiary level of education. In primary education and in beginning CLIL, writing tasks consist of mechanical activities; copying, dictation, gap-filling, writing short notes and post cards. In higher education (tertiary level) students are required to learn academic or technical writing. Typical writing tasks in science on tertiary level for example, include technical reports, test reports and laboratory experiments.

Some writing tasks for CLIL classes are as follows:

- **Prewriting** which consists of notetaking (T-list, Venn Diagrams, gapped texts, frames); cubing; concept maps; timelines; cause and effect chains. (See DVD Teaching materials/Tertiary level_EN/ Technology, Lesson 2 Pre-Task 3 Clozed passage exemplifying a gapped text)

- **Reports** ranging from general reports to technical, test reports, laboratory reports/ experiments; etc. All reports follow a certain structure and content-specific writing conventions (See DVD Teaching material/ Tertiary level_EN/ Technology, Lesson 5 exemplifying a test report)

- **Creative writing tasks** may help pupils to remember content more easily, for instance by writing list poems or cartoons to describe a chemical process or the achievements of the Egyptian culture.
Writing Frames

Scientific writing and writing in general in CLIL may be supported by writing frames. A frame is a scaffold which provides clues about how to organize the writing and the style of writing required. It guides the writer to the key features of the genre and can be used as a planning tool. (Wellington & Osborne, 2001, p. 69). Wray & Lewis (1998) define a writing frame as a skeleton outline to scaffold nonfiction writing.

Frames can vary as to how detailed they are or how much information they provide. There may be versions that are more scaffolded than others. The frame may consist of different key words or phrases, sentence starters, connectives and sentence modifiers i.e. it can give support at word, sentence and text level. All these help students to organize their thinking and writing in a logical form. (Wray & Lewis, 1998; Teaching Knowledge Test. Content and Language Integrated Learning. Glossary May 08, p. 14). Writing frames can be used at all levels, primary, secondary and tertiary. An example of a special writing frame, Comparison-Contrast Frame is the following found in Nessel & Graham, 2007, p.189)

_________________and_________________have many things in common but are also different. They both have________________. They are similar in that________________. They both resemble________________. ___________ and ________are different in some ways. For example, ______________. In addition, __________. Another difference is that ______________.

The following is an example of using the above frame to write a passage on two groups of microbes.

**Bacteria** and **viruses** have many things in common but are also different. They both have **the ability to cause diseases**. They are similar in that **they can grow by multiplying**. They resemble **each other in their shape i.e. they can be rod-shaped or sphere-shaped**. **Bacteria and viruses** are different in some ways. For example, **viruses are not cells whereas bacteria are made up of one cell**. In addition, **viruses are even smaller than bacteria**. Another difference is that **some bacteria can produce toxins and some viruses can “infect” bacteria**.

There are various types of writing frames depending on the type of text or text structure, i.e. there are different written genres. You can categorize writing into factual genres (e.g. reports, surveys) and fictional genres. These genres have their own distinctive text structure and specific language features (Wray and Lewis, 1998). You can have separate writing frames, for example, for narrative text, discursive text, descriptive text and even argumentative compositions and essays.

**Writing frames can thus be used in two ways in a piece of writing:**

1) to show the structure of writing (text structures) e.g. a test report and
2) to assist writing content in providing help in what aspects to write about or what to include in one’s piece of writing.

In the following there are examples of writing frames to show a specific text structure and to help writers in planning for and writing (technical) reports, laboratory experiments and argumentative compositions and essays. (See DVD Teaching materials/ Tertiary
level_EN/ Technology/ Lesson 5 and Social Science_EN/ Unit 7 Families exemplifying the use of writing frames)

Table 8.2 Writing frames

<table>
<thead>
<tr>
<th>A writing frame for a report</th>
<th>Title page (Cover page)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Table of contents</td>
</tr>
<tr>
<td></td>
<td>Abstract (or Summary)</td>
</tr>
<tr>
<td></td>
<td>Introduction</td>
</tr>
<tr>
<td></td>
<td>Background</td>
</tr>
<tr>
<td></td>
<td>Body of report (or Discussion)</td>
</tr>
<tr>
<td></td>
<td>Conclusions</td>
</tr>
<tr>
<td></td>
<td>References</td>
</tr>
<tr>
<td></td>
<td>Appendices</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>A writing frame for a laboratory experiment</th>
<th>Aims</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Methods</td>
</tr>
<tr>
<td></td>
<td>Results</td>
</tr>
<tr>
<td></td>
<td>Conclusions</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>A writing frame for an argumentative composition</th>
<th>Introduction</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Main body of composition</td>
</tr>
<tr>
<td></td>
<td>Final paragraph</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>A writing frame for an essay</th>
<th>Introduction</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Main body of essay</td>
</tr>
<tr>
<td></td>
<td>A concluding paragraph</td>
</tr>
<tr>
<td></td>
<td>References</td>
</tr>
</tbody>
</table>

**Academic Writing Skills**

**Essay writing** can be used in some fields (e.g. social sciences) on tertiary level to train the skills of academic writing. There are different kinds of essays: descriptive, narrative, instructive, expository and argumentative essays or compositions. Before starting to write an essay one should examine the title very carefully. Next, one should make a good survey of resources, consult the literature and any other available sources. One should plan the essay very carefully arranging the items logically with supporting evidence and arguments. All the ideas should be expressed in clear sentences. The skills of essay writing can also be trained with young learners by starting with descriptive essays (involving the use of nouns and adjectives mostly) and narrative essays (dealing with tenses and definiteness).

When writing an **argumentative composition** one should discuss the specific content-based problems. Having studied the material on the topic, the students study the guidelines explaining how to organize the written composition. An argumentative composition is always a formal piece of writing in which you are expected to consider a topic from opposing points of view and give a balanced consideration or your opinion. (See DVD Teaching material/Tertiary level_EN/ Social Science exemplifying an argumentative composition and essay and the use of respective writing frames)

One type of academic skill is **technical writing** trained in the field of technology and engineering. Examples of such technical writing are technical reports, laboratory experiments and test reports discussed in 3.2. Writing tasks. (See also DVD Teaching material/Tertiary level_EN Technology).
In all fields on the tertiary level students are required to show at the end of their studies that they have adopted the knowledge of a specific discipline e.g. by being able to write a thesis or a research paper or report mirroring discipline-specific thinking. Thus, **thesis or research paper writing** is an important academic skill to be trained and practised. (See DVD Teaching material/Tertiary level_EN Social Sciences)

**Useful Language for Writing**

Below is a table which presents useful language when undertaking a variety of writing tasks.

Table 8.3 Useful language for writing tasks

<table>
<thead>
<tr>
<th>Presenting arguments</th>
<th>Useful language for writing</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>• There is a lot of discussion about whether</td>
</tr>
<tr>
<td></td>
<td>• the people who agree with this idea claim that</td>
</tr>
<tr>
<td></td>
<td>• They also argue that</td>
</tr>
<tr>
<td></td>
<td>• A further point to make is</td>
</tr>
<tr>
<td></td>
<td>• However, there are also strong arguments or evidence against this view. These are</td>
</tr>
<tr>
<td></td>
<td>• Furthermore, they claim that</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Providing an Explanation</th>
<th>Useful language for writing</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>• Title</td>
</tr>
<tr>
<td></td>
<td>• I want to explain why</td>
</tr>
<tr>
<td></td>
<td>• An important reason for why this happens is that</td>
</tr>
<tr>
<td></td>
<td>• The next reason is that</td>
</tr>
<tr>
<td></td>
<td>• Another reason is</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Writing a cohesive text</th>
<th>Useful language for writing</th>
</tr>
</thead>
<tbody>
<tr>
<td>- Use additive connectors</td>
<td>• and; furthermore; moreover; in addition</td>
</tr>
<tr>
<td>- Express causality</td>
<td>• because; due to; since; owing to; as; as a result; on account of; so; consequently; as a consequence of; in consequence; hence; thus; therefore.</td>
</tr>
<tr>
<td>- Express contrast</td>
<td>• however; despite the fact that; while; in spite of (something); whereas; although; in contrast; even though; on the other hand; though; conversely; even so; nevertheless; but.</td>
</tr>
</tbody>
</table>
The Language in Content Instruction model emphasizes the role of language resources in encoding content-specific meaning.

Figure 9.1 The LICI model

Language makes meaning in different ways in different contexts. Context-typical and content-specific ways of interpreting and producing language (meaning potential) are called registers. Figure 9.1 illustrates the relationship of the three components in the LICI model. A text (language resource) is an instance of a specific register and as such encodes the meaning potential of a domain (content) in ways that are typical (strategies) of the particular register. There are both general thinking skills and subject-specific thinking skills and there are strategies with a wide coverage but also specific strategies targeted at individual skills or contexts. General and specific thinking skills will be discussed below in light of two taxonomies, Mohan’s Knowledge Structures and Bloom’s taxonomy (revised version). In addition, a selection of useful strategies related to specific learning targets and thinking skills are presented. In all of these, language plays a key role. The next chapter discusses the role of language in skills instruction.

Why is language important in teaching thinking skills and strategies in language and content integrated instruction?

The underlying idea of the LICI project is to emphasize the role of language in content instruction as a meaning making resource. The different domains have specific ways of
using language to express domain-specific thinking. This is apparent in the subject-specific lexis but also at sentence and text levels. In addition to subject-specific conventions, there are features that are shared by several registers that characterize academic scientific discourse, such as ample nominalization and frequent use of the passive voice.

**Text types**

At textual level, expository and argumentative macro text types occur more frequently than narrative and descriptive text types. Of micro text types, laboratory reports, technical reports and research papers are common. The idea of language-as-meaning-potential can be used to teach and learn content-specific registers and text types. The content and function of a certain text type is typically signaled by fixed textual signposts, for example the beginning of a fairytale is signaled by the words “Once upon a time” and the results of a research report may be expressed by “the results of the present study indicated…”

**Nominalization**

The systemic linguistic framework (Halliday, 1993, 1994) draws parallels between the development of thinking and linguistic development. This development starts with what Halliday calls congruent forms and ends in incongruent forms, typically nominalized forms. Congruent forms refer to agents and actions, (subjects, verbs and objects), for example: electricity was invented, whereas incongruent forms contain a nominalization of the active, verbal elements: invention of electricity. Congruent forms are typical of informal everyday language; incongruent forms are characteristic of special, formal, usually scientific discourse. Gibbons (2009, p. 5) offers an illuminating example. She had told a friend of hers that it had been raining heavily and that the rain had washed away a part of her garden. This is a very good colloquial expression for what had happened, but had she wanted to describe the phenomenon of washing away of soil in more scientific terms, she would have needed the verb to erode and the noun erosion. Similarly, a concept like photosynthesis is more than a vocabulary item; it is a conceptually complex phenomenon. A lot of information is coded in the word photosynthesis. The development that is coded in the word nominalization consists of a progression starting with actions that are tied to agents and to verbs and ending up with an abstract noun detached from concrete action and actors. Similarly, the learner’s thinking progresses from concrete actions towards abstract conceptualizations.

**How to teach thinking skills and strategies?**

Learning in content areas makes possible what Gibbons (2009, p.16) calls learning in the challenge zone, that is, high challenge (tasks we cannot do unaided) accompanied by high support (the help we need to be able to do the tasks successfully). Tasks that are too easy are not conducive to learning and tasks that are too difficult may be detrimental to motivation and also counterproductive to learning. Challenging tasks supported with scaffolds are likely to encourage learners to attempt challenging learning and extend their learning territory.

There are a variety of models and applications of teaching thinking skills and strategies. In contexts where content and language learning are combined, models that stress the connection of language and content are useful. Two models are presented here. One is the
Knowledge Framework (Mohan, 1986) and the other Bloom’s taxonomy (for revised form, see Anderson & Kratwohl, 2001).

**The Knowledge Framework**

Table 9.1 Mohan’s knowledge framework

<table>
<thead>
<tr>
<th>CLASSIFICATION /CONCEPTS</th>
<th>PRINCIPLES</th>
<th>EVALUATION</th>
</tr>
</thead>
<tbody>
<tr>
<td>DESCRIPTION</td>
<td>SEQUENCE</td>
<td>CHOICE</td>
</tr>
</tbody>
</table>

The Knowledge Framework is based on Mohan’s (1986) ideas of general and language specific thinking skills and their relationship with language. In Table 9.1 classification/concepts, principles and evaluation in the upper row are called general thinking skills. Their content-specific manifestations are description, sequence and choice in the bottom row. Table 9.2 illustrates the use of the framework in teaching a theme (trees) and how language is used to give shape to thinking skills. (See also Task-Based Instruction in this volume)

Table 9.2 Application of Mohan’s knowledge framework (‘Trees’, Mohan, 1986)

<table>
<thead>
<tr>
<th>CLASSIFICATION /CONCEPTS</th>
<th>PRINCIPLES</th>
<th>EVALUATION</th>
</tr>
</thead>
<tbody>
<tr>
<td>Trees Classification</td>
<td>Man’s influence on the environment (ecology)</td>
<td>Significance of trees to the environment</td>
</tr>
<tr>
<td>Language: pine, birch, oak conifers Be-verb</td>
<td>Explanation, anticipation, inferencing Language: expressions of causality: due to, as a result of, then, must, should...</td>
<td>Appreciation, valuing Language: the reasons are..., on the basis of...I believe, judge</td>
</tr>
<tr>
<td>Appearance</td>
<td>Life cycle of a tree</td>
<td>The best way to protect forests</td>
</tr>
<tr>
<td>Observing, naming, comparing</td>
<td>Ordering in time and place Language: expressions of time &amp; place: here, first, next, after, before</td>
<td>Decision making, expressing opinion Language: can, will, should</td>
</tr>
<tr>
<td>Adjectives of size, form, colour, etc.</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Table 9.3 provides examples of the use of different graphic organizers in illustrating the different thinking skills in content-based language teaching. They can be used in designing units for task-based teaching.

