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**Using the CLIL method in biology lessons at lower secondary school**

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V Olomouci dne

Bc. Marta Šmídová, DiS.

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## **A list of abbreviations**

CLIL – Content and language integrated learning

etc. – Et cetera

i.e. – that is

chap. – chapter

et col. – and collective

FEPBE - Framework education programme for basic education

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## **Abstract**

This thesis deals with the new trend in subject learning through language use. The definition of the term CLIL is explained, its main components and forms are characterized and compared to bilingualism and multilingualism. Furthermore, the theoretical part outlines the problem of the inadequate amount of relevant CLIL sources on the Czech market. Additionally, a brief inside into teaching history and legislation is provided. The research aims to map the problems of the CLIL implementation at lower secondary schools in the Olomouc district, to determine the main issues teachers face when planning CLIL lessons. Another major part of the practical part is the creation of suitable learning materials for pupils of the eighth grade and its assessment by teachers. The study includes a thorough data analysis obtained during two phases of questionnaire survey and describes current problems and situation of CLIL approaches in Czech schools.



## Introduction

Like other acronyms taken from foreign languages, the acronym CLIL, which represents a new approach to language teaching, has quickly been domesticated in our country. The integration of language and subject content requires not only educated professionals but leads to higher demand on CLIL materials which represent scarce commodities. The 21st century could be described as a time of great change and experimentation. In recent years, teachers have often contemplated new forms of teaching, which they subsequently tried in practice. Despite the fact, there is a significant lack of teaching materials designated for CLIL lessons (Mäkiranta, 2014) which would suit students and teachers over the world.

This diploma research deals with the problem of language and subject integration at lower secondary schools in the Olomouc district. It focuses on factors affecting teachers' methodology decisions and outcomes of the implementation of new trends in the education process. Since 1989, the idea of Content and language integrated learning approach implementation into Czech curricular documents, many types of research proved lack of teaching materials and promoted international pedagogical debate about features these aids should possess. Coyle, Hood, and March (2010) state that there is a significant difference in materials availability depending on the subject taught. Despite all efforts to streamline and improve teaching in schools, my research in the bachelor's programme has shown that even several new trends attacking our senses do not yet lead to the desired goal – improving communication in a foreign language, understanding the language, and the ability to use a foreign language in everyday life. Fifty-two per cent of high school students surveyed said that even after nine years of studying a foreign language, they were unable to formulate a simple sentence in a foreign language. Forty per cent of students are afraid to speak out so they do not make a mistake. Twenty-seven per cent of learners are passive in a class. (Šmídová, 2019) These are alarming figures that show that it is necessary to start dealing with the problem of English language teaching as soon as possible. Based on my bachelor thesis results obtained, I have decided to map the situation at chosen lower secondary schools to compare it with my previous research.

The purpose of this study is to outline the interest in the CLIL teaching approach, its influence on pupils' performance, and the availability of CLIL teaching materials at Czech lower secondary schools. The main goal is to provide overall data of CLIL implementation, attitudes, and experiences teachers have with CLIL in the Olomouc district and produce teaching materials based on the findings. To gain an overview of the situation at schools in Olomouc, the first question that arises is: "What factors influence the decision to implement CLIL at lower secondary schools in Olomouc district?" Taking into consideration the lack of suitable worksheets availability and inclusion of pupils of varied abilities, the second question is: "Do teachers prepare their worksheets for CLIL lessons, or do they have access to any printable or online CLIL sources?" Following the second question, the attention to teachers' and pupils' attitudes to CLIL is logical. The third and the fourth question examine whether "teachers and pupils have a positive attitude to CLIL approach in science" and "to what extent do CLIL lessons have an influence on pupils performance?" I have decided to research both groups because I believe in a high value of feedback from both sides.

To verify hypotheses and meet the objectives, I choose the traditional questionnaire form of research. My research is performed via two phases. The first phase of my research maps schools in Olomouc district where CLIL is already in use and compares them with schools where CLIL was not/is not used. Additionally, the comparison of data obtained from both groups is analyzed. The second goal is to obtain data from teachers having experience with CLIL programmes, to monitor their attitudes and comments. The second phase of my research follows up the first phase and highlights the reaction and assessment of teaching aids suitable for CLIL lessons. The main goal is to obtain feedback from teachers on concrete teaching materials for the implementation of the CLIL approach in biology lessons at lower secondary schools. In the theoretical part of this thesis, the reader gets acquainted with the theoretical basics of the CLIL approach, legislation related to CLIL implementation, and features of teaching materials suitable for CLIL. The practical part is dedicated to the presentation of research results and materials designated based on data collected.

# THEORETICAL PART

## 1 THE CLIL

*“A man who comes up with a new idea is crazy until his thought prevails.”*

Mark Twain

(American writer 1835 – 1910)

The 21st century could be described as a time of great change and experimentation. In recent years, teachers have often pondered new forms of teaching, which they subsequently tried in practice (see Jůva, 1987, 1995; Straková, 2016; Dahar 1989). Like other acronyms taken from foreign languages, the abbreviation CLIL, which represents a new approach to language teaching, has quickly been domesticated in our country. It combines the ideas of educators and psychologists of recent decades (Hedge, 2000). They considered streamlining the teaching of language and other subjects. These ideas were summarized and put into practice in 1996 in Finland and subsequently in the Netherlands (Coyle, Hood, March, 2010). In this chapter, the reader gets acquainted with the history and specific parts of the CLIL method, which has several peculiarities and which distinguishes it from other methods.

### 1.1 History

Whether the CLIL method seems to us to be rather modern, newer, more up-to-date, or more advanced than anything that has been used in schools to this day, we must admit that the idea of combining language and subject matter is as old as humanity itself. Several thousand years ago, the ancient Sumerians used their language as a means of teaching and education. (Mehisto, March, Frigol, 2008) Scholars such as Socrates, Aristotle, Plato, and many other personalities after them have tried to teach as naturally as possible over centuries (Pokorná, 2009). Later on in Europe, the Latin language was used both as a means and a symbol of education (Jůva, 1995). In 1965, bilingual parents in Canada supported the idea of teaching their children in French. And since

1970, bilingual teaching has become more accessible to all. In the 1990s, with the globalization onset, the need to expand language skills and bilingualism and speaking competencies among the population emerged so that individual states and their inhabitants would be able to communicate effectively with each other. In 1994, David March began using the acronym CLIL. (Mehisto, March, Frigol, 2008)

## **1.2 CLIL as a method**

The characteristic of CLIL is hidden in the individual letters of the abbreviation CLIL and their meaning – that is, Content and Language Integrated Learning. There are many definitions. National Institute for Further Education imagines a teaching method or a set of teaching methods under this term (CLIL, 2010). Mehisto et col. describes CLIL as a set of teaching objectives for language and professional subjects (Mehisto, 2008, p. 9). Coyle, Hood, and March (2010) define CLIL as follows: “CLIL is not about the transfer of knowledge from expert to novice. CLIL is about allowing individuals to construct their understanding and be challenged.”

If we look back two thousand years, we find that people have tried to pass on information to individuals, groups, nations. They explained and passed on historical facts to their descendants. Explorers, astronomers, mathematicians, doctors, naturalists, theologians, all of whom asked questions, sought answers to them, tried to explain the course of the world. (Jůva, 1995) A question of effective, quick transmission of information of the highest quality and quantity emerged. Sociologists and psychologists subsequently based on their ideas and again influenced the thinking of their peers and future generations of scholars. (Jůva, 1987) Teaching, as we know it today, is rooted in these foundations and has further developed into a teaching methodology (Jůva, 1995). This methodology comprises four components: content, communication, cognition, and culture. Together they form what we call Content and Language Integrated Learning. (Coyle, Hood, March, 2010)

## **1.3 CLIL components**

Within the ambit of the Content and Language Integrated Learning belong content, communication, cognition, and culture. Each component depends on the other, and together they form a complex method. All parts are similarly important for

language lesson preparation. There can not be a lesson that focuses on cognition only and does not cover cultural or content information. (Ball, Kelly, Clegg, 2015)

The content includes all knowledge, practical experience, and skills and sets the theme of the lesson. The content is both the topic of the subject and the connection with the theory of the language being used. (Coyle, Hood, March, 2010)

The communication component contains the interaction between the pupil, the teacher and the pupil, the pupil, and his/her surroundings. Using a foreign language, pupils naturally learn the curriculum, learn to ask questions, and create answers, all naturally, in real-life situations, and in the meantime, they expand vocabulary. (Coyle, Hood, March, 2010; Thomas, Collier, 2003)

The cognitive component uses higher-order thinking, problem-solving, reflection, and acceptance of challenging techniques to broaden four language skills. (Coyle, Hood, March, 2010; Schroeder, Marian, 2014)

The cultural component is aimed at spreading awareness in the field of cultural differences and peculiarities, strengthening identity and understanding. It results in a culturally educated personality that respects the individuality of individuals. (Coyle, Hood, March, 2010)

#### **1.4 From content to culture through cognition and communication planning**

Before the teacher starts preparing a CLIL lesson, s/he needs to keep in mind all these four components that need to be included and interconnected in his/her lesson planning (Hedge,2000). At first, it is necessary to set a theme of a lesson. Then think about how all four components are represented in the topic. (Menken, Holmes, 2000) A quality preparation of a lesson plan can be achieved through a thorough analysis (Ball, Kelly, Clegg, 2015). Forming a mind map is one of the options. The map should include all the above points and thus help us with proper lesson preparation.

When planning a new lesson, the teacher starts with the content of the lesson. S/he needs to answer questions of this kind: Can I choose content or is the content given by the curriculum? Do I have to use the prescribed syllabus, or can I choose another one? What am I going to teach my students? What do pupils learn and what do they

already know? How will the content of the lesson affect the set lesson goal? The teacher should also consider how to engage less/gifted/capable pupils. S/he must decide on the appropriate form of information presentation, sharing ideas, and communication requirements. All this must then be planted in the environment in which the lessons will take place. (Coyle, Hood, March, 2010)

After a thorough reflection on the content of teaching using the CLIL method, the formation of knowledge goals follows (Klapko, 2012; Pash, 1998). The most suitable method of preparation is the use of taxonomy. Bloom's or Krathwohl's taxonomy will make this activity easier. The teacher needs to keep in mind that CLIL comprises two types of goals. Content goals are objectives that must be achieved within a content itself which is the theoretical knowledge of the subject matter. The second type is a language goal. That is the objective within a foreign language used as a means of communication. CLIL offers different ways to achieving learning objectives. By identifying the skills trained in the lesson, the teacher will create a comprehensive learning framework. Hypothesis formation, higher-order thinking, problem-solving, and their application to the curriculum are possible didactic techniques allied to CLIL goals. By selecting and applying tasks based on the given procedures, the teacher will support the language and methodological diversity of the class and increase the motivation for students to learn. (Coyle, Hood, March, 2010) Motivation is the main driver in people's lives to create activity. It is pushing us forward and encourages us to work. By motivation, we can understand different things and states. It becomes the main driving force and influences our decisions. (PlhÁková, 2007) Without motivation to work and study, philosophers, psychologists and educators would never move forward, articulate their ideas, and not pass them on to future generations. The works of Comenius would not have been created, the education would not be reformed, and we probably would not be able to think about the basic principles of a method called CLIL.

Despite all efforts to streamline and improve teaching in schools and increase students' motivation, my research in the bachelor's program has shown that even several new trends attacking our senses do not yet lead to the desired goal and increased motivation to learning languages. Twenty-seven per cent (27%) of learners are passive in an English class. This alarming figure shows that it is necessary to start the change in

English language teaching as soon as possible, primary schools not excluding. (Šmídová, 2019)

Communication as a means of transmitting and obtaining information is an integral part of any teaching and it is no different with CLIL. Here, however, it is necessary to think in detail about the form and types of communication. The teacher should be aware that language is a powerful weapon in the fight against ignorance. Inappropriate use can lead to errors that subsequently affect the achievement of goals, cognition, and the content of teaching. (Schroeder, Marian, 2014) Each specialized subject uses terminology that students may not know (Coyle, Hood, March, 2010). By choosing the appropriate vocabulary and learning the meanings of words within the framework of inter-pre-graduate links, the teacher can have a positive effect on students. They then quickly master both the spoken and written side of a foreign language, expand their vocabulary of a specialized subject and become oriented in the content of the subject. There are no limits to diversity in the choice of communication. (Clair, 1993) The teacher can choose from several methods of communication such as discussion, narration, or conversation. However, it is necessary to be aware and carefully plan its usage. Keywords and phrases must first be spoken by the teacher to pupils, explaining their meaning, pronunciation, and use (Coyle, Hood, March, 2010). Subsequently, the teacher chooses such exercises that lead to the consolidation of knowledge and skills. Tasks must be prepared in a way as to promote autonomy, activity, creativity, decision-making and lead to the achievement of the goals of the lesson. Each CLIL teacher should think carefully about the issues that will help develop communication and expand the vocabulary of students. S/he should also have an idea of what questions students are likely to ask. Detailed preparation leads to the development of discussion and knowledge. (Coyle, Hood, March, 2010)

Once a teacher is ready with the preparation of content, methods supporting the development of knowledge, and communication exercises, it is necessary to put everything in connection with the culture (Lyons, 1981). Culture affects not only the content of teaching (Lyons, 1981, chapter 10), communication between people and their knowledge, but also the success of the chosen teaching method (Coyle, Hood, March, 2010). The objectives of teaching, which are formulated by teachers and the curriculum, are based on culture (RVP ZV, 2017). By developing cultural awareness among pupils,

we will create a comprehensive picture of the world and thus put education in real-life situations (Coyle, Hood, March, 2010).

### **1.5 Choosing the respective way of CLIL**

CLIL is about adapting the content of education. There are many options for how to meet goals. However, a flexible approach of a teacher and a pupil to teach itself is also important. If a teacher is open to new approaches, then CLIL is an appropriate method of teaching for him/her in schools of all types. (Collier, Thomas, Tinajero, 2006)

There are two approaches to teaching CLIL: hard CLIL and soft CLIL. Hard content and language integrated learning mean teaching a subject in a second language that leads to academic development within the subject taught. Soft CLIL is a kind of content and language integrated learning method where a teacher uses the second language just for a short period of a lesson or a portion of hours available to a subject. (Hučíková, 2019, p. 11) Bentley (2010) characterizes hard CLIL as a method of teaching in which more than half of the non-linguistic subject curriculum is taught in a non-native language in contrast to soft CLIL. Soft CLIL is seen as an implementation of subject topics into language lessons or as cross-curricular teaching. Better acquisition of a specialized subject is typical for this type of CLIL. There is no such high emphasis on learning a foreign language compared to hard CLIL. (Bentley, 2010, p.6) A teacher chooses between the two approaches taking into account the communication skills of his students, the degree of acquisition of foreign and mother tongue, the level of education, educational needs, and learning objectives (Esteban, 2015). An important factor is the ability of a teacher to communicate in a foreign language, to cooperate in a team of teachers in the preparation of lessons led by the CLIL method. Furthermore, the choice is influenced by the content of the curriculum and the level of support of the chosen method at the given school by authorities. (Ball, Kelly, Clegg, 2015)

### **1.6 Applying CLIL successfully**

Among the criteria for successful CLIL lessons belong learners' subject knowledge, high exposure of learners to foreign language taught, level of cognitive skills and pupils' literacy, social and economic condition, teachers ability to use



a foreign language, to teach and adapt lessons to pupils' needs, the access to resources, time allocation and management, the syllabus and program planning (Ball, Kelly, Clegg, 2015).

#### A) Exposure

Fifty-two per cent of high school students surveyed said that even after nine years of studying a foreign language, they were unable to formulate a simple sentence in a foreign language. Forty per cent of students are afraid to speak out in order not to make a mistake. Twenty-seven percent of learners are passive in an English class. (Šmídová, 2019) These data show that higher exposure to a foreign language is needed. Students need more time and chances to express themselves in foreign languages. A forty-five minute English lesson is not long enough to allow each student to be active, formulate thoughts, practice a new language, and reduce concerns related to making mistakes and the acquisition of new vocabulary. A level of cognitive skills and pupils' literacy increases with higher exposure to foreign language. This is supported by the research of Молчанова Г.Г (2012) who states that early exposure to foreign language leads to richer and more varied vocabulary, cognitive activity and intellectual development of learners (Молчанова Г.Г, 2012).

#### B) Teacher's abilities

The CLIL teacher must meet certain criteria to reach understanding with their pupils (Antunez, 2002). They should provide the necessary support for teaching to make sense and lead to the desired goal. These criteria specify the skills and abilities of the teacher who would like to start using CLIL. Not only is it important to master the teaching theory of a non-linguistic subject – that is, s/he should have, if possible, completed university education in the subject theory, but s/he should also have broad didactic experience and be able to communicate fluently in a foreign language (Menken, Holmes, 2000). Inadequate foreign language proficiency can be a serious problem when implementing CLIL (Gierlinger, 2007, p. 94). A possibility is the so-called team teaching, which assumes the cooperation of two or more teachers. The disadvantage, however, is its considerable financial demands. Other characteristics of the teacher include flexibility, motivation, willingness to devote a lot of time to lesson preparation,

willingness to cooperate in the team of teachers, and excellent managerial skills. (Klečková, 2011)

### C) Syllabus and programme planning

The CLIL method has also attracted the need for debate internationally. Individual states and their institutions were concerned with putting the changes into practice. This need was subsequently taken into account in their curricular documents. (Národní ústav pro vzdělávání, MŠMT, 2018)

The curriculum is defined as “the content of all the experience that pupils gain in school and school-related activities, its planning and evaluation” (Průcha, Walterová, Mareš, 2003). However, there are more definitions. It can be said that any author or educator imagines something different under the term curriculum. In principle, however, these documents answer questions of why whom, what, when, and how to teach, setting out the conditions of teaching and the expected results of the activity. Their content is based on the needs of a society that is constantly changing, as well as the curriculum itself. (Maňák, Janík, Švec, 2008)

In 1989, there are changes in the economic, political, and legal sectors. The Czech Republic allows schools greater autonomy in decision-making and the development of educational programmes, the number of secondary schools and methodology is developing. Significant changes in methodology are already observed before 1989. Teachers turned away from outdated teaching approaches – a grammatical-translation approach followed by a direct Berlitz method. Furthermore, the audio-lingual method was replaced by a communicative, humanities, and lexical approach. Since the 1990s, the CLIL method has started to be used, which includes the content of a non-linguistic subject. This subject is acquired by students using a foreign language. CLIL becomes part of transnational, national, and school documents. (Národní ústav pro vzdělávání, MŠMT, 2018)

In the same year, the European Commission expressed its support for language learning and diversity, followed by the Lingua Programme. In 2001, the European Parliament and the Council of Europe issued resolutions to promote languages. In 2002, politicians agreed on the importance of introducing foreign language teaching from an

early age and formulated an Action Plan. This document contains 47 proposals for measures with the objectives of lifelong language learning, improving foreign language learning, and creating an environment suitable for language learning, and calls on the Member States to cooperate. At the national level, this plan is used as a framework for taking action, including the inclusion of CLIL in curricula and the reform of education systems. Conferences and seminars are organized within Europe to introduce participants to the CLIL concept. Erasmus, Leonardo, and Comenius are becoming indulging as a source of motivation to learn languages. (Pracovní dokument komise, KOM, 2007)

The conclusions of the 2002 Barcelona European Council set out the requirement to teach at least two foreign languages in primary school education. The Strategic Framework for European Cooperation in Education and Training (ET 2020) includes the need for inclusive student education, acceptance of the use of digital technologies, highlights the importance of mobility in education, and presents educational outcomes concerning employment. (Národní ústav pro vzdělávání, MŠMT, 2018)

Furthermore, the Council of Europe conventions and recommendations are created, which formulate a position on language education policy. Framework training programmes are being set up at the national level. These determine the basic concept of foreign language teaching. Their introduction is established in Act No. 501/2004 of the Collection of Laws and in its amendment number 82/2015. The Strategy of Education Policy of the Czech Republic until 2020 abolished the National Programme for the Development of the Education System from 2001. The main point of the Education Policy Strategy is the emphasis on connecting all parts of the education system. The National Foreign Language Teaching Plan 2005-2008 expresses the need to increase the level of knowledge and speech skills of students and the lifelong systematic education of educators. This document builds on the Action Plan 2004-2006. (Národní ústav pro vzdělávání, MŠMT, 2018)

In 2006, communication in a foreign language is classified among eight key competencies. The concept of key competence can be understood as “a summary of

knowledge, skills, abilities, attitudes, and values important for the personal development and application of each member of society.” (RVP ZV, 2017, p. 14)

#### D) Social and economic factors

Social and economic conditions affect learning to the point where some students are unable to master a foreign language enough (Ball, Kelly, Clegg, 2015). Students and their parents can not afford to pay extra language hours or private native language teachers or travel abroad. Even language books, television channels, or internet connections may be problematic for some families. Here comes a state and a school as an institution to help.

### **1.7 Summary of Chapter 1**

Content and language integrated learning is not a new idea today. A similar approach and the basics of this method have been formulated for centuries. It reached its present form a few years ago in Finland, where David March used the abbreviations CLIL for the first time. The European Council supported the idea of integrating the new methodology into practice in its documents, which are valid in many European countries. The main advantage of CLIL is the integration of the professional curriculum with the language aspect. This leads to the acquisition of two subjects in a short time, increasing the motivation of students to learn foreign languages and the development of competencies set out in the binding documents. CLIL interconnects content, communication, culture, and cognition. These four parts form a system that would not be put into practice without teacher training, cooperation, and information sharing.

## **2 Bilingual vs. CLIL education**

*“Education is the ability to understand others.”*

Johann Wolfgang von Goethe

(German writer 1749 – 1832)

J. W. Goethe's introductory quote directly describes the contents of the following chapter. By education, understanding can be achieved. The Czech Republic lies in the heart of Europe and is surrounded in the east by Slavic states, in the west by Germanic. Our country lies at the center of everything. It is therefore not surprising that our pupils need to be able to understand a language that is considered worldly. Therefore, pupils should learn not only the German language, which has been taught in our countries for decades, but they should also speak the English language. In other words, they should be bilingual. The ability to understand a foreign language is one of the many advantages (Thomas, Collier, 1997) and the privileges that our education system offers us. This chapter should provide the reader with information about the meaning of bilingualism as well as the difference between bilingualism and multilingualism. The question of teachers' skills for bilingual teaching will be answered in the following paragraphs with connection to the Content and language integrated learning approach.

