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**IMPLEMENTING CLIL WITH YOUNG LEARNERS IN PRIMARY
SCHOOL: CREATING, CONDUCTING AND EVALUATING A
SCIENCE-ENGLISH CLIL PROJECT**
MA thesis

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ABSTRACT

The purpose of this study was to investigate whether content and language integrated learning (CLIL) can be used with young learners who have had EFL lessons for approximately one year only. The reason for conducting the study was the fact that few teachers do cross-curricular/CLIL teaching as there is a lack of guidelines and appropriate teaching resources.

Thus, a Science-English CLIL project with ready-to-use lesson plans and materials for young learners was created. Three English teachers used the materials over a four-month period with 78 pupils from four pupils. The teachers' and pupils' feedback was used to analyse the study materials.

The thesis consists of two chapters. The first chapter provides the theoretical background to the subject. It explains what CLIL is, what to consider when creating CLIL lesson plans and tasks for young learners, what the benefits and concerns of CLIL teaching are and what research has established about using CLIL with young learners. The second chapter discusses the empirical study – the creating and implementing of the CLIL study materials and the analysis of the teachers' and pupils' feedback on them. When creating the materials for young learners, literature about CLIL teaching as well as the National Curriculum for Basic Schools were consulted. In addition, primary class teachers' opinions on how to compile study materials for young learners were taken into consideration.

Keywords: CLIL approach, foreign language learning, cross-curricular project, young learners

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List of Abbrevitions

CLIL- Content and Language Integrated Learning

EFL – English as a Foreign Language

FL - Foreign language

L2 – second language

INTRODUCTION

Real-world problems are complex, and no single discipline can adequately describe and resolve the diverse and complicated issues the world is facing. Therefore, educational experiences are more authentic and of greater value to students when the curricula reflect real life, which is multi-faceted rather than compartmentalized into neat subject-matter packages. Moreover, the Estonian National Curriculum for Basic Schools (2011) emphasizes that learning activities should be shaped into a whole through integration because integration supports the development of pupils' general as well as subject field competences. It is stated in the curriculum that basic school shall organize studies and shape the learning environment and cooperation between teachers in a manner that enables cross-disciplinary treatment of the subject matter (ibid).

This study was conducted because, even though scholars have presented the positive effect of content-and-language integrated learning (hereafter CLIL), both in terms of target language learning and knowledge acquisition in other subject areas (Korosidou and Griva 2013), and motivation (González 2014; Korosidou & Griva 2013; Lasagabaster 2008) teachers in Estonian schools use it very unevenly. There are schools in Estonia; where it is possible to study one subject/course (RAM; TIK) or even the whole curriculum (Tallinn German Gymnasium; Jõhvi State Gynasium) fully in foreign language. There are schools that carry out project-based learning weeks/days, where they try to integrate different subjects (Muraste School, Rahumäe Basic School); and there are teachers who only focus on their subject teaching. Collectively, from CLIL teaching pupils get a more genuine learning approach to real world problems.

Teachers often do not use CLIL teaching because they lack support and knowledge; they need encouragement, resources and step-by-step instructions (Gabillon & Ailincăi 2013; Klimova 2011). Hence, this research aims to create CLIL study materials for young

learners to encourage the use of cross-curricular/interdisciplinary approaches; and to investigate if young learners; who have only studied English as foreign language for approximately one year, could be taught effectively with CLIL approach teaching.

The thesis consists of two chapters. The first chapter deals with the theoretical background of the subject. It explains what CLIL is; what to consider whilst creating CLIL resources for young learner; what research has been done on applying CLIL with young learners. The second chapter is a case study where the English teachers were provided with ready-to-use Science-English lesson plans and materials. The study materials were trialled in Rahumäe Basic School with six different set of form four pupils because *Human body* is a topic that fourth-graders study throughout the whole second part of the year. After using the materials, the English teachers were asked to evaluate the created CLIL lessons plans and tasks according to a grading scale. Based on the teachers' as well as the pupils' feedback, an analysis for the created CLIL materials was conducted. The thesis ends with the discussion of the possibility using the CLIL approach with young learners, who have studied English for a very short time.

1. THEORETICAL BACKGROUND: WHAT IS CLIL?

1.1 The Definition of CLIL

CLIL is a dual-focused educational approach in which an additional language is used for the learning and teaching of both content and language (Mehisto et al 2008: 12). This means that any second language foreign language (FL) can be used to study content of a different subject field; for instance, Japanese can be used to study geography, French to study maths, Russian to study human science etc. Coyle (et al 2010: 3) expresses a view similar to Mehisto when she writes that in CLIL-”various language-supportive methodologies are used which lead to a dual focused form of instruction where attention is given both to the language and to the content”. She explains “the term CLIL is inclusive in that it binds together the essence of good practice found in the different environments where its principles have been adopted. It involves a range of models which can be applied in a variety of ways with diverse types of learner” (Coyle et al 2010: 1).

The term CLIL can be traced back to 1994 to Professor David Marsh of the University of Jyväskylä in Finland (Coyle et al 2010: 3). While the term is a relatively recent European innovation, the concept can, according to – Mehisto et al (2008: 12) be traced back to almost 5000 years ago to today's Iraqi territory, where the Akkadians, who conquered the Sumerians, wanted to learn the local language. To this end, Sumerian was used as a medium of instruction to teach several subjects to the Akkadians, including theology, botany and zoology.

Today there are distinct types and forms of CLIL teaching and its methodologies and approaches can differ greatly. As Mehisto et al (2008: 12) put it: “CLIL is an umbrella term covering a dozen or more educational approaches (e.g., immersion bilingual education, multilingual education, language showers and enrichen language programmes).

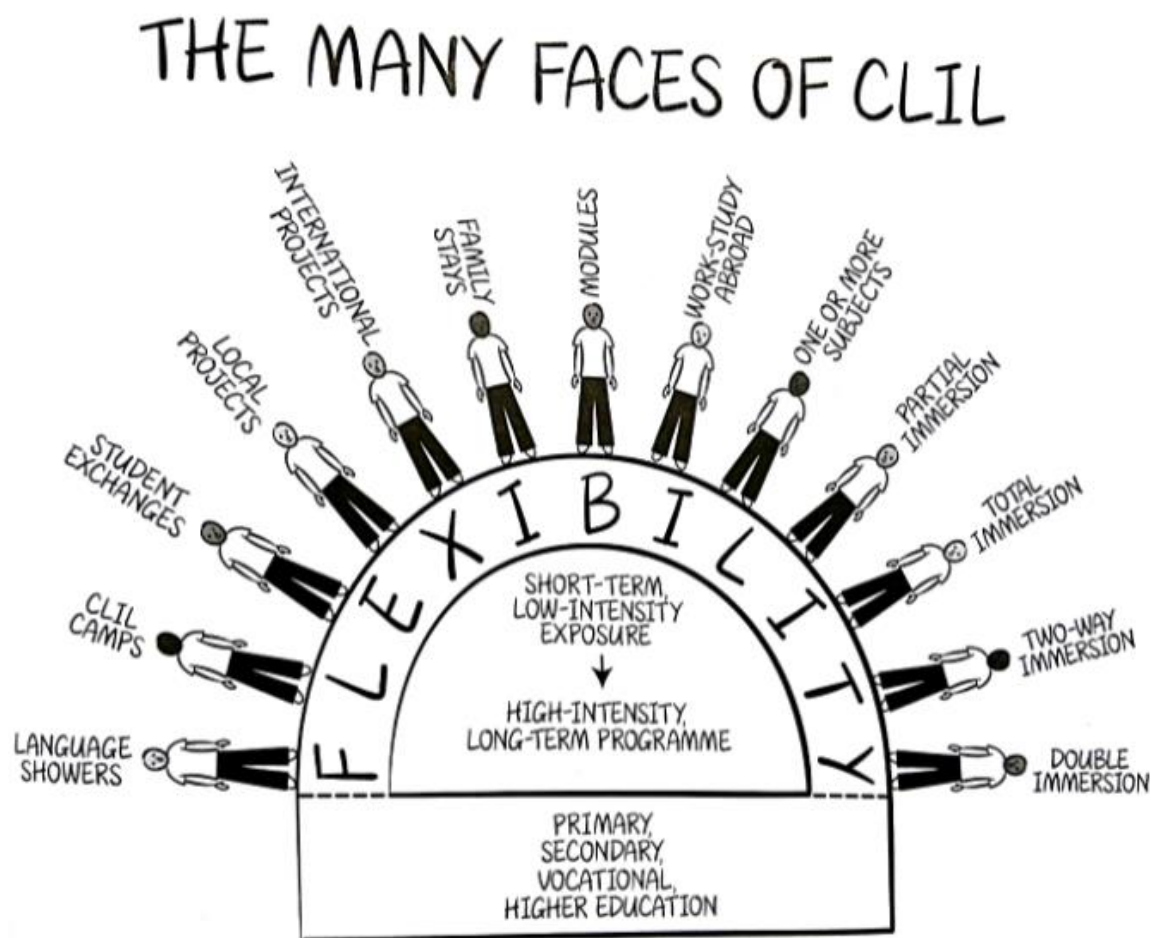


Figure 1: The many faces of CLIL. (Mehisto et al 2008)

Since the types of CLIL teaching differ greatly the approach can be used for both short-term and long-term exposure. This means that CLIL teaching can happen only for a few lessons; during one project, during a week in a language camp; or last for years. Pupils can learn one subject fully in a second language, or learn while living in the second language environment.

Thus, though there are different explanations of what CLIL is, the definitions always emphasize the role of integrating language with content. Using the words of Dalton-Puffer (2007: 1): “CLIL refers to educational settings where a language other than the student’s mother tongue is used as the medium of instruction”.

1.2 Dual Focused Teaching Goals in CLIL

Another very important aspect of CLIL is integration, which has a dual focus. It means, first the language learning is included in content classes (e.g., maths, history, geography, computer programming, science, civics, etc) and, second - information is repackaged in a manner that facilitates understanding. Charts, diagrams, drawings, hands-on experiments and the drawing out of key concepts and terminology are all common CLIL strategies.

On the other hand, subject-matter content is used in language-learning classes. The language teacher, working together with teachers of other subjects, incorporates the vocabulary, terminology and texts from those other subjects into his or her classes. Students learn the language and discourse patterns they need for understanding and using the content. According to Mehisto (et al 2011: 11), it is a student's desire to understand and use the content that motivates him or her to learn a language. Even in language classes, students are likely to learn more if they are not simply learning language for language's sake but using language to accomplish concrete tasks and learn new content.

In addition to a focus on content and learning, there is a third element that comes into play - the development of learning skills to support the achievement of content and language goals (Mehisto et al 2011: 11). See *Figure 2* for the.

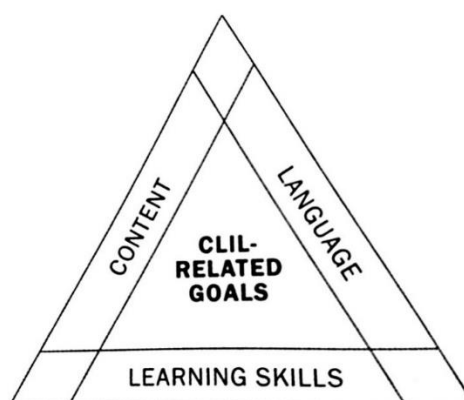


Figure 2. CLIL- Related Goals (Mehisto et al 2008)

Learning means being open to new experiences and ideas, and allowing yourselves to grow from what we encounter in the world. Children learn from everything they encounter. Everything is an opportunity for experimentation and, therefore, for learning. There are different learning approaches and learning styles and they are useful to know because knowing how they like to learn can help learner to tailor their own experiences so that they learn more quickly and effectively. Researchers suggest that perhaps the most important skill one needs to have to learn effectively is what is called the “growth mindset”: the belief that one can learn and develop new skills. Having a growth mindset is seen as the key to success.

Irrespective of the type or form, the goal of CLIL initiatives is, according to Mehisto et al (2011:1), to create conditions that support the achievement of the following:

- Grade-appropriate levels of academic achievement in subject taught through CLIL language;
- Grade-appropriate functional proficiency in listening, speaking, reading and writing in the CLIL language;
- Age-appropriate levels of first-language competences in listening, speaking, reading and writing;
- An understanding and appreciation of the cultures associated with the CLIL language and student’s first language;
- The cognitive and social skills and habits required for success in an ever-changing world.

(Mehisto et al 2011: 11)

The CLIL strategy, above all, involves using a language that is not a student’s native language as a medium of instruction for learning subjects such as math, science, art or business. However, CLIL also calls on content teachers to teach some language. In

particular, content teachers need to support the learning of those parts of language knowledge those students are missing and that may be preventing them from mastering the content.

Language teachers play a unique role in CLIL programme. In addition to teaching the standard curriculum, they work to support content teachers by helping students to gain the language needed to manipulate content from other subjects. In so doing they also help to reinforce the acquisition of content (Mehisto et al 2011: 11).

1.3 Holistic View of Teaching and Learning: The 4Cs Framework

CLIL supports the holistic development of learners. This contrasts with an atomistic approach to learning where, for example, in language classes, a language is taken into smaller parts, such as grammatical structures, and each is studied separately. In contrast, in an holistic approach it is important to engage and develop the whole person.

It is suggested that effective CLIL takes place when various aspects are considered in symbiosis. Coyle states that a successful CLIL lesson combines elements from the 4Cs framework, where four contextualized building blocks are integrated: the content (subject matter), communication (language learning and using), cognition (learning and thinking processes) and culture (developing intercultural understanding and global citizenship). (Coyle et al 2010: 41)

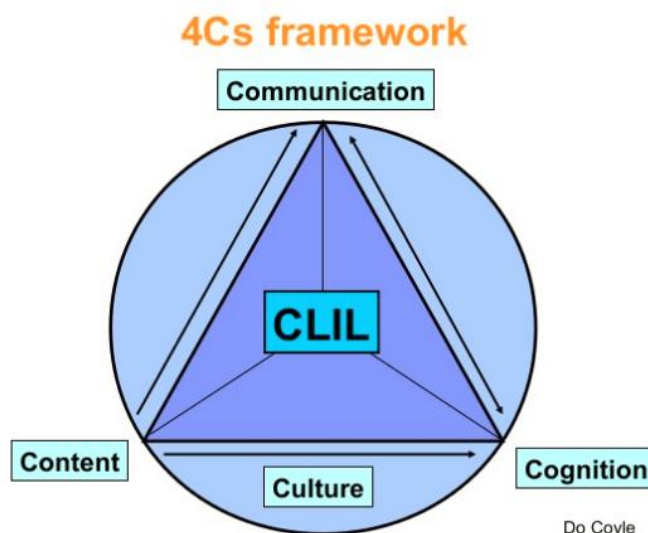


Figure 3: The 4Cs Framework. (Coyle et al 2010)

Good CLIL materials must follow the four the essential principles (see *Figure 3* above). For this to happen, it is essential to consider what the new knowledge and skill that pupils master is, and whether they really understand the content. It is also important to analyse the cognitive processes in learning. In addition, it is essential to add communicative context where pupils can interact and to consider which language knowledge and skills are important to develop. Besides language and content, it is important to deepen the acquisition of intercultural awareness how pupils position themselves and “others”.