Table 9.3 The Knowledge Framework (Mohan, 1986)

<table>
<thead>
<tr>
<th>CLASSIFICATION /CONCEPTS</th>
<th>PRINCIPLES</th>
<th>EVALUATION</th>
</tr>
</thead>
<tbody>
<tr>
<td>webs, trees, tables, graphs, databases</td>
<td>diagrams, graphs, tables, cycles</td>
<td>Rating charts, grids</td>
</tr>
<tr>
<td>tables, diagrams, pictures</td>
<td>tables with numbered steps, flow charts, cycles, time lines, action strips</td>
<td>decision trees, flow charts</td>
</tr>
</tbody>
</table>

The following two tables (9.4 and 9.5) are lesson plan samples emphasizing the connection of the subject-specific thinking and related language functions, structures and
lexis. Such lesson plans may make the connection between language and content more explicit for both content and language teachers. They may also be useful in language and content teachers collaborating together and sharing the tasks of language and content teaching.

### Table 9.4 Lesson plan for language and thinking skills (Light and dark)

<table>
<thead>
<tr>
<th>TOPIC</th>
<th>ACTIVITIES</th>
<th>LANGUAGE FUNCTIONS</th>
<th>LANGUAGE STRUCTURES</th>
<th>VOCABULARY</th>
</tr>
</thead>
<tbody>
<tr>
<td>Light and dark</td>
<td>Looking at objects through coloured cellophane to see if colour changes</td>
<td>describing</td>
<td>What colour is the basket? It is...........</td>
<td>cellophane</td>
</tr>
<tr>
<td></td>
<td></td>
<td>comparing</td>
<td>What colour does it become? It becomes...........</td>
<td>red</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>I looked at the scissors..... They look green.</td>
<td>blue</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Next to, on top, through, under</td>
<td>green</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>black</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>yellow</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>orange</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>scissors</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>ruler</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>pot</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>paper</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>basket</td>
</tr>
</tbody>
</table>

The topic includes these activities which require these language functions which will be modelled using this language.


Comparison of the two lesson plans (Tables 9.3 and 9.4) also shows the difference between the levels of conceptual challenge in the two plans. The more elementary level plan (Table 9.3) contains two thinking skills and related language functions, those of describing and comparing (Mohan: classification/concepts and description), while the more advance level History plan (Table 9.4) challenges the students to progress through the whole of Mohan’s grid from Classification/Concepts-Description, Principles – Sequence and Evaluation –Choice. In this process, concrete forms of thinking turn to more abstract and creative thinking tasks.
Table 9.5 Lesson plan for language and thinking skills (History)

<table>
<thead>
<tr>
<th>TOPIC</th>
<th>CONTENT</th>
<th>LANGUAGE</th>
<th>LANGUAGE FUNCTIONS</th>
<th>LANGUAGE STRUCTURES</th>
<th>VOCABULARY</th>
</tr>
</thead>
<tbody>
<tr>
<td>KS3 History:</td>
<td>Classification: Concepts of W/C (=Working Class, M/C (= Middle Class)</td>
<td>Classify</td>
<td>There were two kinds of... some people...but others...</td>
<td>servant, governess</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Principles: W/C kids work poverty disease</td>
<td>explain means/ends explain cause/effect</td>
<td>had to... (in order) to... because...</td>
<td>tasks + equipment e.g. mangle</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Evaluation: Fair or unfair?</td>
<td>express opinion express emotion invoke standards</td>
<td>It was right/wrong to... (do that)</td>
<td>black leading tripe, dripping</td>
<td></td>
</tr>
<tr>
<td>Living conditions in 19th century towns</td>
<td>Description: video: conditions of W/C + M/C families</td>
<td>observe compare</td>
<td>simple past used to... much more/less... hardly enough/plenty</td>
<td>rag rugs sewer sewerage cholera</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Sequence: video: servant’s routine</td>
<td>narrate tasks explain purpose of tasks</td>
<td>because... so that... before...</td>
<td>infect infection overcrowded</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Choice: What if?</td>
<td>hypothesise express possibility</td>
<td>if they had...they would have... I (don’t) think they should have...</td>
<td>educated uneducated</td>
<td></td>
</tr>
<tr>
<td>The topic</td>
<td>includes these activities</td>
<td>which require these language functions</td>
<td>which will be modelled using this language</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>


*Bloom’s taxonomy*

In spite of the fact that the above table (Table 9.5) seems to suggest a progression from more elementary towards more advanced forms of thinking, there is no obligation to follow this or any other sequence in the course of instruction. On the contrary, the other taxonomy that is presented in the following, Bloom’s taxonomy, has been criticized for adhering to an outdated, behaviorist idea of learning hierarchies. Bloom’s taxonomy was originally created in 1956 during the behaviorist movement, and the underlying idea was that cognitive skills are hierarchical and that individuals could be classified into ability groups according to performance on the Bloomian stages. Regardless of this criticism, it seems that Bloom’s taxonomy is very influential even today.

The reason why Bloom’s taxonomy is included in this handbook is its language connection and the rich repertoire of language inventories that are available on the Net, for example. A bank of thinking skills-related language, such as the wheel below (Figure 9.6) is a useful toolkit for a content and language teacher in planning lessons, preparing and modifying teaching materials, in designing tasks and in providing language support in content teaching. The Internet is a rich resource for anyone who wants to find out more about
Bloom’s taxonomy. The source of the following verb wheel is Bloom’s verb wheel website: http://cstep.csusb.edu/Obj_tutorial/bloomwheel3.gif.

![Verb Wheel](http://cstep.csusb.edu/Obj_tutorial/bloomwheel3.gif)

**Figure 9.6 Verb wheel (Bloom)**

**Figure 9.7 The revised Bloom taxonomy (Anderson & Krathwohl, 2001)**
(http://www.uwsp.edu/education/lwolson/)

The inner circle of the wheel contains the Bloomian levels from Knowledge to Evaluation. The next circle lists the verbs and the outer circle provides examples of tasks to be used to practice each thinking skill. The verb wheel acts as an example of how language and thinking can be integrated at various levels of thinking. For example, if the teacher plans to include work on analysis, s/he may use a word bank, for example the verb wheel illustrated in Figure 9.6. To start, s/he selects a task or several tasks (examples listed in the outer circle of Figure 9.6) that are relevant for the theme s/he is working on. S/he then goes on selecting the verb/s that s/he uses in the task instruction (examples in the inner circle of the wheel in Figure 9.6). The necessary content language comes from the thematic area. If the teacher needs help with formulating questions that are compatible with the chosen thinking skill, s/he can go to the Internet for help. Some examples of useful questions related to Bloom’s taxonomy are available at http://www.teachers.ash.org.au/researchskills/Dalton.htm and to the revised version: http://www.stfrancis.edu/content/assessment/BloomRevisedTaxonomy_KeyWords.pdf

The verb wheel in Figure 9.6 is based on the original version of Bloom’s taxonomy. It should be noted that the more recent, revised version (Anderson & Krathwohl, 2001) of Bloom’s taxonomy is somewhat different. Figure 9.7 illustrates the major differences: nouns are replaced by verbs and the two top levels have been reversed. The reordering of the top levels follows the idea that synthesizing information in order to create something new requires evaluating of this information. Thus creating a more advanced thinking skill than evaluating.
The examples below illustrate the variety of definitions for strategies that there are. The first definition is the most general one in its definition of learning strategies as means to reach an end in accordance with the learner's learning style.

1. Learning strategies are activities that help people use their own learning style to best approach new learning. www.netnet.org/students/student%20glossary.htm

The next one is probably the most detailed one, containing social and affective strategies that are left out of strategy inventories which stress the internal process of learning, for example definition number 3 below.

2. Learning strategies: mental activities or actions that assist in enhancing learning outcomes; may include metacognitive strategies (e.g., planning for learning, monitoring one’s own comprehension and production, evaluating one’s performance); cognitive strategies (e.g., mental or physical manipulation of the material), or social/affective strategies (e.g., interacting with another person to assist learning, using self-talk to persist at a difficult task until resolution) www.tesol.org/s_tesol/view.asp

3. Learning strategies are cognitive processes students use to learn, understand, and apply material that may be relatively complex, (e.g. summarizing the key points in a textbook chapter) aaahq.org/aecc/intent/glossary.htm

Apart from the language and content connection, this handbook emphasizes the use of strategies to scaffold the learning of content-specific thinking skills. Below, a number of strategies are described in detail. They are KWL, Cubing, T-Charts, Venn Diagrams, Concept Maps, Frames, Imitation Writing and Analogies

**KWL**

*What?*

As we know learning involves a process where new information is connected to previous experience and knowledge. The KWL strategy may be used to activate prior knowledge, to monitor the learning process and assess the learning process and outcome. In this technique, students first list what they already know about a topic or a subject and what they want to know, that is, which new information they want to find out. After completing their study activity they check what they have learned. This provides students (and teachers) with an opportunity to compare their new knowledge with their prior understanding. A further item, how, may be added to answer the following questions: In
which way was the new information acquired, with which tools? How may the new knowledge be improved? How can students get deeper knowledge about the same topic?

**Why?**

This strategy may be used for different purposes:

- to activate students’ previous knowledge
- to set objectives for learning
- to plan lessons
- to connect different phases of a learning path
- to monitor learning processes (by the teacher or the students themselves)
- to give support in reading activities
- to stimulate interest in a topic

**When?**

The KWL strategy may be introduced at different moments of learning activities:

**Before**
- a lesson to activate prior knowledge
- introducing a new topic, to focus on learning objectives
- reading a text, as a pre-reading task

**During**
- an instructional activity as a way of organizing new information and relating it to previous knowledge
- a reading activity as a comprehension task

**After**
- learning activities, to record new information
- reading activities to check comprehension
- learning paths, to monitor learning process

**How?**

There are different ways to use this strategy, what matters is the principle: linking past learning (what I know) with new information (what I want to know) and arousing awareness about the results (what I have learned) and the process (how I have learned/ I am going to learn?). These categories may be displayed in a chart as follows:
<table>
<thead>
<tr>
<th>K (what I Know)</th>
<th>W (what I Want to know)</th>
<th>L (what I have learned)</th>
<th>H (How? Which strategies, resources?)</th>
</tr>
</thead>
</table>

K - What I Know
- At the beginning of a lesson, reading session or a learning path students are invited to write down what they know about a subject that is going to be introduced. Individual productions may be followed by a brainstorming activity aimed at listing and grouping information, oriented towards the new content that is going to be introduced;
- In this phase the teacher may use further techniques to arouse awareness about previous knowledge, soliciting, for instance, concrete experiences (see video, lesson delivery)

W – What I want to know
- The *W-What I Know* column may contain gapped sentences with missing information that the students will fill in. The learners also add their own questions about what they want to learn.
- The questions /issues that the students fill in in this column will be organized into categories: this new knowledge to be acquired is going to be the aim and the motivation of the learning path or of the reading text.

L – What I Learned
- At the end of the work unit (text reading or learning path) new understandings are listed in this column
- New knowledge gaps may again arise and originate further research

H – How I have learned/Am I going to learn?
- This column encourages students to think about resources and strategies to be used to improve their learning skills
- For teachers the contents of this column provide a way to foresee scaffolding techniques to support their teaching (see Lesson Delivery)
Cubing is an activity that can be used as an advance organizer, prewriting exercise for written work (see section on writing) or as an independent activity. The goal of the activity is to give the writer an overview of previous knowledge of the topic and to practise higher order thinking skills (cf. Mohan’s knowledge structures). It may be adapted to reach other aims, for instance it may be used to learn vocabulary (see “Les circuits électriques”). The stimulus for thinking is a cube that has six different labels, one on each face: describe, compare, analyze, apply, and argue for or against.

Why?