### **2.1 Bilingualism**

Bilingualism means the ability to communicate in two or more languages. We read about bilingualism at the Cambridge Assessment International Education (Cambridge) that bilingual students are a) the ones who use their mother tongue at home and are learning through a second language at school, b) students on bilingual programmes (Collier, Thomas, Tinajero, 2006), c) and who use two or more languages as a medium of instructions for content subjects (Cambridge Assessment International Education). So that bilingual education means that students learn subject/s through one or two different languages. This must be supported by legislation (Thomas, Collier, 2003b), organizations, parents, and students respectively. The support of bilingual

education is beneficial (Collier, Thomas, 2017). Speaking about the advantages and disadvantages of bilingual education, we need to admit that being bilingual leads to developments in native and foreign language alongside, it increases mental flexibility, intercultural skills and provides students with better working opportunities (Thomas, Collier, 2003a). When learning two languages, or through a second language, students perform better in tasks, are better users of native language, their creative thinking, recognition, and problem-solving increase cognition. Through that they achieve higher academic education, become effective thinkers and decision-makers, are likely not to suffer from dementia at an early age, and their memory improves. (Schroeder, Marian, 2014) The following paragraph presents what does distinguish bilingualism from multilingualism.

## **2.2 Multilingualism**

Multilingualism is considered to be the ability to speak actively in three or more languages. However, linguists do not see what levels of knowledge a person considered multilingual – that is, a polyglot – should achieve. (Cenoz, Hoffmann, 2003) The previous successful study of one foreign language is considered advantageous. (Lyons, 1981). The student uses knowledge of the construction of this foreign language to study the second and third foreign languages (Yule, 2006; Lyons, 1981). This means that bilingualism can have a positive effect on the study of other languages, and so the student acquires greater overall linguistic repertoires (Thomas, Collier, 2003a). Multilingual communication most often takes place in an environment where it is common to be exposed to the active use of multiple languages (Aronin, Laoire, 2003). Examples include African or Asian countries where a child is routinely exposed to at least two foreign languages. In addition to its native language – for example, the language of his/her tribe – the official languages are also English and other foreign languages. In Kenya, for example, the official language is English, but people also speak Swahili, Arabic, and tribal languages. (Yule, 2006) On a European scale, multilingual communication can be observed, for example, in our country. The official language is Czech, but we have residents in the border lands whose native language is different, for example – *ponašemu*. However, the use of another language, such as Polish or Slovak, is common in their place of residence. By exposition to all named languages, a citizen living in this area automatically acquires the ability to understand

and possibly actively use all named languages. The child also becomes multilingual in a family, whose members use different languages in communication, at least one of which is not the official language of the country (Cenoz, Hoffmann, 2003). The child thus speaks two native languages and is subsequently subjected to teaching at school that provides education in at least one other foreign language (Cenoz, Hoffmann, 2003).

### **2.3 CLIL and bilingual education**

The difference between the CLIL method of teaching and bilingual teaching lies in the depth of knowledge of a foreign language, which is used in education as a means of teaching (Deller, Price, 2007). In the case of bilingual education, knowledge of a foreign language at a higher level is assumed. On the other hand, the CLIL method can be used in the teaching of a non-language subject even if the student only understands the basics of this foreign language. (Mehisto, March, Frigol, 2008) Bilingual teaching prepares students in such a way as to allow successful passing of exams from a given foreign language. The aim of bilingual teaching is a specific theoretical output. This objective defines the pupil's knowledge in a given non-linguistic subject and does not include the specification of the target knowledge of a foreign language. (Schroeder, Marian, 2014) Therefore, it works with only one teaching goal of the lesson and this is the goal related to the topic of the lesson. CLIL, on the other hand, works with two goals. One objective concerns the theoretical knowledge of the pupil of a lingual subject, the aim of the other sets out the most suased change in language skills. (Novotná, 2010)

### **2.4 Teachers' skills**

English language teachers should possess the following skills and knowledge in order to provide high-quality education in a foreign language (Walqui, 1999). They need to understand the basics of bilingualism and language development to be able to teach culturally diverse learners. The need for being a master in the integration of content with language instructions in a foreign and native language and the requirement of understanding the effects of language and culture on students' performance in the classroom is essential. Often are teachers exposed to the content that needs to be adapted for lower-level English learners. Thus teachers should be aware of the needs and characteristics of students they teach. (Clair, 1993, 2000; Menken and Holmes,

2000, p. 22-23; Walqui, 1999). However, there are many bilingual programs for teachers' preparation available over the world, not many of them provide certification in bilingual education (Antunez, 2002, p. 3). The issue of teachers further preparation for bilingual teaching is discussed in detail in the article by Téllez and Varghese where the authors mention Cahnmann and Varghese opinion on additional help provided to bilingual teachers and stresses out “a necessity to think outside the box” which in other words means to consider other professionals in teachers' preparation for bilingual education and skills development (Téllez, Varghese, 2013, p. 132). Content and language integrated learning assumes the teamwork of two professionals – a linguist and a subject teacher (Klečková, 2011). Their cooperation is practical and supports Cahnman and Verghese's basic characteristics of the bilingual teacher and comprises content, communication, culture, and cognition as integral parts of CLIL methodology. Gorodetskaya and Kozhevnikova (2016) mention so called TKT CLIL. This term means The Teaching Knowledge Test developed by Cambridge English Language Assessment. It is a kind of test that tests teacher's knowledge of CLIL pedagogical concepts. A teacher's language proficiency is not important but it is advisable to attain at least the B1 level of Common European Framework of Reference. The test consists of eighty heterogeneous questions. Examples of such questions are shown in Gorodetskaya and Kozhevnikova's research passed in 2016. The test is designed in a way that, according to the achieved points, evaluates the skills and knowledge of the teacher on the issue, which means that there is no pass or fail score. (Gorodetskaya, Kozhevnikova, 2016)

## **2.5 Summary of Chapter 2**

To conclude this chapter, it has been spoken about the meanings of bilingualism, multilingualism, and features of CLIL as a method of bilingual teaching. It has been explained that being a CLIL teacher means complete devotion to the teaching, flexibility of mind and time and, what is more, being a good manager means to change the attitude of your own towards pupils. Necessary education in the field of teacher's study does not always mean to be professional in languages, non-lingual subjects, and didactics. Being a good CLIL teacher is the ability to look for and find solutions among colleges, team cooperation, and positive thinking.



### 3 Designing materials for CLIL

*“The only obstacle between you and your target is the gibberish you are justifying why you can not.”*

Jordan Belfort  
(American author 1962)

Creating teaching tools is an integral part of every teacher's work (Canniveng, Martinez, 2003). In his works, Comenius mentioned the importance of illustrative learning and set the rules that are still used in teaching today (Jůva, 1995, chap.3, and Kalnický, 2009, chap.2). A teacher, who knows his pupils and these rules, can lead a lesson motivationally and support the pupils' interest in the given teaching subject. The CLIL method assumes teamwork of teachers in the preparation of teaching plans and teaching tools (Klečková, 2011). Since teachers do not yet have many textbooks and texts adapted to the CLIL method (Mäkiranta, 2014), they need to create these aids themselves (Banegas, 2010 and 2013, Moore, Lorenzo, 2007, see also Gierlinger, 2007). This is a time-consuming procedure that leads to overloading the CLIL teachers (Floimayr 2010, 21; Gierlinger 2007, 80–81; Mehisto, Marsh, Frigols 2008, 22). One of the options teachers have is the adaptation of the existing materials. This is carried out via translation, simplification, or complete rewriting or recreating of existing materials to fit learners' and teachers' needs and match curriculum content. (McDonough, Shaw, Masuhara, 2012) These materials include, for example, worksheets or tests.

#### 3.1 Worksheets

There is a significant difference in CLIL material availability depending on the subject taught through CLIL. Thus many teachers need to prepare their worksheets based on CLIL principles and classroom needs. (Coyle, Hood, March, 2010) Any ready-made materials published over the world are thus analyzed, evaluated, and adapted to match curriculum and educational needs in order to find the most suitable one. The evaluation concentrates on the effect of content and language used on the people using them. (McGrath, 2002, p. 22; Tomlinson, 2003, p. 15)

A worksheet is a useful teaching aid. It is a sheet of paper on which the curriculum is presented in different ways. Worksheets are used not only to test and present theoretical knowledge. One of its purposes is that it serves as a means to reach set learning goals. (Dahar, 1896; Sirahaan, Sirait, 2017) On the other hand, Lesley and Labbo (2003) mention that worksheets may influence learning, and mass production of worksheets can become disadvantageous in achieving educational goals, especially in science learning. Apart from reading demands, they appointed problems such as text format and spacing, question format that limited students' natural curiosity, choice of tasks that led to boredom, and noncompliance of tasks and students' interests. (Lesley, Labbo, 2003) The mentioned negative impacts of worksheets on students' performance can be avoided by careful choice of language and topics, question format suitable for low and high reading ability students, tasks organization, and the pedagogical knowledge and skills required for worksheet formation (Reid, 1984; O'Leary, 2011).

Other important functions include, for instance, stimulating functions. A well-designated worksheet should motivate and encourage pupils to learn. (Lee, 2014; McDowell and Waddling, 1985) A worksheet represents a model for language use, helps develop communication and teamwork skills. McDowell and Waddling (1985) agree that a well-crafted worksheet helps organize the teaching-learning process (McDowell, Waddling, 1985), reinforces instructions, reflects teacher's thinking about the content, and stimulates learning (Krombaß, Harms, 2008). It can serve as a filler, organizer (Kisiel, 2003), a warm-up, homework, an assessment tool (Lee, 2014), a supplementary material of the textbook (Lee, 2014), or reference of student's work. (McDowell and Waddling, 1985)

In the case of mixed ability classes, worksheets can entertain and fill the time of stronger students who need to wait for weaker students to finish their work. But the teacher, who creates his/her worksheets, needs to be aware of possible disadvantages. Mixed ability classes may struggle using worksheets as worksheets generally require good reading abilities. (Rix, 2006).

Preparation of worksheets for Content and language integrated learning needs to be consistent with all of the above remarks. As CLIL is a method in which emphasis is placed on subject knowledge acquisition and the foreign language serves as a means for

information transfer, careful choice of words, question formation and challenging tasks are necessary conditions to be implemented. (Coyle, Hood, March, 2010)

Anderson and Krathwol dealt with the problem of knowledge acquisition and in 2001 published Bloom's taxonomy of educational goals which they edited. In the new approach to learning goals, they took into account different thought processes. This was supported by Coyle, Hood, and March (2010). (Hučíková, 2019) When creating a worksheet, depending on its purpose (used for revision, repetition, practice, and test preparation) the author's focus is on four areas:

- a) input or stimulating function,
- b) content, including non-linguistic,
- c) language use opportunities,
- d) task.

The main issue is visualization. The layout of text, using the appropriate font size and style, images, charts, tables, mind maps, diagrams, photos, or graphic organizers help increase student motivation while making work with the worksheet easier. The combination of the right text, topic, or language leads to students' interest stimulation. (Guerrini, 2009)

When planning the content, we pay attention not only to linguistic content but also to non-linguistic content (Coyle, Hood, March, 2010). The content must be chosen in such a way as to meet school educational documents' requirements as well as the cultural and social needs of students (Moore, Lorenzo, 2007). According to the content, it is possible to divide sheets into factsheets or information sheets, and activity sheets. Information sheets provide comprehensive information, complete curriculum, in such a way that pupils have, as far as possible, basic information on a single sheet of paper on the subject matter. Activity sheets are focused on practicing the content in the form of a variety of exercises. The activity sheets were used in Indonesia at Biology Education Program Universitas Negeri Surabaya with fascinating results showing that worksheets can be used in biology lessons to promote thinking ability, social interaction, and motivation to study science. (Y S Rahayu et al, 2018)

The choice of language processing exercises should achieve the abilities of students and enable analytical and synthetic thinking in a given language (Šmídová,

Tejkalová, Vojtková, 2012; Kiely, 2009). The selected exercises may enable language use and communication. Depending on the type of exercise, we then divide the worksheets into matching worksheets, word scramble worksheets, jumbled sentences worksheets, sorting worksheets, and others like multiple-choice, gap filling, word puzzles, labeling worksheets. (Coyle, Hood, March, 2010)

The layout of a worksheet influences students' acquisition and curiosity in learning. Such features as clear margins, short clear instructions, graphic illustrations, highlighted keywords, using bold text, not cluttered text with sufficient space to write in it but rather a text broken into short chunks separated by the headings, clear and concise assignment of questions, tasks selected taking into account pupil's skills and time subsidy, and task variations promoting interest are key factors related to learning styles of each student. (Hučíková, 2019; Mareš, 2013) According to Mareš (2013), the amount of work should be limited to one page. The tasks should be organized so that the easiest, enjoyable tasks, doable by most of the students in a class are presented first, at the beginning of a worksheet to promote motivation and interest in learning. More complicated tasks follow and serve as a challenge and thus engage in work talented students. (Mareš, 2013, p. 365 – 382)

To conclude, the text above shows the number of properties that a well-crafted worksheet should have. Each worksheet should be easily reproduced, stored in a plastic envelope for further use. High-quality illustrations are a matter of course. Other good features of worksheet include: being neat, clear, attention-catching, attractive, balanced, non-intimidating, user-friendly, convenient, free, easily saved or printed, enabling a multisensory approach, fit for purpose, appropriate to the age - level – ability, focusing on the learning point, providing finite exercise and giving rapid feedback.

### **3.2 Assessment and testing**

Assessment is a general word describing monitoring of any progress. At school, we consider assessment a part of the whole educational process. It is a means by which we monitor development in language knowledge over a while. (Hedge, 2000; Ur, 1999).

Assessment in Content and language integrated learning is far more complicated as it includes assessment in both areas - assessment of subject content knowledge and

foreign language achievement. Each area has a significant impact on pupils' performance. Kiely's (2009) opinion on assessment in CLIL is presented in his article in which he stresses the problem of established assessment and CLIL approach as a new topic for discussion and research. Kiely works as a consultant evaluator of the Comenius-funded Pro-CLIL project. He speaks about assessment in CLIL based on the theory of teaching and learning, CLIL implementation, and his own experience. (Kiely, 2009)

Speaking about assessment in general, literature distinguishes summative, formative, predictive, and continuous types of assessment according to its purpose (Hedge, 2000). Summative assessment is mainly used for administrative purposes, often is externally imposed, and focuses on results (Ur, 1999). On the other hand, formative assessment is usually prepared and carried out by a class teacher, used for diagnostic reasons, and focused on individual learners' strengths, needs, weaknesses. It focuses on progress rather than on results. (Kiely, 2009; Ur, 1999; Ross, 2005) Predictive assessment assesses prior knowledge of students, whereas continuous assessment is done while learning/teaching is in progress and it helps adapt teaching to learners' problems. (Hedge, 2000) A teacher may come across a term – classroom assessment which describes a process of gathering information about the whole class. This information is used by teachers to support learning and requires a broad knowledge of individual pupils. Classroom assessment is done by each teacher at the beginning and the end of a school year or when introducing new methodology into the teaching process. Such assessment should be done before starting CLIL in English lessons. (Hedge, 2000; Ur, 1999). CLIL is such a specific form of teaching for which the teacher needs to discriminate abilities and relationships of the whole class to succeed in it. Kiely (2009) considers the assessment in CLIL a challenging part of teachers' work, especially for teachers, who introduce CLIL as a new practice into their lessons, because there is “little local situated knowledge of how this can be done”(Kiely, 2009). Kiely (2009) mentions an e-mail from one German teacher who uses observation as an assessment technique. Her decision to use bilingual and English worksheets, providing feedback in the English language, and support language use according to pupils' abilities led to desired goals in both languages. The findings of pupils' increased motivation to speak and write in a foreign language after one year, respectively two years of CLIL modules

is striking. The problem of showing where “her pupils stand, what do they know and how to measure it” emerged. The teacher uses talking, drawing, or writing as an assessment that lacks evidence of the overall value of CLIL. (Kiely, 2009) The question of assessment in CLIL and non-CLIL classes is further discussed and compared with the fixed standards and curricular documents. Hedge (2000) and Ur (1999) specify features every assessment should have. Among these criteria belong being fair, practicable, continuous, interactive, collaborative, based on what a pupil does, it should enable students to participate and assess the strength of students' knowledge. (Hedge, 2000; Ur, 1999).

Assessment is an essential stage in didactic planning. Teachers collect, synthesize, interpret results to decide on further teaching. The assessment can have a form of observation (Kiely, 2009), oral questioning, projects, or tests. (Hedge, 2000; Ur, 1999).

Testing, which is typically used at the end of a stage of a learning process to measure achievement in subject matter, measures the students' ability to use the acquired information. In CLIL lessons, we need to distinguish if we test the language or subject content or both (Ball, Kelly, Clegg, 2015). The teacher tests students in order to gather information about the learner's performance (Hedge, 2000). And the performance in CLIL has two aims. In the case of soft CLIL, the emphasis is on the language goals as the subject topics are integrated into language lessons (Bentley, 2010, p.6). In contrast to soft CLIL, hard Content and language integrated learning deal with the non-linguistic topics in non-linguistic subjects. The language becomes just a means of information sharing. Thus, the teacher concentrates on content testing and may or may not include language in scoring. (Kiely, 2009)

The test results serve students as information about their level of knowledge and needs for improvement. As for teachers, they provide a basis for decision-making on further teaching plans. (Ur, 1999). Testing promotes better results and satisfaction of students in the way that it motivates them to study, practice, and review. Oller (1979) speaks about testing and tests in negative mode. Students speaking minority languages, or CLIL classes students may view testing as an insurmountable problem due to different abilities to use a particular foreign language (Oller, 1979). This is why every

CLIL teacher should carefully and thoroughly think about test forms and evaluation criteria. Tests may have a spoken, or a written form. These include paper-and-pencil, portfolios, or self-assessment. (Hedge, 2000; Ur, 1999) Apart from the above-mentioned test functions testing helps calm very noisy classes, indicates the point of the end of lesson, unit, or a course, or is a means of final grades and certificate awarding (Hedge, 2000; Ur, 1999).

### **3.3 CLIL lesson and its preparation**

The preparation of teaching tools and plans for a class where the CLIL method is practiced requires a lot of time and multidisciplinary cooperation of teachers (Floimayr 2010, 21; Gierlinger 2007, 80–81; Mehisto, Marsh, Frigols 2008, 22). The best option would be to prepare teachers for the profession in such a way that they are able to teach not only non-linguistic subjects but also language subjects. However, if this is not possible for a given teacher to complete a lengthy study of several disciplines or for the employer to provide education to its employees in the form of courses – for example, the TKT course (Gorodetskaya and Kozhevnikova, 2016), then it is necessary to start cooperation with colleagues in the workplace (Klečková, 2011).

In the preparation of the plans, either the team of linguists or the entire teaching staff cooperates. When drawing up plans, it is advisable to adhere to the following principles mentioned by Ball, Kelly, and Clegg:

- a) The text and the task should be related to each other and build on each other. So-called multi-modal input where one information is interpreted and converted into another form influences the development of content and language schemata built by students during CLIL teaching. (Meyer, 2013, p. 299)
- b) The plan should include all three content dimensions – knowledge, skills, theme (Ball, Kelly, Clegg, 2015). Meyer's (2013, 2010) key strategy specifies this point. He states that meaningful, challenging, authentic materials focused on global problems of everyday lives support acquisition as well as increase motivation that secondly influences students' acquisition. (Meyer, 2013, p. 297 and Meyer, 2010, p 11- 29)
- c) The teacher should plan how to list the content and how it will support the lesson outputs (Ball, Kelly, Clegg, 2015). This is supported by Tavella's case

studies of two teachers using a content-driven approach to CLIL planning (Tavella, 2016).

- d) Choose the appropriate difficulty.
- e) Think in steps, plan your activity step by step.
- f) Use of the methods: scaffolding, embedding. The advantages of scaffolding include a reduced load of information that influences the understanding of both content and language, it provides a sense of structure and becomes a source of language (Meyer, 2013). Meyer (2013) presents his studies' results that show that

[...“students, who are not as gifted in language learning as other students, greatly benefit from scaffolding. Their motivation for language learning often increases once they understand how and in which order to proceed, and which phrases to use when describing pictures, analyzing charts, or interpreting cartoons for instance.”] (Meyer, 2013, p. 300).