The following will explain the 4Cs using Coyle et al (2010) as the source. Content means “progression in knowledge, skills and understanding related to specific elements of a defined curriculum”. Content is the subject or the CLIL theme. The theme can be drawn from alternative approaches involving cross-curricular and integrated studies. While considering what should be the content, it is advised to think of content it in terms of the knowledge, skills and understanding we wish our learners to access, rather than simply knowledge acquisition. (Coyle et al 2010: 53)

Communication means “interaction, using language to learn and learning to use language”. This puts classroom communication - interaction between peers and teachers –

at the core of learning. Communication in this sense goes beyond the grammar system, but at the same time does not reject the essential role of grammar and lexis in language learning. It involves using language in a way that is often different from more traditional language lessons. (Coyle et al 2010: 54)

Cognition means “developing thinking skills which link concept formation (abstract and concrete), understanding and language”. For CLIL to be effective, it must challenge learners to create new knowledge and develop new skills through reflection and engagement in higher-order as well as lower-order thinking. “CLIL is about allowing individuals to construct their own understanding and be challenged - whatever their age or ability”. (Coyle et al 2010: 54).

Culture means, in short, “exposure to alternative perspectives and shared understandings. Understanding of otherness and self, deepened feelings of community and global citizenship.” Culture is at times referred to as the “forgotten C”, it adds learning value to the CLIL context, yet demands careful consideration. Our pluricultural and plurilingual world demands tolerance and understanding. (Coyle et al 2010: 54-55)

In 2008 Byram wrote that if learners understand the concept of “otherness” then this is likely to lead to a deeper understanding of “self”. According to the Commission of the European Communities “CLIL offers rich potential for developing notions of pluricultural citizenship and global understanding – but these need to be planned and transparent”. (Coyle et al 2010: 55).

Whilst the 4Cs can be outlined individually, they do not exist as separate elements. Connecting the 4Cs into an integrated whole is fundamental to planning. CLIL demands careful planning for progression in all Cs, and the Cs may progress at different rates depending on the context. This enables teachers to adopt a more holistic and inclusive approach to classroom practice. (Coyle et al 2010: 55-56).

1.5 The Role of Language in CLIL: The Language Triptych

Whilst creating CLIL materials, it is important to consider what role language plays in CLIL lessons. Coyle (2002) came up with the Language Triptych to consider different aspect of language learning (see *Figure 4* below). According to Coyle (2002), *The Language Triptych* helps to integrate cognitively demanding content with language learning and using. This means that there are several language aspects to consider whilst composing CLIL materials.

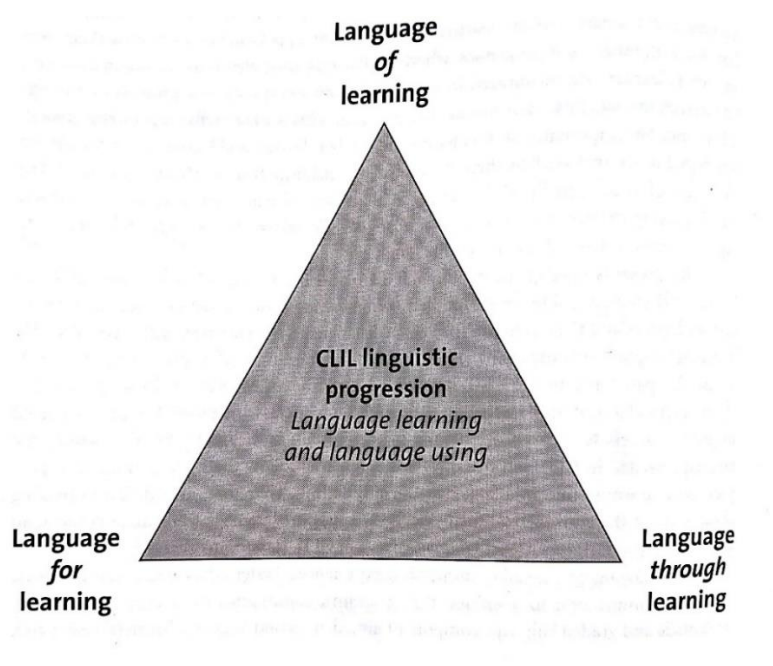


Figure 4: The Language Triptych (Coyle 2002)

The Triptych does not replace grammatical progression but rather enhances it. It supports learners in language using through the analysis of the CLIL vehicular language from three interrelated perspectives: language **of** learning, language **for** learning and language **through** learning. (Coyle et al 2010: 36)

The first aspect of *the Triptych* is the language **of** learning. This explores what language learners will need to access new knowledge and understanding when dealing with the content. (Coyle et al 2010: 61). For example, if a student must use past tense in a science lesson, in CLIL settings the learner needs to be supported in understanding the concept of

“pastness” and past “markers”. This can be achieved through using certain phrases rather than having to learn paradigms of verbs conjugated in the past tense. (ibid 37).

Language **for** learning focuses on the kind of language needed to operate in a foreign language environment (for pair/group work, asking questions, debating, etc). Arguably, language **for** learning is the most crucial for successful CLIL, as it makes transparent the language needed by learners to operate in a learning environment where the medium is not their first language (Coyle et al 2010: 62).

Language **through** learning is a new language that cannot be planned. This emerging language needs to be captured, recycled and developed so that it becomes a part of a learner’s repertoire. In more practical terms, language through learning is to do with capturing language as it is needed by individual learners during the learning process – and this by definition cannot be predicted in advance (Coyle et al 2010: 38).

All language aspects mentioned in the Language Triptych need to be considered whilst creating CLIL study materials. Language **of** learning prepares pupils to cope with upcoming grammatical features (tenses, comparative features, etc.). Language **for** learning helps pupils to cope with different communicative tasks (forming questions, bringing out pros and cons, etc.). To ease that, a teacher can write necessary vocabulary/phrases on the board. Language **through** learning can be captured so that new vocabulary/phrases are copied into notebooks and repeated in lessons.

1.6 Young Learners and Second-Language Acquisition

Phillips (1993) defines *young learners* as children of primary school age from the first year of schooling (seven years old in Estonia) to eleven or twelve years of age. She explains that young learners respond to language according to what it does or what they can do with it, rather than treating it as an intellectual game or an abstract system. Nunan (2011) consents with Phillips and compares younger learners with older learners. He agrees that

young learners generally have a holistic approach to language learning, which means that they understand meaningful messages but cannot analyse language yet whereas older learners show growing interest in analytical approaches, which means that they begin to take an interest in language as an abstract system. Young learners have limited reading and writing skills, even in their first language, whereas, older learners have well-developed skills as readers and writers. Young learners enjoy fantasy, imagination and movement, whereas older pupils begin to show an interest in real-life issues.

Additionally, Stephen Krashen (1981), linguist who has synthesized many of the recent second-language acquisition studies, claims that children *acquire* language, while the parents *learn* it. According to him “language acquisition is a subconscious process which requires meaningful interaction in the target language - natural communication - in which speakers are concerned not with the form of their utterances but with the messages they are conveying and understanding” (Krashen 1981: 1). This means that children should be put into a setting where they are surrounded by language that is made meaningful to them through of the context and through the way the teacher speaks to them. In addition, Krashen has popularized the idea of comprehensible input, where the amount of acquired language that the student can fully understand is limited, plus just a little more: $i+1$. According to Krashen, learners who are presented with language too far beyond their current language level, may feel that they are poor language learners and/or that the second language is simply too hard to be acquired. Therefore, it is important for the teachers to devote time to make the target language comprehensible to young learners.

Phillips (1993:5) provides some points to bear in mind when compiling study materials for young learners. Activities should be simple enough for children to understand what is expected of them. Tasks should be within their abilities they need to be achievable but at the same time sufficiently stimulating for children to feel satisfied with their work.

Activities should be largely oral; written activities should be used sparingly with younger learners.

Young learners have their own characteristics, which differ from the characteristics of older learners. They have their ways of thinking, their attitude, their aptitude, among other things. This also applies to children's ways of learning a language and influences the ways of teaching them. To give them the best quality of English teaching, teachers should know and understand these characteristics.

1.7 The Advantages and Challenges of Teaching Young Learners through CLIL

As all methods, CLIL has both advantages and challenges when used with young learners. Burkova (2013), who has carried out research into applying the CLIL approach with primary school pupils, has listed various aspects why CLIL is an effective approach for young learners. The first reason is that CLIL draws not only on language skills but also on many other skills that help to make interconnections and better memorize language and subject items as they are full of meaning. Secondly, CLIL is engaging because it involves learners through the entire lesson. It is also productive because learners are proud of the outcome and it is sociable because learners work and discover together. Finally, it is humanistic because the work that has been done is important and relevant to all children in the class.

Klimova (2011: 573) studied the CLIL approach in the Czech Republic and has listed some other reasons why CLIL is an effective method to use. She claims that it created a better working environment; it improves language knowledge and communication skills; it makes students learn the same way as native speakers do; it prepares children for future studies; it complements individual learning strategies; it increases learners' motivation and confidence in both the language and the subject being taught. When pupils are more

motivated to learn, they can progress more quickly and solidly than they would in case of compartmentalized subject teaching. Furthermore, CLIL encourages using a wider range of task-types to make sure people understand and with CLIL approach pupils make more of a cognitive effort. Last but not least, CLIL increases learners' confidence in the target language, because it makes a connection between real life and real-world skills.

However, Lightbown and Spada (2013) identify two potential drawbacks with the CLIL approach. Firstly, they point out that the meaning often becomes more important than the form. This means that pupils produce language output, which makes sense from a content perspective, but contains many flaws from a language perspective. (Ludin&Persson 2013:11). Secondly, they point out that oral interaction between pupils increases confidence in language use, but the majority of the language produced remains without error correction. In many cases, the teacher is not present to make the corrections, and pupils might not correct each other even if they could (ibid).

Other issues which might cause constraints are listed in Klimova's (2011) research. She points out such issues as students' lower knowledge of the target language; students with mixed language competences of the target language in one class; students with mixed learning abilities in one class; and a large number of students in one class. The same constraints apply to using the CLIL approach with young learners in Estonia because primary school classes in city schools are quite large (30 or more pupils per class) and usually of mixed ability. Klimova also highlights such issues as a lack of suitable learning materials for the selected CLIL subjects; unsuitable learning styles and teaching approaches; language teachers might find it difficult to teach other subjects because of their reluctance to cooperate with subject teachers; a lack of institutional support. Estonian school governing board often understands the need to apply CLIL/cross-curricular teaching; however, the necessary

support (extra time for planning and creating study materials) is not provided to enhance the cooperation between different subject teachers.

1.8 International Studies on Applying CLIL to Young Learners

Anna Vallbona González (2014) from the University of Barcelona carried out a longitudinal study to demonstrate CLIL's efficiency in improving learners' overall language proficiency. The aim of this research was to find out the effect of two different programmes, an EFL and EFL+CLIL programme, on learners' linguistic competence in three different skills, those of listening, reading and writing. The results obtained by the 5th-graders exposed only to EFL classes (Control Group) were compared to those obtained by the 5th-graders exposed to the same number of hours of English (EFL and CLIL hours combined) in order to determine the students' achievement and progress in the target language at different times (T1, T2, T3) and in different periods (T0-T1, T1-T2, T2-T3). Students were exposed to CLIL only one hour every week, in comparison with those students who just received EFL hours.

According to the results obtained, all the CLIL groups moderately benefit from the exposure to content in English when compared to their Control Group. The groups progressed significantly during the final time period (T2-T3). The results also provide partial evidence to support the effectiveness of CLIL in improving the language competence of low achievers. González states that low achievers not only benefit from immersion in CLIL, but also from the scaffolding strategies used by teachers. Studying content through a foreign language may have helped low achievers to make greater cognitive efforts, understand the communicative value of language, and therefore motivate them to learn this new language (González 2014: 407). González concludes that given the right and sufficient exposure and teaching conditions, the CLIL approach can improve the language competence of pupils in primary education. (ibid: 408)

Korosidou & Griva (2014) carried out an experimental research to study the effect of the CLIL approach in Greek primary education. The pilot CLIL project was implemented in an EFL primary school classroom with the purpose to enhance 6th grade students' knowledge about aspects of Byzantine art and culture as well as to develop foreign language skills. In addition, the aim was to identify whether CLIL instruction develops a more positive attitude towards FL and content learning. Again, the finding indicated the positive impact of CLIL instruction on EFL learners' performance. The results of the study revealed a significant language skills improvement, mainly in oral communicative skills. In addition, gains were recorded in relation to students' enhancement of content knowledge and skills, as well their positive attitude towards FL and content learning. However, it was also mentioned that students encountered some difficulties related to comprehending content-based texts because of the specific vocabulary. For this reason, further research in primary education, overcoming the limitations, was suggested.

Lenka Švecová (2011) carried out a study "CLIL in Very Young Learners" in the Czech Republic. The aim of the study was to find out whether the CLIL approach can be applied with very young learners, in the first year at primary school. The actual project was based on the story Jack and the Beanstalk and composed of activities suitable for various subjects in the first year. There was at least one activity done every day. Pupils learned individually, in groups as well as in the whole group. The results of the research project were very positive. It was possible to fulfil the content and language aims. In the research, after the children were familiar with the words and the story, they were guided to use English as much as possible even without any activity at that time. Švecová points out that this process encouraged mostly the children who were shy and afraid of speaking.

Gabillon and Ailincăi (2014) implemented the CLIL approach in teaching a science subject topic to young learners in Tahiti, French Polynesia. The study was designed to

investigate if CLIL could be applied effectively with beginner-level young learners with 25- to 30-minute EFL showers. The study also sought to explore if there would be any observable differences between a CLIL lesson (L2) and a subject lesson (L1) regarding: a) the teaching/learning of content knowledge; b) the learners' willingness to participate in classroom activities; and c) the types of classroom interactions used. The participants of the study were 10-11-year-old elementary school children. The participants all spoke French as their first language and they all had had approximately a year of EFL experience. The data was gathered merely by using video recordings.