This strategy helps learners:

- to activate prior knowledge
- to think about a topic from different perspectives
- to stimulate flexibility in writing
- to generate ideas in writing
- to learn vocabulary
- to develop problem-solving skills
- to develop higher order thinking
Learning strategies

When?

Before
- a lesson to activate previous knowledge
- a writing activity to generate ideas
- (variation) to revise vocabulary

During
- a lesson to improve writing competence and flexibility in thinking

After
- a lesson to review information and organise it into written form
- (variation) a lesson to classify vocabulary

How?

The procedure

- Give students one side of the cube at a time and have them write on the topic from this angle and this angle only for 1 to 2 minutes.
- Then move on to the next task until the last one (argue) has been dealt with.

1. Describe it — How would you describe the issue/topic? What does it look like? What color, shape, texture, size is it? Identify its parts

2. Compare it – How is your topic similar to other topics/things? How is it different? “It’s sort of like…”

3. Associate it – How does the topic connect to other issues/subjects? What other topic/thing does your topic make you think of? Can you compare it to anything else in your experience? Don’t be afraid to be creative here: include everything that comes to mind.

4. Analyze it (tell how it is made or what it is composed of)— How would you break the problem/issue into smaller parts? Look at your topic’s components. How are these parts related? How is it put together? Where did it come from? Where is it going?

5. Apply it (tell how it can be used) — How does it help you understand other topics/issues? What can you do with your topic? What uses does it have?

6. Argue for/against it (take a stand and support it)—What arguments can you make for or against our topic? I am for this because… / This works because… / I agree because…

- Students may read their products to in pairs or in class.

Vocabulary learning variant. (see “Les circuits électriques” on accompanying DVD)
Graphic organizers

What?

Graphic organizers are visual ways of constructing knowledge and organizing information. They help the student to convert and compress a lot of apparently discontinuous information into a coherent, easily read, graphic display. http://www.enchantedlearning.com/graphicorganizers/spider/The process of converting a lot of data, information or ideas into a graphic map gives the student a better, more versatile and deeper understanding of the topic at hand. To create a map, the student must concentrate on the relationships between the items and examine the multiple meanings attached to each of them and their relationships. There are many different types of graphic organizers: the task at hand determines the type of graphic organizer that is appropriate. It takes some experience and experimenting, but after some practice, the learner will be able to choose the graphic organizer that best suits the task at hand.

Why?

Creating a map offers many advantages. It helps students:

- to prioritize the information determining which elements are the most important and should be focused on,
- to generate ideas by developing visual generation of ideas,
- to structure writing projects,
- in problem solving,
- in studying,
- in planning research and brainstorming.

When?

Before
- a lesson or a unit to activate prior knowledge and to formulate learning aims
- a lesson to brainstorm new ideas

During
- a lesson as a way to organize new information and relate it to previous knowledge
- a reading activity to organize information

After
- a learning unit to restate and review the information
- a learning unit to make connection among old and new concepts
How?

Some samples of graphic organizers:

1. **T-Chart**

   ![T-Chart diagram]

   This graphic is appropriate for tasks involving thinking skills such as *analysing* and/or *comparing*, when two aspects of a topic are involved.

   A T-Chart may be used:

   - to evaluate the pros and cons of a decision to be taken,
   - as a comprehension task for an argumentative text (pro or against a certain issue)
   - as a way of supporting selective reading or listening

   It may also be used as a way of *taking notes* (Chamot, O’ Malley p. 211) in support of reading or listening activities.

   The procedure: The T-Chart is filled in on both sides of the vertical stem of the letter T. The left-hand side is used to store main ideas and the right column is reserved for associated details. T-Charts can also contain written or visual scaffolding, such as gapped sentences and multiple choice tasks, pictures or diagrams or they can be blank.

2. **Venn diagram**

   ![Venn diagram]

   A Venn diagram may be used when the task requires the learner to examine similarities and differences between two or three items: similarities are written in the overlapping part of the circles.

   Example: A task in a study unit on parallelograms consists of a comparison of quadrates andrectangle. (Differences are put in each of the circles and common features in the overlapping part; see DVD “Les parallélogrammes”)
3. Concept maps

Concept maps can be used in many ways. (Figure 3.1 illustrates a concept map designed for primary level unit dealing with growth (see DVD for teaching materials for this unit) and, figure 8.1 illustrates a hierarchical concept map)

Concept maps

- can be used as advance organizers (“This is a concept map of some important concepts in the unit we are going to study next. What do you think the unit is about?”)
- provide an overview and introduction to a new topic (teacher can use the concept map as a visual support when introducing the topic).
- may be used as a support for speaking or writing (giving a presentation on how humans grow, comparing plants and animals in writing)
- They may be used as gapfilling (or nodefilling) exercises, or as notetaking/listening comprehension

Frames

What?

Frames are texts, or paragraph-length templates containing no variable content but instead fixed structural elements typical of the text type in question. Frames are used to scaffold students' writing when they complete the frame with text that they created, such as the results of a laboratory experiment. (see Table 8.2 for examples)

Why?

Frames help students to:

- organize and write paragraphs or texts,
- highlight the differences between different kinds of texts or paragraphs,
- develop their own paragraphs more suitably.

When?

Before
- a writing task, to highlight a text or paragraph structure

During
- a writing task to scaffold students’ production
Learning strategies

**How?**

- Put a frame text or paragraph on an overhead transparency or on the board and add ideas or information to show students how to build up the text
- Give students the same frame template and ask them to write their own paragraphs / texts

**Imitation writing**

**What?**

This strategy is similar to the previous one, but more focused on the *structure* of a sentence, paragraph, poem or short text. An *imitation* process has the following four phases:

1. reading the model carefully
2. copying the model
3. substituting words with as many synonymous as possible
4. writing about a different topic using the same structure

**Why?**

This strategy may be used to:

- develop *vocabulary* learning and the use of synonyms
- refine reading comprehension
- refine *pronunciation*
- highlight the sentence structure
- prepare for teaching and learning *grammar*

**When?**

**Before**

- introducing a grammar or vocabulary lesson
- writing activities as a warm up exercise

**During**

a grammar or vocabulary lesson to scaffold the learning

**How?**

The model is chosen from an existing source, and for primary level it must be simple and easy to read, whereas more difficult sentences may be selected for more experienced learners.

Below, in 4, *imitate*, all proposals must be accepted but deviations and nonsense must be pointed out.
Analogies

**What?**

Words are not isolated; meaning comes from the relationship between them. It is important to highlight the way these relationships are established. An analogy is just a way to state connections between words. Highlighting, finding and creating analogies develop understanding of the different ways that things relate to each other.

Example:

**Venus: Sun = Planets: Stars**

This analogy summarizes in a synthetic way and without using too much language the complex relationships of the solar system.

**Why?**

Analogies help students to:

- understand the concepts expressed by words
- highlight in a synthetic way relationships between concepts
- develop higher order thinking skills event at the earlier stages of language learning
- extend their personal vocabulary.

**When?**

- *Before* a lesson to introduce vocabulary and concept
- *After* a lesson or a unit to check concepts comprehension and vocabulary learning

**How?**

- Start with a brainstorming to find pairs of words associated in some way:
  
  Father Son
  
  Right atrium Heart
  
  Sun Moon
  
  Pupil Eye
  
  Hammer Ear
Learning strategies

Cygnet Swan
Pistil Flower

- Ask students to express the relationship between different items, for instance:
  
  **Cygnet is the baby swan**
  
  **Right atrium is a part of the human heart**

- Give a model of the formal way to express analogies: example
  
  **Pupil : Eye = Hammer : Ear**
  
  **Right Atrium : Left Atrium = Right Ventricle : Left Ventricle**

- Ask students to create analogies and explain them
The two preceding chapters (9 and 10) provide a theoretical background to teaching and learning thinking skills, both general and content-specific as well as means to achieve optimal learning goals (strategies). The purpose of the present chapter is to link the theoretical discussion with a classroom situation and provide the reader with a concrete example of how language and content are integrated. Below, the phases of a lesson are described and commented on. The main focus is targeting on previous knowledge and building background, providing comprehensible input and providing adequate support for optimal development of thinking skills and language. The lesson can be viewed on the DVD.

**Lesson delivery: functions of human heart**

A good lesson delivery occurs when content and language objectives are well supported during the lesson. That is when:

- learners are guided to develop thinking skills
- a favourable background has been created
- objectives are adequately supported by scaffolding
- learners are actively involved in learning activities and the pace of the lesson is appropriate to their levels and capacities.

At the end of the lesson both the teacher and learners should be able to check the extent to which the objectives have been reached. The lesson must be monitored in order to provide feedback. Our aim in this chapter is to provide instruments to monitor the progress:

- an observation sheet (it has been filled in with the data we have observed in our case study)
- a monitoring sheet
A short comment on each of these items is provided.

**Case Study:**

Lucy is a teacher in a primary school on the outskirts of Turin. She teaches Maths, Sciences, Geography and English. Every day she develops part of her lessons in English, but she has chosen to teach more CLIL modules in Science, this means that about 60% of the content in this subject is taught in English, 40% in Italian, the pupils' mother tongue.

In Italy, English is compulsory in primary schools, but teachers are either specialists of English or they are class teachers who are able to teach through English. In the former case, this means that teachers teach English only to different classes and collaboration with subject teachers is possible if they choose a CLIL approach. This situation is similar to team teaching in secondary schools. In the second case the class teacher integrates English into her/his teaching. This situation is similar to bilingual schools. Lucy belongs to the latter category.

Lucy’s class comprises 22 children aged 11, in the last year of primary school.

The Science syllabus of the second term of the year is focused on human body functions, compared with other organisms such as plants and animals.

During the Science lesson pupils are divided into two groups in order to organize the lesson as a workshop experience. Pupils move to the science laboratory, a room equipped with scientific instruments, books, posters and pictures.

The observation sheet (below) was completed during the delivery of the lesson.

**Observation sheet**

Class: primary school (5th year), pupils aged: 11

Subject: SCIENCE

Module title: **The human body**

Unit / Theme **Heart functions**

---

**Lesson planning** (time allocated: 2h)

| **Content objectives** | Content objectives may be divided into two parts:
|------------------------|------------------------------------------------------
| What are they?         | 1. the human body and its parts (revision)            |
|                        | 2. heart as part of the human body:                   |
|                        | • heart physiology and its functions                 |
|                        | • factors determining pulse rate                     |
|                        | • effects of exercise and rest on the pulse rate     |

<table>
<thead>
<tr>
<th><strong>Thinking skills</strong></th>
<th>remembering</th>
</tr>
</thead>
<tbody>
<tr>
<td>What are the cognitive operations?</td>
<td>applying</td>
</tr>
<tr>
<td></td>
<td>information gathering</td>
</tr>
<tr>
<td></td>
<td>predicting</td>
</tr>
<tr>
<td></td>
<td>organizing</td>
</tr>
<tr>
<td></td>
<td>evaluating</td>
</tr>
</tbody>
</table>
Language Objectives
What are they?

**Structures:**
- Links to past learning:
  “What is the function of… (heart/liver/kidneys…”
  “…pumps blood / clean blood…)
  See worksheet attached “Testing pulse rate” (conclusions):
- New structures:
  Before. After…. use the correct verb
  The slowest pulse rate is….
  The fastest pulse rate is…

**Vocabulary:** the human body (revised) and some new words relating to the heart functions

Communicative skills involved

1. Listening
2. Speaking
3. Reading
4. Writing

Lesson delivery

<table>
<thead>
<tr>
<th>Lesson sequencing</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Step 1</strong></td>
<td>1. Introduction</td>
</tr>
<tr>
<td></td>
<td>- Pupils are informed about the objectives of the lesson;</td>
</tr>
<tr>
<td></td>
<td>- The teacher refers to their past learning</td>
</tr>
<tr>
<td></td>
<td>- She distributes a picture of the human body and elicits previous knowledge.</td>
</tr>
<tr>
<td></td>
<td>- She interacts with children to orally revise the different parts of the body, and then she introduces some new words and explains them.</td>
</tr>
</tbody>
</table>

| **Step 2**        | A. The parts of the human body |
|                   | 2. Labelling activity |
|                   | - Pupils are organized into small groups (two or three) |
|                   | - They are given a picture representing the human body and a series of labels. |
|                   | - They are asked to place the labels on each part of the human body (fig. 11.1) |
|                   | - Each of them reads aloud the labels placed on the different parts of the body. |
|                   | - The teacher reformulates some sentences or repeats some words in the correct version |
|                   | - She explains in English the functions of some organs (the lungs, the pancreas, the kidneys…) |
|                   | - She focuses the attention on the heart organ in order to introduce a new experience |
### Step 3

#### B. Heart functioning

1. Conducting the experiment: checking the pulse rate
   - Children are asked to move and form a circle
   - The teacher gives some instructions and asks the following questions:
     - “Can you feel your heart?”
     - “Can you feel your pulse?” (She demonstrates the procedure by taking her own pulse and helps children individually).
     - “Count your heart beat in your mind”
     - “How many heart beats in 30 seconds?”
     - “Heart beats increase after physical exercise” (this introduces the children with the "pulse rate" experience)
   - Children take their pulse on their wrist or neck
   - Brainstorming “Which physical activities can you do in the classroom?” (skipping, running, walking fast, push-ups, squats….)
   - Children think of different physical activities and execute them (jumping, skipping, doing push-ups etc. at least three times)
   - They take their pulse rate again.