- g) Start with an inductive question related to the topic.
- h) Follow PPP (production, practice, presentation) steps of teaching. The production of background knowledge at the start is essential for the activation of cognitive thinking. Practical application of new information into existing schemata facilitates the active acquisition of knowledge. Presentation of gained knowledge to each other promotes interaction, cooperation, and communication in a foreign language, activates speech skills, and represents the basis for feedback. (Ball, Kelly, Clegg, 2015)

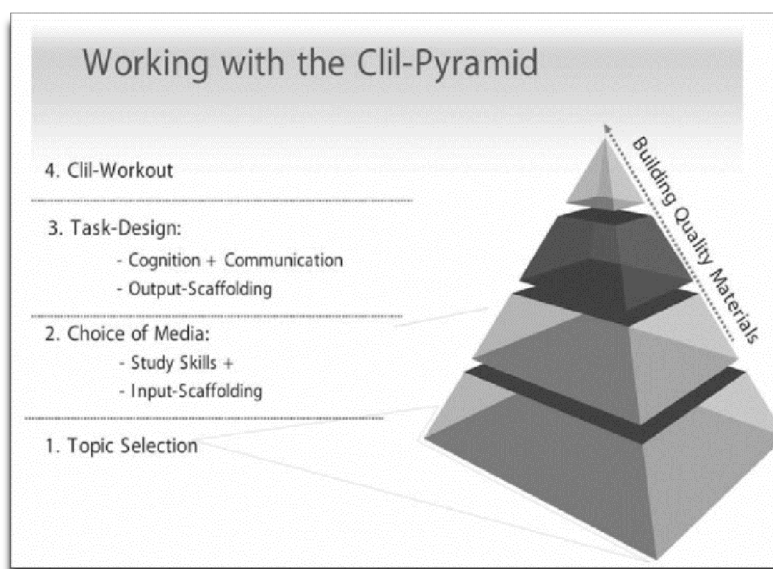
Tavella (2016) summarizes the opinions of several researchers, namely Banegas and Bentley, who agreed on a holistic approach to planning. This means that such an approach should include aims, procedures, cognitive strategies, materials, and activities preparation. CLIL planning is based on clear goals which correspond with the curriculum. In his study, Tavella presents his qualitative data collection of one school term in Argentina. Observations, analysis of syllabi and questionnaires, interviews, and journal keeping were used as methods for data collection. He compared two CLIL teachers' practices. Both teachers based their planning on the content knowledge. Their



emphasis was put on students' acquisition of new content and language skills development. Tavella's data showed coherence of CLIL lesson planning and its assessment but the absence of more systematized practices that may present a pre-stage of intuition used in the assessment. Tavella suggests further studies of language-driven CLIL lessons and their influence on students' linguistic accuracy and development. (Tavella, 2016)

Jason Skeet, an experienced teacher educator, CLIL consultant, and trainer, proposes his approaches to CLIL planning in the article *On three principles for CLIL lesson planning*. He suggests planning each lesson from learning outcomes, backward, based on Ball, Kelly, and Clegg's three dimensions' model. The second mentioned principle by Skeet represents task-led learning. Teachers should not provide resources of information in order to finish the task, but rather let students find resources themselves for fulfilling the task and provide feedback to their performance. The last Skeet's principle stresses that no such task would fit all students and that each teacher needs to keep in mind the sequencing. Tasks should be planned step by step accompanied by a clear set of instructions. (Skeet, available from: <https://independent.academia.edu/JasonSkeet>)

Meyer (2013) produced the so-called The CLIL-Pyramid (see Figure 1 below) to systematize single steps for teachers' lesson preparation. This pyramid represents steps in the appropriate order as they follow over the whole unit. The content selection forms the base of the pyramid. The second stage incorporates the choice of media that should include multimodal input and lead to the development of literacy. The input may have a form of charts, maps, tables, video clips, or texts. Its choice determines scaffolding and the need for study skills practiced. The third stage is focused on task design and is based on previous steps. The difficulty of tasks and their design should require higher-order thinking skills and promote interactive communication. (Meyer, 2013, p. 308-309).



(Figure 1: Oliver Meyer – The CLIL- Pyramid, Meyer, 2013, p. 308)

However this criteria or recommendation might be confusing, demanding, complicated for teachers beginners. CLIL as a specific approach to knowledge transfer among teachers and pupils requires a lot of effort. Each material elaborated according to the criteria above might fit just a specific group of students. Problems may occur in the case of mixability classes. For this matter of fact, it is problematic to implement CLIL in many schools in varied subjects. On the Czech market, there are a few CLIL textbooks available for interested teachers who are not afraid of facing the challenge of introducing novelties. Among the specialized dealers belong Macmillan Publishing House that offers CLIL textbooks, teachers' books, and worksheets for teaching science. (Habdsová, 2017) Teachers may also find usable sources from other publishers, but these do not focus directly on Content and language integrated learning materials. To conclude, the planning starts with overcoming the initial fear, followed by the formulation of learning goals, and ends with the assessment of students' attitudes to the established methodology

### **3.4 Summary of Chapter 3**

Let me use Eleanor Roosevelt's quote to conclude the main points of this chapter. She said: “The future belongs to those who believe in their beautiful dream.” If the teacher believes in what s/he makes to improve the teaching/learning process, the

future belongs to him/ her. So, if the teacher believes in his/her ability to impose a new teaching methodology, it should be easy for him/her. CLIL and its methodology is a specific way of teaching/learning that requires different materials, tools, aids. There are many CLIL books, but not always accessible to everyone. Worksheets and tests are an integral part of the CLIL method that help join two different subject contents into one. Even though not every school supports new ideas and methodologies, every single teacher can try them. Teachers who cooperate and help each other must succeed and create useful materials for their pupils. It is advisable to start each lesson routinely to ease pupils' learning. Self-assessment, portfolios, encouragement is the key of success. To list what you think the pupils will have achieved when they have completed the worksheet or test is another rule to follow. It gives the pupils the meaning of the work they need to do. Each CLIL lesson preparation needs time and time is precious. Planning should include a holistic approach to content and skills as well as assessment. Cooperation, flexibility, and willingness to change our thinking may lead to better, enjoyable, motivational English lessons and increase academic performance.

## 4 Conclusion of the theoretical part

*“I haven't failed 10,000 times. I found 10,000 ways that don't work. ”*

Thomas Alva Edison

(American inventor and businessman 1847 – 1931)

In the theoretical part of this thesis, I dealt with several topics: CLIL as a method of teaching, the development of CLIL, the main features, and variations of the method, the interconnection of CLIL, culture, and society. I have introduced the term Content and language integrated learning from the point of view of many authors. I have explained the main components of the CLIL approach and their interconnection. I have presented types of CLIL. I have pointed out the effect of exposure, syllabus, teachers' abilities and program planning, and social and economic conditions on language acquisition. I have mentioned the surprising results of my bachelor thesis in connection with the above items.

By summarizing historical knowledge about the development of didactics and its methodology, I have proved that even CLIL in the form in which it is presented today is not a new idea. For years, many educators have been interested in how to achieve study goals among their pupils. They are the ones who wrote down their thoughts, on the basis of which we teach today. Psychologists and their theories laid the foundation for approaches to teaching pupils as human beings, studying the characteristics of their personalities until the connection of pedagogy and psychology occurred.

I have highlighted the influence of motivation – as a set of factors that force a person to change, to work, to be active. Whether it was internal or external motivation, its importance cannot be ignored. Motivate students to learn, to work, and to think is an integral part of the teaching profession. A teacher who is aware of the individual peculiarities and motives of his/her pupils can use this information to facilitate the course of the class and his education.

Legislation, which was established and drafted based on the knowledge and needs of society, forms a kind of imaginary framework of everything. It determines the

direction of the teacher's actions and teaching, sets the content, presents the goals that both pupils and teachers should achieve. This forms the basis for motivation and gives the sense to work.

The second chapter was devoted to the difference between bilingual and CLIL teaching. By the characteristics of bilingualism, multilingualism, we come to the finding that the most important and main goal of teaching a foreign language is to understand each other. Language as a means of communication can take different forms and variations. The teacher should take into account these differences and draw attention to them in teaching. S/he should be educated, well-read, communicative and use his/her theoretical knowledge and language skills to lead pupils to communicate effectively. This chapter deals with the teachers' skills and mentions a special program for testing and improvement.

In the third chapter, the reader comes across two problems: suitable teaching aids, namely worksheets and lesson preparation. Teaching aids are intended to help effectively acquire the content of theoretical knowledge and practical ability to use a foreign language in everyday life. As presented at the beginning, there is a significant lack of teaching materials that would suit a broad spectrum of pupils. Each student is an individual with distinct needs and learning abilities. I have spoken about features, properties, a good worksheet should have. Furthermore, the reader learns about assessment and testing that logically follows and which is typical for CLIL.

Planning a good CLIL lesson is a time-consuming activity. A good plan includes not only content and skills. A really good CLIL plan starts with the formulation of learning aims. In the case of CLIL, the formulation of dual goals is essential. In this chapter, the reader becomes acquainted with Ball, Kelly, and Clegg's principles for a good lesson plan supplemented by other experts' ideas, for instance, Meyers' CLIL-Pyramid.

The following pages of this thesis describe and present the results of my research at lower secondary schools in the Olomouc district.

# PRACTICAL PART

## Introduction

CLIL research is widespread worldwide (Antunez, 2002; Banegas, 2013; Esteban, 2015; Gorodetskaya and Kozhevnikova, 2016; Hučíková, 2019; Lee, 2014). A lot of valuable information on a given topic is obtained and processed especially in the areas of CLIL implementation, material creation, approaches, and teacher characteristics (Canniveng and Martinez, 2003; Esteban, 2015; Floimayr, 2010; Krombaß and Harms, 2008; Moore and Lorenzo, 2007). However, most researches were carried out behind the Czech borders. There might be many factors that affected the spread of new trends in the teaching profession among countries. In the Czech lands, the impact of 1989 must be taken into consideration. After the Velvet Revolution, when borders were opened in our country not only for travel but also for access to information, there was an increase in the need for communication in a foreign language. New trends have begun to penetrate all areas, including education. Thus, the CLIL approach, a new term for Content and language integrated learning, became more prominent.

As I mentioned in the theoretical part of this thesis, CLIL has become a new fashion of the twentieth century. It includes the idea of linking general educational subjects with a foreign language. This link is not easy to implement into teaching (Bentley, 2010; Gierlinger, 2007; Meyer, 2010). It requires the readiness of educators, legislation, as well as work tools and aids. The following chapters focus on two issues and so implementation of new trends in the Olomouc region and the creation of worksheets suitable for teaching in lower secondary schools.

The first phase of my research is devoted to the mapping of the use of the CLIL in lower secondary schools in the Olomouc region. Emphasis is placed on identifying and comparing differences in the possibilities of implementing new techniques in the practice of teachers of varied subjects, namely foreign language and science. Data

analysis depicts CLIL from the perspective of a professional teacher, a beginning teacher, both of whom practice their profession in a city or village.

In the second phase, I focus on the problem of a lack of suitable teaching materials. CLIL lesson plans and worksheets are created and assessed by the respondents. The research is concerned with the quality of instructions, types of chosen tasks, applicability in the lower secondary school, clarity, and alignment of requirements with the Framework education programme for basic education. Evaluation and commentary bring attention to problems expressed by respondents and provides insight into the current situation.

## **5 The research**

*“Every time I think I can not, I can do many times more. Every time I think something is not working, someone shows me it is easy. Without willpower, even the greatest talent is nothing. But by will, you can do anything. ”*

Honoré De Balzac  
(French writer 1799 – 1850)

The purpose of this study is to outline the interest in the CLIL teaching approach, its influence on pupils' performance, and the availability of CLIL teaching materials at Czech lower secondary schools.

### **5.1 Goals**

There are the following four goals set in this research:

- 1) To provide overall data of CLIL implementation at lower secondary schools in the Olomouc region.
- 2) To record attitudes and experiences respondents have with the CLIL approach.
- 3) To produce CLIL teaching materials based on the textbook Biology 8.
- 4) To obtain feedback on created teaching materials from lower secondary school respondents.

### **5.2 Research Questions**

- 1) What factors influence the decision to implement CLIL at lower secondary schools in the Olomouc district?
- 2) What experience do teachers have with CLIL implementation in the Czech educational environment?
  - a) What kind of support are CLIL teachers provided with?
  - b) Do teachers have access to any printable or online CLIL sources suitable for their pupils?



- c) Do teachers consider the preparation of their worksheets for foreign language CLIL lessons to be tedious?
  - d) Do teachers have a positive attitude to the CLIL approach in science?
- 3) To what extent do CLIL lessons influence pupils' performance from the teachers' point of view?
- a) Do pupils have a positive attitude to the CLIL approach in science?
  - b) Does CLIL affect positively pupil's motivation to learn foreign languages?

My assumption is that lack of experience might be a decisive factor in the implementation of CLIL into teaching. I further expect to find that at least 60 per cent of respondents had heard of the method but a significant proportion of them might have been discouraged from introducing it by lengthy and demanding preparation and lack of suitable teaching materials. I also assume that at least 80 per cent of respondents consider CLIL to be a teaching method involved in increasing students' motivation to learn a foreign language and increasing the attractiveness of the subject.

### **5.3 The quantitative research**

This diploma project is a follow-up quantitative research based on data collected during my bachelor study programme. The data showed that out of 92 per cent of respondents who had been studying the English language for more than nine years, 27.1 per cent reported problems with understanding the spoken language. The most surprising results of the bachelor research showed that: “Even though visual, acoustic and practical parts of language learning were involved in 51.85 per cent of lessons, 60.48 per cent of students answered that they were not able to use the vocabulary learned during the lesson in a real-life, and 51.85 per cent of respondents could not even formulate a sentence and thus had nothing to say.” (Šmídová, 2019) My research showed that changes in language teaching approaches are needed. Even though the previous research was carried out at a specific type of high school, the results show objective findings of inappropriate attitudes to teaching English for decades. In their responses, pupils stressed the need for a change in teaching technique, improvement of access to the subject topic, active involvement in learning, and the more frequent possibility of conversation in a foreign language. For this reason, it was decided to

research lower secondary schools and compare student testimonies with teachers' experiences.

### **5.3.1 The preparatory phase**

Before starting the research, the formulation of research questions, hypotheses, and objectives of the investigation must be accomplished. To do this, it is necessary to have an idea of the environment in which the research will be carried out. My experience at high schools within the framework of bachelor's studies and subsequent experience at elementary and lower secondary schools within the framework of master's studies was this starting point. I had the opportunity to get acquainted with the running of the school, with teachers and pupils, and to test various teaching techniques. As part of my practice, I have seen an increased need to link the curriculum, i.e. vocational and language subjects, with the real-life of pupils, as well as the need to include more hours of conversation in a foreign language.

Another integral part of the preparatory phase was the study of the school's curricular documents. According to the framework educational programme, part A, chapter 1.3, one of the tendencies in education is “to apply a more variable organization and individualization of teaching”(RVP ZV, 2017). The eighth-grade lower secondary schools pupils of biology are required to:

- determine the location and clarify the structure and function of the organs and organ systems of the human body, explain their relationships
- orientate yourself in the basic developmental stages of human phylogenesis
- clarify the emergence and development of a new individual from conception to old age
- distinguish the causes or symptoms of common diseases and apply the principles of their prevention and treatment, clarify the importance of a healthy way of life
- apply first aid for injury and other damage to the body. (RVP ZV, 2017, MŠMT)

On the other hand, topics such as health and health care, eating habits, and the human body are included in a curriculum of a foreign language (RVP ZV, 2017).

The final part of the preparatory phase was the study of professional literature which took place from June 2020 to January 2021. The literature included studies and articles published online by linguists and teachers working in diverse fields as well as textbooks focused on teaching history, CLIL methodology, and CLIL studies undertaken in foreign countries.

### **5.3.2 Subject of the research**

Content and language integrated learning represents the idea of the connection between a language and a non-linguistic subject. The problem is that the teacher, who wishes to implement the CLIL approach, needs to be educated in both subjects and/or to cooperate in a team in order to prepare professional CLIL lessons and reach desired goals (Menken, Holmes, 2000; Gierlinger, 2007, p.94). For this reason, I have chosen a science subject, namely biology, in the eighth grade of the lower secondary school curricula as the subject of this research. At this grade, the school curricula cover topics such as human evolution, human biology and physiology, and health. The first advantage is that this choice facilitated the cooperation between me and the target lower secondary schools as I have already studied the subject mentioned and thus did not need to work in a multidisciplinary team. This results in a second advantage, i.e. a lower workload for the teacher, which would otherwise be forced to devote more time to me in the lesson preparation.

I have decided to prepare CLIL lesson plans and worksheets and carry out my research among teachers and pupils at one lower secondary school over the summer semester in 2021. The research was supposed to cover one of three biology lessons per week. That means pupils would be taught using the CLIL approach once a week for five months. Each lesson would be observed by the biology teacher and a short observation sheet would be filled for each CLIL lesson. That makes about 20 CLIL plans and teachers' observations. The reason for such long research was to provide the reader with detailed, time-tested data. At the end of that research, pupils and the teacher would fill a short questionnaire focused on their attitudes to CLIL lessons, their language knowledge assessment, and changes in pupils' language and subject performance.

However, this plan had to be transformed due to the pandemic situation. It was decided to concentrate this study on teachers only as my presence in schools was not permitted. This is why I have not prepared 20 lesson plans but decided to prepare only three lesson plans, which are part of the Appendices. Each plan does not cover just one topic or part of it. Instead, each CLIL plan is dedicated to the revision of a certain amount of chapters, usually related to each other.

### **5.3.3 The respondents**

Eighty-nine lower secondary schools in the Olomouc region were requested for cooperation. Schools for pupils with learning disabilities and language schools were excluded from this research. The former schools might not be able to implement the Content and language integrated approach due to barriers in pupils' learning abilities and the latter are expected to be rather language-oriented schools. All schools were contacted via e-mails.

The assumption was that each primary school employed two English language teachers, which would lead to a total of one hundred seventy-eight answered questionnaires in the first and second phases of the research. Such several respondents would provide detailed and useful data. Unfortunately, out of eighty-nine schools contacted, only twenty promised to cooperate and were willing to participate in answering the questionnaires. Most of the schools contacted did not respond to the e-mail even after repeated requests. Only one primary school principal apologized and refused to participate in the research due to time and work reasons. According to him, primary schools are very busy with online teaching and the willingness of teaching staff to participate in similar studies is negligible. As a justification, he stated that each primary school receives several similar requests per week and that it is therefore not in the power of teachers to cooperate further.

Out of twenty schools willing to participate in the research, I received only seven answered questionnaires in two weeks. It was therefore necessary to approach an alternative solution. First, I contacted my colleagues studying at the university, and then the teachers were contacted directly via the platforms and the Internet, which they use daily for work. After another two weeks, the online research was completed. The

following chapters provide the reader with a description of the methodology and detailed results.

## 6 Methodology

*“Whatever the human mind can imagine and believe can be achieved. ”*

Napoleon Hill

(American author 1883 – 1970)

As it was already stated, this was quantitative research. There were two phases of online questionnaires. In May 2021, the questionnaires were distributed among schools and teachers that accepted participation in the research.

The first questionnaire contained seven closed questions, six open questions, and three multiple-choice questions oriented to the CLIL approach and teacher's attitudes and experience. The second questionnaire was created to determine the strengths and weaknesses of CLIL lesson plan number 1, which included teacher's notes and a worksheet with a key. The reader may find both questionnaires and CLIL lesson plans in the Appendices of this thesis.

### 6.1 The first phase

The first phase of the research was devoted to data collection in cities and municipalities of the Olomouc region. The lower secondary schools, with exception of language and special schools, have been asked for cooperation by e-mail communication. After receiving a positive response from the headmasters, the questionnaire with instructions for completion was sent.

The research included respondents of the following criteria:

- English language teachers currently teaching English or having experience with teaching English at lower secondary school
- Biology, or science teachers with English language knowledge B1 and above
- Teachers of two foreign languages, at least one of which is English
- Teachers who may or may not have experience with CLIL.

Among the main objectives of this phase belonged:

- Goal 1: To provide overall data of the CLIL implementation at lower secondary schools in the Olomouc region. This goal was achieved by answering questions 4 and 5 in the first questionnaire. In question number 4, I examined whether the respondents use the CLIL approach in teaching. Respondents had a choice of three options. The first option - we use CLIL - was to record schools that actively run CLIL in any form and subject. Then they could mark the corresponding option - Yes, but we no longer use it. In this case, it was found not only how many lower secondary schools or teachers have experience with CLIL teaching, but also the reasons that led to the decision to exclude the CLIL methodology from practice. The last option was a negative answer to the question. This option was chosen by all teachers who had no practical experience with CLIL. In question 5, respondents were asked about factors that influenced the choice of the methodology of respondents. Influences that respondents themselves cannot control were included among the options. Such factors include, for example, legislation. Factors that respondents can only partially influence were represented, for instance, by the possibility – the decision of the school principal. Last but not least, respondents had the opportunity to comment on options that are influenced by the respondent. Three options were included in such factors: the respondent's own experience with CLIL methodology, the respondent's willingness to join the team, cooperation with a colleague, and voluntary or compulsory participation in educational events.
- Goal 2: To record attitudes and experiences respondents have with the CLIL approach. Six questions were asked to meet the second objective. First, respondents described their experience with the CLIL approach. These included not only the pupils' reactions to the change in teaching but also the time aspect. Furthermore, respondents pointed to the link between CLIL and cooperation in the workplace. This question could be supplemented by comments that would further specify the respondents' answers. In the seventh question, respondents commented on the impact of CLIL on the pupil's study results. Respondents selected only one most appropriate answer from the offer of five tiered options.

In the following question, respondents commented on the influence of CLIL on the motivation of pupils to study. In the ninth question of the first questionnaire, respondents were offered to choose more possible answers. Teachers chose from a menu of four options related to the problem of preparation for teaching. It was here to find out what resources the respondents use, as well as the state of the school's equipment in the field of book and electronic resources. An integral part was the determination of the time required for the preparation of the CLIL lessons. In the last eleventh question, respondents again selected all relevant answers related to the reasons for not integrating CLIL in teaching. The question included options regarding the length of the respondents' practice, the level of experience of respondents with CLIL, the influence of education, the attractiveness of the new approach, factors related to the length and difficulty of preparing for individual lessons, the willingness to participate in cooperation with a colleague, the influence of individual educational plans and the integration of pupils, the employer's attitude towards new learning trends and, last but not least, the abundance of textbooks and other products. Once again, respondents had the opportunity to comment on their answers. The answers to questions 6 – 11 led to the collection of interesting data showed below.

Furthermore, the questionnaire contained general questions. The location of the respondent's job, length of practice, subject of study, and familiarity of the respondent with CLIL were investigated.

### **6.1.1 The phase 1 results**

The first phase of the research was attended by 18 respondents from towns and municipalities in the Olomouc region. A larger representation, 13 teachers, which is 72 per cent, were lower secondary school teachers located in cities.

Of the total number of 18 respondents, 15 (83%) respondents teach a foreign language. The group consisted of nine English teachers, four teachers teaching two foreign languages, and two teachers of a foreign language in combination with a non-language subject. Only three respondents answered that they do not teach foreign languages, but general education subjects.



The quality of education and the inclusion of new trends in teaching can be influenced by several factors. The relationship between the location of the school and the length of practice is shown in Table 1.