Overall, the results obtained from this classroom-research showed that CLIL could be applied with beginner level young learners. However, CLIL with young beginner level learners requires a rich extra-linguistic context and socially mediated activity designs. They did not notice any significant observable differences in the learners' classroom behaviours except that the learners seemed more confident during the subject lessons, in which they used their mother tongue. On the whole, the learners showed willingness to participate in all four lessons.

Gabillon and Ailincăi emphasize that CLIL practices have been integrated into school curricula across Europe only recently and such practices are still new to many teachers. Thus, CLIL practitioners and researchers need more classroom-based examples to compare and gain insights about actual classroom practices.

All the above-mentioned studies have emphasised the positive outcomes from the CLIL approach for young learners. However, they have also identified the limitations of the method and emphasise the need to create and adapt the materials suitable for young learners.

2. CREATING, CONDUCTING AND EVALUATING A SCIENCE-ENGLISH CLIL PROJECT

In this chapter, the creation, implementation and evaluation of a Science-English CLIL project for young learners is discussed. The CLIL project was carried out in spring 2018 in Tallinna Rahumäe Basic School (hereinafter Rahumäe school). Rahumäe school is a state funded public school, where 746 pupils from forms 1 to 9 study. Yearly, there are different cross-curricular projects that teachers in Rahumäe school conduct. However, the conducting and participation in these cross-curricular projects is voluntary and without any extra guidance or support.

The CLIL materials were created based on National Curriculum for Basic Schools and on science students' book *Loodusõpetus 4. klassile*. These materials were tested over a 4-month period (from January to April 2018), when English was used as the medium of instruction to teach form four pupils the science topic *Human body*. The materials were tested by three teachers of English with 6 groups of pupils, 78 pupils all together.

Pupils in form four are young learners whose English is at A2 level. The English teachers were provided with ready-to-use CLIL project materials, which they used in parallel with Science teachers. After the implementation, the English teachers were asked to analyse each lesson plan and the major tasks separately. At the end of the project, the pupils' feedback on the project was collected. Agreements on the contents with the participating English as well as Science teachers were reached in advance. In addition, the pupils were informed about the unique opportunity to participate in a CLIL project.

2.1 General Overview of the CLIL Project

The Science-English Human Body CLIL project can be categorised as *Language-based project*, because in the project language teachers take the primary responsibility for the CLIL module. According to Coyle, "learners view this kind of learning as part of

language teaching but see it as an authentic way in which to use the language to learn non-language content“ (Coyle et al 2010: 22). In that module authentic content learning (authentic videos, speaking only in English) and communication (a lot of pair and group work) through CLIL language is involved. In addition, materials are scaffolded to make the content learning more acceptable for young learners.

The aim of the project is to support fourth-graders in learning the science topic *Human body*. *Human body* is the topic that fourth-graders learn during the entire second part of the year. The created Science-English CLIL project is more specifically called “*How does my body function?*” The project lasts for about 4 months, because English teachers must wait until a specific topic (different body systems, function of a heard, digestive system) is discussed in a Science lesson before supportive lessons can be carried out in English lessons. All together materials for 4+3 CLIL lessons were created to support the learning of the topic. The global goal of the project is:

- to encourage the use of cross-curricular/interdisciplinary approaches;
- to improve collaboration and communication between pupils and between teachers.

Learning objectives are the most important part in lesson planning, because they define the expected goals of the lesson. The project has three main teaching and learning objectives:

- to provide young learners with knowledge and confidence so that they can study science topics in English;
- to improve cooperation and collaboration skills (make pupils work for one unified objective)
- to enhance young learners’ knowledge of the topics *How does my body function?* and *How to stay healthy?*

In addition, the project has several joint tasks to improve collaboration, as well as, communication skills between young learners. The major joint tasks are:

- to jointly fill in a giant KWL chart (What I Know, What I Learned, What I Want to know);
- to create and present a life-size, lift-the-flap human body model;
- to fill in a feedback form.

All the materials (lesson plans, slides, handouts, feedback sheets) were uploaded to a Google Drive folder according to lessons: bit.ly/humanbody2018. In addition, teachers were provided with information and handout (see *Appendix 1*) on how to carry out CLIL lessons and how to scaffold CLIL learning. For instance, the teachers were told to speak only in English during CLIL lessons. However, they can ask pupils themselves to translate information into their mother tongue.

2.2 The CLIL project and the National Curriculum

Whilst creating the CLIL materials, the National Curriculum was consulted. The National Curriculum for basic schools establishes the national standard for the education. The National Curriculum for basic schools (hereinafter national curriculum) shall be applied in all basic schools in the Republic of Estonia regardless of the school's legal status, unless set forth otherwise in legislation. (National Curriculum, 2011)

The concept of learning according to the national curriculum is on seeing the behavioural changes in pupils' attitudes. According to the national curriculum, “*learning shall be focused on seeing changes in the behavioural abilities of the pupil or group of pupils. [...] As the pupil acquires experiences, the pupil begins to behave in a more goal-oriented fashion*”. (National Curriculum 2011). The emphasis on behavioural abilities was also considered when creating materials for the CLIL project. Throughout the project, pupils do many activities where they must communicate and collaborate. They also carry out experiments to have a hands-on study experience and to see how the human body really functions and how to keep the body healthy and strong.

In addition, the National Curriculum states that the learning environment and learning activities should be organized so that the pupil is put before the task. According to the national curriculum *“the pupil is an active participant in the learning process who takes part according to his or abilities in setting goals for his or her studies, studies independently and with companions”* (National Curriculum 2011).

Pupils have a very active role throughout the CLIL project. All the tasks are considered so that they put the pupil in the centre of the learning. Furthermore, pupils are actively involved in setting the learning objectives. For instance, in the first lesson pupils must fill in a KWL chart, where they are asked what topics they want to learn about the human body. These wishes are considered whilst compiling the following lessons. At the end of the project, pupils analyse their own study experience.

Furthermore, the national curriculum exteriorizes general competences. The general competences need to be considered whilst planning learning, because teaching through the development of competences will develop pupils as wholes. According to the national curriculum (2011) *“general competences are subject field and subject-specific competences that are very important in the development of a person into a human and citizen”*. Altogether, there are seven general competences listed in the national curriculum: value competence, social competence, self-management competence, learning to learn competence, communication competence, mathematics competence and entrepreneurship competence. In the CLIL project, different general competences are developed, such as the self-management competence (human anatomy, physiology, healthy lifestyle); the learning to learn competence (ICT environments, different learning strategies, feedback); the communicative competence (observation and test results); the mathematics competence (finding evidence, dashboards).

Additionally, the national curriculum lists cross-curricular topics that help to integrate different subject fields. “*Cross-curricular topics are a means of integrating general and subject field competences, /.../ Cross-curricular topics span numerous subjects, and fields that are priorities for society, and enable creation of an idea of the development of society as a whole*”. (National Curriculum 2011). Cross-curricular topics are: lifelong learning and career planning; environment and sustainable development; civic initiative and entrepreneurship; cultural identity; information environment; technology and innovation; health and safety and values and morals. In the *CLIL project*, the cross-curricular topics health, safety (understanding the importance of healthy lifestyles and healthy eating), values, and morals (value competence) are considered.

According to the national curriculum, integration plays a vital role in planning and carrying out learning.

Learning activity and the results thereof shall be shaped into a whole through integration, because integration supports the development of pupils’ general and subject field competences. The achievement of integration shall be planned by the basic school in the course of the development of the school curriculum and planning of learning and educational activities. (National Curriculum 2011: § 5) /.../. Integration of studies shall be achieved by following the common denominator of subjects of different subject fields, common thematic emphases on subjects, internal school projects and cross-curricular topics, and study assignments and methods. To achieve integration, the basic school shall organize studies and shape the learning environment and cooperation between teachers in a manner that enables cross-disciplinary treatment: specifying competences, setting learning objectives and determining common problems and terminology for various subjects. (ibid 2011)

The CLIL project allows pupils to analyse the human body by modelling the function of different organs. Meanwhile, different subject teachers (English and Science) must communicate to set learning objectives and to shape the learning environment into a justified order.

According to the national curriculum, the concept of learning should emphasise shaping learning so that it develops pupils' skills, knowledge, experiences, values and attitudes to cope with everyday life. It emphasises the need to develop cross-curricular connections as well as learning experiences to be integrated into a whole. Whilst planning cross-disciplinary learning, general competences and cross-curricular topics should be considered. Since the national curriculum was consulted whilst creating the CLIL materials, the project can be used in any Estonian school.

2.3 The 4Cs Framework and the CLIL Project

Whilst creating the CLIL project the 4Cs framework was considered. As explained previously, content is the driving force for CLIL teaching. In the Human body CLIL Project, the cross-curricular theme is *How does a human body function? How to take care of your body and how to stay healthy?* Pupils get a general idea of how their body functions, what the job of different organs is, and what they can, and should do to stay healthy. For instance, in the heart lesson, pupils measure their heart rate before and after a physical activity. Afterwards, conclusions are drawn on how to keep their heart healthy and strong.

In the CLIL project, it is also equally important that pupils learn. In addition to content, also language. To ensure it will happen, pupils must interact and communicate a lot in CLIL lessons. There is a lot of pair work, asking and answering questions, as well as several joint tasks that require pupils to interact.

Furthermore, cognition is considered in creating the materials. Several tasks are done as joint tasks because then pupils with different abilities can support each other. In addition, it is a challenge to create a single final task all together. It needs planning, cooperation and communication.

In the *Human body project*, there is a lesson about diversity to make pupils understand how similar we all really are. In addition, it was a plan to create the human body

model task together with one Estonian Russian school to raise awareness about our differences and similarities. Unfortunately, it did not happen this time.

2.4 The Language Triptych in the CLIL Project

Whilst creating the CLIL project, all language aspects mentioned in the Language Triptych were considered. The language **of** learning is asking *wh*-questions and comparing organs (comparative and superlative forms).

The language **for** learning is linked to the language students will need during lessons to carry out pair and group work effectively. For example, to discuss how a human body moves and how to stay healthy, they will need phrases which enable them to communicate successfully in pairs/groups. Necessary phrases are provided in handouts and used in videos. In some lessons, pupils are also provided with vocabulary sheets. However, the teacher could also write the necessary vocabulary/phrases on the board.

Language **through** learning may emerge while filling in the KWL chart or/and preparing the Human body model. Students working in groups need language to express a new idea which is not on the vocabulary sheet. In this case, pupils might involve dictionary work or extra help and support from a the teacher. In the *Human body project*, language **through** learning is captured in the KWL chart as well as written down in pupils' notebooks.

2.5 The CLIL Project Study Materials

All together, there were four content learning lessons and three final project-conducting lessons. Only the four content-learning lessons will be discussed here.

The aim of the first project lesson was to introduce the project and to set learning goals. The second lesson introduced different body systems; the third lesson introduced how the heart works and the fourth lesson the digestive system. Each lesson had a handout to support reading and writing skills, a video task to enhance listening skill and a lot of pair work and group work tasks. The next sections will provide a short summary of each lesson.

2.5.1 Lesson 1: Introduction: Human body CLIL project

The first lesson has an introductory function for the entire project. At the end of the first lesson, it is very important that pupils are positively alerted, which means that they must be explained that the project provides a unique experience to support the deeper learning of one topic in a foreign language and that cooperation and communication play a vital role in the learning process. The first lesson has three main learning objectives: to determine young learners' previous knowledge about the topic *Human body*; to determine what young learner want to know about the topic *Human body*; to introduce the Science-English CLIL project aims, learning outputs and assessment criteria.

The pupils' major task during the first lesson is to complete the first two columns of a giant KWL Chart – *What I Know about the topic?* and *What I Want to know about the topic?* In the beginning, the aim was to put pupils together to work in groups of four to recall previous knowledge/vocabulary about the topic. However, since the language level (A2) in form four is quite low then after a discussion with the language teacher materials to support remembering the previous knowledge/words was created.

To support the remembering of the previous knowledge, a two-sided handout was created (see *Appendix 3*). On one side, there was a word search task, where pupils had to find words and add translations. On the other side, there was a picture of a famous Estonian singer, and body parts had to be written in the picture. The word search task was a little more difficult than the other task because it consisted of new project-related vocabulary. The teachers could choose which side they preferred to use; let pupils themselves decide which side they preferred to complete; or complete tasks on both sides. After the completion of the task in the handout, the first column of a giant KWL chart (see *Appendix 4*) was jointly completed. Filling in the KWL chart is an important joint task, because people must work together to set goals for the whole project.

After that, pupils work in groups of 3-4 to discuss what they want to know about the topic *Human body*. Pupils may discuss it first in Estonian. After the discussion, each group says one thing they want to learn or experience during the project. Ideas are written down in the second column of the KWL chart in English (with the help of the teacher). The pupils' wishes are considered during the following lessons.

Thirdly, the teacher introduces the whole CLIL project with the help of six PowerPoint slides. Translations are added to the slides to ease the understanding for the pupils (scaffolding), and comments are added to the slides to support the teachers in presenting the slides. Pupils can ask questions if something is unclear.

The first lesson finishes with a *Thermometer game*. The aim of the game is to get individual as well as group feedback on the lesson. The teacher explains where 100 degrees and where 0 degrees are. The teacher asks: How much (English) could you understand during this lesson? If the pupil understood everything, they move towards 100 degrees, if nothing then towards 0 degrees. Then the teacher asks more questions: How many unfamiliar words were there in today's lesson? What do you think, are you able to learn about Human body in English?

At the end of the lesson pupils know what KWL chart is; remember the vocabulary they already know about the topic human body; have told what they want to know about the topic human body; know that it is a unique experience to learn science in English.

2.5.2 Lesson 2: How does my body move?

The aim of the second lesson is to introduce different body systems (muscular system, skeletal system, nervous system) and to explain which body systems need to work together to move. The second lesson is divided into four distinctive parts: vocabulary introduction on slides; a matching task in groups; a video task; and a 4D Anatomy app task.

Since the language teachers considered the body system lesson's vocabulary quite difficult for the fourth graders, materials to support the vocabulary learning were created. The lesson starts with slides to explain the body system. The slides help pupils to learn the new vocabulary using different senses: listening - teacher pronounces the words, seeing – the word is written on the slide; visualizing - the word together with the pictures. In addition, it provides the pupils with the necessary language for learning.