### Step 4

#### 4. Conceptualising

- The teacher provides the children with a grid.
- They register their pulse rate (fig. 11.2)
- They also have to predict if their pulse rate will be higher or lower after their physical activities and confirm their predictions.
- The Conclusions help them to conceptualise their experience.

### Step 5

#### 5. Introducing new content and new language structures

- After the experience, the data collected by every child are recorded on the blackboard under two different columns: *The fastest...The slowest...*
- Teacher introduces a new concept: *the heart is the organ that pumps blood through the veins and arteries*
- A detailed picture of the heart is shown on the wall as well as the circulation in the human body. The parts of the heart are written on the blackboard: *the right, the left atrium, the right, the left ventricle* and described by the teacher. (This part of the lesson is further developed in Italian, afterwards)
<table>
<thead>
<tr>
<th><strong>6. Communicating/ evaluating the results</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td>- Children communicate the results of their experience to their fellows</td>
</tr>
<tr>
<td>- Focus on language by means of</td>
</tr>
<tr>
<td>- Pair activity: children ask and answer about their slowest and fastest heartbeats. They choose linguistic structures spontaneously, without teacher’s suggestions,</td>
</tr>
<tr>
<td>linguistic structures:</td>
</tr>
<tr>
<td>The answers to this question “How many beats does your slowest / fastest pulse rate have?” were differently expressed:</td>
</tr>
<tr>
<td>a) “I’ve got ……pulse rate.</td>
</tr>
<tr>
<td>b) ”My slowest / fastest pulse rate is…..”</td>
</tr>
</tbody>
</table>

**Lesson objectives**

**Content objectives**

The lesson is part of a larger module about the human body and the topic is *Heart functions*. The central focus of the lesson is the function of the heart: to pump blood through veins and arteries. The teacher leads the children to establish a relationship between physical efforts, pulse rate and heart functions. Instead of explaining the concepts herself she creates a background where children may get experience the concepts and are guided to conceptualise and evaluate the results.

**Language objectives**

In a CLIL approach language is acquired through concrete experience and does not focus on formal structures. Of course the teacher establishes linguistic objectives in terms of vocabulary, structures and functions, but it is possible that learners express themselves in a different way from the one foreseen by the teacher and that different structures are introduced.

In this lesson for instance some pupils use the new structures following the model provided by the teacher, but others employ structures they have already learnt and adapt them to the new content.

The use of the language comes *at the end* (step 5), after the concrete experience and conceptualisation. The use of language is in fact the way that makes the conceptualisation possible: “Language proficiency and cognitive functioning can be conceptualised only in relation to particular contexts of use” (Cummins, 2000, p.66). It is interesting to observe that the teacher never uses formal linguistic categories (e.g. comparatives) but only gives clear examples and provides models. Thus the pupils feel free to use their own linguistic expression to communicate the results of their experience.
Cognitive objectives (thinking skills)

“Language and content will be acquired most successfully when students are challenged cognitively” (Cummins, 2000, p. 71). Cognitive needs enhance language learning more than copying structures or vocabulary. The teacher starts with tasks that are assumed to require lower-level thinking skills such as memorizing, recognizing words, and goes on with tasks that require comprehension (step 2, 3), information gathering (step 4), evaluating results (step 6). In this approach high cognitive levels are reached with relatively simple linguistic means. However, successful attainment of two challenging conceptual objectives at the same time, that is, high-level cognitive objectives and related conceptual language is only possible if the learning process is scaffolded. External support is then gradually reduced to help learners become autonomous in their work.

Lesson delivery

The teacher’s efforts are aimed at making the content comprehensible and at learning cognitively, thereby making the content challenging for the learners. Therefore, she introduces techniques and strategies that can build up a background and provide scaffolding.

Building the background

“Effective teaching takes students from where they are and leads them to a higher level of understanding. […] New information is connected to students’ background and experience, and strategies are used to scaffold students’ acquisition of knowledge and skills” (Echevarria, 2004, p. 45). Creating a background is essential for learning; different strategies may be used for this purpose. The major instructional interventions that have to be considered are:

1. Introducing the lesson objectives

The lesson objectives should be stated at the beginning. They serve to remind of the focus of the lesson and to provide a structure to classroom procedures. At the end students and the teacher may be aware to which extent they have attained them throughout the lesson. In the observed lesson objectives are explained and links with past learning are established in step 1.

2. Linking to the students’ past learning

“Research emphasizes that in order for learning to occur, new information must be integrated with what the learner already knows” (Echevarria, 2004, p. 49). Consequently, it is important for teachers to make explicit connections between new learning and the material, vocabulary and concepts previously covered in class. There are different ways to establish links between past learning and new learning:

- Teacher’s questions / discussion
- Graphic organizers, written reminders
- Activities

In this case study, the teacher uses pictures and word cards on the wall to elicit children’s previous knowledge (step 1 and step 2) and asks questions: “Do you remember the name of this organ?” “What is its function?” She also uses a labelling activity (step 2).
3. Vocabulary learning

There is a strong relationship between vocabulary knowledge and learning achievement as “at any age a concept embodied in a word represents an act of generalization and [...] the development of concepts or word meanings presupposes the development of many intellectual functions: deliberate attention, logical memory, abstraction, the ability to compare and to differentiate. These complex psychological processes cannot be mastered through the initial learning alone” (Cummins, 2000, p. 60).

There are many meaningful and useful ways that vocabulary can be taught. The most important thing is that students are active in developing their understanding of words and in their ways of learning them, as there is little benefit in teaching isolated vocabulary terms and asking them to copy the words from the blackboard.

In Lucy’s lesson, pupils are “immersed in words”; a rich contextual environment is provided through:

- Teacher talk, she speaks with at a relatively slow pace and she uses different techniques (see scaffolding), such as paraphrasing and repetition.
- word walls: key vocabulary is introduced by directing pupils’ attention to posters where relevant content vocabulary words are listed, or associated to pictures
- word cards, they are used in labelling activity (step 3) to revise vocabulary.

In any case vocabulary learning is not only a matter of memorization but it involves higher thinking skills such as recognising and associating.

4. Providing experience

The difficulty level of understanding and learning the content does not depend on the knowledge of the language but on the more or less extended presence of context. In other words, context-embedded communication with appropriate support is easier to understand than context reduced communication.

Consequently “language and content will be acquired most successfully when students are challenged cognitively but provided with the contextual and linguistic supports”.

Optimal instruction for linguistic, cognitive and content growth will move from context embedded tasks to context reduced tasks. This is the path chosen by Lucy: from step 3, where children execute a concrete task (checking their own pulse rate) to step 4 and 5, where they conceptualise their experience and acquire new content with the aid of framework (see scaffolding)

Scaffolding

“Scaffolding is a term associated with Vygotsky’s notion of the Zone of Proximal Development (ZPD). The ZPD is the difference between what a child can accomplish alone and what she/he can accomplish with the assistance of a more experienced individual. In the classroom, teachers scaffold instruction when they provide a substantial amount of support and assistance in the earliest stages of teaching a new concept or strategy and then decrease the amount of support as the learners acquire experience through multiple practice opportunities” (Echevarria, 2004, p. 86).
Scaffolding can be classified into three categories: verbal scaffolding, procedural scaffolding, and instructional scaffolding.

**Verbal scaffolding**

CLIL teachers use language in order to match the students’ proficiency levels. Examples of verbal scaffolding are the following:

- **Paraphrasing:** the teacher restates pupils’ response in order to model correct language usage;
- **Reinforcing contextual definitions:** for instance: “yes, kidneys, the organs that clean the blood”. The phrase: “the organs that clean the blood” provides a definition of the term: “kidneys”.
- **Questioning.** It is very important and it may assume different functions:
  - **Reminding:** “What’s the name of this part of the body?”
  - **Checking comprehension:** “What does liver mean?” “What is its function?”
  - **Soliciting thinking skills:** These questions encourage students’ reasoning ability, such as hypothesizing, inferring, analyzing, justifying, predicting. Examples: “What is your pulse rate before running? What is it after? What is the fastest? What does it mean?”

**Instructional scaffolding**

In order to make language *input* as comprehensible as possible, CLIL teachers present information through diverse media: realia, graphs, demonstrations, pre-reading, and pre-writing strategies. Explicit teaching (step 5) is supported by pictures representing the circulatory system of veins and arteries in the human body and heart organ. The focus of the instruction is motivated by the content to be learned which will help identify the language skills required to learn that content, and the reasoning abilities needed to manipulate it (analyzing, synthesizing, and evaluating).

It is important to provide *frames* that support learning related to content learning. In Lucy’s lesson for instance, pupils recorded their experiences in a *report* and were guided to draw conclusion from their observations. Explicit instruction by the teacher starts from this guided experience.

**Procedural scaffolding**

The teaching objective is to help learners towards increasing autonomy; this aim may be achieved in different ways:

- **Explicit teaching:** “The function of the heart is to pump blood.” (step 5)
- **Modelling:** the teacher gives models both of practical activities, for instance how to count the pulse rate, and language use: “My fastest / my slowest pulse rate is...” (step 4)
- **Applying Practicing:** pupils apply models in an independent way and practice them
There are several ways of organising the class, in order to progress towards autonomy:

- **Whole class** (brainstorming, frontal teaching)
- **Small groups**
- **Pairs**
- **Individuals (Independent work):**

## A feedback sheet for lesson delivery

### I LESSON: PLANNED OBJECTIVES

To which extent have the planned objectives been supported by lesson delivery? (1(poor)-2-3-4-5(excellent))

**Content objectives**

- Was the input comprehensible?
- Was the lesson content linked to the past learning?
- Was it linked to the background?

**Language objectives**

- Which communicative skills have been involved?
- Has the focused vocabulary been used? By the teacher? By the learners?
- Have the focused structures been used? By the teacher? By the learners?

**Thinking skills**

- Which were cognitive objectives involved?
- What was the actual progression?

Have the lesson objectives globally been reached? To which extent? (1 – 2 – 3 – 4 – 5)
II LESSON SUPPORTING

Background

Was the background provided effective? Remarks about (level of effectiveness about...)

- links to the past experience:
- vocabulary
- experience provided
- conceptual framework

Scaffolding

Which techniques have effectively been used?

- Instructional scaffolding
- Graphic organizers, pictures
- Verbal scaffolding
- Questioning, paraphrasing, reinforcing definitions
- Procedural scaffolding
  - Explicit teaching
  - Modelling
  - Practicing
  - Applying
- Practice / class management:
  - The whole class (brainstorming)
  - Small groups
  - Partners
  - Individuals (Independent work)

Learners’ engagement

How actively engaged were the learners?

- Did they have opportunities to use the target language?
- Interaction. Did they interact with the teacher? All of them?
- Interaction 2. Did they interact with each other? All of them? In which language (FL or mother tongue?)
<table>
<thead>
<tr>
<th><strong>Pacing of the lesson</strong></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>How long were learners involved in “academic” learning?</td>
<td></td>
</tr>
<tr>
<td>Was the timing of the lesson realistic? If not, what was the difference between the time planned and the time spent on the activity? Why?</td>
<td></td>
</tr>
<tr>
<td>Was the lesson pace adequate to the whole class?</td>
<td></td>
</tr>
<tr>
<td>Did it take into account different learners’ abilities?</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th><strong>Conclusion</strong></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Were the lesson objectives globally reached? To which extent?</td>
<td></td>
</tr>
</tbody>
</table>
Appendix

| | arms | bone | brain | ear | eye | foot | hand | heart | kidneys | liver | lungs | mouth | nose | pancreas | skin | stomach | throat | large intestine | small intestine | reproductive organs | urinary bladder |

**Fig. 11.1** Step 2 – Labelling activity
Testing our pulse rate

<table>
<thead>
<tr>
<th>Sitting quietly for half a minute</th>
<th>How many heartbeats in 1 minute?</th>
</tr>
</thead>
<tbody>
<tr>
<td>Exercise/Activity</td>
<td>Prediction (up or down)</td>
</tr>
<tr>
<td>---------------------</td>
<td>-------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
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<tr>
<td></td>
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</tr>
<tr>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Conclusion**

When I exercise my pulse rate goes ____________.
When I rest it goes ____________.
My fastest pulse rate was ____________ per minute.
My slowest pulse rate was ____________ per minute.
When I exercise my heart beats faster because my body and muscles need more ____________.