Teacher experience in years	Number of respondents		
	Number of respondents	Working at a lower secondary school in the city	Working at a lower secondary school in the village
Less than 2 years	5 = 28 %	3	2
2 - 5 years	2 = 11 %	2	0
6 - 10 years	2 = 11 %	2	0
More than 10 years	9 = 50 %	6	3

(Table 1: Link between school localization and teachers' practice length)

This research addressed the issue of the degree of inclusion of the CLIL in lower secondary school teaching. Among the factors that can influence the implementation of a new teaching approach in practice can be easily included the experience of the teacher in his field. From the previous table, the reader can read that 61% of respondents can be considered as experienced workers if the criterion is the length of practice higher than five years. Teachers with a longer period of practice and thus a higher probability that they have encountered a variety of teaching methodologies during their working life leads to wondering whether the length of practice has an impact on the experience of these respondents in implementing CLIL in teaching.

Another possible factor is the location of the school in the city. Assume that the city offers better work and financial rewards to teachers. This can affect job seekers in the field, with more experienced, flexible teachers preferring to work in cities. There are more primary schools in cities, which can lead to competition between schools. One of the ways to attract as many students as possible is to offer quality teaching led by educated and experienced teachers, a modern methodology with many aids and equipment that other schools do not offer. Universities are more often built in large cities. These have an impact not only on higher education but to some extent certainly

affect secondary school curricula. School curricula for secondary education not only correspond to the framework curricula but must also prepare pupils for the admission procedure to higher education. As a result, it may mean that their content and forms of teaching may differ from secondary schools in villages, where there may not be enough experienced teachers and quality aids. In other words, the implementation of the CLIL approach can be influenced by various factors, such as the length of the teacher's practice, the competition in education, and also the geographical location of the school.

CLIL is a relatively new concept. It is probable that 39% of respondents, teachers beginners, or teachers with a shorter period of practice, became acquainted with this concept during their studies. If these teachers studied up to the age of 26 years and have a maximum experience of 5 years, they must now be around 31 years old. In contrast, the age of respondents, which we consider to be experienced teachers due to the length of practice of six years or more, which is equal to 61%, would now reach a maximum age of around forty years, if they started their profession immediately after graduation. The term CLIL has been known for the last twenty-seven years. In 1994, David March began using the acronym CLIL (Mehisto, March, Frigol, 2008). Thus, even more, experienced teachers had the opportunity to become acquainted with CLIL during their studies, as the CLIL approach was already known for thirteen years. The results of a questionnaire survey correspond to these logical calculations, in which 83% of respondents mentioned that they were not unfamiliar with this term. Respondents in 39% of cases stated that they became acquainted with the term CLIL and its characteristics during their studies at university. In the second place, in 17% of cases, the respondents mentioned in-service training. Experience in the field, optional seminars, professional literature, the Internet, and friends were among the least represented answers. University education, therefore, has a massive influence on the awareness of modern techniques and approaches in teaching.

Interestingly, only four (22%) teachers have or have had experience with CLIL. Among the subjects taught partly in the form of the CLIL, the respondents mentioned geography, family education, history, biology, and the English language. Unfortunately, this study did not further address the topics of the subjects, so it is not clear to what extent CLIL was implemented, whether in the form of soft CLIL or hard CLIL or how often. This finding seems to be a negative result in comparison with the research of Mrs.

Chodilová from 2016, who found in her work that 94% of first-grade pupils of an unnamed primary school in Olomouc are taught using the soft CLIL method in several subjects (Chodilová, 2016).

50% of respondents who tried the CLIL method in their lessons no longer use it. Among the reasons for abandoning teaching through CLIL, the respondents stated the following: CLIL is in the preparation phase, we do not have enough qualified teachers, we do not have time, I am currently on maternity leave. There is the only positive conclusion. At least one lower secondary school plans to continue with CLIL in the future. However, the surprising answer was the lack of quality language teachers. I explain the lack of time to introduce CLIL into teaching by the current workload of schools with online teaching.

The participation of respondents in webinars, seminars, training, and similar educational events had the greatest influence (95%) on the introduction of CLIL. Only in one case, the respondent's own experience with CLIL teaching had a positive effect on the change in teaching methodology. On the contrary, none of the respondents indicated the following options: the order of the school principal, legislation, the influence of a colleague using the CLIL method. Neither school principals nor legislation seems to be among the strong factors influencing school teaching methodology. Interestingly, in the previous question, only a negligible percentage (5%) of respondents stated that they encountered the CLIL term in seminars and that this minimum exposure had such a major impact on the introduction of CLIL into teaching. Thus, it seems that the influence of universities is not a key factor in contrast to participation in training and external educational seminars. However, it is not clear whether the respondents themselves deal with pedagogical topics in their free time or were encouraged by the need for lifelong learning on the part of the employer. It would be worth mentioning here that a more detailed study in the given area and a comparison of both variants of education could bring interesting results in the field of influence on the methodology of teaching in secondary schools.

Table 2 clearly shows the relationship between the location of the school, the length of teachers' practice, and the subject taught through CLIL.

Duration of practice	Using CLIL in teaching	Used CLIL in teaching	School location	Subject taught by CLIL
Less than 2 years	1	1	City, village	English, Geography, family upbringing
2 - 5 years	0	0	-	-
6 – 10 years	0	1	City	History, family upbringing
More than 10 years	1	0	City	English, Biology, Geography

(Table 2: CLIL in lower secondary school and subject taught by CLIL in context)

An integral part of this study was the effect of CLIL on the pupil's performance and the recording of reactions to changes in foreign language teaching or general education. In the case of CLIL teaching, respondents stated the following: 50% of respondents received positive reactions, in 25% there was a positive reaction one month after the implementation of CLIL teaching and 25% of respondents stated that the reaction and interest in change were diverse. In this case, the respondents commented on the answer with the words: "CLIL is only suitable for diversifying teaching."

The CLIL approach, which has a positive effect on the motivation of pupils (Thomas, Collier, 2003a), improves communication skills in a foreign language and allows increased exposure to foreign language within a limited number of teaching hours. The combination of a foreign language and non-linguistic subjects might lead to improvement in English language acquisition. This statement is supported by the fact that 40% of respondents stated that after the introduction of CLIL, the learning outcomes of pupils studying CLIL have improved. 40% of respondents admitted that pupils had a deterioration only in the non-linguistic subject and the remaining 20% responded that CLIL did not affect pupils' knowledge and skills, so there was no improvement or deterioration in pupils' learning outcomes. If CLIL is to have a positive effect on the acquisition of a foreign language, then the text shows that at least 80% of the respondents registered an improvement in language knowledge and skills through CLIL teaching. This may be related to the statement of respondents who 100% agreed

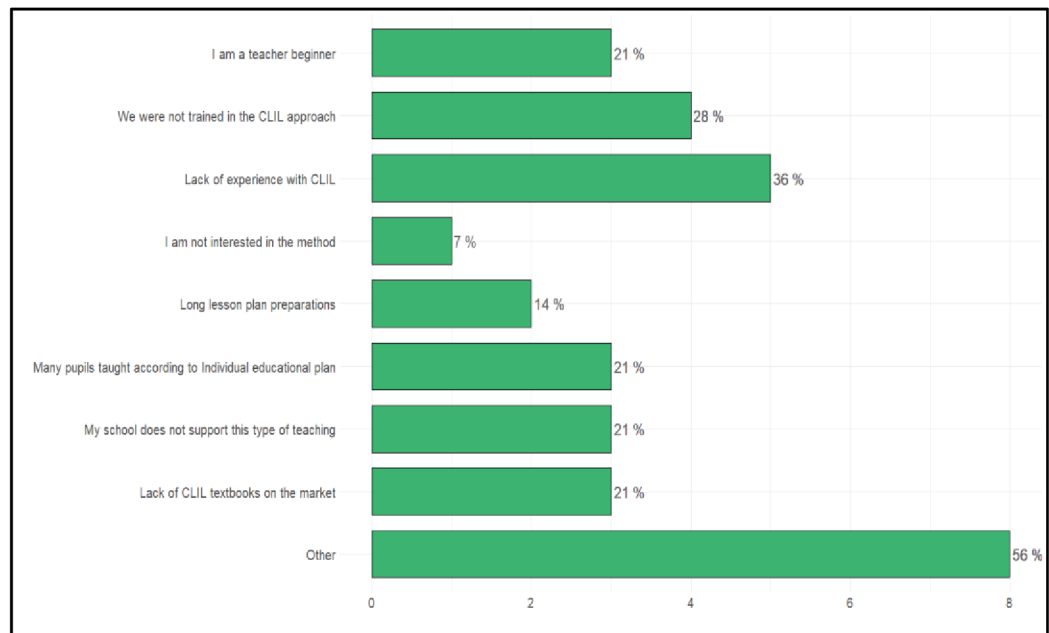
that CLIL has a strong influence on pupils' motivation to study a foreign language. This finding is therefore consistent with the results of study Y S Rahayu (2018) who also noted a positive effect of CLIL on students' motivation to study. In his study, Esteban (2015) directly writes:

[...“The application of a thematic-based CLIL approach in infant education can be considered effective and necessary to facilitate not only teaching another language and curricular contents but also cognitive development, real communication, and cultural awareness. ” ...“Soft CLIL can be considered a useful resource to develop not only contents and foreign language but also culture awareness.”]

Although Esteban talks about younger students, I think the conclusions from this study can be applied to secondary school students, too.

The same number of respondents (100%) agree that the preparation of teaching using CLIL is very time-consuming. All CLIL teachers would welcome textbooks, worksheets, and lesson plans, as they have to work hard to prepare these materials themselves, using electronic resources. Only one respondent has a textbook provided by the employer.

78% of respondents out of the total number of respondents to questionnaire number one acknowledged that they do not use CLIL (See Figure 2). Respondents had the opportunity to mark more than one answer. The main reason, in 36% of cases, was the lack of experience in teaching CLIL. The second most common justification (28%) for the negative answer is that respondents were not offered training in the CLIL approach. With 21%, the following answers were: I am a teacher beginner, the school does not support the mentioned methodology, the lack of textbooks, and the high number of pupils studying according to individual educational plans. Only 7% of cases were not interested in the CLIL method. The contrast is 95% of respondents applying CLIL, who have mastered this methodology in training and seminars. There must therefore be a big difference in the approach of individual teachers and their employers to lifelong learning. See Figure 2 for details.



(Figure 2: Reasons for not including CLIL in teaching)

Respondents were offered to express in words the decision between CLIL and traditional teaching methods. The comments of the respondents showed that there is a lack of quality, experienced, and linguistically equipped teachers in the Olomouc region. For instance, one respondent wrote: “I’m the only English language teacher at our school. We do not even have teachers for quality English language teaching, and I know that the situation is the same at other schools. So it is not possible to implement CLIL in our school, although I would like to use it. ” Furthermore, the implementation of CLIL is influenced by the approach of some parents and the level of pupils' language skills. Last year and this year, teaching was affected by a global pandemic that affected the entire school system, according to another respondent: “During this year's distance learning, there was no room to introduce young colleagues to CLIL and older colleagues do not have sufficient knowledge of a foreign language. ” However, this answer contradicts the respondents' statement that 39% of them learned the basics of CLIL while studying at university. Then it would not be necessary to acquaint new, young colleagues with CLIL, as it is assumed that university studies have already prepared them for this way of teaching.

### **6.1.2 Summary of Phase 1**

The first phase of the research was focused on the use of CLIL in lower secondary schools in the Olomouc region. A questionnaire survey conducted during the pandemic highlighted the fact that many teachers do not have the strength and motivation to participate in the research. Despite a small sample of respondents, it is thought that the research presented interesting results. Factors influencing the implementation of CLIL include, in particular, participation in training seminars. University studies have a considerable share. The lack of involvement of employers, which would support and motivate their employees in lifelong learning, can be considered a negative. The positive effect of CLIL on the pupils' knowledge and motivation to study was also demonstrated. The comments of the respondents, who described the state of Czech education in the region in their own words, are considered to be very stimulating, and thus enabled the readers of this study to look behind the scenes of the teaching profession.

### **6.2 The second phase**

This phase of research builds on phase 1 and aims to meet objectives 3 and 4 of this research:

- Goal 3: To produce CLIL teaching materials based on the textbook Biology 8. To achieve this goal, it was necessary to study in detail publications devoted to didactic processing of teaching texts and to link this information to the CLIL approach.
- Goal 4: To obtain feedback on created teaching materials from lower secondary school respondents. Respondents were included according to the criteria of the first phase of the research. According to the requirements of the research, each of the corresponding ones first became acquainted with teaching plan number 1 and subsequently answered the questions of the second questionnaire. First, it was necessary to determine whether the respondents answering the questions in the second phase had or have had experience with CLIL. This question was used to assess and sort the responses of respondents familiar and inexperienced with CLIL teaching. The research focused on comparing the data obtained precisely based on the experience of the

respondents, in order to eliminate the factor of ignorance of the issue and assess its impact on the evaluation of the teaching plan. In the following question, the research was focused on the lesson plan assessment. Respondents had the option to indicate yes or no in nine areas: clarity, comprehensiveness, plainness, brevity, applicability in practice, assessment and comparison with the requirements of the framework educational programme, difficulty, logical arrangement, and suitability for pupils of the lower secondary school. Respondents' responses were timed in two ways. First, the responses of the overall sample of the corresponding ones were evaluated, then the responses of the two groups of teachers were compared. The questionnaire survey also determined the opinions of time management. It was necessary to record the responses of experienced teachers who are more likely to assess this area.

In the fourth point, respondents commented on the vocabulary categories. From four answers, teachers selected the ones that best met the difficulty, quantity of words and compared selected dates with legislative documents. Respondents were offered the opportunity to comment and further specify their answers.

The fifth question was asked to map the subjective assessment of respondents' ability to use the plan in their practice, and the following question then set the possibility to comment on negative answers.

In order to meet the fourth goal, respondents had to be asked to express their opinion on exercises in worksheet 1. This point of the questionnaire survey had to be included in order to assess the difficulty of processing in relation to the subject of the class. Respondents had the opportunity to choose multiple answers and then comment on them. Another question followed the previous one and focused on evaluating the wording of the assignment. This point was a way to evaluate the success of the elaboration. Last but not least, respondents commented on the overall worksheet processing, its design, and distribution.

Three lesson plans focused on human biology were created from January to March 2021. The default textbook for drawing up plans was the textbook Biology 8 by Fraus publishing house, especially chapters on the construction and functions of the human body, pages 52 – 109.



In order to create quality plans corresponding to the curriculum and the abilities of pupils, it was inevitable to revise the vocabulary and reduce it so that pupils would not be overloaded with unnecessary professional terms. On the other hand, it was necessary to choose such words that pupils could encounter in real life. This decision was made based on my own experience in the practice of a nurse in the Czech Republic and abroad. That is why my attention was focused on the names of the basic organs of the human body and its parts, as well as on the verbs and prepositions that pupils would necessarily need when communicating.

The creation of the worksheet, its design, types of exercises, and instruction was inspired by the book by Liz Dale and Rosie Tanner – *CLIL activities – A resource book for subject and language learners*, Cambridge University Press, UK, 2012. Attention was paid not only to the time subsidy, language, and professional terms but also to the spread of the worksheet, the continuity of tasks to previously obtained information, and interdisciplinary links. Each worksheet is accompanied by an exercise key and a power-point presentation to help the teacher to complete the lesson easily and successfully.

The CLIL plan contains basic information – educational content, class, language level of pupils, developed competencies, formulated goals, vocabulary, organizational instructions, enumeration of equipment, and detailed instructions in The Czech language. The emphasis is on the functionality of the plan. The chosen Czech language is intended to help novice teachers to better master teaching and facilitate orientation in the class. Furthermore, it is an advantage that the plan can be used by biology teachers whose language skills compared to foreign language teachers do not reach the same level. Bilingualism of the plan – teacher notes in Czech, worksheet, and presentation in English – also helps to use so-called tandem teaching (team teaching), where teaching is conducted simultaneously by both teachers.

The questionnaire and lesson plan number 1 were sent to all respondents of phase 1. Teacher's experiences, attitudes, opinions were recorded. All respondents had the opportunity to comment on their answers, justify and outline the strengths and weaknesses of the CLIL plan. The data in the following chapter present the respondents' opinions and comments on the created plan.

### **6.2.1 The phase 2 results**

The second phase of the questionnaire survey was attended by 14 respondents from lower secondary schools of the Olomouc region. The basic criteria for selecting respondents included knowledge of the English language at the level at least B1 of the European Framework of Reference for Languages. Respondents could teach foreign languages as well as general education subjects and did not have to have experience with the CLIL approach. Also, the length of practice did not play a crucial role. The aim was to evaluate and record comments on the curriculum created. According to the instructions sent, each respondent should read the plan and reflect on its positives, negatives, difficulty, clarity, content, and applicability in practice.

The CLIL plan was prepared bilingual, containing not only introductory information for teachers but also formulated objectives of language and content. Subsequently, the basic vocabulary, an extract of inter-pre-target relationships, and forms of teaching were presented. Another part was a detailed, step-by-step lesson plan, including a time subsidy that should easily and effectively guide teachers through the course of classes. The plan included a worksheet with a key. The power-point presentation for visualization of the class was also part of the attached document sent to respondents. The questionnaire survey initially focused on the evaluation of the hour plan.

The questionnaire survey showed that there were 6 (43 %) respondents encountered in practice with CLIL. In this case, there were two more teachers among the respondents than in the first stage, in which only four (22%) teachers have or have had experience with CLIL. Unfortunately, the majority (57%) of respondents had no experience with CLIL.

Data analysis has brought the following results: 100% of respondents agree on clarity, logical arrangement, and plainness. A surprising result was found that 86% of the responders identified that they were in line with the framework education programme, while 64% also agreed that the plan was suitable for teaching. For 43% of respondents, the plan is too comprehensive, too difficult, and 50% concise. In this respect, I think that the respondents either did not understand the evaluation plan or did

not pay enough attention to the question, as the data contradict each other in this respect. See Table 3 for detailed information.

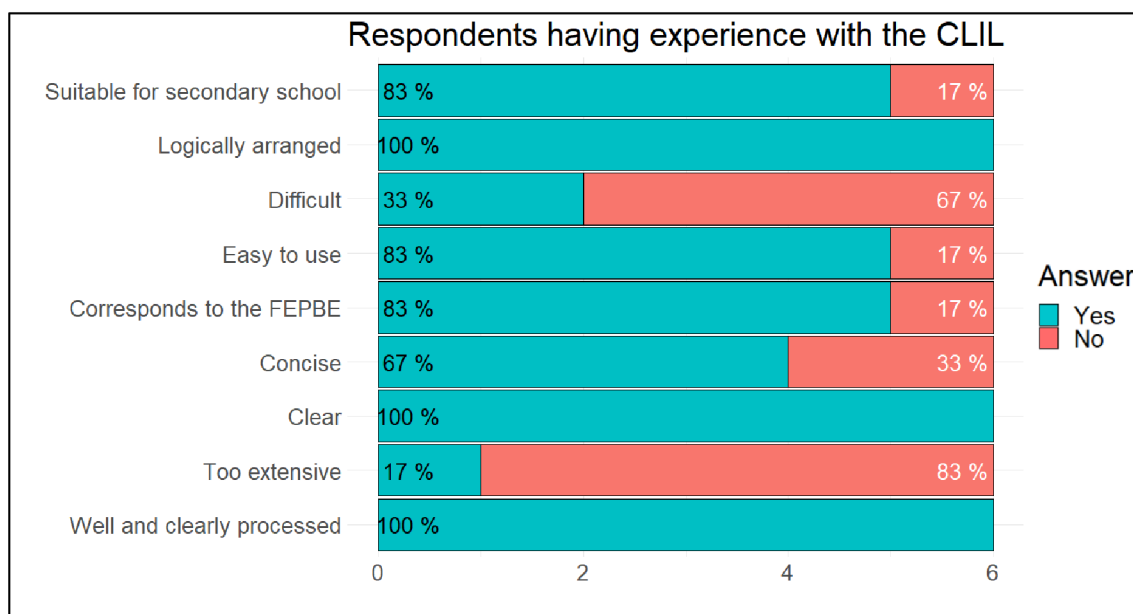
The CLIL plan evaluation	YES	NO
Well and clearly processed	14 (100%)	0
Too extensive	6 (43%)	7 (57%)
Clear	14 (100%)	0
Concise	7 (50%)	7 (50%)
Corresponding to the Framework Educational Programme for Basic Education (2017)	12 (86%)	2 (14%)
Easy to use	9 (64%)	5 (36%)
Difficult	6 (43%)	8 (57%)
Logically arranged	14 (100%)	0

(Table 3: Evaluation of the CLIL plan)

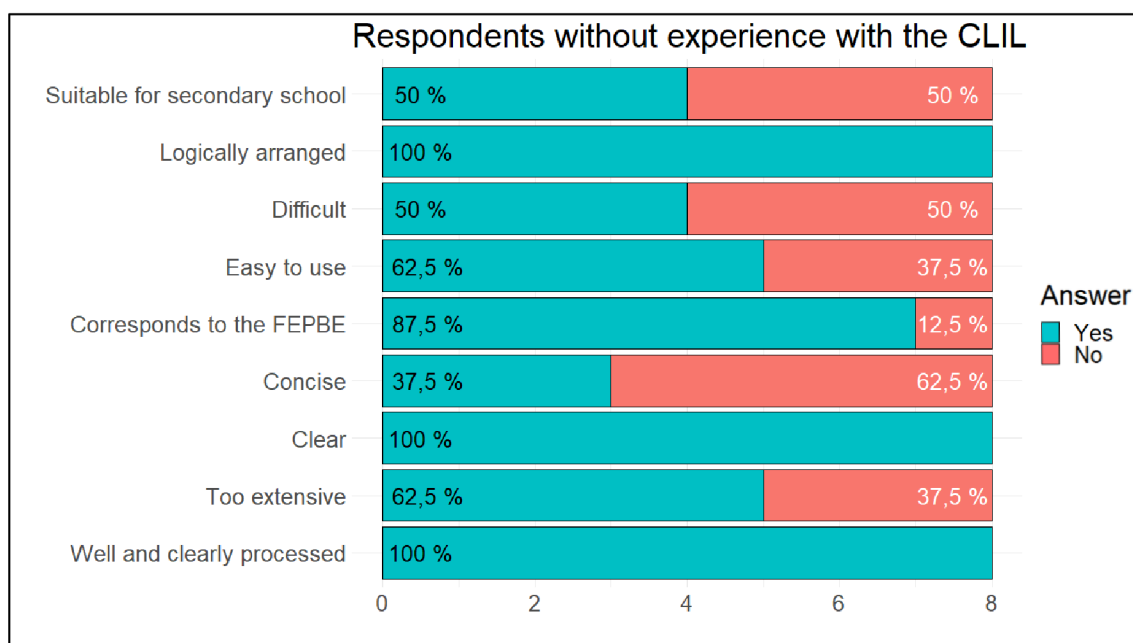
Based on the data obtained, it was decided to compare the answers of teachers experienced in the field of CLIL and teachers who did not run CLIL in practice or have not yet encountered the approach. Both groups of respondents agreed on the clarity of processing, plainness, and logical arrangement in 100%. Both groups consider the plan to be clear, well-crafted, and logically arranged. While inexperienced teachers consider the plan too comprehensive at 62.5%, more experienced teachers have identified this claim in only 17%. Another striking difference is the assessment of the brevity of the plan by both groups. 62.5% of respondents who do not have experience with CLIL in practice do not consider the plan to be brief, while CLIL teachers in 67% state the opposite. An important result is the majority opinion of both groups in the area of the framework educational programme. In more than 80%, both groups of respondents identified the plan as corresponding to the 20017 Framework Educational Programme

for Basic Education. 50% of respondents with no practical experience with CLIL identified the plan as difficult. Similarly, 50% replied that they did not find the plan difficult. This points to the fact that there is disagreement among teachers in this area and suggests that at least half of respondents might have trouble using the plan in practice, although it is written in their native language. 67% of experienced respondents would have no problem using the plan. More experienced teachers also point to the suitability of including CLIL in teaching in 83% of cases. These respondents agreed that pupils in the lower secondary school would be able to complete lessons according to the proposed plan. On the contrary, only 50% of respondents from the CLIL inexperienced group identified this response. With 83% more experienced teachers believing that the plan as proposed would be easy to follow. However, non-CLIL non-practice respondents identified this possibility in only 62.5%. I consider this result to be positive, as according to the conclusions of the survey, at least half of respondents would therefore regard the proposed plan to be applicable in practice. Overall, therefore, the curriculum can be considered as detailed, positively evaluated, applicable in teaching by both experienced and inexperienced teachers. The data collected also indicated that it would be appropriate to adjust the content of the plan. One option would be to divide topics – cell, bone, and skeleton structure, muscle system, and skin construction – into individual plans. However, this would mean more CLIL hours within the schedule, which was my original intention. As regards the content of the information, respondents in the CLIL experienced group expressed in 67 % that it would be appropriate to extend the content of the information. Inexperienced respondents, on the other hand, would summarize the content more. This finding corresponds to the level of experience of respondents with the form of teaching conducted using the CLIL approach. In case of content expansion, it would be necessary to revise the vocabulary and propose more practical exercises within individual teaching lessons. The following figures 3 and 4 show the comparison of the responses of the two groups of respondents on the next page.