The second task is a matching task, which is completed as a group task. The pupils are required to put together the picture of a body system, the body system's name, its function and its appropriate organ. Pupils check the answers in the provided handout. Matching tasks are considered a good method in CLIL lessons, because they include necessary vocabulary and a visual aid. Since the matching task is done jointly, it also improves pupils' communication and cooperation skills. Next, pupils are required to complete the tasks in the Body system handout (see *Appendix 5*). They have to underline verbs and the words they like. Since the final task is to complete 3-5 sentences about one organ than underlining verbs helps to prepare for the final task.

As the third task, the pupils are asked, “*Which body systems need to work together so we can move?*” The pupils discuss it in groups and report the results back to class. The teacher writes the pupils' answers on the board. After that, the pupils are required to watch a video and see if they were correct when answering the question. To scaffold understanding of the authentic video, subtitles and video speech reducer is added. The pupils explain in groups the content of the video. The teacher may help the pupils with writing relevant vocabulary (e.g. nerves, muscles, sends signals) on the board. Writing down words helps pupils in constructing the sentences to explain the content of the video.

The lesson ends with the task of studying different body systems with the help of the *Anatomy 4D app* (see *Appendix 6*). The aim of the task is to raise interest in studying the

topic, because the app helps to explore the human body more closely while closing and opening different “eyes”, which open different body systems. In addition, there are only five tables in the classroom, which means that the pupils have to share the tablet and communicate.

As homework, the pupils study the body system topic through the learning app game, which is hidden under QR code in the Human body handout. The learning app game is a good, playful method for revising the topic. To provide scaffolding, translations are added to the organs.

2.5.3 Lesson 3: Love your heart

The main aim of the third lesson is to study the heart. At the end of the lesson, the pupils: can talk about the function of the heart; know what heart rate is and how to measure it; can explain how heart rate changes during rest and during physical activities; know how to keep the heart healthy and strong.

This lesson is all about communication and pair work. The pupils get their partner via a lottery and they are required to work together the entire lesson. Even if these pupils are not the sbest friends, they learn to work with the people they may have not worked together before. Each pupil gets *the Heart handout* (see *Appendix 7*). The pupils are first required to read the text by themselves to improve their reading skills. After reading, they must communicate with each other to form questions in order to get the missing information (both have three gaps). If forming questions is too difficult for them, they can find help from the exercise below. When both partners have formed three questions and written down the missing information, they must answer the questions about heart in task 2.

The second task is to watch a video *How to feel your heart beat?* and to the answer question about the video. This task aims to improve the pupils’ listening skill as well as content knowledge. After watching the video, the pupils know how to feel the heart beat;

what happens to your heart when you run; and how to take care of your heart. Most of the information and vocabulary is repetitive since it is also written in the handout

The third task is to carry out an experiment to find out what happens to your heart rate after physical activity. The teacher shows how to build a pulse reader and explains what heart rate is. The pupils build pulse readers and measure their heart rate during rest and during physical activity in pairs. After filling in the table, they add information to the *Class heart rate chart*.

After active learning, pupils should understand and remember the function of the heart better. Through the experiment, the pupils can see what happens to every person's heart after physical activity. They should know that the more they exercise, the more they exercise their hearts. The aim of the *Class heart rate chart* is for the pupils to see that heart rate changes in every person's heart irrespective of their gender.

2.5.3 Lesson 4: The Importance of Healthy Diet

The aim of the fourth lesson is to introduce the work of the digestive system and the importance of the healthy diet. At the end of the lesson, the pupils can explain how the digestive system works; know that 80% of our immune system's activity is in the intestines; know that a healthy diet means a healthy body.

The first major task that the pupils do in that lesson is watching a video *How the Digestive System Works*. After that, the pupils name five organs that belong to the digestive system. The language in the video might be at times too difficult for the young learner - however, the task itself should be appropriate to their language skill set.

The second task is to fill in the handouts *Why we need food* (see *Appendix 10*) and *Our digestive system* (see *Appendix 11*), where they have to write the organ names and show which part of the digestive system performs which function. The handouts are scaffolded with visual aids and translations.

The lesson finishes with a hands-on experience, where the digestive system is mimicked (see *Appendix 12*). The pupils' task is to assist the teacher in carrying out the experiment. The experiment finishes with a discussion of what a healthy diet is. At the end of the lesson, the pupils should have gained the knowledge that the healthier they eat, the stronger their immune system is.

2.6 Evaluation of the CLIL Materials

For each lesson, a feedback sheet (see *Appendix 13*) was created to evaluate the materials. All three language teachers were asked to assess each lesson immediately after the implementation in general and then each task separately on a two-sided handout. Four statements were made to give the general overview of the lesson:

1. *The learning objectives are achievable with the study material.*
2. *The study materials and activities are justified (tasks attractive, age-appropriate, topic-related etc).*
3. *There is enough scaffolding created (translations, visual aids, connection with previous knowledge).*
4. *Instructions created for the study materials are clearly formulated.*

The four statements were rated on a Likert Scale: *strongly agree, agree, undecided, disagree*.

For each question, there was a possibility to write a comment. In addition, the major tasks were asked to be assessed separately. Whilst evaluating assignments, the teachers were asked to evaluate three aspects:

- *The assignment is pupil centred (pupils are actively involved in the learning process).*
- *The content of the assignment is appropriate for the pupils' skill set.*
- *Linguistically, the assignment is appropriate for the pupils' skill set.*

Likewise, statements were rated on a Likert Scale: *strongly agree, agree, undecided, disagree*; and for each question there was a possibility to write a comment.

2.6.1 General Comparison of the First Four Content Learning Lessons

In this section, the first four content-learning lessons will be compared according to the teachers' feedback on the four general statements.

A learning objective is a statement of what the pupil will be able to do when he/she has completed a task. Learning objectives are the most important part in lesson planning, because they define the expected goals of the lesson. As seen from the Figure 5 below, the teachers agreed that the learning objectives of Lesson 1, 2 and 4 could be met. However, the heart lesson (Lesson 3), the teachers could not agree. According to their comments, learning objectives in the heart lesson were not always achieved due the lack of time. One teacher added a comment that the *“so-called ‘weaker ones’ couldn’t follow and understand the [video] text. The video was watched twice with the explanations”*. In addition, *“splitting up into pairs took surprisingly much time and caused confusion”*.

The results indicate the there was too much material in the heart lesson and that it was too difficult, expecially for ‘weaker’ pupils. Despite that, in general, the learning objectives were mostly achieved with the study materials.

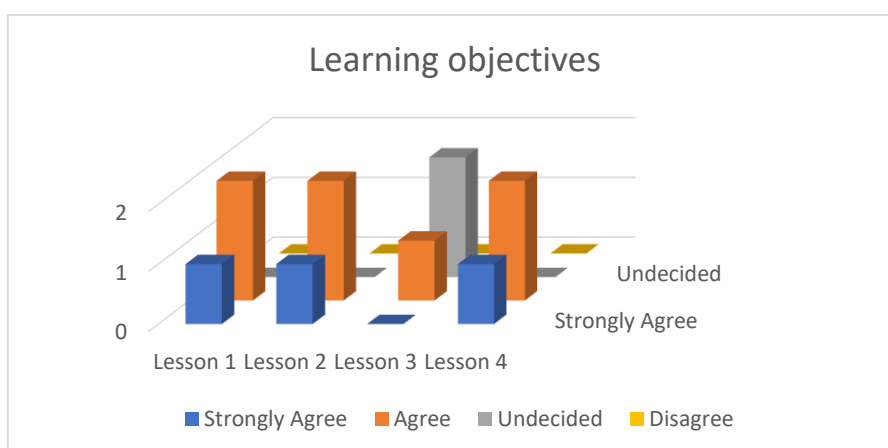


Figure 5: Learning objectives

Whilst compiling the study materials it is equally important to consider for whom the materials are created. Currently, the materials were created for young learners, which means that the materials had to be playful and easy to understand. Furthermore, it was important to

consider in which order the tasks should be used so that learning activities would support the development of higher level cognitive skills (see *Figure 6*).

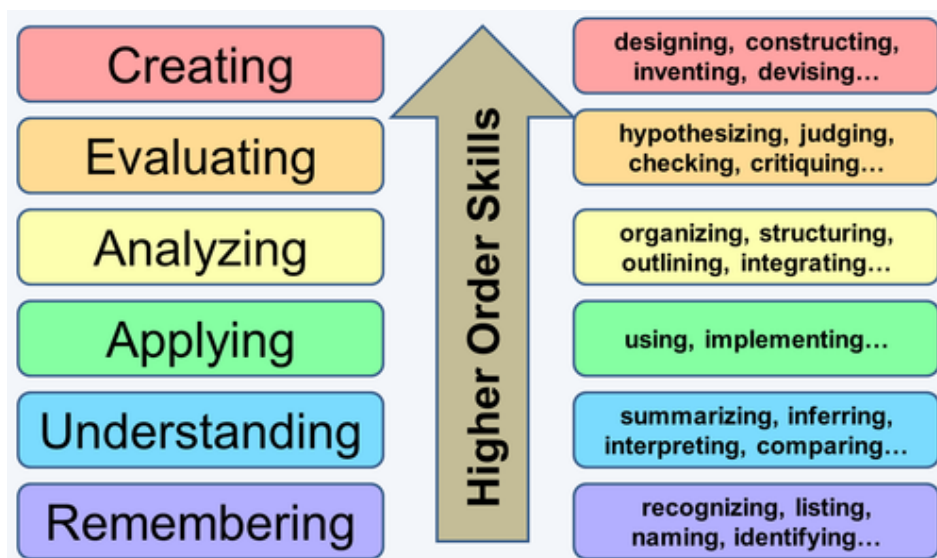


Figure 6: The Revised Bloom's Taxonomy (Anderson and Krathwohl 2001)

As seen from *Figure 7* below, all the teachers agreed (11 times strongly and once agreed) to the statement *study materials and activities are justified (tasks attractive, age-appropriate, topic-related etc.)*. The highest evaluation was given to *The Digestive System* lesson, where one teacher *strongly agreed* to the statement. This suggests, that the lessons were logically ordered when considering the age-appropriacy and the development of higher level cognitive skills.

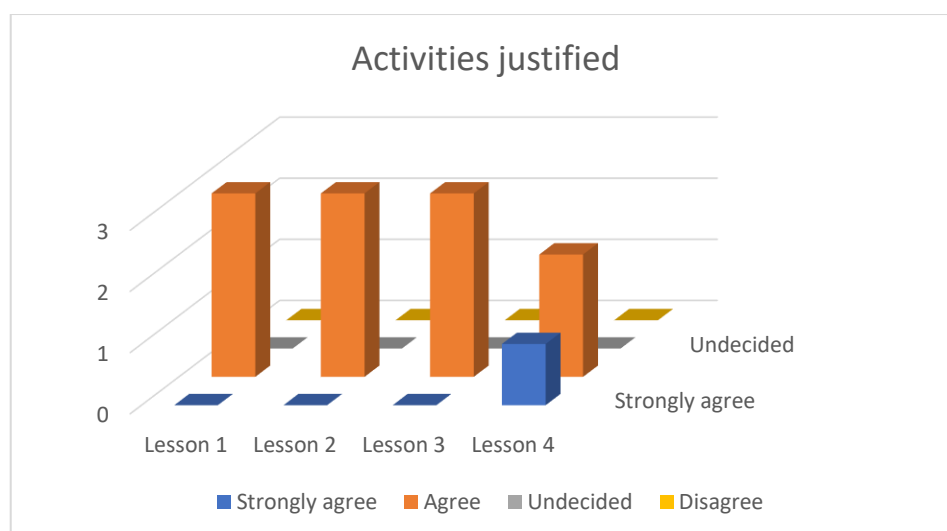


Figure 7: Activities justified

Since the CLIL study materials are meant for young learners, it was essential to create scaffolding to ensure that the pupils have a positive learning experience. As seen from *Figure 8* below, the teachers agreed more to the statement - *There is enough scaffolding created (translations, visual aid, connection with previous knowledge)* in the case of the first and second lesson than in the case of the third and fourth lesson. For the heart lesson, there was a comment “*more translations*” and for the digestive system lesson - “*video was linguistically too difficult for weaker pupils*”. This shows that the created materials were at times too difficult for the young learners and would have needed more scaffolding.

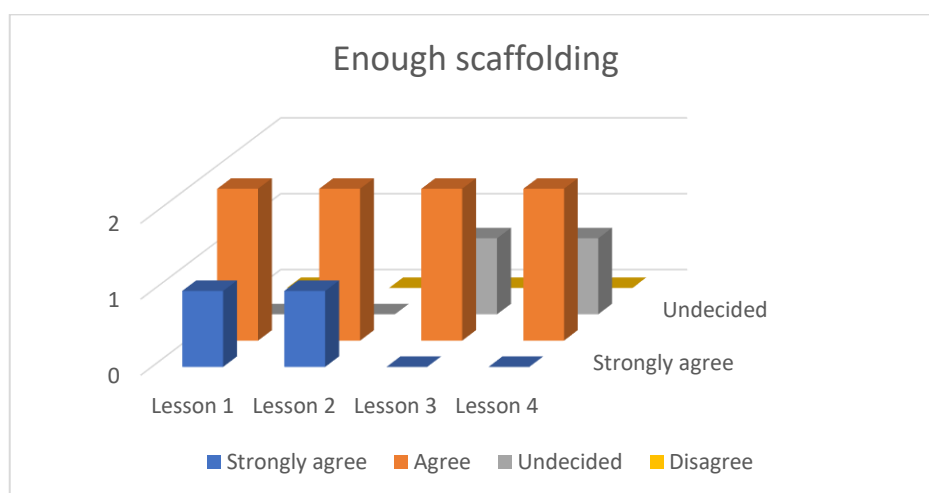


Figure 8: Enough scaffolding

The study materials have been created for other teachers to use; therefore, the task instructions must be formulated very clearly. As seen from the *Figure 9* below, the teachers agreed 11 times and strongly agreed once to the statement *Instructions created for the study materials are clearly formulated*. This shows that the tasks were clearly formulated and understandable for another teacher to use. However, the participating teachers were also supported with a meeting before each lesson to clarify the lesson goals and tasks.