**Fig. 11.2** Step 4 – Data Registering
Since the end of the 1980’s, when Prabhu (1987) introduced tasks and task-based learning, tasks have gained in importance in education in general but in language teaching in particular. Task-based language learning is frequently viewed as an extension of communicative language teaching, with more emphasis on student activity, clear goal-orientation, and above all, with explicit focus on content-specific, real-world connections.

**What is a task?**

There is no simple definition for a task, but rather there are a number of characteristics of tasks for a variety of purposes. To take two examples: Jane Willis (1996) offers six and Rod Ellis (2003, pp. 2–9) nine characteristics or sample definitions. Nunan (2006): defines a task as follows:

> a task is a piece of classroom work that involves learners in comprehending, manipulating, producing or interacting in the target language while their attention is focused on mobilizing their grammatical knowledge in order to express meaning, and in which the intention is to convey meaning rather than to manipulate form. The task should also have a sense of completeness, being able to stand alone as a communicative act in its own right with a beginning, a middle and an end. (Nunan, 2006)

The most crucial component for CLIL contexts is the centrality of meaning and the use of linguistic resources to understand, process and express meaning. The above definition stresses linguistic processes (“comprehending, manipulating, producing and interacting in the target language”) in expressing meaning, which is in line with the language emphasis adopted for this handbook, but it should nevertheless be remembered that the learning of both content and language (in this order) are the ultimate goals of task-based CLIL instruction.

Tasks differ in complexity and experienced difficulty. These are task characteristics that are likely to have an effect on the implementation of the task. For example, if the task is too complex, the learner’s cognitive capacity may be overloaded and the task cannot be carried out. On the other hand, too simple a task may not be useful for learning.

**Cognitive load**

Cognitive Load is a task feature that is based on the assumption that people have a restricted processing capacity. The amount of information being processed in working memory is limited, which means that the more information the learner is processing in working memory, the more likely it is that a cognitive overload will follow. Cognitive load
will increase if there are a lot of sources from which the information is derived and/or if there are a lot of competing stimuli in the task. Tasks differ in terms of the cognitive load they cause to the learner (Oxford, 2006). The implication for CLIL is quite obvious: it is likely that the learner's cognitive load tends to be relatively high in foreign-medium content teaching, which in turn has implications to task design in the form of increased scaffolding for example.

**Cognitive complexity**

Cognitive complexity is a task feature that relates to the task and the learner. If the task contains a lot of constructs that are related to each other in many ways, the task is cognitively complex, but if the task has few constructs with few relationships to one other, the task is cognitively simple. In addition to the task characteristics, the learner's cognitive processes and observable behaviour, i.e., the learner component is involved in assessing the cognitive complexity of the task. If the learner is familiar with similar cognitive operations that are necessary for carrying out a complex task, s/he may not view the task as difficult (Oxford, 2006), although complex tasks tend to be experienced as difficult especially due to the high cognitive load that is created by the complex relationships of task constructs.

The following influences add to the experienced difficulty of the task (influences modified from Honeyfield, 1993):

**Table 12.1 Factors affecting task difficulty**

<table>
<thead>
<tr>
<th>Task difficulty is influenced by</th>
<th>Examples</th>
</tr>
</thead>
<tbody>
<tr>
<td>Procedures to derive output from input</td>
<td>Orally explaining a graph</td>
</tr>
<tr>
<td>Characteristics of input text</td>
<td>Text type, incoherence</td>
</tr>
<tr>
<td>Output required</td>
<td>Retrieval of language items (vocabulary, structures), fluency, pragmatic conventions</td>
</tr>
<tr>
<td>Topic knowledge</td>
<td>Inadequate, fragmentary, incorrect or no background knowledge</td>
</tr>
<tr>
<td>Text-handling or conversation strategies</td>
<td>Deficient predicting and/or inferencing strategies, no command of conversation conventions or communication strategies</td>
</tr>
<tr>
<td>Amount and type of help available</td>
<td>No, insufficient or non-applicable support or scaffolding available</td>
</tr>
<tr>
<td>Time available</td>
<td>Time pressure</td>
</tr>
<tr>
<td>Learner characteristics</td>
<td>Motivation, learning styles, confidence</td>
</tr>
</tbody>
</table>

In planning and implementing task-based instruction in CLIL contexts, it is important to consider potential factors that increase the difficulty of the task. The difficulty of tasks can be decreased by providing targeted support and help (scaffolding) at points which turn out to be potential pitfalls. It should be noted, however, that timely and directed scaffolding must not oversimplify the task. Too simple tasks are not conducive to learning, they may be boring and thus lower the learner’s motivational level.
What is task-based instruction?

The basic assumptions of Task-Based Instruction are (modified on the basis of Robinson, 1996; Feez, 1998, quoted in Richards and Rodgers, 2001, p. 224; Long & Robinson, 1998)

- The focus of instruction is on process rather than product.
- Basic elements are purposeful activities and tasks that emphasize meaning and communication.
- Learners learn language by being engaged in meaningful activities and tasks and interacting communicatively and purposefully.
- Activities and tasks can be either:
  - those that learners might need to achieve in real life;
  - those that have a pedagogical purpose specific to the classroom.
- Activities and tasks of a task-based syllabus can be sequenced according to difficulty (defined by individual learner perceptions and physical abilities) and complexity (defined by the structure of the task).
- The difficulty of a task depends on a range of factors including the previous experience of the learner, the complexity of the tasks, and the degree of support available.
- Tasks provide opportunities to attend to relevant language features while maintaining emphasis on meaning. Learner-initiated focus on form is especially conducive to learning.

Sequencing of tasks

Tasks can be sequenced in terms of perceived difficulty and task-internal complexity. However, neither of the two criteria is explicit. Task difficulty is dependent on the individual learner's abilities, prior knowledge, personality factors, etc. Task complexity is often defined as language complexity, e.g. measured in terms of the number of subordinate structures in the language output. Tasks that derive their content from a specific discipline typically mirror discipline-specific thinking, and the language output in turn reflects this discipline- or subject-specific thinking. In content-based teaching, task complexity may be defined as the level of the combined cognitive load and related language output. Two typologies are illustrated below, Mohan's Knowledge Structures (1986) (Table 12.2) and Jane Willis's TBL Task Design (1996) (Table 12.3)

Table 12.2 provides an example of how Mohan's Knowledge Framework can be used in the treatment of a topic in order of progressively increasing cognitive complexity
Table 12.2 An Example: Trees

<table>
<thead>
<tr>
<th>CLASSIFICATION /CONCEPTS</th>
<th>PRINCIPLES</th>
<th>EVALUATION</th>
</tr>
</thead>
<tbody>
<tr>
<td>Trees</td>
<td>Man's influence on the environment (ecology)</td>
<td>Significance of trees to the environment</td>
</tr>
<tr>
<td>Classification</td>
<td>Explanation, anticipation, inferencing Language: expressions of causality: due to, as a result of, then, must, should...</td>
<td>Appreciation, valuing Language: the reasons are..., on the basis of...I believe, judge</td>
</tr>
<tr>
<td>Language: pine, birch, oak conifers Be-verb</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Appearance</td>
<td>Life cycle of a tree Ordering in time and place Language: expressions of time &amp; place: here, first, next, after, before</td>
<td>The best way to protect forests Decision making, expressing opinion Language: can, will, should</td>
</tr>
<tr>
<td>Observing, naming, comparing Adjectives of size, form, colour, etc.</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

The sequencing of tasks would first involve what is assumed to be a relatively simple cognitive procedure, i.e., naming, classifying and describing trees. The next phase would be to explain the life cycle of a tree, which is a more complex cognitive task than naming trees as it involves the general principles of explaining, anticipating and inferencing with concomitant language choices. The final step in the Mohan framework is to draw conclusions, make choices in terms of available information and get involved in the processes of decision making, problem solving, creative thinking and original language production.

Table 12.3 illustrates Jane Willis’s framework for sequencing tasks. Each type of tasks involves different cognitive processes. The top three types increase in cognitive complexity from left to right (from listing to classifying to comparing). However, they are generally cognitively less challenging than the remaining three (problem-solving, creative tasks and personal experiences).

Table 12.3 Typology for TBL task design (Willis, 1996)

<table>
<thead>
<tr>
<th>ORDERING</th>
</tr>
</thead>
<tbody>
<tr>
<td>SORTING</td>
</tr>
<tr>
<td>CLASSIFYING</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>LISTING</th>
</tr>
</thead>
<tbody>
<tr>
<td>YOUR TOPIC, E.G. water</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>PROBLEM SOLVING</th>
</tr>
</thead>
<tbody>
<tr>
<td>SHARING PERSONAL EXPERIENCES, ANECDOTE TELLING</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>COMPARING, MATCHING</th>
</tr>
</thead>
<tbody>
<tr>
<td>CREATIVE TASKS, PROJECT WORK</td>
</tr>
</tbody>
</table>

For example, taking the topic “water,” a listing task might be: List three uses of water/ list the forms of water (liquid, solid, gas). A comparing task might be to compare clean and dirty water/the characteristics of the different forms of water. A problem-solving task could be to think of three ways of saving water/ to explain why water turns into ice and
into vapor. An *experience sharing* or *anecdote telling* task could involve sharing one’s ways of saving water.

**How to implement task-based instruction**

Tasks are typically divided into (usually three) phases (Willis, 1996; Ellis, 2006). Each phase has a different function. The purpose of the pre-task phase is to activate the students’ prior knowledge (advance organizers), motivate them, to whet their appetites by letting them guess what follows (anticipating). If the task is challenging, the purpose of the pre-task is to help the students to perform the task. The students may be helped by the teacher performing a task similar to the task they will perform in the during-task phase of the lesson, or by asking students to observe a model of how to perform the task, or by engaging learners in non-task activities (brainstorming, mind maps) designed to prepare them to perform the task, or finally, by providing students with time to get involved in strategic planning of the main task performance.

<table>
<thead>
<tr>
<th>Phase</th>
<th>Examples of options</th>
</tr>
</thead>
<tbody>
<tr>
<td>A. Pre-task</td>
<td>* Framing the activity (e.g. establishing the outcome of the task)</td>
</tr>
<tr>
<td></td>
<td>* Planning time</td>
</tr>
<tr>
<td></td>
<td>* Doing a similar task</td>
</tr>
<tr>
<td>B. During task</td>
<td>* Time pressure</td>
</tr>
<tr>
<td></td>
<td>* Number of participants</td>
</tr>
<tr>
<td>C. Post-task</td>
<td>* Learner report</td>
</tr>
<tr>
<td></td>
<td>* Consciousness-raising</td>
</tr>
<tr>
<td></td>
<td>* Repeat task</td>
</tr>
</tbody>
</table>

The during-task phase may involve time restrictions which have an effect on task performance. It has been shown that a time limit increases the fluency of production, whereas unlimited time increases both the accuracy and complexity of the output. Another during-task characteristic is availability of textual and supporting material and the grouping of students to produce as much student activity, negotiation of meaning and form as possible.

The most important post-task goal in content-based classrooms is the opportunity for a repeat performance of the task, but also to reflect on how the task was performed. Willis (1996) – more than Ellis (2006) - emphasizes language work as the final task phase. For the language learning point of view, a look at the forms that proved problematic to the learners when they performed the task is useful (see Form-Focused Instruction in Grammar section).

Basically, a task-based lesson can be composed of a during-task phase only, but the two-partite (Prabhu, 1987) or three-partite divisions (Willis, 1996; Ellis, 2006) provide for both language and cognitive support before the task is performed (pre-task) and post-task reflection of the completed task after the task is completed. This type of scaffolding is particularly important to cognitively challenging learning of both content and language at the same time.
What is assessment in CLIL: the dual approach?

In a CLIL approach, assessment, which is a complex task even in a “traditional” language course, becomes more complicated as two elements must be considered at the same time: the language, the content, and the way they integrate in one single competence (e.g. one of the four skills, speaking, writing, listening or reading) or in many integrated competences (e.g. in two or more of the above four skills).

Due to the diversity of current models of CLIL and the relatively young age of the integrated approach (CLIL), there are no established assessment practices for combined assessment of content and language. Therefore, questions arise from this duality along with the questions concerning traditional course teaching: are content and language to be assessed together, or separately, and which assessment tools may be used? Who assesses: the language teacher or the content teacher or the two co-operate? This leads to the issues of research and teacher education: more research is needed to inform practitioners about the possibilities of integrated assessment of both language and content. It is also important that both language and content teachers have the requisite knowledge of good assessment practices in language and content teaching.

Quality standards for assessment

All assessment - and assessment in CLIL is no exception – has to fulfil general quality criteria. Two of these are the most essential: validity and reliability. Both refer to the quality of the assessment activity, not in the first instance to the test/assessment instruments. The validity and reliability of assessment are context-dependent: therefore all tests and other assessment procedures have to be appropriate for the context.