An integral part of the research was the evaluation of the time required for the plan. As the plan is designed to revise four topics covered during the school year, it was necessary to plan to teach for 2 consecutive lessons.



(Figure 3: CLIL plan evaluation by experienced respondents, FEPBE = Framework education programm for basic education)



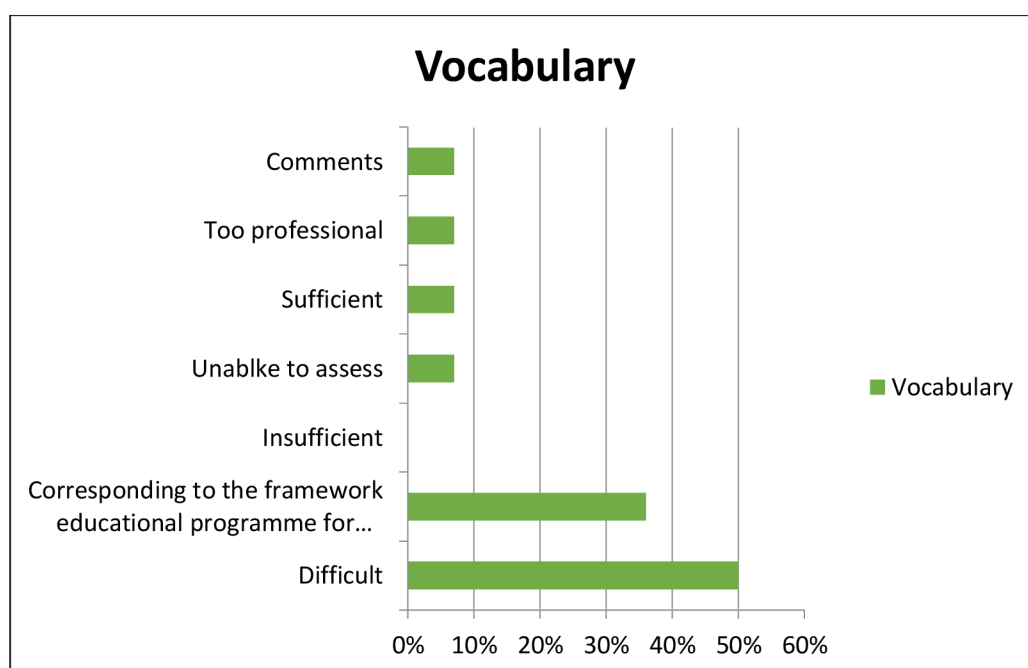
(Figure 4: CLIL plan evaluation by respondents without experience, FEPBE = Framework education programm for basic education)

Respondents thus had the opportunity to assess whether it is possible to implement the plan as proposed in the time allowance, or whether it would be necessary to change, delete or modify some exercises and content. 14 teachers answered this

question. 50% of respondents were unable to assess the time required for the plan. 14% of those surveyed consider the time subsidy to be improperly chosen. 36% of respondents rated it as appropriate. Of the respondents who assessed the time required for the plan, 71% answered in the affirmative. From this, I conclude that the plan would be applicable within two consecutive teaching hours.

Each specialized subject uses terminology that students may not know (Coyle, Hood, March, 2010). The same is the case with biology. Some terms and phrases can be easily remembered, others are similar in the written or phonological form in different languages. Other words can be completely foreign to pupils. When preparing a CLIL approach, it is necessary to assess which concepts to include in the teaching and which to omit. In the case of CLIL teaching, pupils improve their written and spoken language very quickly after initial difficulties in learning vocabulary. Clair, 1993, shares this view. This is why the research contained 2 questions related to vocabulary. Respondents were asked to comment on the selected vocabulary used in the evaluation of the plan. It contained nouns, verbs, prepositions, and phrases, among which were the following: cell, tissue, bone, muscle, epithel, nerve, organelles, lysosome, nucleus, ribosome, cytoplasm, mitochondria, skeleton, limb, trunk, skull, ossification, heart, intestines, mucosa, joint, brain, spinal cord, account for, mass, is composed, is located, is made of, contribute to. In the questionnaire survey, 14 teachers commented on the issue by identifying multiple options. 50% of teachers find vocabulary too difficult. 36% of respondents characterized it as corresponding to the framework educational programme for basic education. Neither of the respondents indicated an answer – insufficient. Furthermore, respondents commented on their responses. One teacher replied that he was unable to assess the vocabulary. He justified his answer by teaching another subject. Some respondents think that vocabulary is too difficult for the lower secondary school pupils even in their native language. 7% of respondents consider it too professional and sufficient. The results of the research showed worrying results in the field of vocabulary selection, which was chosen on the basis of Biology 8. Terms, which were printed in bold in the textbook, were chosen for the lesson plan and worksheet. For example, words: lysosome, ribosome, mitochondria, epithel, and nerve are among the words we write in the Czech language in the same way or with minimal deviations. Next, the words: bone, muscle, skeleton, limb, trunk, skull, heart, joint,

brain, belong to a group of basic words describing the whole organ or part of the human body and not just parts of the organs. That is why it is thought that pupils should be able to master the knowledge of selected concepts. Adopting verbs with prepositions can lead to possible problems. However, these were selected with regard to the exercises and the ability of pupils to simply describe the construction and functions of the selected organs. For detail, see Figure 5.



(Figure 5: Vocabulary assessment)

Each lesson plan is designed so that it can be used in practice. In the case of the CLIL methodology, the implementation of the new approach to teaching is influenced by learners' subject knowledge, the frequency, and duration of pupils' exposure to foreign language, by the level of cognitive skills and literacy, teachers language knowledge, and flexibility to adapt content to learners' needs, by the access to resources, working time management and the syllabus (Ball, Kelly, Clegg, 2015). Pupils' knowledge and skills of a non-language subject can be influenced by quality teaching led by an experienced teacher. The frequency and duration of pupils' exposure to a foreign language can be solved by connecting the content and a foreign language using the CLIL method. Pupils' cognitive skills and literacy can be developed by choosing exercises and texts used in teaching. It is not within the power of the CLIL to influence the level of teacher knowledge, however, it is up to each respondent to devote

himself to lifelong learning and upskilling. Access to resources that would make it easier for respondents to work is a negligible problem today, as many publications are shared online (Habdasová, 2017). If necessary, teachers can also contact Macmillan Publishing House, which publishes textbooks suitable for teaching several subjects in the form of CLIL. Time management is related to teaching experience and length of practice. Available ready-made materials and tandem teaching or increased cooperation between teachers in preparing for CLIL lessons would contribute to a possible solution. In 86% of respondents to the research, positive answers were recorded to the question of the ability to use the attached plan in practice. Only 14% of respondents would not use the plan for the following reasons: one of the respondents is a teacher of another subject, and therefore has no application for teaching biology or a foreign language, and the second respondent admitted a low level of knowledge in the field of foreign languages.

Based on the studied literature dealing with the issue of teaching CLIL, several types of tasks were created in the worksheet. These include, for example, image description, naming, formulation of simple answers to questions, sorting words by criteria, listing and then assigning categories to images, word over-the-top, working with text, searching for answers in available sources, numerical tasks related to human biology, demonstration, justification, comparison, and graphical representation. Three forms of teaching were represented in the plan – work in pairs, independent work, and group work. Respondents were asked to assess the difficulty, time, suitability, creativity, and connection with the requirements of the framework education program. From the options provided, respondents were allowed to choose more appropriate answers and comment further. The analysis of the data of question number seven shows that 29% of respondents consider the tasks to be difficult, time-consuming, and even appropriately chosen. 57% of respondents said that the tasks as set corresponded to the abilities of the pupils. On the contrary, one of the respondents commented on creativity as follows: “the tasks are creative, excellent, suitably chosen for the topic, you can work with them.” A positive finding is that 100% of respondents consider the wording of task assignments to be clearly formulated. This result is important mainly because the wording of questions and assignments has a strong influence on the pupil's ability to participate in teaching, affecting his/her level of motivation to learn and cooperate.



Another factor is the layout of the worksheet. These conclusions are supported by studies by Reid (1984) and O'Learyz (2011). 100% of respondents answered that the layout of the worksheet is well crafted and therefore allows easy use in teaching.

Worksheet tasks are:	Teachers with experience in CLIL teaching – a total of 6	Teachers inexperienced in CLIL teaching – a total of 8
Difficult	0	4 (50%)
Easy	0	0
Time-consuming	2 (33%)	2 (25%)
Appropriate to the abilities of pupils	5 (83%)	3 (37,5%)
Suitably chosen	3 (50%)	1 (12,5%)
Not creative enough	0	0
Other replies and comments	0	2 (25%)

(Table 4: Tasks evaluation)

Table 4 shows the percentage of responses that characterize worksheet tasks. A comparison of the responses of groups of respondents with experience in CLIL teaching and inexperienced teachers provides an interesting insight into the differences in assessment, in which experience plays an important role. While the experience of teachers with CLIL teaching influenced 83% of respondents who identified the answer – it corresponds to the abilities of pupils, then in 37.5% of cases, education and practice in the CLIL environment must influence the responses of respondents inexperienced in the CLIL approach. Inexperience also affects difficulty ratings. In this case, 50% of teachers decided to mark the exercise as difficult. In contrast, CLIL teachers did not indicate this possibility at all. On the contrary, 50% of respondents from the CLIL

practice group said that the tasks were appropriately chosen. A third of experienced respondents consider tasks to be time-consuming. Inexperienced teachers identified this option in 25%. Only respondents with no experience with CLIL used the space for comments.

### **6.2.2 Summary of Phase 2**

The second phase of the research guided the reader through two main goals, namely the creation of materials for teaching biology at the lower secondary schools using the CLIL approach and the subsequent evaluation of their quality. The results provided interesting information in the area of the relationship between teachers' experience and the new methodology and evaluation of teaching materials. Not only has it been shown that inexperienced CLIL respondents rated teaching materials rather negatively, but also underestimated the abilities of pupils. On the contrary, experienced teachers rated both the worksheets and the plan positively. The highly valued comments of the respondents provided an interesting perspective on the issue of introducing new trends in teaching.

## 7 Conclusion

*“Education is the most powerful weapon that can change the world.”*

Nelson Mandela

(former President of South Africa and anti-apartheid fighter 1918 –2013)

The purpose of this study was first to outline the interest in the CLIL teaching approach, its influence on pupils' performance, and the availability of CLIL teaching materials. The second goal was to create teaching materials for pupils of the Czech lower secondary schools and assess their applicability and quality.

The theoretical part of the thesis first dealt with the historical development of teaching methods, the influence of philosophical and psychological ideas on the application of new approaches to the school environment, and last but not least, geographical and legislative factors. The CLIL approach has been defined from the perspective of several experts. Its four components have been described and explained, namely content, communication, cognition, and culture. Furthermore, attention was focused on the interconnection of all four components in the planning of teaching and decision-making between the application of soft and hard versions of CLIL. The reader got acquainted with the need to formulate two goals: content and language, with help of taxonomies. An integral part of the practical part was a discussion of the abilities and skills of CLIL teachers and opportunities for further education in the field. The theoretical part also dealt with the difference between bilingual, multilingual, and CLIL teaching, as these terms are often confused. Last but not least, space was devoted to teaching materials. Differences between types of worksheets, their properties, availability, and use were outlined. The positives and negatives of the worksheet were emphasized. In connection with the area of preparation of teaching materials, the specifics of planning teaching and control of achieving goals in the form of assessment and testing were discussed from the point of view of the CLIL approach.

The practical part was divided into two phases. First, it was necessary to find the answer to the question: “What factors influence the decision to implement CLIL at

lower secondary schools in Olomouc district?” The aim was to record influences that had a significant contribution to the implementation of the CLIL approach in Czech lower secondary schools. The questionnaire survey conducted in the school year 2020/2021 analyzed the results, which indicate a possible connection of factors: length of practice, location of school facilities, age of respondents, subject taught, and current pandemic situations that negatively affected the decision-making process of respondents. The major influence on the implementation of non-traditional forms of teaching was recorded in the field of teacher education conducted through seminars. The main reasons for rejecting CLIL in schools included a lack of experience and an inadequate training offer for staff. Subsequently, the research continued in search of answers to these questions: “What experience do teachers have with CLIL implementation in the Czech educational environment?” and “To what extent do CLIL lessons influence pupils' performance from the teachers' point of view?” The research examined whether the employer influences the implementation of CLIL in schools, for example by supporting employees' lifelong learning, whether CLIL is included in school documents, and to what extent its implementation is required by the school management. Attention was paid to determining the impact of multidisciplinary team cooperation and easy access to methodological resources. In connection with the second part of the research, the attitudes of the respondents to the creation of the CLIL lesson plans and the implementation of modern procedures in the teacher's practice were also recorded. The study produced worrying results in the field of the quality of teacher education. The problem with introducing new trends has been shown to be linked to a shortage of educated teachers. Only 22% of the first phase respondents reported active experience with CLIL. The data analysis confirmed the positive effect of CLIL on the pupil's performance and motivation to study. Contrary to this finding, the results of the study point to a lack of flexible, language-educated respondents who would be able and willing to devote a considerable amount of time to preparing the CLIL plans. Among other factors, it is necessary to mention the problems in the area of parents' attitude to the quality and form of teaching and the integration of pupils with special educational needs.

In the second phase of the research, a CLIL lesson plan and a worksheet were created for 8th grade of lower secondary school students. The aim was to provide the

created materials to the respondents and thus obtain a professional evaluation. The questionnaire survey included points related to quality, creativity, difficulty, usability, time-management, logical arrangement, clarity, connection with school legislation, and pupils' abilities. The research showed a different view of respondents inexperienced in the CLIL approach and respondents applying CLIL in teaching. The vast majority of respondents applying CLIL responded rather positively, calling the plan easy to use in practice and line with school legislation. But the responses of inexperienced teachers expressed doubts and concerns. Respondents also assessed the choice of tasks, their assignment, language, worksheet organization, choice of vocabulary, and time requirements. The data collected also indicated that it would be appropriate to adjust the content of the plan and revise vocabulary as both groups of respondents agreed that this might be the source of complication. Given the low number of respondents who participated in the study, it would be appropriate to repeat the research or adapt it to the original plan.

To conclude, this research proved the lack of teachers able to practice CLIL. Complications were also found in recruiting research volunteers, mainly due to work overload. Favorable results include data from at least one school preparing CLIL teaching in the future, as well as the positive effects of linking language and vocational subjects. The results were further influenced by the experience of the author, who based the teaching materials on practice in a different field and the same materials prepared in collaboration with the teacher would probably be different in the area of a lesson plan and vocabulary choices. Based on the results, I consider the set goals to be met and the research questions to be answered. However, it would be appropriate to carry out more detailed and long-term research in the field of CLIL teaching in individual schools using the developed plans and to assess the impact of the methodology on individual pupils.

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## Appendices

### Appendix 1: Lesson plan 1 + worksheet 1

#### CLIL VÝUKOVÝ PLÁN

Vzdělávací obsah: Human biology: cell, tissue, muscles, skeleton, skin

Název pracovního listu: Architectural miracle

Jazyk: AJ

Časová dotace: 2x 45 min

Ročník: 8

Rozvíjené klíčové kompetence: Komunikativní, práce s obrazem, k řešení problému

Obsah a cíle:

Učivo	Obsahové cíle
Buněčná stavba, druhy buněk	Žák vysvětlí rozdíl mezi eukariotní a prokariotní buňkou. Žák zdůvodní a zařadí lidskou buňku do příslušné skupiny.
	Žák označí orgány na obrázku a uvede význam/funkce vybraných orgánů.
Tkáň	Žák porovná a přiřadí názvy tkání k jednotlivým vyobrazením.
	Žák vyjmenuje funkce tkání a uvede příklady tkání v lidském těle.
Kostra	Žák pojmenuje základní části lidského těla a kostry na obrázku. Žák posoudí význam lidské kostry a vyjmenuje její funkce.
	Žák popíše správné a chybné držení těla, zhodnotí spolužákovo držení těla a uvede a demonstrovuje nápravu v případě nesprávného postavení.
Kůže	Žák namaluje a popíše model stavby kůže.
<b>Učivo</b>	<b>Jazykové cíle</b>
Trpný rod:	Žák tvoří jednoduché věty v anglickém

...is composed of, is located, is made of	jazyce v trpném rodě.
Vazba there is, there are	Žák používá vazbu <i>there is/are</i> pro vyjádření existence, lokalizace orgánu v těle.
Předložky, předložkové vazby: in, of, inside, on the surface, in the middle, next to, between	Žák používá vhodné předložky a předložkové vazby se slovesem k tvorbě anglických vět v přítomném čase prostém.
Čísla, procenta, equals, plus, minus, divided, times	Žák vyjádří jednoduché počty v anglickém jazyce za použití vhodné slovní zásoby.

**Klíčová slovní zásoba:** cell, tissue, bone, muscle, epithel, nerve, organel, lysosome, nucleus, ribosome, cytoplasm, mitochondria, skeleton, limb, trunk, skull, ossification, heart, intestines, mucosa, joint, brain, spinal cord, account for, mass, is composed, is located, is made of, contribute to

**Organizace výuky:** frontální, práce ve dvojicích a skupinách, samostatná práce

**Mezipředmětové vazby:** biology, anatomy, mathematics, health

## Lesson plan

5 minut	Učitel spustí prezentaci na slide 2 a zadá brainstromingovou otázku: <i>Když se řekne architektura, co si pod tím v biologii představíte?</i> Žáci své odpovědi sdílí, učitel zapisuje odpovědi na tabuli. Poté vysvětlí, že dnešní hodina se bude zabývat stavbou těla člověka. Položí druhou otázku: <i>Dokážete rozlišit pojmy anatomie a fyziologie?</i> Žáci se snaží vysvětlit pojmy. Vysvětlí rozdíl mezi pojmy. Přirovnání: <i>A jako každá stavba má své stavební prvky, tak i tělo je složeno ze "stavebních kamenů" – buněk.</i>
4 minuty	Učitel rozdělí žáky do dvojic a rozdá pracovní listy. Zadá první úkol k vypracování: <i>Přečtěte si zadání prvního úkolu a odpovězte na otázku.</i> Táže se po vysvětlení pojmů eukariotický a prokariotický, chce znát rozdíl. Žáci by měli být schopni vysvětlit, proč je lidská buňka řazena do skupiny eukariotických buněk: Eukaryotické buňky jsou oproti prokaryotickým buňkám evolučně vyspělejší, Vyznačují se těmito strukturami: pravé jádro obsahující genetickou informaci ve formě DNA ohraničené dvojitou membránou, větší, obsahují mitochondrii
8 minut	Žáci popíší obrázek buňky a funkce organel. Žáci upraví pořadí termínů od nejjednodušších po nejsložitější.