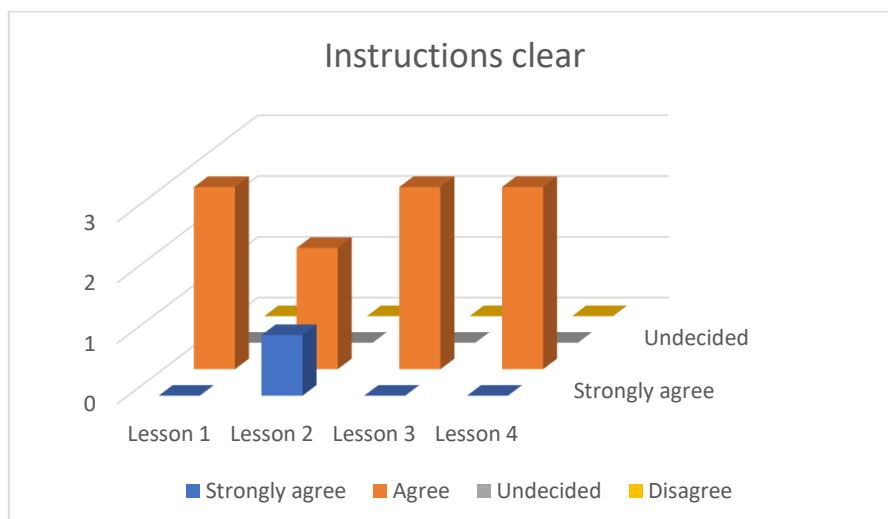


Figure 9: Instructions clear

According to the teachers' feedback, it can be said that the lessons were planned quite well. Learning objectives were mostly achievable with the study materials. Overall, the material and activities were justified and instructions clear. However, the third lesson had too much material and would have needed more scaffolding for young learners.

2.6.2. Comparison of the Major Tasks

Each lesson has three main tasks. For every lesson, a handout was created to improve the reading and writing skills and a video task was used to improve the listening skill. In addition, there are two experiments carried out in the lessons to offer young learners a hands-on learning experience. The handouts, videos and video tasks, and the two experiments are compared in the following sections.

All together, there were three authentic videos shown throughout the project to improve pupils' listening skills. The videos had English subtitles and the teachers were advised to change the video speed from normal to 0.75. As seen from *Figures 10 and 11 below*, whereas the content of the video assignments was considering mostly appropriate for the pupils' skill set, the language of the videos was seen as too difficult for the pupils. This is particularly true of the digestive system video, in which case all the teachers were *undecided* about its suitability.

At first, there was an idea of translating the videos into Estonian. Now, thinking back it would have been wise to do that. The videos could have first been watched with Estonian subtitles and then without them, encouraging the pupils to listen to the authentic speech more carefully.

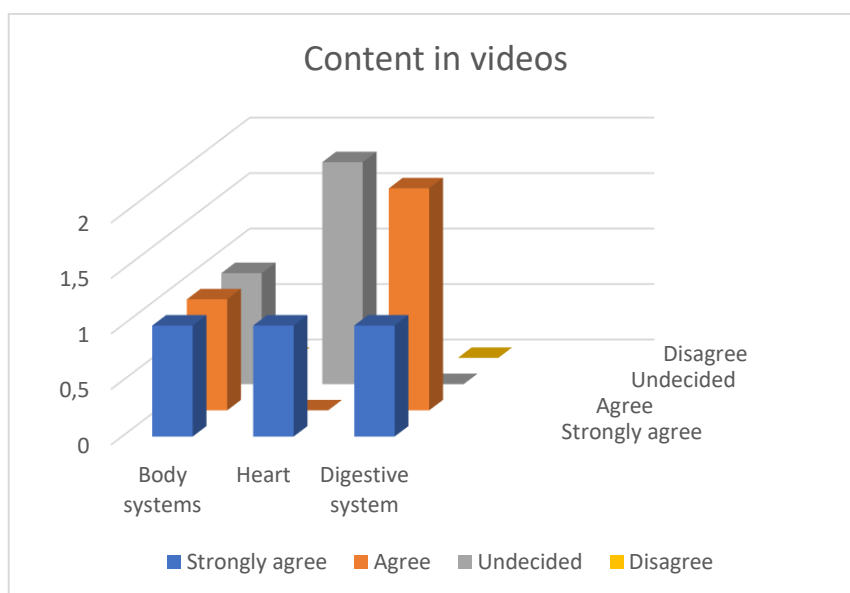


Figure 10: Content in videos

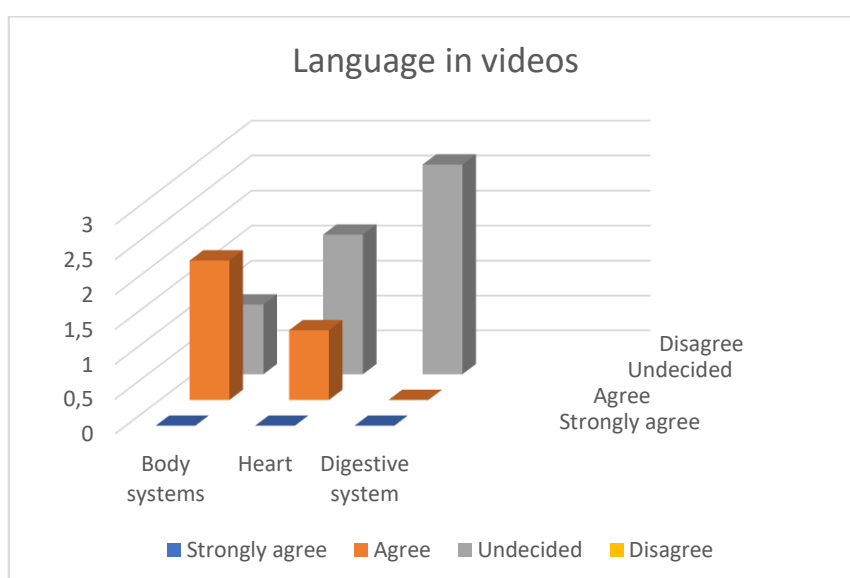


Figure 11: Language in videos

Each lesson had a handout, which pupils had to fill in. The handouts were compared considering the *language*, *content* and *pupil centredness*. The statement *Linguistically, the assignment is appropriate for the pupils' skill set* was rated eight times by the teachers

undecided, three times with *agree* and once with *strongly agree*. For the first lesson, such comments as “too much vocabulary”, “layout messy” and “the word search task wasn’t very easy; pupils didn’t finish with the task at school. The task needed extra guiding and helping.” For the heart lesson handout, two comments written: it “was difficult for the weaker ones” and “weaker ones didn’t manage, needed individual assistance.” This indicates that the language in the handouts was considered too difficult by the teachers. This suggests that, as only one lesson for each topic was created, this is not enough to master both the content knowledge and the new vocabulary. This led to the accumulation of the new vocabulary in each lesson.

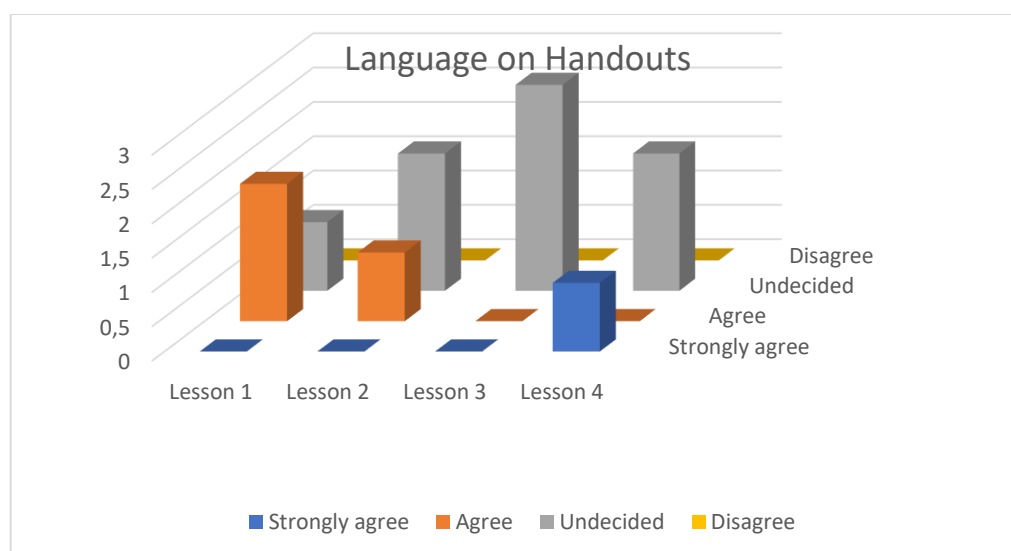


Figure 12: Language of Handouts

The contents of the handouts, however, was considered suitable for the pupils as, in response to the statement *The content of the assignment is appropriate for the pupils’ skill set*, the teachers responded with *strongly agree* three times, with *agree* six times and with *undecided* three times. The results are understandable, because the content was supported in the science lesson.

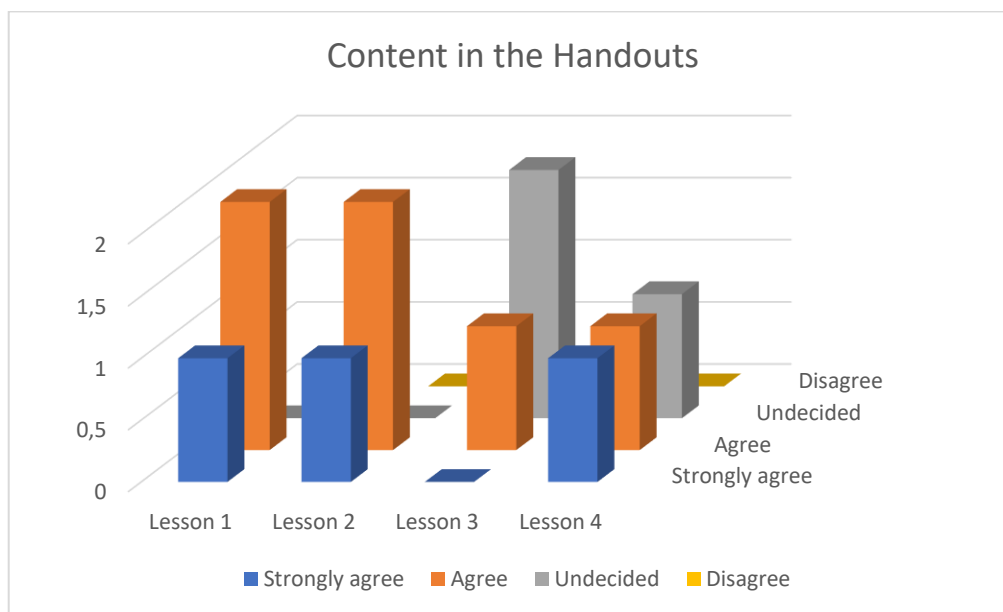


Figure 13: Content in the Handouts

In response to the statement *The assignment is pupil centred (pupils are actively involved in learning process)*, the teachers chose *agree* nine times and *strongly agree* three times. This indicates that the tasks created were pupil centred and that the pupils were actively involved while completing the tasks. In addition, the tasks in the handouts required the pupils to do pair work (asking and answering questions on the heart handout) and group work (the matching task in the body system lesson), which also involved the pupils in the active learning process.

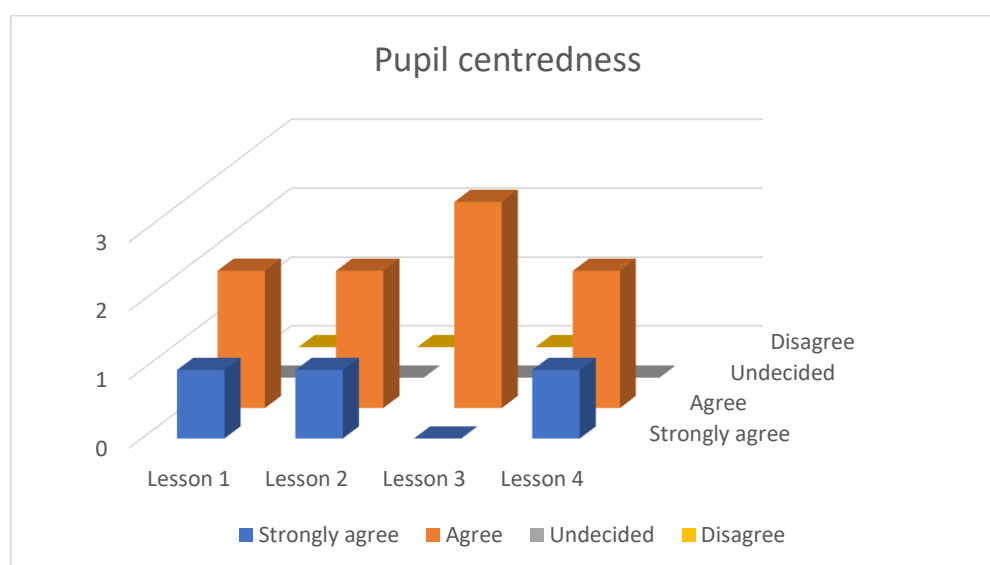


Figure 14: Pupil centredness

Comparing the *language*, *content* and *pupil centredness* of the two experiments shows that they were assessed quite highly, particularly on their content and pupil centredness. The *Digestive system* experiment (carried out in the digestive system lesson, see *Figure 16*), however was seen as more suitable for the pupils than the *Pulse reader experiment* (carried out in the heart lesson, see *Figure 15*). In the latter case, only one of the teachers *agreed strongly* that the content and pupil-centredness were suitable, and only one teacher *agreed* that the language was suitable.

Overall, the experiments were mostly assessed highly by the teachers, which indicates that the teachers as well as the young learner appreciated the hands-on learning experience. However, the *pulse reader experiment* was linguistically too difficult for the young learner.