Validity refers to the validity of interpretations of test/assessment outcomes. Are the interpretations, decisions and actions based on the assessment justified by the evidence collected, and are the interpretations, decisions and actions supported by what is the current theoretical view of the knowledge, skills, competencies, attitudes etc. (i.e., “constructs”) assessed. Assessment is valid if the assessment procedures are on target, that is, they focus on the construct and display a minimal influence of construct-irrelevant factors.

Reliability is a related concept but is not synonymous with validity. It takes into account the fact that all assessment/testing contains some potential for errors of various kinds. The smaller the part of error the more reliable is the assessment. Assessment is a procedure to elicit/describe examinee behaviour in a specific domain of content. An
essential part of the procedure consists of the scoring/rating guidelines, which enable the examiner to quantify, evaluate and interpret that behaviour (performance). Reliable assessment is accurate, precise and consistent: the same or similar performance is rated (almost or roughly) the same (a) if the assessment is repeated and (b) if different raters judge it independently of each other.

A third general quality standard refers to fairness in assessment and the use of assessment. Like validity and reliability, fairness is related to the whole process of assessment. Fairness is a complex question and there are different views of fairness. The absence or adequate control of bias in favour of some individuals/groups in terms of content, assessment method, assessment conditions etc is an important requirement.

In addition to these general quality standards, assessment needs to be responsive to the pragmatic considerations: cost, time, effectiveness and efficiency, in short practicality and usefulness.

**Why assess: the purposes of assessment**

On a general level, then, evaluating CLIL learning is not different from any other learning assessment.

We assess in order to:

- verify to what extent the *objectives* have been achieved,
- determine what *level* of expertise the students have achieved,
- measure the final results obtained, using different assessment tools, a more mechanical assessment consists of one mark/score, and a more holistic, qualitative and functional one consists of assessing what the testee can do in the language studied (*summative* assessment)
- monitor the *learning process*, designing and using tests to track language and content learning as part of coursework and taking measures to re-teach, compensate for potential failures and misunderstandings and fill in gaps during coursework (*formative* assessment).
- *improve instruction* through the observation of processes and analysis of the results obtained,
- *guide the learning*, presenting the student with the wide range of capabilities that can be developed through CLIL and encouraging them to accomplish these capabilities. In this sense, evaluation assumes a key role: in school - and beyond - we tend to end up studying only what is assessed. If the teacher focuses on a specific set of data, say, tests the learning of particular grammar rules, it is likely that students study and learn and grow to appreciate language learning as the learning of rules. Therefore, assuming that the test content has an effect on the students’ study practices and eventually their learning of the content area and language, it is necessary to establish a set of evaluation criteria that are varied and comprehensive, covering for the language and the content and also taking into consideration all aspects of CLIL communication.
- create *positive washback*, this is extremely important for teaching in general and for CLIL in particular: "punishment" is likely to discourage students and give the impression that both the content and the language cause difficulties, and that the
CLIL approach is a hard or an impossible way of learning. In addition, it will be particularly important to provide evidence of what the student knows or can do through the foreign language rather than focus on the negative aspects, the “mistakes”. Most importantly, assessment must be supported by "valid" tests/assessment tools measuring exactly what they intend to assess and being perfectly consistent with the objectives of the programme.

- It is of core importance that tests in CLIL measure what they are designed to measure (validity) and that they measure meaningful content and language (cf above). This means that an ideal CLIL test/assessment tool is authentic and has a real-life connection. This also means that the washback effect of the test is likely to be positive, that is, studying for the test involves studying useful real-life skills and related knowledge. Accordingly, assessing the learning of meaningful skills and knowledge can be a meaningful learning task.

Who assesses? What? How?

In a CLIL approach content and form are integrated to convey meaning. Table 13.1 summarizes the principal features of both “traditional teaching” (focused on language) and the CLIL approach (focused on content). It should be noted, however, that the traditional grammar-focused language teaching approach in its pure form (grammar-translation method) has been replaced by more modern language teaching approaches, in particular the communicative approach, which focuses on meaningful communication and functional language and has been an inspiration to meaningful language use in CLIL environments. The juxtaposition of the two perspectives in Table 13.1 is done in order to emphasize form-focused as opposed to meaning-focused approaches.

Table 13.1 Comparison of traditional and content focused teaching (adapted from Mohan, 1986)

<table>
<thead>
<tr>
<th>Traditional grammar teaching</th>
<th>Content focused teaching</th>
</tr>
</thead>
<tbody>
<tr>
<td>deals with the <strong>sentence</strong> and its inner parts</td>
<td>deals with <strong>discourse</strong> in context</td>
</tr>
<tr>
<td>sees language as a <strong>set of rules</strong></td>
<td>sees language as a <strong>resource</strong> for making meaning</td>
</tr>
<tr>
<td>sees language learning as acquiring correct forms of the language</td>
<td>sees language learning as extending resources for making meaning in a range of contexts</td>
</tr>
<tr>
<td>language assessment is directed to evaluate errors, i.e., whether the learner uses individual linguistic forms correctly</td>
<td>identifies configurations of language resources (grammatical, lexical, semantic and discoursal) in <strong>discourse</strong></td>
</tr>
</tbody>
</table>

Views on language and language learning, both “established” ones and “subjective theories” are reflected in the assessment practices of language and language learning. In other words, if the view of language learning is rule learning, the type of assessment of learning consistent with this view is testing the knowledge and use of linguistic rules. As can be inferred from Table 13.1, assessment of content-focused teaching should include a primary focus on meaning and on discourse-level communication of meaning. In a CLIL approach, forms are not learnt separately but as part of the meaning making strategy of the meaningful context. Similarly, errors are viewed in a broader textual context as “the question is not whether a language form is grammatically correct, but whether a form is used appropriately to convey a meaning in functional contexts” (Mohan & Huang, 2002). Thus the assessment question in CLIL is not about the student’s ability to use a linguistic form correctly, but the question is if “s/he uses the appropriate forms to highlight the
meaning in a certain academic context” (Mohan & Huang, 2002). A teacher evaluating discourse as part of classroom assessment will need to ask the following questions (Mohan & Huang, 2002):

<table>
<thead>
<tr>
<th>Question</th>
<th>Details</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. <strong>Which</strong> knowledge structure is being constructed by the learner (principles/sequence: timeline, causality; classification etc.)?</td>
<td></td>
</tr>
<tr>
<td>2. <strong>What</strong> language resources are being used to construct it?</td>
<td></td>
</tr>
<tr>
<td>3. <strong>How far</strong> do the learners draw on more mature strategies and grammatical metaphor to create more elaborate wordings, i.e. drawing on more extensive language resources?</td>
<td></td>
</tr>
</tbody>
</table>

In the above sense, content-focused assessment can be viewed as integrative assessment. Both foci, content and language, are involved and integrated. At surface level, language is the means of giving shape to content, that is, to the knowledge structure in question.

Two conditions are essential for this kind of teaching and assessment:

1. **systematic planning** to coordinate language and content in the curriculum; validity can be best assured by proper planning of the procedures.
2. deep-level discourse analysis to **find form–meaning relations** that are functionally appropriate.

It is unlikely that these conditions are systematically met in CLIL programmes. There are several reasons for this, such as the novelty of the CLIL approach, no generally accepted learning theory or methodology for the integrated approach and shortage of pedagogical teaching materials. Most importantly, systematic planning and agreement on form-meaning relations are challenging but necessary tasks in contexts where CLIL is not part of mainstream education and relies on the collaboration of two different teachers. Most of the teachers teach language and content in an integrated way, as the lot of materials produced show, but they don’t mark in an integrated way.

In a survey conducted in Italy (Serragiotto 2007, p. 281), the results of the questionnaire show that **content** is more frequently assessed than language and that most of the teachers assess **separately** language and content.

As regards the section concerning **what is assessed**, of the two types of teachers — language and field discipline — 45% responded that they assessed both language and content, 45% responded that they assessed content more often than language, and 10% responded in favour of assessing language more often than content. Whereas 52% of students responded that teachers assessed content more often than language, 35% said that teachers assessed both aspects in equal proportion, and 13% answered that teachers assessed the language aspect more often than the content aspect.

Concerning **how assessment is made**, the results of tests and assessment, 39% of students answered that assessment was made separately by the language teacher and by the field discipline teacher, 32% responded that assessment was done by the two teachers as a team, and 29% said assessment was done by one teacher alone. In addition, two-thirds of the students pointed out that they were given no indications as to the assessment of the individual parts of the test; 70% of teachers also declared that they did not give such indications.
This way of teaching which involves two teachers working – and assessing – in team could be represented by this diagram in form of trident. (Barbero 2005, p.121)

The integration of language and content is represented by the longest segment; both linguistic and academic competences, represented by shorter segments, meet on it. Assessment will focus these competences, both in separate and integrated ways, the latter essentially by means of authentic forms of assessment.

As in other teaching environments, also CLIL assessment may be formative following the learning process or summative checking the final results. It may be noted that for certain subjects, such as geography, biology, mathematics, physics, art, certifications (IGCSE) are delivered as proficiency tests. They are recognized at international levels as language certifications such as Cambridge, Trinity, TOEFL, DELF, DALF, etc. Many European classes learning subjects in English use them more and more frequently.

As far as linguistic competences in CLIL are especially concerned, all the activities developed for learning (see language strategies) may be adopted as formative assessment. In order to assess CLIL-related competences it is more appropriate to employ integrated forms of authentic assessment.

**Authentic assessment in CLIL**

*Authentic assessment* occurs when we associate the assessment or checking process to types of work that real people do, rather than merely soliciting answers which only require simple, easy-to-assess responses. Authentic assessment is an appropriate verification of performance because through it we learn if students can intelligently use what they have learned in situations which can be linked to adult experiences, and if they can renew or change new situations (Wiggings, 1998).

In the table below the main features of authentic assessment are synthesized, a CLIL approach covers all these features (Mueller, J).

http://jonathan.mueller.faculty.noctrl.edu/toolbox/whatisit.htm#authentic

<table>
<thead>
<tr>
<th>Traditional</th>
<th>Authentic</th>
</tr>
</thead>
<tbody>
<tr>
<td>Selecting a Response</td>
<td>Performing a Task</td>
</tr>
<tr>
<td>Contrived</td>
<td>Real life</td>
</tr>
<tr>
<td>Recall/Recognition</td>
<td>Construction/Application</td>
</tr>
<tr>
<td>Teacher-structured</td>
<td>Student-structured</td>
</tr>
</tbody>
</table>
Steps to be followed in an authentic assessment process:

1. define the standards, what should students know and be able to do?
2. design authentic tasks, how is it possible to check their competences? (see examples of CLIL tasks on the DVD)
3. identify criteria, which are the characteristics / features of a good performance?
4. calculate a score, how well did the student perform?
5. find descriptors of competences, how can competences be described for each score referred to in each criterion?
6. create a rubric of descriptors, what feedback does it provide?

The grid below (Table 13.2) may be used to assess oral performances in science.

The grid evaluates separately language and content acquisition. Criteria for evaluating competences are grouped in two parts: Range of content and Range of Language. The latter is defined in terms of: vocabulary & structures, accuracy, fluency, coherence.
Table 13.2 Oral production on scientific topics: Assessment grid

<table>
<thead>
<tr>
<th>SCORE</th>
<th>RANGE OF CONTENT</th>
<th>VOCABULARY + STRUCTURES</th>
<th>RANGE OF LANGUAGE</th>
<th>FLUENCY + INTERACTION</th>
<th>COHERENCE</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>TASK ACHIEVEMENT</td>
<td></td>
<td>ACCURACY</td>
<td></td>
<td></td>
</tr>
<tr>
<td>5</td>
<td>Has acquired all the concepts related to the topic</td>
<td>Shows a wide range of vocabulary and structures</td>
<td>Uses the vocabulary appropriately and makes no mistakes in the use of structures</td>
<td>Can report on the topic with a high degree of fluency and reacts to questions without hesitation</td>
<td>Reports coherently with the topic and uses some complex cohesion devices</td>
</tr>
<tr>
<td>4</td>
<td>Has acquired most of the concepts related to the topic</td>
<td>Shows a good range of vocabulary and structures</td>
<td>Uses the vocabulary adequately; makes rare mistakes in the use of structures which don't affect comprehensibility</td>
<td>Can report on the topic with a good degree of fluency but reacts to questions with some hesitation</td>
<td>Reports coherently with the topic and uses simple cohesive devices</td>
</tr>
<tr>
<td>3</td>
<td>Has acquired some of the concepts related to the topic</td>
<td>Shows a sufficient range of vocabulary and structures</td>
<td>Sometimes misuses vocabulary and makes frequent mistakes in the use of structures which can affect comprehensibility</td>
<td>Can report on the topic provided he is given some support, makes him/herself understood. Needs reformulation of questions</td>
<td>Reports coherently with the topic provided he/she is given some support, uses very simple cohesive devices</td>
</tr>
<tr>
<td>2</td>
<td>Has acquired very few basic concepts related to the topic</td>
<td>Shows a limited range of vocabulary and structures</td>
<td>Frequent misuse of vocabulary and basic mistakes in the use of structures often affect comprehensibility</td>
<td>Can report on the topic using short, pre-packed sentences, questions must be repeated and reformulated</td>
<td>The limited range of content and linguistic doesn't allow a coherent report</td>
</tr>
<tr>
<td>1</td>
<td>Hasn't acquired enough basic concepts related to the topic</td>
<td>Shows a poor range of vocabulary and structures</td>
<td>The lack of vocabulary and frequent serious basic mistakes in the use of structures make the production unintelligible</td>
<td>Can't answer the questions</td>
<td>Discourse is not coherent</td>
</tr>
</tbody>
</table>
The grid in Table 13.3 evaluates a process: language and content are not evaluated separately but are both implicit in the description of the process, for instance the production of a laboratory report in science (see writing strategies). Statements describing the different phases of the experiment represent the criteria, in other words what will be focused and assessed in student performances. For each of them three levels of competence (score) are foreseen to describe performances.