10 minut	Učitel zkontroluje, dovysvětlí a opraví odpovědi viz slide 3 - 4. Následně uspořádá třídu do skupinek po 4 (– pokud má třída 16 žáků, jinak rozdělí třídu na 4 skupinky). Žákům je zadán úkol číslo 2. Je na každé skupince, jakou zvolí taktiku. Žáci mají za úkol vyluštit pojem, doplnit druhy tkání a přiřadit je k obrázkům během dvou minut. Po skončení časového limitu si každá skupinka zvolí jednoho zástupce, který si vybere jednu z tkání a odpoví na otázky. Zbytek třídy následně na výzvu učitele opraví chyby, doplní informace. Učitel spustí slide 5, Vizualizace a korekce odpovědí.
10 minut	Žáci se vrátí do lavic. Nyní pracuje každý samostatně na cvičení 3. Žáci doplní požadované informace do textu, odpoví na otázky a popíší obrázek kostry – může být i česky, popřípadě mohou použít telefon, počítač – je to na zvážení učitele a schopnostech žáků. Pokud by žáci použili technologie, je vhodné úkol stížit tak, že žáci doplní popis jednotlivých kostí v anglickém jazyce.
8 minut	Po dokončení úkolu a nebo uplynutí časového limitu se žáci přesunou k obrazu pověšeného u tabule. Učitel ukazuje na jednotlivé kosti na obraze a žáci přečtou své odpovědi. Učitel zjistí, jak úspěšní žáci byli, zda se shodli, doplní chybějící informace. Učitel spustí slide 6 pro kontrolu odpovědí.
	<b>přestávka</b>
8 minut	Nyní se žáci vrátí do lavic. Žáci pracují samostatně. Každý spočítá váhu svých svalů dle zadání úkolu 4 a doplní cvičení 5. Následně učitel zkontroluje odpovědi a vysvětlí výpočet úkolu 4.
20 minut	Třída je rozdělena na dvě poloviny. Obě poloviny se postaví do řad čelem k sobě tak, že žák první skupiny stojí čelem k žáku druhé skupiny. První polovina (skupina) žáků si vylosuje lístečky. Každý lístek obsahuje informaci, jak se má žák chovat: sednout si na židli, na zem, stát, zvedat tašku, ohýbat se pro něco přes překážku apod. Druhá polovina žáků má za úkol pozorovat postavení těla žáků první poloviny, porovnat jej s pracovním sešitem, strana 29. Žáci druhé skupiny následně zhodnotí postavení těla spolužáka, navrhnou nápravu a předvedou správné postavení. Veškeré instrukce na lístečkách i mluvený popis a vysvětlení je vedeno v anglickém jazyce. Učitel monitoruje práci žáků, dopomáhá, klade doplňující otázky.
12 minut	Následuje samostatná práce žáků, kreslení obrázku kůže s popisem (10 minut). Slide 7 je spuštěn, Žáci se přesunou k centrální lavici ve třídě, obrázky jsou porovnány (žáci navzájem ukáží své obrázky spolužákům) a rozdíly diskutovány a funkce jednotlivých součástí kůže vysvětleny. Učitel se táže žáků: <i>Jak se nazývá pigment jež chrání pokožku před škodlivých slunečním zářením? Jak se chráníte před UV zářením?(2 minuty)</i>

5 minut	<b>Shrnutí dvouhodinového celku, základních pojmů, ukončení.</b>
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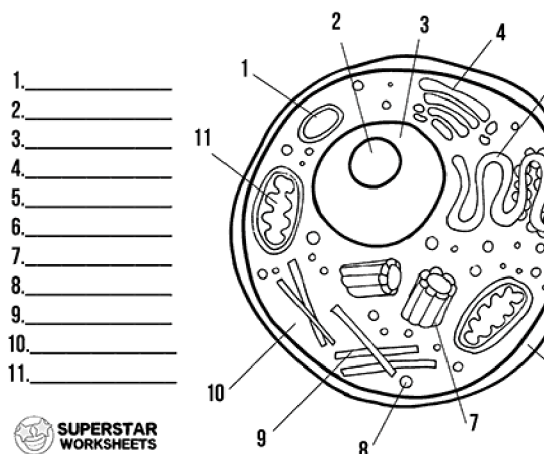
**Pomůcky:** počítač, prezentace, pracovní sešit biologie 8, lístečky s nápisy poloh těla, pracovní list, nástěnný obraz kostry, pastelky, tužky, přístup k internetu, telefon nebo počítač pro žáky – možno nahradit encyklopediemi a slovníky, kalkulátor, tabule, pero

# WORKSHEET 1

## Architectural miracle

**1 Work in pairs: Read, answer the questions and label the cell.**

Every living organism is composed of cells. We distinguish eucaryotic and procaryotic cells. The human body contains billions of cells. Are the human cells eucaryotic or procaryotic?



What are the functions of organelles?

Lysosome:

Nucleus:

Ribosome:

Cytoplasm:

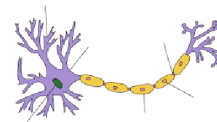
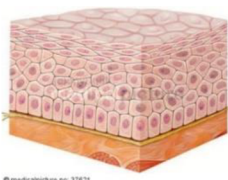
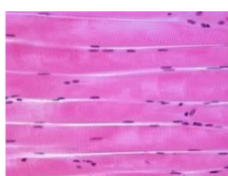
Mitochondria:

**Reorder the terms from the simplest to the most complex:** organ, organ system, tissue, cell.

**2. Work in groups.** Reorder the letters to finish this sentence: *Cells of the same kind form sets called:* T S U I S E..... We distinguish 4 of them. **Fill in the blanks:** Assign numbers 1-4 to images a – d. **Answer the question:** What do you know about each one? Can you name organs/body parts where each kind is located?

1.....3.....  
2.....4.....

a) ..... b) ..... c) ..... d) .....



Find information in your textbook if needed.

**3.** The human skeleton is composed of 206 flat, long, short, and irregular bones. What function does the skeleton provide?

.....

What is the longest bone in our body?..... . Name the hardest bone in the body..... Where is the smallest bone in our body located?.....

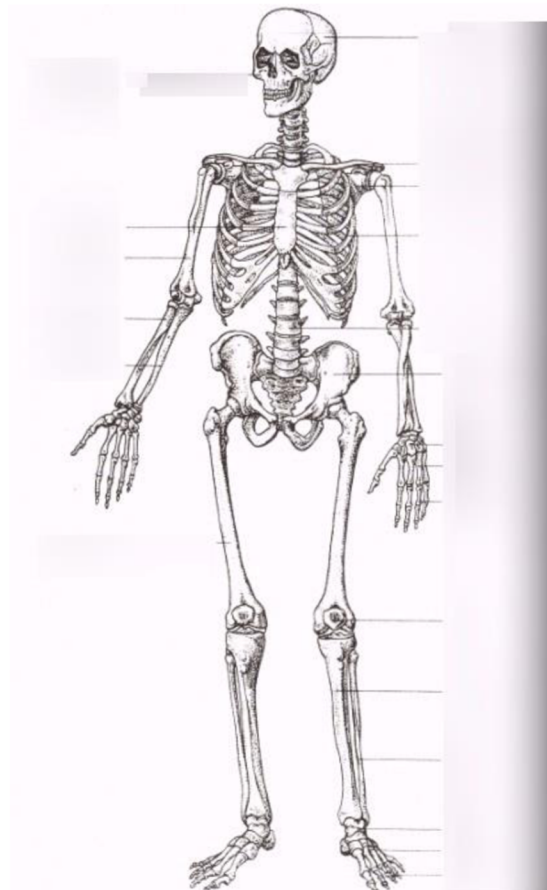
**Match the main parts of the human skeleton with their names:** limb, trunk, skull



Find the answers: Ossification is a process of .....

At what age does ossification start?.....

**Describe the individual parts of the skeleton:**



**4. The musculature of an adult person accounts for 36-42% of total body mass. Calculate how much your body's muscles weigh.**

- 5. Which types of muscle tissue do you remember? Where can you find them?  
Give examples:**

Tissue: .....

Example: .....

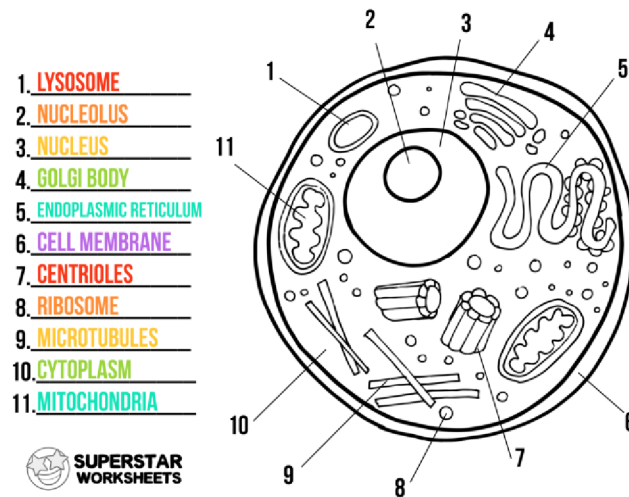
- 6. Look at your partner and compare his/her position with the one in your workbook, page 29. What contributes to poor posture? Demonstrate proper posture.**

- 7. Draw a labeled picture of the skin.**

# WORKSHEET 1 KEY

## Architectural miracle

1. Human cells are eukaryotic cells.



**Lysosome:** They break down excess or worn-out cell parts, destroy invading viruses and bacteria

**Nucleus:** contains the cell's chromosomes, which encode the genetic material

**Ribosome:** serves as the site for protein synthesis in the cell, reads the sequence of the messenger RNA

**Cytoplasm:** fills the inside of a cell, it is the ocean in which all organelles float.

**Mitochondria:** generate most of the chemical energy needed to power the cell's biochemical reactions

**Reorder the terms from the simplest to the most complex:** cell, tissue, organ, organ system.

**Work in groups.** *Cells of the same kind form set called:* TISSUE

1 muscle tissue 2 nerve 3 connective 4 epithelial

a) 1 heart, intestines b) 4 mucosa c) 3 joint d) 2 brain, spinal cord

**What function does the skeleton provide?**

- Blood formation (hematopoiesis)
- Support of the body
- Determination of the shape and dimensions of the body
- Protection of important organs

What is the longest bone in our body? – thighbone (stehenní kost)

Name the hardest bone in the body: jawbone(čelist), some books mention the petrous part of the temporal bone as the hardest one.

Where is the smallest bone in our body located? In the ear

**Match the main parts of the human skeleton with their names:**

Skull

limb

trunk



**Find the answers:** Ossification is a process of BONE FORMATION.

At what age does ossification start? - between the sixth and seventh weeks of embryonic development and continues until about age twenty-five.

**Describe the individual parts of the skeleton: see the textbook**

**The musculature of an adult person accounts for 36-42% of total body mass.**

**Calculate how much your body's muscles weigh.**

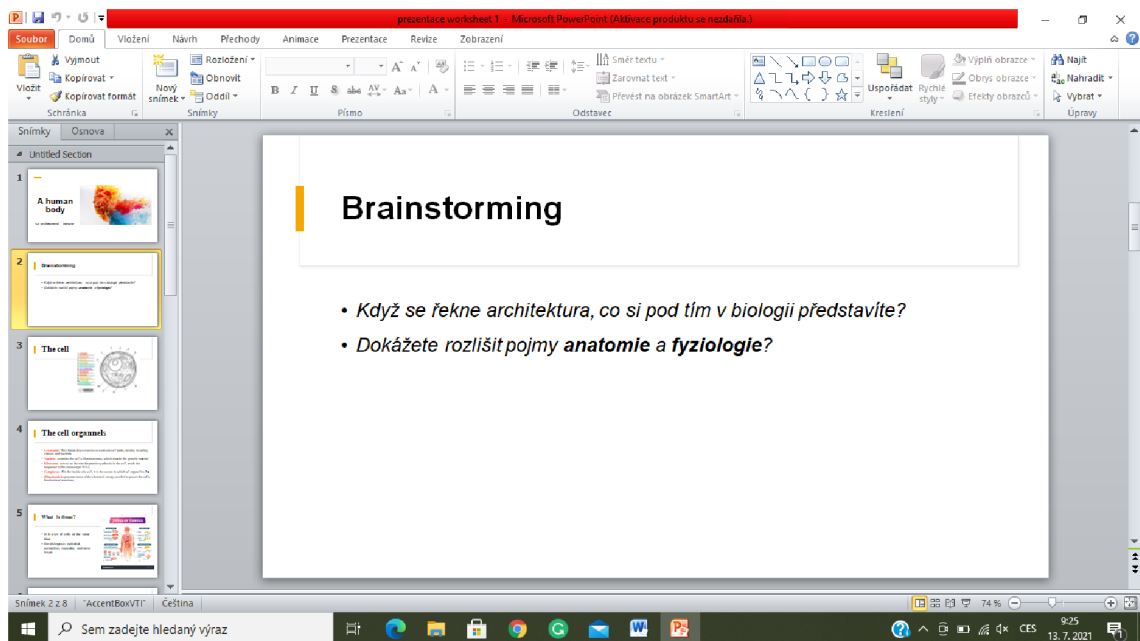
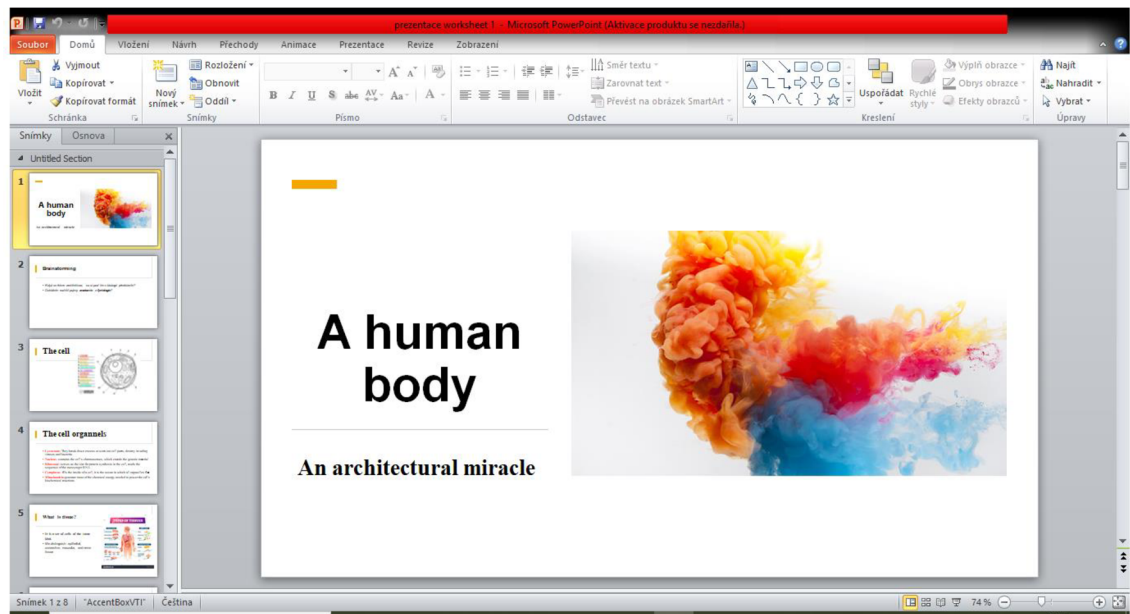
**Your body weight is divided by 100 and multiply by 36 – 42 %.**

**Which types of muscle tissue do you remember? Where can you find them? Give examples:**

- smooth – visceral - internal organs of the body, especially those in the abdominal cavity - intestines
- transversely striped – skeletal - are attached to *bones* by tendons, and they produce all the movements of body parts in relation to each other - deltoid
- cardiac - heart

**Draw a labeled picture of the skin. – see PowerPoint presentation slide 6**

## Appendix 2: Presentation to the worksheet 1 – Architectural miracle





prezentace worksheet 1 - Microsoft PowerPoint (Aktivace produktu se nedaří)

Soubor Domů Vložení Návrh Přechody Animace Prezentace Revize Zobrazení

Vyjmout Kopírovat Kopírovat formát Vložit Schránka

Nový snímek Obnovit Odolít

Rozložení Zarovnat text Převést na obrázek SmartArt

Písmo Odstavec Kreslení

Vypíň obrázce Rychlé styly Obrys obrázce Efekty obrázců Najít Nahradit Vybrat Upravit

Snímky Osnova

Untitled Section

1 A human body

2 Interaktování

3 The cell

4 The cell organnels

5 What is blood?

# The cell

1. **LYSOSOME**
2. **NUCLEOLUS**
3. **NUCLEUS**
4. **GOLGI BODY**
5. **ENDOPLASMIC RETICULUM**
6. **CELL MEMBRANE**
7. **CENTRIOLES**
8. **RIOSOME**
9. **MICROTUBULES**
10. **CYTOPLASM**
11. **MITOCHONDRIA**

SUPERSTAR WORKSHEETS

Snímek 3 z 8 "AccentBoxVTI" Čeština

Sem zadejte hledaný výraz

9:26 13. 7. 2021

prezentace worksheet 1 - Microsoft PowerPoint (Aktivace produktu se nedaří)

Soubor Domů Vložení Návrh Přechody Animace Prezentace Revize Zobrazení

Vyjmout Kopírovat Kopírovat formát Vložit Schránka

Nový snímek Obnovit Odolít

Rozložení Zarovnat text Převést na obrázek SmartArt

Písmo Odstavec Kreslení

Vypíň obrázce Rychlé styly Obrys obrázce Efekty obrázců Najít Nahradit Vybrat Upravit

Snímky Osnova

Untitled Section

1 A human body

2 Interaktování

3 The cell

4 The cell organnels

5 What is blood?

# The cell organnels

- **Lysosome:** They break down excess or worn-out cell parts, destroy invading viruses and bacteria
- **Nucleus:** contains the cell's chromosomes, which encode the genetic material
- **Ribosome:** serves as the site for protein synthesis in the cell, reads the sequence of the messenger RNA
- **Cytoplasm:** fills the inside of a cell, it is the ocean in which all organelles float.
- **Mitochondria:** generate most of the chemical energy needed to power the cell's biochemical reactions

Snímek 4 z 8 "AccentBoxVTI" Čeština

Sem zadejte hledaný výraz

9:26 13. 7. 2021

presentace worksheet 1 - Microsoft PowerPoint (Aktivace produktu se nezdařila)

Soubor Domů Vložení Návrh Přechody Animace Prezentace Revize Zobrazení

Vymout Kopírovat Kopírovat formát Vložit Schránka Nový snímek Obnovit Odolání Snímky

Směr textu Zarovnat text Převést na obrázek SmartArt

Uspořádat Rychlé styly Vyplnit obrázec Obrys obrázec Efekty obrázců Najít Nahradit Vložit Upravit

Snímky Osnova

1 Untitled Section

2 A human body

3 The cell

4 The cell organelles

5 What is tissue?

## What is tissue?

- It is a set of cells of the same kind.
- We distinguish: epithelial, connective, muscular, and nerve tissue

shutterstock

Snímek 5 z 8 "AccentBoxVTI" Čeština

Sem zadejte hledaný výraz

9:26 13. 7. 2021

presentace worksheet 1 - Microsoft PowerPoint (Aktivace produktu se nezdařila)

Soubor Domů Vložení Návrh Přechody Animace Prezentace Revize Zobrazení

Vymout Kopírovat Kopírovat formát Vložit Schránka Nový snímek Obnovit Odolání Snímky

Směr textu Zarovnat text Převést na obrázek SmartArt

Uspořádat Rychlé styly Vyplnit obrázec Obrys obrázec Efekty obrázců Najít Nahradit Vložit Upravit

Snímky Osnova

3 The cell

4 The cell organelles

5 What is tissue?

6 The skeleton and muscles

7 The skin

8

## The skeleton and muscles

**Skeleton functions:**

- Blood formation (hematopoiesis)
- Support of the body
- Determination of the shape and dimensions of the body
- Protection of important organs

**Muscle tissue:**

- smooth - visceral
- transversely striped – skeletal
- cardiac

Snímek 6 z 8 "AccentBoxVTI" Čeština

Sem zadejte hledaný výraz

9:26 13. 7. 2021

presentace worksheet 1 - Microsoft PowerPoint (Aktivace produktu se nezdařila)

Soubor Domů Vložení Návrh Přechody Animace Prezentace Revize Zobrazení

Vložit Vymout Kopírovat Kopírovat formát Schránka Nový snímek Obnovit Oddíl Snímky

Písmo Směr textu Zarovnat text Převést na obrázek SmartArt Odstavec

Uspořádat Rychlé styly Vypíň obrázek Obrys obrázce Efekty obrázců Najít Nahradit Vybrat Upravit

3 The cell

4 The cell organelles

5 What is blood?

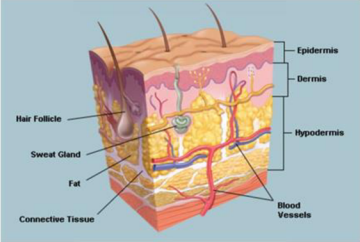
6 The skeleton and muscles

7 The skin

8 Review

# The skin

- Draw a picture of the skin and solve the crossword puzzle.



The diagram illustrates the layers of human skin. The outermost layer is the Epidermis, which contains hair follicles and sweat glands. Below it is the Dermis, which contains fat and connective tissue. The innermost layer is the Hypodermis, which contains blood vessels.