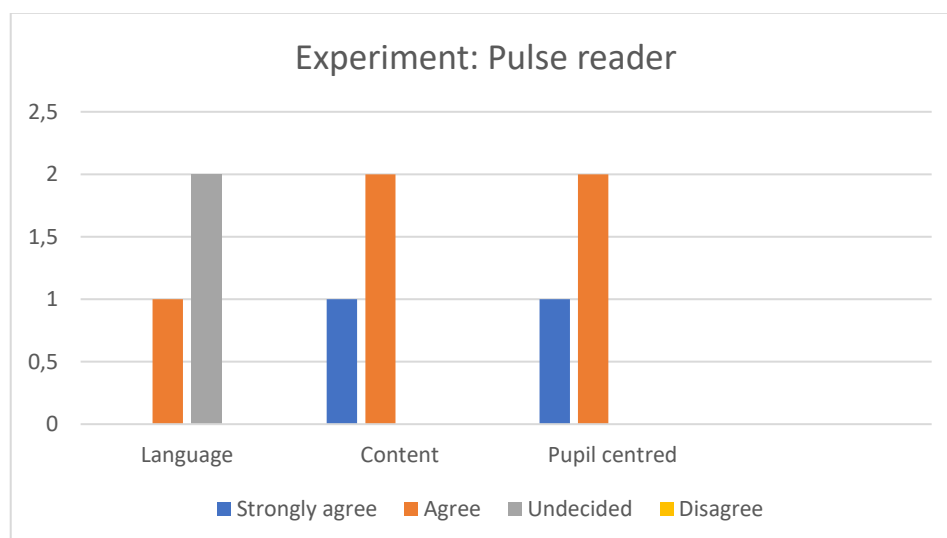


Figure 15: Experiment Pulse reader

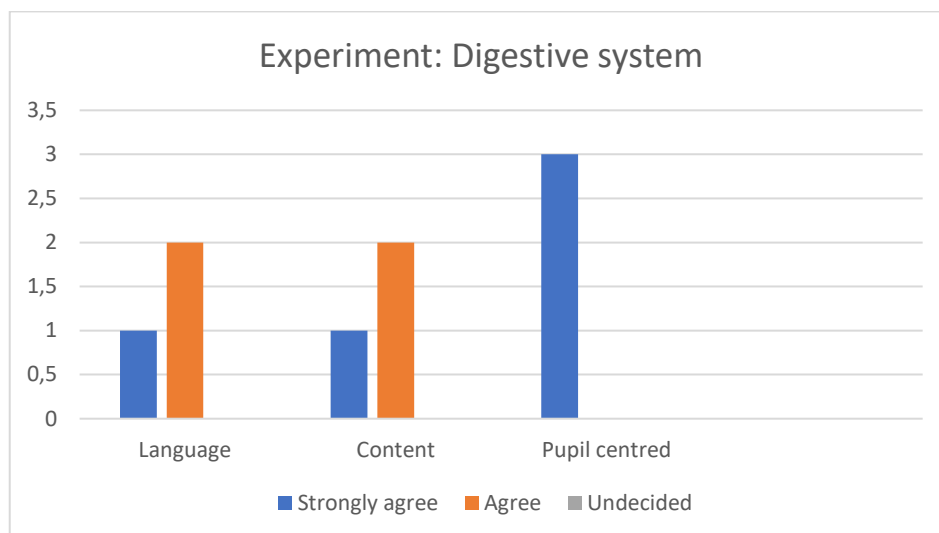


Figure 16: Experiment Digestive system

2.7 The Pupils' feedback on the CLIL Project

The pupils' opinions about the CLIL project were asked on two-sided handout to get an overview of how young learners assessed the project. (see *Appendix 14*). They could provide answers to the questions alone or in pair, depending on how the teachers preferred to give the task. All together 35-feedback sheets were returned.

There were four general statements made to get an overview of pupils' opinions. The pupils assessed the statements on a Likert Scart (Strongly agree, agree, undecided and disagree). The four statements were *I liked learning the topic Human body in English*; *I linguistically understood the CLIL lessons*; *I understood the content of the lessons*; and *I felt that I was actively involved in the lessons*.

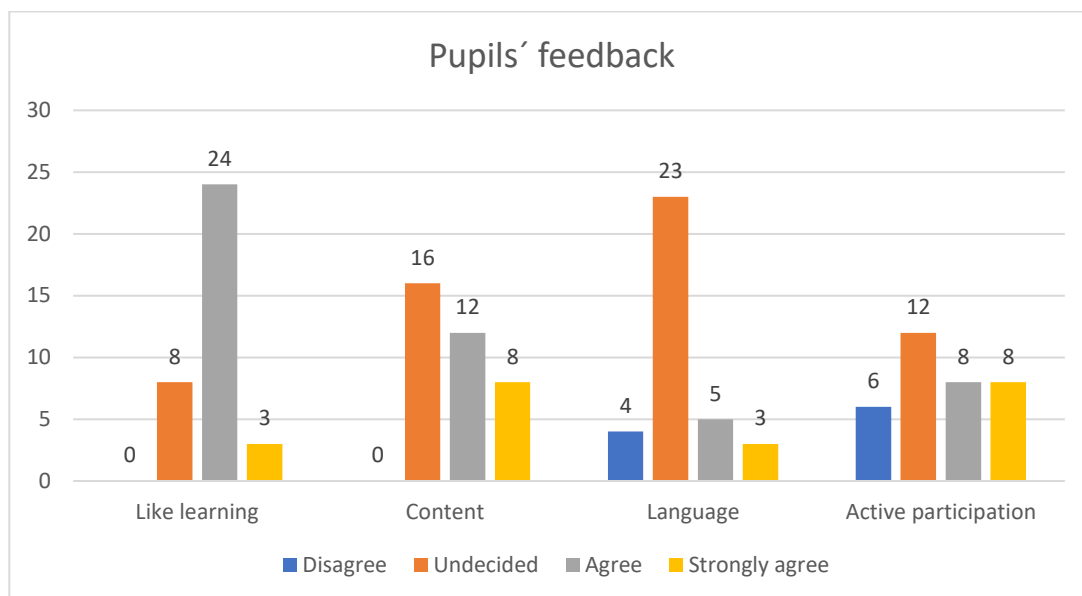


Figure 17: Pupils' feedback

The bar chart in *Figure 17* summarises the pupils' opinions about the CLIL project. It can be seen that the majority of the pupils (24 out of 35) responded with *agree* to the statement *I liked to learn topic Human body in English*. The pupils gave some reasons for why they liked learning the topic in English. The most often mentioned reason was that they liked the videos (19 times), followed by the QR codes (more specifically, the Learning Apps games that were hidden under the QR codes, mentioned 10 times), experiments (mentioned 9 times), and putting together the human body (mentioned 8 times). They also liked the Jeopardy lab, working with the partner, the use of tablets, filling in the KWL chart, being together with the class and learning body parts in English.

However, a large proportion of the pupils were unsure whether they understood the content of the lessons as 16 of them responded with undecided to the statement *I understood the language used in the lessons*; 12 students *agreed* to the statement and eight students *strongly agreed*. They were even more unsure of whether they understood the language: the vast majority chose undecided (23) in response to the statement *I understood the language used in the lessons*, five pupils chose *agree*; and three people *strongly agree*. Four pupils actually chose *disagree*. This seems to suggest that the project was linguistically too difficult

for the young learners and the pupils would have benefitted from more scaffolding. One reason put forward was that “there was too much vocabulary at once”.

When responding to the statement *Did you feel that you were actively involved in the lessons?* the pupils chose very different options: one third of them chose *undecided* (12), eight pupils chose *agree* and *strongly agree*, and six pupils *disagree*. Pupils mentioned that they would have liked to “carry out the experiments themselves, not only watch”, “I would have like to do the final task in smaller groups so that each member had a task”. This indicates that even though young learners like to work in groups, they still need to feel important and necessary.

The pupils were also asked to pick three favourite and three least favourite tasks and give reasons for their choices. The pupils’ favourite tasks were the *Digestive system experiment* (with 17 mentions); the *Digestive system video* (15), the *4D Anatomy App* (12); the *Human body final task* (11); and the *Word search task* (9).

In case of the *Digestive system experiment* the pupils emphasized that they really liked learning through experiments. The reason listed were that “it is interesting to see how our bodies function”; “I enjoy experiments”; “emotions were high, cool”; “it was cool to watch the experiment”. However, it was mentioned five times that the pupils did not like the experiment, and three times it was said to be “disgusting”. This seems to indicate that young learners generally appreciate lessons that have hands-on experiments.

The reasons they enjoyed the *Digestive system video* was that it was fun and educational. The comments were, for instance: “it was a fun way to learn”; “it was funny and educational”; “it was interesting to see how everything works”; “it was different from our regular lessons”. On the other hand, it was mentioned three times that the pupils did not like the task because “the video was in English and I didn’t understand half of the text” and “I didn’t understand and there were no subtitles”. This indicates that pupils mostly appreciate

funny educational videos even if they are a little difficult to understand. Yet, it would still be a good idea to add subtitles to the videos and/or let the pupils watch the videos at home to listen more carefully the authentic speaking.

The pupils enjoyed the *4D Anatomy app* because they could see things they did not know existed in a very lively way. The reasons pupils listed were: “digital is always better than picture”; “I was able to see things that I had seen before and I could see things, which I didn’t know exist”; “I could see how humans really look like”; it was fun, interesting and exciting”. All the same, some pupils did not like the *4D Anatomy* task because “it was a group task, so I couldn’t choose and see what I wanted to see”, “people were grabbing the tablet”, and it was “disgusting”. This may indicate that the pupils are not used to using tablets in their regular lessons and that they were so excited about the experience that they forgot the common sharing rules. One option for improving the task for the next time is to divide the tasks into task stations so each group has enough time and equipment to participate in the tasks.

The pupils enjoyed the *Human body final task* because they could work together. The reasons pupils provided were: “we could work as a group”; it was fun to put human body together”; I could see how big human organs really are”; “we were able to do group work”; “it was cool to cut the organs and put them together”. The reasons they did not like the task included: “others didn’t let do anything”, “it was boring”, and “I could have put the body together myself”. This reveals that young learner mostly like to learn for one unified goal; however, it is very important to make sure, that everyone has his or her own responsibilities and tasks to submit.

The *Word search* task was a controversial task, because the pupils rated it as their favorite nine times and as their least favorite eight times. The reasons for liking the task were: “it was easy”; “I liked to find words and learn them”, “it was fun to search”. On the

other hand, the reasons the pupils did not like it were “I couldn’t understand”, “it was boring”, “it was difficult to find the words”; “I don’t like searching words”. It seems that when a task is considered easy, the pupils like it; and when it is considered difficult, it is “boring”. One option for improving the materials would be to make different types of tasks for vocabulary practice (crosswords, word searches, learning app games, etc.)

The task the pupils liked the least were the word search task (-8), the experiments (both -7) and filling in the KWL chart. The reasons pupils did not like the heart experiment were: “it didn’t work”, “it was tiring” and “it took a lot of time”. Since the task was to build a pulse reader, it was difficult to evaluate how successful the students were. A way to demonstrate its effectiveness would be to bring different authentic pulse readers to class. In addition, as could be seen from the teachers’ feedback, the Heart lesson included too many activities and the pupils did not have enough time to discuss all the topics and do all the tasks. The pupils did not like the KWL chart because they found it boring. The comments were: “it wasn’t interesting”, “difficult words” and “I didn’t know, what to do”. This illustrates that pupils did not understand the purpose of the KWL chart and it should have been explained more carefully.

Generally, the pupils’ opinions about the tasks were very positive. The pupils could explain why they liked different tasks and a lot of them wrote that they really liked everything.

2.8 Discussion of the Findings

The questionnaire responses indicate that overall the *Human body CLIL project* lessons were planned quite well. The learning objectives were mostly achievable with the study materials; the materials and activities were justified and the instructions clear. The content of the assignments was mostly appropriate for the pupils’ skill set. However, linguistically most of the tasks were seen as too difficult for young learners and would have

needed more scaffolding. The created tasks were pupil-centred and the experiments highly assessed both by the teachers and the learners. This indicates that the teachers as well as the young learners appreciated the hands-on learning experience.

The pupils' answers were not surprising. The answers demonstrated that pupils enjoy working together, doing hands-on experiments and learning through funny educational videos. However, what was unfortunate was the fact that the score for understanding the language was much lower than the score for the content.

Surprising was that even though a lot of emphasize was given to create very pupil-centred assignments, so many pupils did not feel being actively evolved in the CLIL lessons. Four set of pupils (out of six) had four content learning lessons together with the whole class. Two teachers decided to support each other in carrying out the CLIL lessons because (one of them was worried about the ICT tasks (QR codes, 4D Anatomy app, Video) and the other of the difficult vocabulary and experiments). Thereof, some pupils and teachers experienced a very different classroom setting with two teachers carrying out a lesson at the same time. The teachers were positively surprised how effective the lessons were when carrying them out together. On the other hand, this may have been the reason, why pupils said, that there were not enough tablets and not enough individual tasks for everyone.

In the beginning of the project some teachers were very worried about how will their young learners succeed with the very different and difficult CLIL tasks. However, at the end of the project (while playing the concluding Jeopardy lab game) teachers were positively surprised that their pupils had acquired so much new knowledge and vocabulary. This indicates that pupils can exceed teachers' expectations when given a change. In short, the pupils' assessments were quite similar to the teachers' assessments. They mostly liked the project, however would have preferred more scaffolding. This indicates that teachers understand their pupils' skill set quite well.

The research showed that it is possible to teach young learner with using the CLIL approach, however, the created study materials have to be playful, pupil-centred, enourgaging pupils to cooperate and appropriate to their skill set.

CONCLUSION

The aim of the study was to investigate if the CLIL approach could be applied effectively with young learners who have only studied EFL approximately for one year. The results from international research indicate that the CLIL approach can effectively be applied with young learners. However, there are aspects to consider in order to make CLIL learning effective. Whilst creating the materials it is important to consider the characteristics of young learners to understand how they think, act and behave. Children need physical movement; they love to learn through fun plays and work together. They also need age-appropriate visual aids and they must be involved in activities. Considering these aspects whilst planning CLIL resources will help young learners to understand the cognitively demanding tasks. Research also indicates that the CLIL approach may benefit low achievers, because this approach helps them to make greater cognitive efforts due to the scaffolding strategies used by teachers, which therefore motivates them to learn the the language.

However, there are also drawbacks to applying the CLIL approach with young learners. Research indicates that there are pupils who encounter difficulties related to comprehending content-based texts because of the specific vocabulary. In addition, it has been emphasised that there is still lack of classroom-based examples for practitioners. Furthermore, as with every new approach, teachers as well as pupils need time to adapt to the new situation and environment. Longitudinal research has shown that pupils progress significantly better when practicing the CLIL approach for longer period.

The implementation of the created *Science-English Human Body project* also found support for the view that the CLIL approach can be applied with young learners. However, how effective the approach is depends on the quality of the created materials. The resources for young learners have to be pupil-centred, content of the assignments as well as linguistic demands appropriate for the pupils' skill set. According to the responses to the teacher

questionnaires, in *Human Body project*, too many tasks were linguistically too difficult for the young learners, which may have hindered the understanding of the content. However, since the characteristics of young learners had been considered whilst creating the materials, pupils mostly enjoyed the learning process due to interactive and fun learning activities carried out throughout the project, which may have changed their attitudes towards learning a FL. To conclude, given the right and sufficient exposure to target language and teaching conditions, the CLIL approach can be applied effectively with pupils in primary education.