Table 13.3 Assessing process in CLIL

<table>
<thead>
<tr>
<th></th>
<th>Measuring scale</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>3</td>
</tr>
<tr>
<td>Define the problem and plan</td>
<td>Proposes a verifiable hypothesis based on a problem to be solved</td>
</tr>
<tr>
<td>Formulate hypotheses and propose strategies</td>
<td>Designs an experiment that is consistent with the hypothesis</td>
</tr>
<tr>
<td>Follow procedures and collect information</td>
<td>Records and organizes data using appropriate means (tables, diagrams, graphs ...)</td>
</tr>
<tr>
<td>Interpret data and draw conclusions</td>
<td>The conclusion takes up the initial hypothesis and confirms its validity</td>
</tr>
</tbody>
</table>

Conclusions and perspectives

One of the challenges for assessment in CLIL is to get descriptors for CLIL competences and for different levels, as they currently appear in – or to develop new ones that are linked to them in a proper fashion - the CEFR for language competences. Some attempts have been made but they are not systematic and, generally, they concern one level (Serragiotta, 2007, p. 279), and they have not been systematically tried out. The grid below – produced by teachers in a training course – for instance, tries to integrate scientific competences with the language level B1 of the CEFR.
<table>
<thead>
<tr>
<th>THOUGHT SKILLS</th>
<th>CONTENT</th>
<th>PERFORMANCE</th>
<th>LANGUAGE (LEVEL B1)</th>
</tr>
</thead>
<tbody>
<tr>
<td>THINKING</td>
<td>UNDERSTANDS THE GENERAL MEANING OF A SPECIALIZED PRESENTATION IF SUPPORTED BY CLEAR DISCOURSE MARKERS AND AUDIO-VISUAL MATERIALS</td>
<td>1 2 3 4 5</td>
<td>RECEPTION (OVERALL LISTENING COMPREHENSION)</td>
</tr>
<tr>
<td></td>
<td>UNDERSTANDS THE GLOBAL MEANING OF A SPECIALIZED TEXT IF COMPATIBLE WITH HIS/HER COMPETENCE</td>
<td>1 2 3 4 5</td>
<td>RECEPTION (OVERALL READING COMPREHENSION)</td>
</tr>
<tr>
<td></td>
<td>UNDERSTANDS FUNDAMENTAL INSTRUCTIONS FOR THE DEVELOPMENT OF A TASK, PROVIDED THAT THESE ARE CLEAR AND DETAILED</td>
<td>1 2 3 4 5</td>
<td>RECEPTION (LISTENING TO INSTRUCTIONS/READING INSTRUCTIONS)</td>
</tr>
<tr>
<td></td>
<td>UNDERSTANDS THE MEANING OF TERMS/EXPRESSIONS RELATED TO THE TOPIC/FIELD</td>
<td>1 2 3 4 5</td>
<td>RECEPTION (READING FOR ORIENTATION, INFORMATION, ARGUMENT)</td>
</tr>
<tr>
<td></td>
<td>UNDERSTANDS THE MEANING OF SPECIFIC SYMBOLS RELATED TO THE DISCIPLINE (EXPLANATORY GRAPHS, TABLES, AND IMAGES)</td>
<td>1 2 3 4 5</td>
<td></td>
</tr>
<tr>
<td>COMPREHENSION</td>
<td>IDENTIFIES KEY TERMS AND KEY CONCEPTS NEEDED TO DEVELOP A TASK</td>
<td>1 2 3 4 5</td>
<td></td>
</tr>
<tr>
<td></td>
<td>IDENTIFIES THE SEQUENCES OF A PROCESS</td>
<td>1 2 3 4 5</td>
<td></td>
</tr>
<tr>
<td></td>
<td>IDENTIFIES THE FEATURES IN A PHENOMENON, SUBSTANCE, OR BODY</td>
<td>1 2 3 4 5</td>
<td></td>
</tr>
<tr>
<td></td>
<td>INTERPRETS A GRAPH, A TABLE OR EXPLANATORY IMAGE</td>
<td>1 2 3 4 5</td>
<td></td>
</tr>
<tr>
<td></td>
<td>AUTONOMOUSLY SEARCHES FOR RELATED INFORMATION</td>
<td>1 2 3 4 5</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>------------------------------------------------------------------</td>
<td>---</td>
<td>--</td>
<td>--</td>
</tr>
<tr>
<td><strong>WRITTEN INTERACTION</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Orders the information collected as notes</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>SPOKEN INTERACTION</strong> (information exchange/goal oriented cooperation)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Asks the teacher or the group for information about and/or confirmation of what he/she has understood</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>WRITTEN PRODUCTION</strong> (reports and essays)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Exploits information gathered in other contexts</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Synthesizes information gathered in other contexts</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>Uses the collected information to formulate and verify hypothesis</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>SPOKEN PRODUCTION (sustained monologue, addressing audiences)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Reports on what he/she has learnt</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>SPOKEN INTERACTION (informal discussion, formal discussion/information exchange)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Expresses his/her point of view</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Formulates questions on related topics</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
</tbody>
</table>

(*) **LEGENDA**

1 very good
2 good
3 quite good
4 encountered difficulty
5 unable to do
For reference, the French Ministry of Education has produced interesting assessment instruments for the practice of a foreign language as well as a table of reference for mathematics, science and technologies. These two instruments can be consulted in order to match the descriptors of content and language.

(see: http://eduscol.education.fr/D0231/Grille_pilier2.pdf
Accuracy

refers to the ability to produce grammatically correct sentences that are comprehensible. This is often contrasted with fluency. Alex Mackenzie points out that in CLIL lessons fluency is more important than accuracy. The nature of CLIL lessons means that the students will produce and be exposed to a vast array of language; the focus is firmly on communication and accuracy comes with time. Making mistakes is a natural process in language learning and, as we all know, language does not have to be accurate to be communicative. CLIL exposes learners to situations calling for genuine communication.

(http://www.onestopenglish.com/section.asp?catid=59798&docid=156531)

Bottom-up strategies

help learners to read by first decoding the smallest components of language: e.g. readers build meaning from the smallest units of meaning (letters, letter clusters, vocabulary words, phrases, sentences…) to achieve comprehension. This approach is also used in writing. The assumption underlying this approach is that learners will eventually be able to integrate all the separate skills and thus will be able to comprehend.

In EFL a ‘bottom up’ approach describes how learners discover grammar rules while working through exercises.

A third definition states that a bottom-up approach develops different learning solutions and strategies to meet individuals where they are.

In CLIL bottom up strategies are useful when learners work on subject specific vocabulary. They may rely on their L1 or on their knowledge of word formation to understand a text.

CLIL

Content and Language Integrated Learning is a dual-focused educational methodology in which an additional language (a foreign, regional or minority language and/or another official state language) is used for the learning and teaching of both content and language. It is an approach by which students learn some non-language subjects, or topics, through a language which is not their usual main language. CLIL is an approach independent of language lessons in its own right. CLIL has become a major educational innovation which involves competence-building in languages and communication at the same time as developing acquisition of knowledge and skills. It is not "language learning" and it is not "subject learning". It is a "fusion" of both. (David Marsh 2007)

Competence

is, generally speaking, the ability to do something well or effectively. In the 20th century educational researchers have offered a variety of definitions based on different approaches to learning and teaching e.g. behaviourism.
A generally accepted definition is that key competencies are necessary for individuals to lead independent, purposeful, responsible and successful lives. Thus key competences are those which all individuals need for personal fulfilment and development, active citizenship, social inclusion and employment.

The Official Journal of the European Union enumerates eight key competences. In this publication a competence is defined here as a combination of knowledge, skills and attitudes appropriate to the context.

CLIL aims at developing pupils' cross-curricular competences.

**Content**

refers to subject matter of a written work or the subjects or topics covered in a book or document. It is also the essential meaning of something.

http://www.thefreedictionary.com/content
http://dictionary.reference.com/browse/content

**Content words**

or lexical words are words that have meaning. They can be compared to grammatical words or functional words, which are structural. Nouns, main verbs, adjectives and adverbs are usually content words. Auxiliary verbs, pronouns, articles, and prepositions are usually grammatical words. New content words are constantly added to the English language; old content words constantly leave the language as they become obsolete. Therefore, we refer to content words as an "open" class. Dictionaries define the specific meanings of content words, but can only describe the general usages of function words. By contrast, grammars describe the use of function words in detail, but treat lexical words in general terms only. (http://www.towson.edu/ows/ptsspch.htm,
http://en.wikipedia.org/wiki/Function_word
http://www.teachingenglish.org.uk/think/knowledge-wiki/content-words)

**Contextual / context clues**

Contextual clues refer to information from the text that helps identify a word or word group. It is a method by which the meanings of unknown words may be obtained by examining the parts of a sentence surrounding the word for definition/explanation clues, restatement/synonym clues, contrast/antonym clues, and inference/general context clues. (http://www.csupomona.edu/~lrc/crsp/handouts/context_clues.html

http://dictionary.reference.com/browse/context+clue
http://www.csupomona.edu/~lrc/crsp/handouts/context_clues.html)

**Decoding/Encoding**

Decoding refers to analyzing spoken or graphic symbols of a familiar language to ascertain their intended meaning. To learn to read, one must learn the conventional code in which something is written in order to decode the written message. Decoding means extracting the underlying meaning from something, e.g. decode a complex literary text. It is the reverse of encoding which is the process of transforming information from one format into another. Reading is a complex cognitive process of decoding symbols for the purpose
of deriving meaning and/or constructing meaning. In semiotics, the process of interpreting a message sent by the addresser to the addressee is called decoding. Creating a message for transmission by the addresser is called encoding.

http://www.thefreedictionary.com/decoding
http://en.wikipedia.org/wiki/Reading_(activity)
http://www.thefreedictionary.com/decoding

**Discourse**

any spoken language (conversations, classroom interactions, debates...) or written language (compositions, correspondence, articles...) socially appropriate and linguistically accurate.

Something as short as two phrases in a conversation or as long as an entire extended essay are both examples of discourse and both show various features of discourse.

**Elicitation**

technique by which the teacher gets the learners to give information rather than giving it to them.

**Fluency**

refers to how well a learner communicates meaning rather than how many mistakes she/he makes in grammar, pronunciation and vocabulary. Fluency is often confused with **accuracy**, which is concerned with the type, amount and seriousness of mistakes made.

Activities that help to develop fluency focus on communication, for example discussions, speaking games, presentations, task work.

**Functional words**

also known as form words, empty words, grammar words, these words connect content words grammatically. They include for example articles, prepositions, pronouns and conjunctions. The most frequent words in a text are functional words: in French "de", "un", "les"; in English "of", "the".

**Genres**

Genres are modes of speaking or writing classified according to content, purpose, language use and form. The language learner learns to manipulate these genres to make his/her discourse more effective. Written genres include reports, letters of enquiry, invitations, news articles, stories, e-mails and poems. Spoken genres include presentations, interviews, speeches and informal conversation.

**Holistic: Holistic approach**

A holistic approach is taken when the importance of the whole and the interdependence of the parts is emphasized rather than the analysis of the parts. In language teaching the holistic approach is one that sees language learning in its totality, integrates the learning of the foreign language into any activity in a meaningful content in order to enable the learner to communicate effectively rather than taking the language into pieces (e.g.:
grammatical structures), dealing one by one with the parts and building up the syllabus from these separated units of the language.

Input

In a general sense input is anything that enters another system. Information is very often referred to as input. In language teaching input is the language use learners are exposed to by the teacher, other learners and various other sources. Some linguists (e.g. Krashen) claim that language acquisition is enhanced when the learner is provided with comprehensible input, that is, language just beyond the competence of the learner with regards to complexity of vocabulary and structures, speed of delivery, degree of clarity, and range of register and style.