Sem zadejte hledaný výraz

presentace worksheet 1 - Microsoft PowerPoint (Aktivace produktu se nezdařila)

Soubor Domů Vložení Návrh Přechody Animace Prezentace Revize Zobrazení

Vložit Vymout Kopírovat Kopírovat formát Schránka Nový snímek Obnovit Oddíl Snímky

Písmo Směr textu Zarovnat text Převést na obrázek SmartArt Odstavec

Uspořádat Rychlé styly Vypíň obrázek Obrys obrázce Efekty obrázců Najít Nahradit Vybrat Upravit

4 The cell organelles

5 What is blood?

6 The skeleton and muscles

7 The skin

8 Review

# Sources:

- <https://superstarworksheets.com/science-worksheets/animal-cell-worksheet/>
- <https://www.shutterstock.com/image-vector/types-tissues-vector-illustration-labeled-inner-1511867498>

## Appendix 3: Lesson plan 2 + worksheet 2

### CLIL VÝUKOVÝ PLÁN

Vzdělávací obsah: Digestive system, nutrients, vitamins

Název pracovního listu: **Healthy belly**

Jazyk: AJ

Ročník: 8

Časová dotace: 45 minut

Rozvíjené klíčové kompetence:

kompetence k učení, komunikativní, sociální a personální

Obsah a cíle:

<b>Učivo</b>	<b>Obsahové cíle</b>
Trávicí soustava, orgány	Žák vyhledá v textu relevantní informaci a určí správnost tvrzení.  Žák označí ekvivalentní názvy orgánů trávicí soustavy v rodném a cizím jazyce.  Žák vysvětlí základní funkce vybraných orgánů v jednoduchých větách.  Žák vyjmenuje a zdůvodní způsoby prevence zubního kazu a zažívacích obtíží. Žák navrhne možnosti řešení těchto situací.
Živiny a jejich význam	Žák vyjmenuje základní živiny.  Žák vyplní chybějící informace do tabulky dle nahrávky.  Žák spolupracuje ve skupině při vyhledávání informací k zadanému úkolu.  Žák vyhledá informace, vyplní tabulku dle vzoru. Na základě informací porovná a vyhodnotí potraviny s různým obsahem látek a vysvětlí, které jsou, a nebo nejsou, vhodné ke konzumaci ve specifických situacích.
<b>Učivo</b>	<b>Jazykové cíle</b>
Synonyma k anglickým slovům	Žák rozpozná synonyma anglických slovíček z textu, uvede jejich význam.
Práce s textem –	Žák přečte krátký anglický text, vyhledá v textu informace a

porozumění psanému slovu	zodpoví otázky.
Slovní zásoba, výslovnost - Æ, θ, ð,	Žák přiřadí názvy orgánů trávicího traktu k českým výrazům. Žák správně foneticky vysloví slova k tematickému celku.

**Klíčová slovní zásoba:** esophagus (i(:)'sɒfəgəs), liver ('lɪvə), stomach ('stʌmək), pankreas ('pæŋkrɪəs), gallbladder ('gɔ:l,blædə), appendix (ə'pendɪks), intestine (ɪn'testɪn), rectum ('rektəm), anus ('eməs), digestive (dɪ'dʒestɪv), gastrointestinal (,gæstrəʊɪn'testɪn(ə)l), digestion (dɪ'dʒestʃən), nutrients ('nju:triənts), liquids ('lɪkwɪdz), ústa (mouth), hltan (pharinx), žlázy (glands), slinné žlázy (salivary glands)

**Organizace výuky:** frontální výuka, práce ve dvojicích, práce ve skupině, samostatná práce

**Mezipředmětové vazby:** healthy lifestyle, anatomy, biology, prevention.

### Lesson plan:

3 minut	Učitel spustí prezentaci Healthy belly. Snímek 2 – položí žákům otázku ze snímku. Na tabuli napíše první dvě slova v českém jazyce pod sebe – ústa, hltan. Položí otázku: „Kdo ví, který orgán následuje?“ žáci se hlásí, chodí k tabuli a píšou názvy na tabuli pod sebe česky.  Učitel vedle každého výrazu napíše anglický překlad.  Jakmile je seznam hotov, třída napodobí výslovnost podle učitele.
8 minut	Práce ve dvojicích, cvičení 1 – text. Učitel se ptá: Co znamená synonymum? Uveďte příklad. Žáci česky odpoví na otázku. Učitel dovysvětlí, pokud je to třeba a uvede příklady synonym. Nyní je žákům rozdán pracovní list. Učitel zadá instrukce k cvičení 1. Slide3. Žáci přečtou text ve dvojicích a zakroužkují odpověď – true – false, podle textu a najdou v textu synonyma k uvedeným výrazům.
2 minuty	Učitel zadá samostatnou práci. Žáci spojí anglické a české výrazy ve cvičení 2, zadání slide 4, odpovědi slide 5. Učitel zkontroluje správnost provedení a následně pokládá otázky
10 minuty (10 žáků ve	Speaking: Učitel ukáže na tabuli, kde jsou napsány názvy orgánů ze začátku hodiny a zjišťuje znalosti žáků. Žáci jsou vyzváni, aby si každý z nich vybral jeden orgán a o něm řekl anglicky jednu větu. Učitel vyvolává jednotlivé žáky a heslovitě na tabuli ke každému výrazu napíše

třídě)	<p>žákovy odpovědi – např. funkce jícnu – posunutí potravy směrem k žaludku. Propojuje hltan a žaludek....</p> <p>V případě početnější třídy učitel vyzve žáky, aby řekli, co ví o funkci: žaludku, slinivky břišní a žlučníku. V tom případě trvá speaking 5 minut)</p>
7 minut	<p>Poslech: Žáci poslouchají video o složení stravy a doplňují informace do tabulky v pracovním listě, cvičení 3, slide 6. Učitel pozastavuje a posunuje video tak, aby žáci byli schopni informace zapsat a zachytit.</p>
10 minut	<p>Práce ve skupině: Žáci jsou zorganizováni do skupin o 4 – 6 žácích maximálně. Každá skupina dostane kopii tabulky, cvičení 4. Každá skupina si zvolí jednu potravinu, kterou si ten den donesli do školy. Bylo by vhodné, aby každá skupina měla jinou potravinu. (pokud nemají, vyhledají na internetu. Náhradní varianta: učitel přinese od výuky soubor potravin – např. sušenky, jogurt, džus. Uloží je do tašky a nechá žáky, aby si každá skupina vylosovala jednu potravinu. Anebo připraví kartičky s obrázky potravin. )</p> <p>Žáci jsou vyzváni, aby na obalu našli informace a podle vzoru je vyplnili do tabulky. Poté si zvolí mluvčího a každá skupina přednese zbytek třídy, co zjistili o své potravine.</p>
5 minut	<p>Diskuze na téma prevence zubního kazu a zažívacích obtíží, slide 8. Ukončení hodiny.</p>

**Pomůcky:** počítač, internet, power-point prezentace, worksheet, pero, tabule, kopie tabulky ke cvičení

## WORKSHEET 2

## Healthy belly

### 1. Work in pair. Read the text.

The digestive system is made up of the **gastrointestinal tract** and **the glands**. It is a series of hollow organs joined in a long, twisting tube from the mouth to the anus. **Digestion** is important because your body needs nutrients from food and drink to work properly and stay healthy. Working together, nerves, hormones, bacteria, blood, and the organs of your digestive system digest the foods and liquids you eat or drink each day. Your digestive system breaks nutrients into small parts and use them for energy, growth, and cell repair. Your hormones and nerves help control the digestive proces.

(text adaptation from: <https://www.niddk.nih.gov/health-information/digestive-diseases/digestive-system-how-it-works>)

### Find synonyms to these words in the text:

drink (noun) =

digest (verb) =

### Decide if statement is true or false:

Glands belong to the digestive system. True False

Nutrients help body to stay healthy. True False

Hormones are not important for digestion. True False

The last part of the digestive system is anus. True False

### 2. Match names of the organs with their Czech meanings.



jazyk

stomach

játra

tongue

žaludek

tooth

zub

intestine

střevo


liver

Can you give more information about their function?

3. Listen to the video and fill in the chart below:

W.....	V.....	P.....	F.....	M.....	C.....
1 Helps the brain to function	Name the vitamins mentioned:	Help to :	Help to:	Name the minerals and their function:	Serve as food for:
2					
3					

4. **Group work: What did you eat today? Choose one item, and fill the chart. Look at the example below. Compare the answer with other groups.**

Food	Amount of nutrients in 100g.
	Salt: 189mg Vitamins: C = 0,5mg Minerals: Ca 90mg, Fe = 0,7mg Proteins: 7g Carbohydrates: 63g Fat: 24g
	Salt: Vitamins: Minerals: Proteins: Carbohydrate: Fat:



## WORKSHEET 2 KEY

## Healthy belly

Trávicí systém:

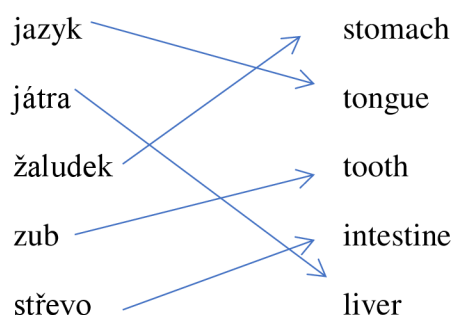
Ústa (mouth), hltan (pharinx), jícen (esophagus), žaludek (stomach), tenké střevo (small intestine), slepé střevo (appendix), tlusté střevo (large intestine), rektum (rectum), konečník (anus).

Žlázy (glands): slinné žlázy (salivary glands), slinivka (pankreas), játra (liver), žlučník (gallblader)

Cvičení 1: true, true, false, true

Drink (noun) = liquids, digest (verb) = break down

Cvičení 2:



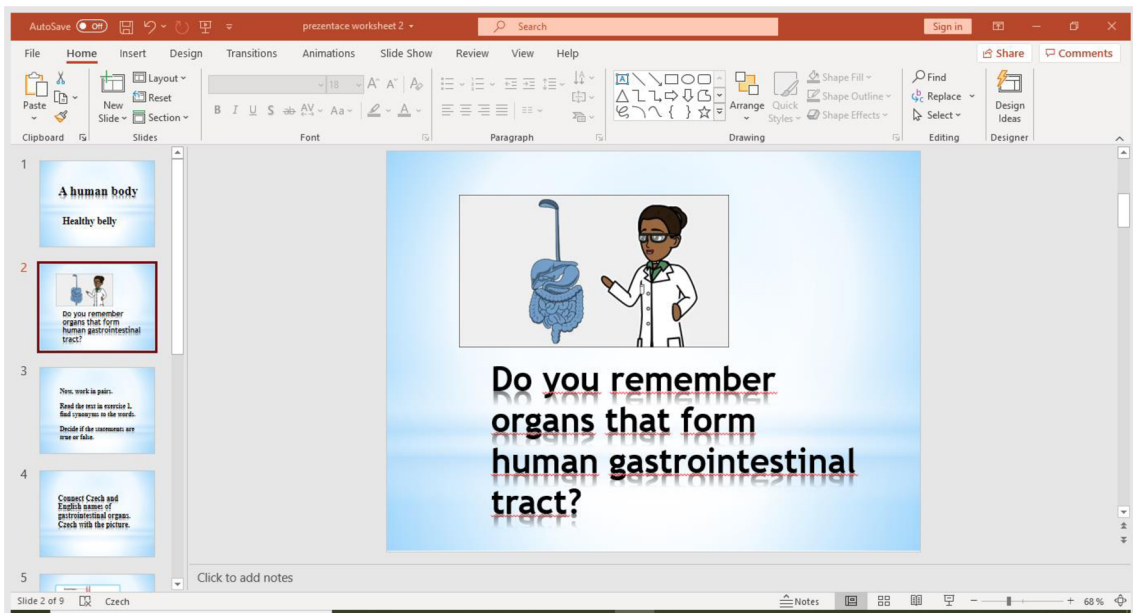
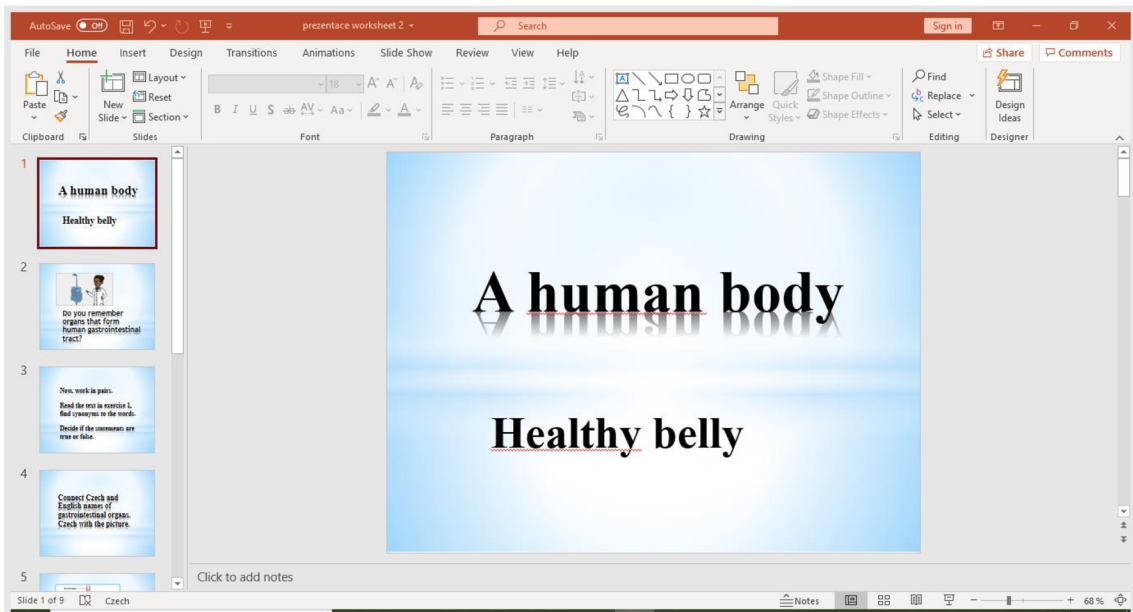
Poslech, cvičení 3:

Watter	Vitamins	Proteins	Fats	Minerals	Carbohydrates
Helps the brain function Cleans body from toxins Prevents against constipation	Keep your body healthy	Help to build you body	Help to absorb nutrients	Calcium, iron, zink : Strong bones, healing, metabolism	Food for brain and nerves

**Cvičení 4: Who ate (has) something that should be avoided in case of liver disease and why?**

- tučné potraviny, koření, slané potraviny, smažená jídla, alkohol, fast food
- Játra jsou metabolická továrna, probíhá zde přeměna tuků, bílkovin, cuků a vitamínů, detoxikace organismu. Pokud jsou jaterní muňky poškozeny, nemohou provádět svoji činnost.

## Appendix 4: Presentation to the worksheet 2 – Healthy belly



AutoSave presentace worksheet 2 - Search Sign in

File Home Insert Design Transitions Animations Slide Show Review View Help

Clipboard Slides Font Paragraph Drawing Editing Designer

1 **A human body**  
Healthy belly

2 Do you remember organs that form human gastrointestinal tract?

3 **Now, work in pairs.**  
Read the text in exercise 1, find synonyms in the text.  
Decide if the statements are true or false.

4 Connect Czech and English names of gastrointestinal organs. Czech with the picture.

5

Slide 3 of 9 Czech

Click to add notes

68%

**Now, work in pairs.**  
**Read the text in exercise 1, find synonyms to the words.**  
**Decide if the statements are true or false.**

AutoSave presentace worksheet 2 - Search Sign in

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Clipboard Slides Font Paragraph Drawing Editing Designer

1 **A human body**  
Healthy belly

2 Do you remember organs that form human gastrointestinal tract?

3 **Now, work in pairs.**  
Read the text in exercise 1, find synonyms in the text.  
Decide if the statements are true or false.

4 **Connect Czech and English names of gastrointestinal organs. Czech with the picture.**

5

Slide 4 of 9 Czech

Click to add notes

68%

**Connect Czech and English names of gastrointestinal organs. Czech with the picture.**

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Clipboard Slides Font Paragraph Drawing Editing Designer

Slide 5 of 9 Czech 68%

Can you give more information about their function?

What can you do to prevent tooth decay, obstipation, diarrhoea?

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Clipboard Slides Font Paragraph Drawing Editing Designer

Slide 6 of 9 Czech 68%

Video:  
[https://www.youtube.com/watch?v=inEP1ZZ\\_SfA](https://www.youtube.com/watch?v=inEP1ZZ_SfA)

How to stay healthy - the ultimate nutrition guide


6 essential nutrients


Fats, Minerals, Water, Vitamins, Proteins, Carbohydrates


AutoSave presentace worksheet 2 - Search Sign in


File Home Insert Design Transitions Animations Slide Show Review View Help

Clipboard Slides Font Paragraph Drawing Editing Designer

5 

6 

7 

8 

**Who do you think ate (has) something that contains important minerals?**

**Who ate (has) something that should be avoided in case of kidney disease and why?**


**Whose food is rich on proteins?**


Slide 7 of 9 Czech 68%


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File Home Insert Design Transitions Animations Slide Show Review View Help

Clipboard Slides Font Paragraph Drawing Editing Designer


5 

6 

7 

8 

**What can you do to prevent tooth decay, obstipation, diarrhoea?**



Slide 8 of 9 Czech 68%

AutoSave presentace worksheet 2 - Search Sign in

File Home Insert Design Transitions Animations Slide Show Review View Help

Clipboard Slides Font Paragraph Drawing Editing Designer

6

7

8

9

Click to add notes

Slide 9 of 9 Czech 68%

**Zdroje:**  
**Source of the video: How The Six Basic Nutrients Affect Your Body #EssentialNutrients #NutrientsAndTheirFunctions #Bestie**  
[- https://www.youtube.com/watch?v=inEPIZZ\\_SFA](https://www.youtube.com/watch?v=inEPIZZ_SFA)  
<http://lzs.sezimovusti.cz/skolni-rok-2020-2021/aktuality/zdrave-zuby>

## Appendix 5: Lesson plan 3 + worksheet 3

### CLIL VÝUKOVÝ PLÁN

Vzdělávací obsah: **cardio-respiratory system, blood, immunity**

Název pracovního listu: **Blood means life**

Jazyk: AJ

Ročník: 8

Časová dotace: 45 minut

Rozvíjené klíčové kompetence:

Komunikativní, práce s textem a obrazem, sociální

Obsah a cíle:

<b>Učivo</b>	<b>Obsahové cíle</b>
Anatomie oběhové soustavy	Žák označí na obrázku orgány a přiřadí k nim správný anglický výraz. Žák vypočítá jednoduché příklady vztahující se k tématickému celku.
Krev, míza, imunita, očkování	Žák vyjmenuje složky krve, funkce jednotlivých krvinek a tělních tekutin. Žák popíše proudění krve- krevní oběh.
Anatomie respiračního systému	Žák označí na obrázku orgány a přiřadí k nim správný anglický výraz. Žák vypočítá jednoduché příklady vztahující se k tématickému celku.
Prevence a první pomoc, krvácení	Žák předvede na spolužákovi správnou techniku obvazování, první pomoci při krvácení. Žák prakticky předvede palpaci pulsu na radiální tepně. Žák specifikuje tepenné a žilní krvácení, rozliší způsob první pomoci.
<b>Učivo</b>	<b>Jazykové cíle</b>
Present simple tense	Žák formuluje jednoduché anglické věty v přítomném čase.
Prepositions: in	Žák používá předložky se slovesy v anglických větách,

through, into, between, by	vysvětlí jejich význam.
Calculation, math expressions: plus, minus, divided, multiply, equal	Žák používá základní matematické výrazy v anglickém jazyce pro výpočet příkladů.

**Klíčová slovní zásoba:** heart, vessel, artery, vein, blood, blood cell, antibody, lymph, tissue fluid, immunity, lungs, trachea, oxygen, CO<sub>2</sub>, chest, to pump, to exchange, to connect, to conduct, to lead, to contain, solutes, lymph nodes, bloodstream, vaccination, red blood cells, white blood cells, platelets, to drain, to maintain, waste products, chambers, bleeding, pressure, bandage, circulation, to clot

**Organizace výuky:** samostatná práce, práce ve dvojicích a skupinách

**Mezipředmětové vazby:** biology, anatomy, physiology, prevention, mathematics

### Lesson plan:

5 minuty	Slide 1 and 2: Intro: Describe and draw: Učitel slovně, anglicky popíše obrázek. Žáci malují podle porozumění. Po dvou minutách ukáží své obrázky celé třídě. Autor obrázku, který je nejoriginálnější, nejpřesnější apod. vyhrává možnost výběru písničky, kterou si celá třída poslechne na začátku příští hodiny. Následuje část komunikační (3 minuty). Učitel říká: „Podle obrázku uhádněte, jaké je téma dnešní hodiny. Napovím, že nic není takové, jaké se zdá být. Věci na obrázku jsou jen symbolem. Například obloha a vzduch – symbol kyslíku. Co symbolizují stromy a řeka? V poslední minutě učitel spouští prezentaci a pokládá otázky ze snímku 1.
10 minut	Slide 3: Group work: učitel rozdělí třídu na skupiny o 4 žácích. Každá skupina žáků dostane kopii cvičení z worksheetu. Žáci v každé skupině se snaží písemně dokončit věty o orgánu tak, aby dávaly smysl. Žádná skupina nesmí prozradit druhé skupině, o čem píší. Po 8 minutách skupiny ukončí psaní. Poté učitel vyzve z každé skupiny jednoho žáka a ten přečte věty, které společně vymysleli. Zbytek třídy hádá, o jaký orgán se jedná.
4 minut	Slovní zásoba: žáci se shromáždí uprostřed třídy na koberci. Na zemi je rozložen anatomický obraz. Učitel vysvětlí žákům, že nyní budou společně pojmenovávat všechno, co na obraze vidí. Učitel má sáček, v něm jsou na kartičkách napsaná slovíčka k tématu a obrazu. Vždy na jedné straně česky a na druhé anglicky. Žáci si postupně losují každý jednu kartičku, přečtou



	název česky, poté anglicky a umístí je na obraz na podlaze. Učitel kontroluje správnost.
5 minut	Slide 4: Početní úkol. Kolik litrů vzduchu projde plicemi dospělého člověka za minutu, hodinu? Kolik litrů kyslíku obsahuje toto množství vzduchu? Učitel zadá početní úkol, žáci počítají, učitel kontroluje, radí.
10 minut	Práce s textem – samostatná práce. Žáci přečtou text nejprve sami, poté jsou vyzváni učitelem, aby na tabuli napsali slovíčka, která jsou jim neznámá. Učitel poskytne překlad slov a modeluje výslovnost. Žáci opakují po učiteli. Poté žáci odpoví na otázky.
3 minut	Práce ve dvojicích – Žáci se učí nahmatat puls a spočítat jeho rychlost. Slide 6 and 7.
5 minut	První pomoc při krvácení, nácvik obvazové techniky. Slide 8 Učitel pustí video a žáci napodobují obvazovou techniku.
3 minuty	Souhrn hodiny, ukončení.