Summarizing the findings about the research applying the CLIL approach with young learners it would be interesting to use the adjusted materials again to determine the linguistically appropriate level of the young learners. Furthermore, it would be interesting to investigate if applying the CLIL approach raises learners' satisfaction with the learning process and whether that, in turn, will enhance the acquisition of the new language and knowledge.

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Appendix 1

Punktid, mida arvestada LAK- õppe materjale luues ja tunde läbi viies

1. Looge psühholoogiliselt ja füüsiliselt turvaline keskkond

Õpilased peavad tundma, et nad võivad keelt kasutada vigu kartmata. Selleks tuleb õpilastega koos paika panna reeglid ja neid järgida.

2. Kasutage järjekindlalt üht keelt

Püüdke alati kasutada sihtkeelt. Esialgu võib õpilane vajaduse korral LAK-õppe keeles öeldu oma emakeeles kokku võtta.

3. Esialgu on õpilasel lubatud rääkida emakeeles

Olge valmis selleks, et äsja programmi alustanud õpilased, vastavad esialgu oma emakeeles. Andke õpilastele parajasti vajaminevad fraasid LAK-õppe keeles ning võimalusel kirjutage need tahvlile. Julgustage õpilasi alati LAK-õppe keeles rääkima.

4. Kõnelege aeglaselt ja hääldage selgesti

Uut sõnavara ja uusi struktuure tutvustades rääkige väga selgelt.

5. Kasutage kohast keeletaset

Vältige õpilaste jaoks liiga keerukaid struktuure, ent kõnelege grammatiliselt korrektselt. Et pakkuda õpilastele pinget, kasutage keeletaset, mis on üks samm nende omast ees – nii peavad nad kaasa töötama, kuid samal ajal ei muutu õppimine liiga keeruliseks.

6. Kasutage tähenduste kinnistamiseks miimikat, žeste ja pilte

Vastupidi tavapraktikale laske õpilastel enne visuaalse vihje andmist uusi sõnu hoolikalt kuulata, et ära arvata nende tähendus sihtkeeles. Sel viisil jõuab mõte esimesena kohale sihtkeeles.

7. Kordamine on vajalik

Kordamine aitab õpilastel tähendust mõista ning loob kindlustunde.

8. Muutke õppimine tähenduslikuks

Õppetundide keel, temaatika ja tegevused peavad õpilase jaoks olema aktuaalsed ja huvitavad.

9. Looge rohkesti keele kasutamise võimalusi

Õpilased õpivad keelt seda kasutades. Kõiki õpilasi haaravad tegevused, nagu rühmatöö, paaritöö ja õpikeskused, on efektiivsemad kui kirjalikud harjutused, mida kontrollitakse kogu klassiga, lastes ühel õpilasel korraga vastata. Kutsuge tundidesse

külalisi ja korraldage väljasõite. Seadke sisse sõbrasüsteem klasside vahel, pannes iga noorema õpilase kokku vanema õpilasega. Liituge rahvusvaheliste projektidega või alustage koostööprojekti Eestis või mõnes muus riigis asuva kooliga, mille õpilased kõnelevad LAK-õppe keelt esimese või teise keelena.

10. Esmatähtis on suhtlus

Õpilaste jaoks on suhtlemine täiuslikust grammatikast olulisem. Õpilast tuleks tunnustada rääkimise ning õigesti rääkimise eest.

11. Looge mitmekesiseid võimalusi kõigi nelja osaoskuse (kuulamine, kõnelemine, lugemine ja kirjutamine) arenguks

Keele iga osaoskus tugevdab teisi. Püüdke leida võimalusi kõigi nelja osaoskuse ühitamiseks ühes tegevuses või tegevuste seerias.

12. Seadke suured, ent realistlikud ootused

Ärge alahinnake oma õpilasi ega iseend. Suured ootused kinnisavad kooli mõtet: need aitavad õpilastel keskenduda õppimisele ja paremini käituda ning rajavad teed parematele tulemustele. Kui õpilastel on raskusi ootustele vastamisega, siis looge nende pingutuste toetamiseks tugistruktuur.

13. Tunnustage õpilaste pingutusi ja edu

Vältige pidevalt kiitust „Tubli!“. Tõhus tunnustus on konkreetne ning hõlmab nii analüüsi kui ka avalikku tunnustamist. Kiitke pigem pingutust, töökust, süsteemsust, julgust ja töö korralikku kavandamist. Eksponeerige õpilastöid klassiruumis ja koridorides. Kutsuge keegi töid vaatama ja kommenteerima.

Mehisto, P; Marsh, D, Martin, M.J.F. 2010. Lõimitud aine- ja keeleõpe. (p.122-124)

Inglise p. 105-109

Appendix 2

LAK projekti plaan – Õpetaja märkmed

How does your body work?

Kõik materjalid on õpetajale kättesaadavad:

bit.ly/humanbody2018

ÕPETAMISE/ÕPPIMISE TEGEVUSED

1. Tund

Teema: Sissejuhatav tund. Inimkeha projekti tutvustav tund.**Tunni eesmärgid:**

Tunni lõpuks õpilased:

- teavad, mis on KWL tabel, miks ja kuidas seda täita;
- on teadlikud Inimkeha projekti eesmärkidest, väljunditest ja hindamiskriteeriumitest;
- on ühiselt välja selgitanud varasemad teadmised ja soovid, mida antud teema kohta teada soovitakse.

Enne tunni algust:

- hiigelsuure KWL tabel välja otsimine/seinale kinnitamine
- printida *Human body Warm up: Vocabulary* leht (kõigile)
- ava *Human Body PP*

Time	Teacher's activity	Pupils' activities
1 min	Häälestus. Õpetaja ütleb, et on meil on täna veidi teistmoodi tund. Hakkame õppima inimkeha ja selle toimimist inglise keeles.	
8 min	Õpetaja jagab õpilastele Warm up: Vocabulary lehed: Otsige sõnarägistikust Inimkehaga seotud sõnu; paarilisega koos proovige lisada tõlge. (Õpetaja otsib välja suure KWL tabeli ja kinnitab selle seinale/või juba kinnitanud).	Õpilased otsivad sõnu ja paarilisega tõlgivad nii palju kui oskavad.

8 min	<p>Koos vaadatakse sõnad ja tõlked üle ja kirjutatakse KWL tabeli esimesse tulp: I Know lahtrisse. (Kirjutab kas õpetaja või mõni õpilastest).</p> <p>Do you know any more words in English about the topic Human body?</p>	<p>Õpilased nimetavad sõnu, mida nad sõnarägistikust leidsid ja lisavad sõnu, mida nad antud teema kohta veel teavad.</p>
3 min	<p>What is this chart here? Why do we use it? Mis tabel see selline siin on ja miks seda kasutatakse?</p> <p>Õpetaja selgitab. This kind of chart is used to know what pupils already know about the topic (previous knowledge) and what they still want to know.</p>	<p>Õpilased püüvad arvata, miks sellist tabelit peaks/saaks kasutada?</p>
5 min	<p>Moodustage 3-4 grupid. Form groups of 3-4.</p> <p>Discuss: What you want to learn/know about the topic Human body? You have 5 min to discuss.</p>	<p>Õpilased töötavad 3-4 liikmelistes gruppides ja arutavad, mida nad antud teema kohta teada saada tahavad. (arutada võivad eesti keeles)</p>
5 min	<p>Õpetaja kuulab vastuseid. Koos tõlgitakse soovid inglise keelde. Õpetaja kirjutab vastused tabeli teise lahtrisse (inglise keeles)</p>	<p>Iga grupp raporteerib, mida nad antud teema kohta teada tahavad.</p>
10 min	<p>Õpetaja annab ülevaate projekti eesmärkidest, väljunditest ja hindamiskriteeriumitest.</p>	<p>Õpilased kuulavad ja vajadusel küsivad</p>
5 min	<p>Tunni lõpetamine:</p> <p>Kraadiklaasi mäng. 0-100. Õpetaja näitab, kus pool on 0 ja kus 100 kraadi</p> <p>1. Kui palju said inglise keelsest tunnist aru?</p> <p>100- sain kõigest aru- 0 ei saanud midagi aru.</p>	<p>Õpilased liiguvad vastavalt selles suunas kui palju uut informatsiooni nad said. Ja nimetavad uusi sõnu, mis nad täna õppisid.</p>

	<p>2. Kui palju oli uusi inglise keelseid sõnu sinu jaoks tänases tunnis? Väga palju (100), teadsin kõiki sõnu 0.</p> <p>3. Mis arvad, kas oled võimeline õppima teemat kuidas inimkeha toimib inglise keeles? Jah, kindlasti (100) - mitte mingil juhul 0</p> <p>Millised olid uues sõnad tänases tunnis?</p>	
<div>MATERJALID</div> <p>Giant KWL chart</p> <p>Powerpoint: <i>Human Body PP</i> (Slaidid 1-6)</p> <p>Sõnarägistik. Printida <i>Human body Warm up: Vocabulary</i> leht (kõigile)</p> <div>HINDAMINE</div> <p>Õpilasi kiidetakse inglise keelsete sõnavõtude eest, et julgustada neid üha rohkem inglise keeles rääkima.</p> <div>TUGISTRUKTUUR</div> <p>Õpetaja jagab selgitusi ja käsklusi inglise keeles. Vajadusel võib ta paluda mõnel õpilasel tõlkida öeldud eesti keelde. Slaididel olev informatsioon on kahes keeles. Olemasolevat sõnavara aitab meenutada sõnarägistik. „<i>want to know</i>“ – arutatakse esmalt gruppides ja eesti keeles, seejärel proovitakse soovid õpetaja abiga tõlkida inglise keelde.</p>		

CLIL lesson plan - Teachers' notes

How does your body work?

TEACHING/LEARNING ACTIVITIES

Lesson 2

Topic: Different body systems. How does our body move? (skeletal system, muscle system, nervous system)

Aim: At the end of the lesson pupils:

- know the difference between different body systems (muscular system, skeletal system, nervous system)
- know which body systems need to work together to move

Before the lesson: 1. Matching task in envelopes (for each group); 2. Open Human body slides 2, 3. Print Human body system handouts for each pupil 4. Video “How to move your body” – change speed, add subtitles)

Time	Teachers' activities	Pupils 'activities
2min	What do you remember about our previous lesson? Praising.	Pupils answer
3 min	Introduction of the lesson aims.	
	Introduction to different body systems topic. Work with new vocabulary - (Slides 3-8)	Pupils guess the meaning.
15 min	Matching task. Teacher divides pupils into groups of 3- 4 and provides each group with an envelope with different body systems. You must match picture with a body system, its functions, and with correct organs. Teacher moves around and check if pupils need help.	Matching task: Pupils open the envelope and match pictures with correct information.

	1.	Picture
	2.	Body system
	3.	Body system in Estonian
	4.	Function
	5.	Organ
15 min	Checking the answers. Let's if you were correct. Teacher provides pupils with <i>Body system</i> handouts.	
	Which body systems need to work together so we can move? Teacher writes pupils answers on board.	
	Watch a video: How to our bodies move? (use video speed slower - 75). Was your answer correct? Explain it in groups: How to make your body to move? (Teacher can write down some useful words like nerves, muscles, sends signals...)	
	With Anatomy 4D app study different body systems.	
2 min	Do the task that is hidden under QR code on your handout. (Can also be set as homework)	
	Pupils check if they were correct; underline verbs on handout; add 1 organ.	
	Pupils discuss it in groups and report it back to class.	
	Pupils watch a video. Pupils explain to each other how to make human body move. (nerves, sent signals; muscles). One group reports it back to class.	
	Pupils study different body system with Anatomy 4D app.	
	Pupils do the Body system task that is hidden under QR code on their handout.	
	Pupils reply.	

	What have you learned today? Any new words?	
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Materials

Body system envelopes with matching task.

Body systems handout/4D Anatomy picture

Video: How to our bodies move? (change speed; add subtitles)

<https://www.youtube.com/watch?v=j918PoWWaB0>

CLIL lesson plan - Teachers' notes

How does your body work?

Lesson 3

Topic: My heart (Circulatory system)

Lesson aims:

At the end of the lesson pupils:

- can talk about the function of a heart;
- can measure heart rate;
- can explain how heart rate changes during rest and during physical activities;
- know how to keep the heart healthy and strong.

Before the lesson:

- open heart beat sound

https://www.youtube.com/watch?v=gJpT_wHZeF8

- make small papers with numbers 1-1, 2-2, 3-3... etc.
- print Heart handouts A and B/Love your heart
- heart rate chart

<https://www.youtube.com/watch?v=tF9-jLZNM10>

- Open video: *How to feel your heart beat?*
- For the experiment: clay, straw, stopper

Time	Teacher's activities	Pupils' activities
2 min	Teacher plays heart beat sound. What is the topic for today? What do you know about heart already?	Pupils listen and guess. Pupils answer
3 min	Today is all about pair work. Find your mate in silence. Teacher gives each pupil a piece of paper with number on it: 1-1, 2-2, 3-3 etc. Pupils with same numbers work together.	Pupil picks a number and finds his/her mate in silence.
10 min	Teacher provides each pupil with a handout. A-B Warm up questions: What is on the picture? How big is it? What does it do? Form questions to ask missing information. Write the answer the questions in task 2.	Pair work. Pupils read the text and form questions to find the missing information. Pupils answer the questions in task 2.
8 min	Teacher writes the questions on the board: How to feel your heart beat? What happens to your heart if you run? How to take care of your heart? Watch a video and answer questions: Video: <i>How to feel your heart beat?</i> https://www.youtube.com/watch?v=tF9-jLZNM10	Pupils watch the video and answer to questions.
	Experiment: Turn the other side on handout. Find out what happens to your heart rate when you do physical activities.	Pupils build a pulse reader, measure heart rate

20 min	Teacher gives clay and straw and explains how to build a pulse reader. After filling in their own table, data is written on big Heart rate chart	and fill in table in pairs. After filling in the table they draw the line on big Heart rate chart with different colours.
3 min	Let's look at the chart. What have you learned today? What should you to do keep your heart fit?	Pupils answer

Materials:

Heartbeat sound

https://www.youtube.com/watch?v=gJpT_wHZeF8

How to feel your heart beat?