Interaction

Interaction in communication takes place when sources take turns transmitting messages between one another. In language teaching interaction patterns are the different ways learners and the teacher can interact in the class. Different interaction patterns can support the aims of different kinds of activities. For example, the teacher talks to the whole class when dictating (T-Ss), learners work in pairs in a role-play (S-S), and learners work in small groups on a project (Ss-Ss).

L1

the language(s) one learned first (the language(s) in which one has established the first long-lasting verbal contacts).

L2

a second language which is any language learned after the first language or mother tongue (L1).

Language Skills

the Common European Framework of Reference for Languages identifies five language skills: Listening, Reading, Spoken Interaction (interacting with others), Spoken production (saying, narrating, presenting, explaining, reciting, singing) and Writing.

Mediation strategies

reflect ways of coping with the demands of using finite resources to process information and establish equivalent meaning. The strategies may involve:

- **Planning**
  - Developing background knowledge;
  - Locating supports;
  - Preparing a glossary;
  - Considering interlocutors’ needs;
  - Selecting unit of interpretation.

- **Execution**
  - Previewing: processing input and formulating the last chunk simultaneously in real time;
  - Noting possibilities, equivalences;
  - Bridging gaps.
**Evaluation**
Checking congruence of two versions;
Checking consistency of usage.

**Repair**
Refining by consulting dictionaries, thesaurus;
Consulting experts, sources.

**Metacognition**

Metacognition refers to one’s knowledge concerning one’s own cognitive processes or anything related to them, e.g., the learning-relevant properties of information or data. For example, I am engaging in metacognition if I notice that I am having more trouble learning A than B; if it strikes me that I should double check C before accepting it as fact.” (Flavell, 1976, 232) metacognitive (adjective)

**Negotiation of meaning**

In this process, teachers and students try to convey information to one another and reach mutual comprehension through restating, clarifying, and confirming information. The teacher may help students get started or work through a stumbling block using linguistic and other approaches. (http://www.learner.org/libraries/tfl/key_terms.html ) The negotiation of meaning activities are typical of immersion and content-based classrooms. In negotiating meaning content matter, such as concepts and content-specific lexis, is discussed.

It is important to note that negotiation refers to an activity implemented as a collaborative activity in which students are active participants and problem-solvers, rather than an activity initiated and carried out as teacher-lectured explanations (http://lici.utu.fi/materials/article_jarvinen.pdf ).

**Output**

The comprehensible output (CO) hypothesis has been developed by Merrill Swain, who claims that the concept of comprehensible input, expressed by Krashen, per se, is not enough to account for second language acquisition. She states that language is acquired when we attempt to communicate a message to someone else but fail and have to try again. Eventually, through several attempts, we produce the correct form of our utterance and the listener is finally able to understand. Thus, the new language form is acquired.

Krashen argues that the basic problem with all output hypotheses is that output is rare, and comprehensible output is even rarer. Even when the language acquirer does speak, they rarely make the types of adjustments that the CO hypothesis claims are useful and necessary to acquire new forms. Another difficulty with CO is that pushing students to speak in a second language may be uncomfortable for them, raising the affective philter and thus hampering acquisition. (http://en.wikipedia.org/wiki/Comprehensible_output)

**Productive skills**

The productive skills are speaking and writing, because learners doing these need to produce language. They are also known as active skills. They can be compared with the receptive skills of listening and reading (http://www.teachingenglish.org.uk/think/knowledge-wiki/productive-skills). In a CLIL approach whatever language objectives might be, they are derived from the content.
Both writing and speaking are particularly useful learning tools.

CLIL calls for an interactive teaching style: using language to communicate meaningful content is likely to enhance the learning of both language and content. One way of combining content and language to express content-specific thinking is Mohan’s Knowledge Framework (KF). The KF can be used as a versatile framework for productive activities. It can be used as a framework for tasks with one thinking skill, such as expressing causality.

**Receptive skills**

The receptive skills are listening and reading, because learners do not need to produce.

Reading (or listening) in CLIL contexts is typically reading (or listening) for **comprehension** and **learning**. Learners read or listen to learn both subject matter and language. Reading (or listening) to learn is an active process in which the reader’s (or the listener’s) purpose, prior knowledge (schemata), strategies and text type interact and produce understanding and learning.

**Scaffolding** is very important in both listening and reading at every phase of the process: before, during and after and different kinds of scaffolding – verbal or visual –are available.

**Scaffolding**

Scaffolding instruction as a teaching strategy originates from Lev Vygotsky’s sociocultural theory and his concept of the **zone of proximal development (ZPD)**. “The zone of proximal development is the distance between what children can do by themselves and the next learning that they can be helped to achieve with competent assistance.” The scaffolding teaching strategy provides individualized support based on the learner’s ZPD. In scaffolding instruction a more knowledgeable other provides scaffolds or supports to facilitate the learner’s development. The scaffolds facilitate a student’s ability to build on prior knowledge and internalize new information. The activities provided in scaffolding instruction are just beyond the level of what the learner can do alone. The more capable other provides the scaffolds so that the learner can accomplish (with assistance) the tasks that he or she could otherwise not complete, thus helping the learner through the ZPD (By Rachel Van Der Stuyf).

**Skim reading**

is used to quickly identify the main ideas of a text. Skimming is done at a speed three to four times faster than normal reading. People often skim when they have lots of material to read in a limited amount of time. Use skimming when you want to see if an article may be of interest in your research. There are many strategies that can be used when skimming. Some people read the first and last paragraphs using headings, summarizes and other organizers as they move down the page or screen. You might read the title, subtitles, subheading, and illustrations. Consider reading the first sentence of each paragraph. This technique is useful when you’re seeking specific information rather than reading for comprehension. Skimming works well to find dates, names, and places. It might be used to review graphs, tables, and charts.
Strategies

a detailed plan for achieving success in CLIL. When looking at transcripts of CLIL classrooms it becomes obvious that teachers and learners use many language and content learning strategies. Among these strategies are the following: code-switching strategies (by teachers and learners), strategies of self-correction and other correction (mainly by peers), scaffolding strategies (used mainly by the teacher), translating into the L1 (used by teachers and learners) etc. (Dalton-Puffer, Christiane (2007): Discourse in Content and Language Integrated Learning (CLIL) Classrooms. Amsterdam: Benjamin)

Stressed, unstressed syllables

when you say a word more than one syllable, the stressed syllable is louder, longer, clearer, and higher pitched.

<table>
<thead>
<tr>
<th></th>
<th>Loudness</th>
<th>Vowel Length</th>
<th>Vowel Clarity</th>
<th>Pitch</th>
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</thead>
<tbody>
<tr>
<td>Stressed syllables</td>
<td>loud</td>
<td>long</td>
<td>full</td>
<td>high</td>
</tr>
<tr>
<td>Unstressed syllables</td>
<td>quiet</td>
<td>short</td>
<td>reduced</td>
<td>low</td>
</tr>
</tbody>
</table>

Target language

any language that the learners are trying to learn, a second or foreign language, which is the target of learning

Top-down strategies

holistic strategies, e.g., the learner's prior knowledge used to aid learning (opposite: bottom-up strategies)

Washback (or backwash)

The way in which assessment influences teaching and learning is described as washback effects. It refers to the impact that tests and examinations have on teaching and learning. Negative washback effects generate from the lack of the alignment of the assessment objectives with the teaching practice. “Washback effects exert an impact on teachers’ classroom behaviours. It has been highlighted that teaching practices are often sacrificed in an anxious attempt to ‘cover’ the examination syllabus: many teachers, trapped in an examination preparation cycle, feel that innovative methodologies are luxuries they cannot afford” (Prodromou 1981). Creating a positive washback through valid tests coherent with teaching practice is particularly important to promote CLIL

Word inferencing

deducing the meaning of a word in context by using contextual and other clues (e.g. prior knowledge)


Darn, S., Content and language integrated learning, retrievable from: http://teachingenglish.org.uk/think/methodology/clil.shtml


Hubbard, P., & Kessler, G., & Madden, J. Technology, techniques, and materials for web listening, retrievable from: http://www.stanford.edu/~efs/tesol03listening/

Implications for the classroom. *Foreign Language Annals* 17, 331-34.


Mueller J., Authentic assessment toolbox, retrievable from: http://jonathan.mueller.faculty.nocrl.edu/toolbox/whatist.htm#authentic


Pathare, E., Responding to content, retrievable from: http://www.teachingenglish.org.uk/think/write/respond.shtml


Steele, V., Using mind maps to develop writing, retrievable from: http://www.teachingenglish.org.uk/think/write/mind_map.shtml


Stockdale, J.G., Using a text cloud to introduce a text, retrievable from: http://iteslj.org/Techniques/Stockdale-TextCloud


Vandergrift, L. (2002). 'It was nice to see that our predictions were right': Developing metacognition in L2 listening comprehension. Canadian Modern Language Review 58, 555-75.


Websites

http://alsic.u-strasbg.fr/Num10/gettliffe/alsic_n10-rec9.htm
http://www.carla.umn.edu/strategies/video/strategies.html
http://www.cxc.pitt.edu/listening.htm
http://www.nclrc.org/essentials/reading/goalsread.htm
http://esl.about.com/library/vocabulary/bl1000_list1.htm?once=true&
http://tip.psychology.org/reigelut.html
http://esllanguageschools.suite101.com/article.cfm/how_to_teach_vocabulary
http://www.enchantedlearning.com/graphicorganizers/
http://esl.about.com/library/vocabulary/bl1000_list1.htm?once=true&
http://tip.psychology.org/reigelut.html
http://esllanguageschools.suite101.com/article.cfm/how_to_teach_vocabulary
http://www.wordsift.com
http://www.muskingum.edu/%7Ecal/database/general/organization.html#Matrices
http://www.ops.org/reading/blooms_taxonomy.html
http://www.coe.int/t/dg4/linguistic/CADRE_EN.asp
http://ec.europa.eu/education/policies/educ/eqf/eqf08_en
Contents of the DVD/User’s Guide

The DVD offers a rich variety of teaching resources compiled by the LICI partners. The video clips are accompanied by study tasks that will be useful for CLIL teachers as well as in teacher training sessions for future CLIL teachers. They give examples for CLIL from primary to tertiary level.

The DVD also has two folders which address different audiences. The teacher training part offers mainly language support for subject teachers who would like to teach their subjects in a foreign language. The suggestions are done in three languages: English, French and German.

The folder teaching materials offers different resources for CLIL classes at three levels (primary, secondary and tertiary level) in three languages, English, French, and German.

The language level has also been added to each resource, because different countries start second language learning and CLIL at different age levels. So a lesson plan or a project adequate designed for primary level in one country would meet the requirement of a secondary class in another.

The topics and themes dealt with come from subjects such as science, social sciences and marketing (tertiary level).

We would like to thank colleagues and students who have contributed to the resources published on the DVD.

I. Teacher training

Video study tasks

Water cycle – primary level science

Body parts, physical activity - primary level science

Weasels - secondary science

Healthy nutrition – secondary level social science

Design of cold-formed steel structures – tertiary level science

Lecture on cariogenic microorganisms – tertiary level science

Families and household – tertiary level sociology
Language support

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<thead>
<tr>
<th>ENGLISH</th>
<th>FRANÇAIS</th>
<th>DEUTSCH</th>
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<tbody>
<tr>
<td>Language support</td>
<td>Support linguistique</td>
<td>Sprachliche Unterstützung</td>
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<tr>
<td>Classroom language</td>
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<td>Redemittel für den CLIL-Unterricht</td>
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<tr>
<td>Teacher talk</td>
<td>Les interactions orales de l’enseignant dans une classe EMILE</td>
<td>Lehrersprache im CLIL-Unterricht</td>
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<td>Comprendre des consignes en français</td>
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II. Teaching materials

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<th>ENGLISH</th>
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<td>art (plan de cours)</td>
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<td>Secondary level</td>
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<tr>
<td>Lesson Plans and materials</td>
<td>Activités lexicales</td>
<td>Stundenbild/Materialien</td>
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<td>The water cycle</td>
<td>Formes géométriques</td>
<td>Planeten</td>
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<td>Volcanoes</td>
<td>Mathématiques</td>
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<td>A healthy diet</td>
<td>Physique/Chimie</td>
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<td>The property of matter</td>
<td>Mathématiques, Physique, SVT</td>
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<td>Insects</td>
<td>Sciences sociales</td>
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<td>Sorbet</td>
<td>Sciences de la Vie et de la Terre</td>
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<td>Animals</td>
<td>Les plantes</td>
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<td>KWLH model (science)</td>
<td>Modules</td>
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<td>Circuits électriques</td>
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<td>L’environnement</td>
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<td>L’information génétique</td>
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<td>Les volcans d’Auvergne</td>
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To access the training/teaching materials on the DVD, follow these instructions (for Windows):

1) Open "My Computer"
2) Find your DVD drive (LICI) and right-click its icon
3) Choose "Explore"
4) Teaching and training materials are to be found in the MATERIALS folder