**Pomůcky:** tužky, pastelky, papíry, power-point prezentace, worksheet – text, tabulky pro každou skupinu žáků, lístečky se slovní zásobou v pytlíku, anatomické obrazy, kalkulačka, tabule, fix, křída, obvazový materiál, počítač, internetové připojení

## WORKSHEET 3      Blood means life

**Exercise 1: Write sentences according to the example.**

Group 1: Blood

I am red liquid in human vessels.
I ....
I ....
I ....
I ....

Group 2: Lungs

I lie in the chest.
I ...
I ....
I ...
I ...

Group 3: Heart

I pump the blood through the body.
I ....
I ...
I ...
I ...

**Exercise 2: Read the text.**

Body fluids, which contain mainly water and solutes, are found inside and outside the cells in the body. Body fluids include **blood, lymph** and **tissue fluid**. Blood is composed of three important cells – red and white blood cells and platelets. These cells carry oxygen, protect our body against infection and stop bleeding. Tissue fluid fills the space between cells and ensures the exchange of substances between cells and fluids in blood vessels. The lymph flows through the lymph vessels and is filtered in the lymph nodes. In the lymph nodes, there are white blood cells that detect and capture the infection. If the infection manages to cross this barrier, it spreads through the bloodstream. The body's ability to resist attack and the action of foreign substances is called **immunity**. In addition to natural immunity, artificial immunity, obtained by **vaccination**, does exist.

Answer the questions:

How many bodily fluids do we distinguish? What are their functions?

What is immunity?

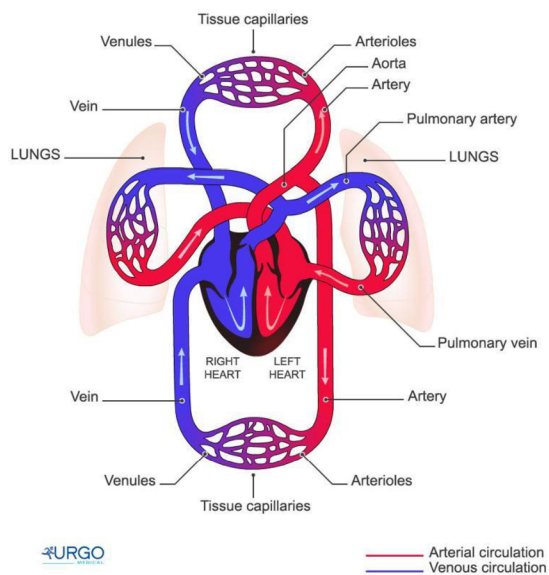
What is vaccination good for?

What diseases do you know that we vaccinate against?

## WORKSHEET 3 KEY

## Blood means life

Slide 1: red blood cells, Blood flow diagram:



Obrázek k popisu



www.shutterstock.com - 35514943

Stromy symbolizují plíce, jež zpracovávají kyslík a produkují CO<sub>2</sub>. Řeka symbolizuje oběhový systém, voda v ní pak krev a mízu.

Exercise 1: Write sentences according to the example.

Group 1: Blood – možné odpovědi

I am red liquid in human vessels.
I contain blood cells – red blood cells, white blood cells, platelets.
I flow through the vessels.
I maintain the constant body temperature.
I drain waste materials.

Group 2: Lungs – možné odpovědi

I lie in the chest.
I help exchange oxygen for CO <sub>2</sub> .
I have two parts – right and left lung.
I am connected to trachea.
I can get infected by viruses or bacteria.

Group 3: Heart – možné odpovědi

I pump the blood through the body.
I have 4 chambers.
I am a muscle organ.
I lie in a chest.
I hurt when you are in love.

**Počtní úkol:**

1 dech = 0,5 litru vzduchu. -) 16 – 18 dechů X 0,5 litru = množství vzduchu za minutu (8-9 litrů vzduchu) X 60 minut = množství vzduchu za hodinu (480-540 litrů vzduchu)

Vzduch obsahuje 21 % kyslíku.

$$480 \text{ L} / 100 \% \Rightarrow 4,8 \text{ L} = 1\%$$

$$21\% = 4,8 \times 21$$

$$540 \text{ L} / 100\% \Rightarrow 5,4 \text{ L} = 1\%$$

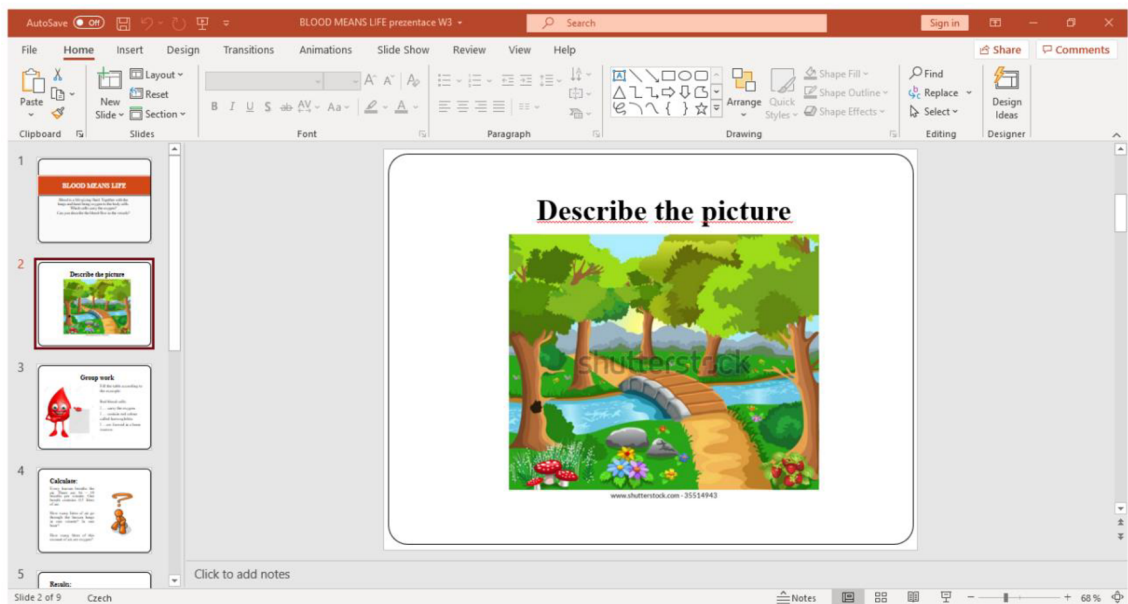
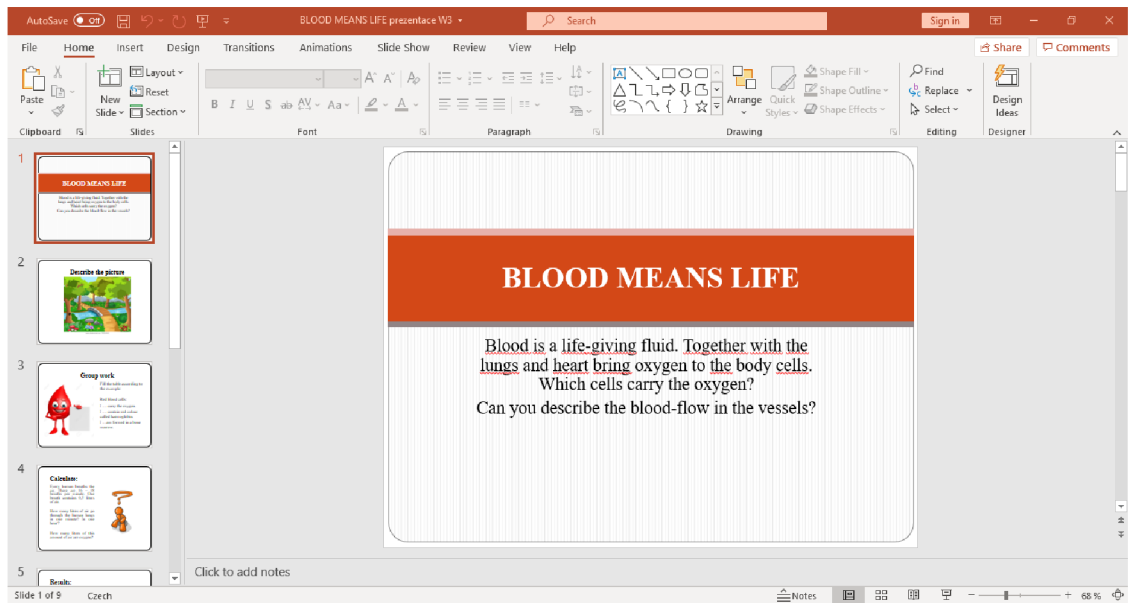
$$21\% = 5,4 \times 21$$

0,5 litru / 100 = 0,005 X 21 % = 0,105 litru kyslíku na jeden nádech X 16- 18 dechů =  
1,68 – 1,89 litru kyslíku za minutu X 60 = 100,8 – 113,4 litrů kyslíku.

Zdroje: <https://www.shutterstock.com/cs/image-vector/cartoon-forest-35514943>

[https://sphweb.bumc.bu.edu/otlt/mph-modules/ph/ph709\\_heart/ph709\\_heart2.html](https://sphweb.bumc.bu.edu/otlt/mph-modules/ph/ph709_heart/ph709_heart2.html)

## Appendix 6: Presentation to the worksheet 3



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1 BLOOD MEANS LIFE

2 Describe de picture

3 Group work

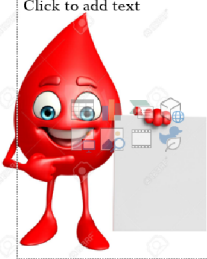
4 Calculate

5

Slide 3 of 5 Czech

## Group work

Click to add text



Fill the table according to the example:

Red blood cells:

- I ... carry the oxygen.
- I ... contain red colour called haemoglobin.
- I ... am formed in a bone marrow.

Click to add notes

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1 BLOOD MEANS LIFE

2 Describe de picture

3 Group work

4 Calculate

5


Slide 4 of 5 Czech

## Calculate:

Every human breathes the air. There are 16 – 18 breaths per minute. One breath contains 0,5 liters of air.

How many litres of air go through the human lungs in one minute? In one hour?

How many litres of this amount of air are oxygen?



Click to add notes



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5 Results:

6 How to palpate the pulse?

7 Calculation of pulse.

8 Bleeding.

9 Click to add notes

Slide 5 of 9 Czech 68%

**Results:**

8 – 9 litres of air in one minute  
480 – 540 litres of air in one hour

1,68 – 1,89 litres of oxygen in one minutes  
100,8 – 113,4 litres of oxygen in one hour

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5 Results:

6 How to palpate the pulse?

7 Calculation of pulse.

8 Bleeding.

9 Click to add notes

Slide 6 of 9 Czech 68%

**How to palpate the pulse?**

- Puls is a rhythmical throbbing of the arteries as blood is propelled through them, typically as felt in the wrists or neck.

Temporal artery

Facial artery

Carotid artery

Brachial artery

Radial artery

Femoral artery

Popliteal artery

Posterior tibial artery

Dorsalis pedis artery

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5 **Bleeding:**

6 **How to palpate the pulse?**

7 **Calculate the pulse:**

8 **Bleeding:**

9 Click to add notes

Slide 7 of 9 Czech 68%

**Calculate the pulse:**

- An adult has a pulse speed of 60 –80 per minute. How many pulses per minute does your classmate have?

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5 **Bleeding:**

6 **How to palpate the pulse?**

7 **Calculate the pulse:**

8 **Bleeding:**

9 Click to add notes

Slide 8 of 9 Czech 68%

**Bleeding:**  
<https://www.youtube.com/watch?v=Y1G8XQb0WBc>

We distinguish between arterial and venous bleeding. The most common cause of bleeding is a knife injury.

What is important to know about arterial bleeding?

What does venous bleeding look like?

How did you treat venous and arterial bleeding?

Can you bandage your hand correctly?


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6 How to palpate the pulse? 

7 Caudal site pulse 

8 Bleeding 

9 

Sources:

- <https://www.psyhub.cz/udalost/psycho-kviz/attachment/otaznik/>
- [https://www.researchgate.net/figure/Body-site-to-palpate-pulse\\_fig7\\_240054991](https://www.researchgate.net/figure/Body-site-to-palpate-pulse_fig7_240054991)
- [https://www.researchgate.net/figure/Examples-of-clinical-palpation-and-typical-hand-postures-radial-artery-in-the-forearm\\_fig2\\_332445566](https://www.researchgate.net/figure/Examples-of-clinical-palpation-and-typical-hand-postures-radial-artery-in-the-forearm_fig2_332445566)

Click to add notes

Slide 9 of 9 Czech Notes 68%

## Appendix 7: Questionnaire – phase 1 in the original version

### DOTAZNÍK: FÁZE 1

Draží učitelé. Obracím se na vás s prosbou o vyplnění anonymního dotazníku. Mým cílem je zjistit, na kterých základních školách v Olomouckém kraji je využíváno metody CLIL při výuce, jaké faktory ovlivňují rozhodnutí zařazení CLIL do výuky a zmapování Vašich zkušeností a postojů ke CLILu. Získané údaje budou sloužit výhradně ke zpracování mé Diplomové práce na téma Využití metody CLIL při výuce biologie na druhém stupni ZŠ. V každé otázce zakroužkujte vždy jen **jednu** odpověď, **pokud není uvedeno jinak**. Předem děkuji za ochotu mi pomoci.

Bc. Marta Šmídová, Dis. Studentka oboru Učitelství pro základní školy na UPOL.

Učím na ZŠ v: (doplňte název obce).....

**1. Jak dlouho vykováváte učitelské povolání?**

- a) Do 2 let
- b) 2 – 5 let
- c) 5 – 10 let
- d) Více jak 10 let

**2. Jaký předmět vyučujete?**

.....

**3. Slyšel/a jste o metodě CLIL (Content and language integrated learning)?**

- a) Ano - kde.....
- b) ne

**4. Používáte/používali jste CLIL při výuce na druhém stupni ZŠ?**

- a) Ano používáme – v jakém předmětu/předmětech.....
- b) Ano, ale již nepoužíváme, napište proč.....
- c) Ne – přejděte na otázku číslo 11

**5. Pokud CLIL využíváte při výuce, co ovlivnilo Vaše rozhodnutí implementovat tento přístup do výuky? – možno uvést více odpovědí**

- a) Rozhodnutí ředitele školy.
- b) Legislativa, CLIL byl zařazen do kurikulárních dokumentů.
- c) Moje vlastní zkušenost s CLIL.
- d) Můj kolega mne zapojil do týmu, poprosil o spolupráci.
- e) Účast na webináři, semináři, školení a podobné vzdělávací akci.
- f) Jiné.....

**6. Pokud využíváte CLIL, jaké s touto metodou máte zkušenosti?**

- a) Žáci reagovali na změnu ve výuce kladně.
- b) Žáci reagovali na změnu ve výuce záporně, ale po čase svůj postoj změnili. Uveďte za jak dlouho.....
- c) Využití CLIL mne přimělo ke spolupráci s kolegy při přípravách na vyučování.

- d) Jiné:.....  
.....
- 7. Myslíte si, že zavedení CLIL do výuky vede k zlepšení studijních výsledků u žáků?**
- a) Ano, moji žáci dosahují lepších studijních výsledků.
  - b) Ne, studijní výsledky žáků se nijak nezměnily.
  - c) Ne, došlo ke zhoršení studijních výsledků žáků v obou předmětech.
  - d) Ne, došlo ke zhoršení studijních výsledků žáků v jazykovém předmětu.
  - e) Ne, došlo ke zhoršení studijních výsledků žáků v nejazykovém předmětu.
- 8. Myslíte si, že CLIL podporuje motivaci žáků ke studiu cizího jazyka?**
- a) Ano, zaznamenal/a jsem zvýšený zájem o studium cizího jazyka.
  - b) Ne.
  - c) Nevím.
- 9. K výuce metodou CLIL: prosím zatrhnout všechny relevantní odpovědi**
- a) si připravuji své vlastní pracovní listy.
  - b) mi škola poskytla učebnici, cvičebnici, plány a jiné materiály.
  - c) využívám elektronické zdroje, napište které: .....
  - d) bych uvítal/a připravené pracovní listy, plány.
- 10. Souhlasíte s tvrzením, že příprava na výuku metodou CLIL zabere více času než příprava na tradiční způsob výuky?**
- a) ano
  - b) ne
- 11. Pokud jste již o CLIL slyšel/a a nevyužíváte tento přístup při výuce, uveďte důvody, proč jste se tak rozhodl/a. – možno uvést více odpovědí**
- a) Jsem začínající učitel, nemám dostatečné zkušenosti ani s tradiční výukou.
  - b) Nemám dostatečné zkušenosti s CLIL.
  - c) Nebyl/a jsem proškolen/a v aplikaci CLIL do výuky.
  - d) Metoda mne neoslovila.
  - e) Přípravy jsou příliš zdlouhavé, komplikované.
  - f) Nutnost spolupracovat v týmu s kolegou při přípravě na hodiny.
  - g) Značná část žáků je vyučována dle IVP, metoda by tedy nebyla vhodná.
  - h) Škola, na které vyučuji, nepodporuje tento typ výuky.
  - i) Nedostatek učebnic, cvičebnic, plánů, zdrojů.
  - j) Jiné:  
.....

Prostor pro jakékoli další komentáře:

Děkuji Vám za Váš čas a spolupráci.

## Appendix 8: Questionnaire – phase 2 in the original version

### DOTAZNÍK: FÁZE 2

Draží učitelé. Obracím se na vás s prosbou o vyplnění anonymního dotazníku. Mým cílem je zaznamenat Vaše názory a připomínky k přiloženým výukovým materiálům. Získané údaje budou sloužit výhradně ke zpracování mé Diplomové práce. Své odpovědi, prosím, zakroužkujte, pokud není uvedeno jinak. Předem děkuji za Váš čas.

Bc. Marta Šmídová, Dis. Studentka oboru Učitelství pro základní školy na UPOL.

**1) Mám zkušenosti s CLIL metodou:**

- a) Ano                      b) ne

**2) Plán hodiny se mi zdá být:**

Dobře a přehledně připravený	ano – ne
Příliš obsáhlý	ano - ne
Jasný	ano - ne
Stručný	ano - ne
Odpovídající RVP	ano - ne
Snadno použitelný v praxi	ano - ne
Vhodný k výuce na druhém stupni ZŠ	ano - ne
Obtížný	ano – ne
Logicky uspořádaný	ano – ne

**3) Časová náročnost je vhodně zvolená:**

- a) ano                                      b) ne

**4) Slovní zásoba je: - (volba více odpovědí možná)**

- a) Příliš obtížná  
b) Odpovídá požadavkům RVP, ŠVP  
c) Nedostatečná  
d) Dostatečná  
e) Jiné

**5) Byl/a bych schopen/schopna použít připravený plán v praxi:**

- a) ano                      b) ne

**6) Pokud jste na předchozí otázku odpověděl/a záporně, zdůvodněte svou odpověď:**

.....  
.....

**7) Úkoly v pracovním listě jsou: - (volba více odpovědí možná)**

- a) Obtížné  
b) Snadné  
c) Odpovídají schopnostem žáků  
d) Časově náročné  
e) Vhodně zvolené  
f) Neobsahují dostatek prostoru  
g) jiné

**8) Zadání úkolů v pracovním listě jsou srozumitelně formulované:**

- a) Ano                      b) ne

**9) Rozložení pracovního listu je:**

- a) V pořádku  
b) Neposkytuje příliš prostoru pro odpovědi žáků  
c) Jiné

## Resume

Diplomová práce se zabývala problematikou propojení cizího jazyka se všeobecně vzdělávacím předmětem na základních školách v Olomouckém kraji. Teoretická část blíže popsala a vysvětlila pojem CLIL, nastínila historii výukových metod a faktorů ovlivňujících zavádění nových trendů do praxe učitele, zhodnotila učební materiály dostupné na trhu a propojila s legislativními normami a zkušeností kantorů. Dále pak blíže specifikovala pojmy bilingví a multilingvní výuka. Praktická část mapovala situaci v českém školství v oblasti CLIL metodologie a porovnávala data získaná od respondentů v oblastech lokalizace škol, délky praxe a zkušeností. V druhé fázi praktické části pak zjišťovala použitelnost vytvořených výukových materiálů pro základní školy, hodnotila jejich vlastnosti, funkčnost a monitorovala připomínky respondentů k jejich aplikaci.



## Annotation

<b>Jméno a příjmení:</b>	Bc.Marta Šmídová, DiS.
<b>Katedra:</b>	Katedra anglického jazyka
<b>Vedoucí práce:</b>	Mgr. Josef Nevaril, Ph.D.
<b>Rok obhajoby:</b>	2021/2022

<b>Název práce:</b>	Využití metody CLIL pro výuku biologie na druhém stupni základní školy
<b>Název v angličtině:</b>	Using the CLIL method in biology lessons at lower secondary school
<b>Anotace práce:</b>	Diplomová práce se zabývá implementací CLIL přístupu na základních školách Olomouckého kraje. Teoretická část se zaměřuje na definici pojmu, porovnání pojmu s bilingvní a multilingvní formou výuky, historií a vývojem výukových metod, shrnuje informace dostupností učebnic a vzdělávacích možností. Praktická část zkoumá subjektivní a objektivní faktory ovlivňující zavádění CLIL přístupu do praxe. Praktická část také hodnotí kvalitu CLIL pracovních listů vytvořených v rámci výzkumu.
<b>Klíčová slova:</b>	CLIL, základní škola, pracovní listy, biologie
<b>Anotace v angličtině:</b>	The diploma thesis deals with the implementation of the CLIL approach in lower secondary schools in the Olomouc region. The theoretical part focuses on the definition of the abbreviation CLIL, comparison of the term with bilingual and multilingual forms of teaching, history, and development of teaching methods,

	summarizes information on the availability of textbooks and educational opportunities. The practical part examines the subjective and objective factors influencing the implementation of the CLIL approach in practice. The practical part also evaluates the quality of the CLIL worksheets created during the research.
<b>Klíčová slova v angličtině:</b>	CLIL, lower secondary school, worksheets, biology
<b>Přílohy vázané v práci:</b>	CLIL lesson plans, worksheets with keys, Power-Point presentace, dotazník 1 a 2
<b>Rozsah práce:</b>	122 stran
<b>Jazyk práce:</b>	anglický