<https://www.youtube.com/watch?v=tF9-jLZNM10>

Clay, straw, stopper

Handouts:

- Heart handout A/B
- Love your heart

Measuring heart rate and building a pulse reader

1. Pass out clay and straws. Ask pupils to find where on their necks their pulse rate is the strongest. Model if they are unsure where to look.
2. Stick a straw in the piece of clay and have them place the clay on their necks where they find the strongest pulse. They may need a student or teacher's assistance.
3. Pulse rate will be recorded for 15 seconds, counting the number of times the straw moves up and down.
4. Record results on the chart provided for the "Rest" category.
5. Have students participate in 30/60 second running on spot or jumping jacks to raise their heart rate.
6. After students have jumped for 30/60 seconds, have them take their pulse rate again.
7. Record these results in the „Running“ or "Jumping Jacks" category.
8. Give time for heart rate to slow down.
9. Measure the heart rate again to find your final heart rate. Mark the results in „Rest“ category.
10. Pupils fill in the big heart rate chart with different colours.

11. Discuss the results with the students.

CLIL lesson plan- Teachers' notes

How does your body work?

TEACHING/LEARNING ACTIVITIES

Lesson 4

Topic: Digestive system: The importance of a healthy diet.

Aim: At the end of the lesson pupils:

- can talk how digestive system works;
- know that 80% of our immune system's activity is the intestines;
- know that a healthy diet means a healthy body.

Before the lesson: 1. Open the Digestive system slides. 2 Open the Video: *How the Digestive System Works*. 3. Print out *Our Digestive System* handouts 4. Experiment: Let's make a stomach (zip-lock plastic bag, crackers, bananas (cut into pieces), 50 ml orange juice, 1 tablespoon water, 1 stocking, 1 plastic cup with a hole cut into the bottom of it.

Time	Teacher's activities	Pupils' activities
5 min	Warm-up: Statements about digestive system. True or false: 1) Humans eat on average between 1-2,7 kg of food a day. 2) To stay healthy, you need to eat a lot. 3) 80% of our immune system's activity is the intestines.	Pupils guess true or false. Same questions also finish the lesson.
10 min	Watch a video and name at least 5 organs that belong to the digestive system. Organs on slides.	Pupils watch the video and name 5 organs.
15 min	Teacher hands out <i>Our digestive system</i> handouts. Organ names + Draw a line showing which part of the digestive system performs this function	Pupils fill in the handout. Write the names of the organs and show which part of the digestive system performs which function.
10 min	Experiment: Let's make a stomach. Teacher carries out an experiment to imitate digestive system. With the help of the pupils digestive system and the importance of a healthy diet is explained.	Pupils watch, listen and assist the teacher. Guess what healthy foods are.
5 min	Conclusion: Returning to the statements. 1) Humans eat on average between 1-2,7 kg of food a day. (True)	

	<p>2) To stay healthy, you need to eat a lot. (False, you need to eat diverse and healthy diet, a lot of fibre)</p> <p>3) 80% of our immune system's activity is the intestines. (True)</p> <p>The healthier you eat, the stronger is your immune system!</p>	
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CLIL lesson plan- Teachers' notes

How does your body work?

TEACHING/LEARNING ACTIVITIES

Lesson: Grand Finale

Topic: Life-Size, Lift-the-Flap Human body

Aim: At the end of the project pupils:

- can create and present Life-Size, Lift-the-Flap Human body
- make conclusion about the study experience (KWL Chart, Feedback sheets)

Before the lesson: 1. Open Human Body Jeopardy Lab 2. Open *Grand Finale* slides 3. Print out organs 4. Large paper (for the model in the art lesson) 5. Feedback sheets

Time	Teacher's activities	Pupils' activities
20 min	What do you know about human body: Teacher opens <i>Human Body Jeopardy lab</i>	Pupils play <i>Human body Jeopardy lab</i>
10 min	Teacher explains the roles and tasks of the project	Pupils select "The Brain" and "The Model". They divide the organs (brain, urinary bladder, kidneys, pancreas, stomach, heart, intestines, liver, lungs, muscles, leg bones)
15 min	Teacher assists if necessary.	Pupils write 3 sentences about their organ (location, size, colour, to which body system the organ belongs to, its function etc.)
45 min	(Art) teacher assists if necessary.	Model is drawn on the paper. Pupils cut and colour their organs and write their 3 sentences. Organs are pasted on their correct places.
10 min	(English) teacher assists if necessary	Pupils practice the presentation of the human body
10 min	Teacher organizes the audience.	Pupils present their human body to form 3.
5 min	Finishing the KWL chart: What I Learned	Pupils say what are things they have learned.
20 min	Teacher provides pupils with feedback forms and asks pupils to fill it in in groups of 3	Pupils fill in the feedback form.

Materials:

Slides: <https://docs.google.com/presentation/d/1G0kY9XswyQzZe1Sb-UYDmau58YwFcHpjrjXoX9xoEJM/edit?usp=sharing>

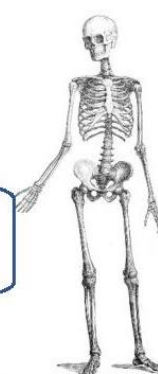
Jeopardy lab link: <https://jeopardylabs.com/play/how-does-my-body-function>

Organs; Feedback sheet.

Appendix 3

HUMAN BODY

Find words. Add translations. Leia sõnu. Lisa tõlked



D J X B E M F I Z I D A S M _
 W J G G R Y U O S K H D C O O
 S E L K N A E S I W N T N T N
 K N E E S T I D C A O E U T E
 H T E E T S N N H L C B L O S
 V O T D D E B A C K E U L B M
 I Z A O Y H T O O F N S W E R
 U E O V Y C W M X G J U G H A
 H L C F H E N G S S N E Z E T
 B L I V E R T T U T Z E K N L
 F O B I A P E G V O T H Z K P
 C C R P R H J N E M M H O E V
 X J V A T B X J F A E J U M E
 S H O U L D E R S C A F G M N
 K T G S F I V O N H R F U Y B

ANKLES
 BLOOD
 BRAIN
 ELBOWS
 HANDS
 KIDNEY
 LIVER
 MUSCLES
 STOMACH

ARMS
 BONE
 CHEST
 EYE
 HEAD
 KNEES
 LUNGS
 NECK
 TEETH

BACK
 BOTTOM
 EAR
 FOOT
 HEART
 LEGS
 MOUTH
 SHOULDERS
 THUMB

Body parts



1. Write the words from the box to correct places on the picture. Kirjuta kastis olevad sõnad õigetes kohtadesse pildil.

elbow, shoulder, waist, leg, foot, ankle, knee, wrist, bottom, head, back, finger, thigh, mouth, eye, ear, nose, toe, neck, heel

2. Write 3 sentences using words from the box. Kirjuta 3 lauset kasutades kastis olevaid sõnu.

Appendix 4

Topic: _____

What I K now	What I W ant to know	What I L earned

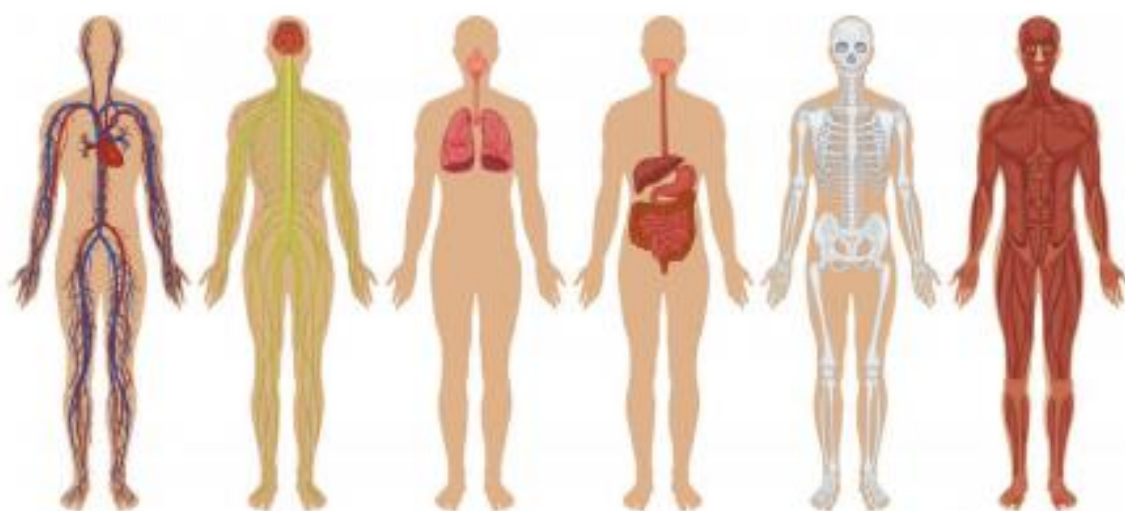
© Erin Long www.InspiredDiversity.com

Appendix 5

Human body CLIL project; Koort

BODY SYSTEMS

The body has different systems that function to help keep you alive and healthy.



Circulatory system

/ˌsɜː.kjəˈleɪ.tər.i/

The heart pumps blood away through the arteries, brings blood back through the veins

Nervous system

/ˈnɜː.vəs ,sɪs.təm/

The brain sends signals through the nerves that tells your body what to do

Respiratory system

/rɪˈspɪr.ə.tər.i ,sɪs.təm/

Exchange of gases we breathe in (oxygen) and out (carbon dioxide) /In 'vaɪ.rən.mənt/

Digestive system

/daɪˈdʒes.tɪv ,sɪs.təm/

Breaks down food

Skeletal system

/ˈskel.ə.təl/

Gives the body shape and protects the organs

Muscular system

/ˈmʌs.kjə.lər/

Helps your body move

1. Underline verbs. 2. Write translations to body systems. 3. Add organ

1. Jooni alla tegusõnad. 2. Lisa tõlked elundkondadele. 3. Lisa organ



Appendix 6

THE HUMAN BODY

WE GOT THE BEAT

Before each beat, your heart fills with blood. The muscle then contracts to squirt the blood along. An adult heart beats **60-80 times per minute**.

60 - 80

BEATS PER MINUTE

RIGHT VS. LEFT

Right-handed people live, on average, **nine years longer** than left-handed people do. The majority of the machines and tools we use on a daily basis are designed for those who are right handed, resulting in thousands of accidents and deaths each year.

MILES OF VESSELS

The human body has **60,000 miles of blood vessels**. The distance around the earth is about 25,000 miles, making the distance your blood vessels could travel if laid end to end more than 2x around the earth.

2x



WET FEET

Feet have **500,000 sweat glands** and can produce more than a pint of sweat a day.



BRAIN POWER

The brain operates on the same amount of power as a **10-watt light bulb**, and generates as much energy as a small light bulb even when you're sleeping.



10w

BREATHE IN

The surface area of a human lung is equal to a **tennis court**.



The large amount of surface area makes it easier for the exchange of oxygen and carbon dioxide to take place, and makes sure you stay properly oxygenated at all times.

"SMALL" INTESTINE

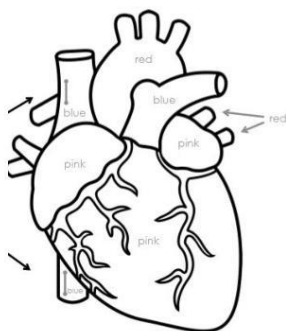
The largest internal organ is the small intestine. In fact, it's so long that it is actually **four times as long as the average adult is tall**.



ANATOMY 4D | DAQRI

Appendix 7

HUMAN BODY



?What is on the picture?

?How big is it?

?What does it do?

1. Read the text. Fill in the blanks. Ask missing information from your partner. Loe tekst ja täida lüngad. Küsi puuduolevat informatsiooni paariliselt.

(A)THE H _ _ _ _

The heart is a _____. It is **located**¹ near the center of your **chest**². It is about the size of your **fist**³ and it works _____, every day.

Your heart's job is to pump your blood through your body to **deliver**⁴ **oxygen**⁵ and **nutrients**⁶ where they are needed. It takes less than _____ for blood to move through your body and return to your heart. That heart of yours is a hard worker!

2. Answer questions. Underline places where you can find answers. Vasta küsimustele. Jooni alla kohad, kust leiad vastuse.

1. What is a heart? _____
2. How big is your heart? _____
3. When does your heart work? _____
4. What is your heart's job? _____
5. How long does it take for blood to move through your body and return to your heart? _____

¹ located: asuma

² chest: rind

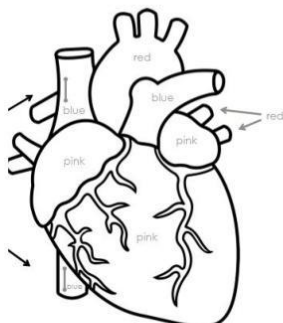
³ fist: rusikas

⁴ deliver: toimetama, saatma

⁵ oxygen: hapnik

⁶ nutrients: toitained

HUMAN BODY



?What is on the picture?

?How big is it?

?What does it do?

1. Read the text. Fill in the blanks. Ask missing information from your partner. Loe tekst ja täida lüngad. Küsi puuduolevat informatsiooni paariliselt.

(B)THE H _ _ _ _

The heart is a muscle. It is **located**¹ near the center of your **chest**². It is about the size of your **_____**³ and it works all day, every day.

Your heart's job is to **_____** through your body to **deliver**⁴ **oxygen**⁵ and **nutrients**⁶ where they are needed. It takes less than one minute for blood to move through your body and **_____** to your heart. That heart of yours is a hard worker!

2. Answer questions. Underline places where you can find answers. Vasta küsimustele. Jooni alla kohad, kust leiad vastuse.

1. What is a heart? _____
2. How big is your heart? _____
3. When does your heart work? _____
4. What is your heart's job? _____
5. How long does it take for blood to move through your body and return to your heart? _____

¹ located: asuma

² chest: rind

³ fist: rusikas

⁴ deliver: toimetama, saatma

⁵ oxygen: hapnik

⁶ nutrients: toitained

Appendix 8

Name: _____

Date: _____

LOVE YOUR HEART



Find out what happens to your heart rate when you do physical activities!

Heart rates are calculated in beats per minute (bpm). Your regular resting heart rate (when you are not doing any physical activities) should range between 60 and 100 bpm.

Use this table to calculate your heart rate:

	Beats in 15 seconds	Beats x 4	Heart Rate
Rest		x 4 =	
Jogging		x 4 =	
Rest		x 4 =	
Jumping Jacks		x 4 =	
Rest		x 4 =	

What happened? (*exercise, beats faster/pumps more blood, work extra hard*)

If _____,

then _____,

because _____.

**The more you _____, the more you exercise your
_____!**

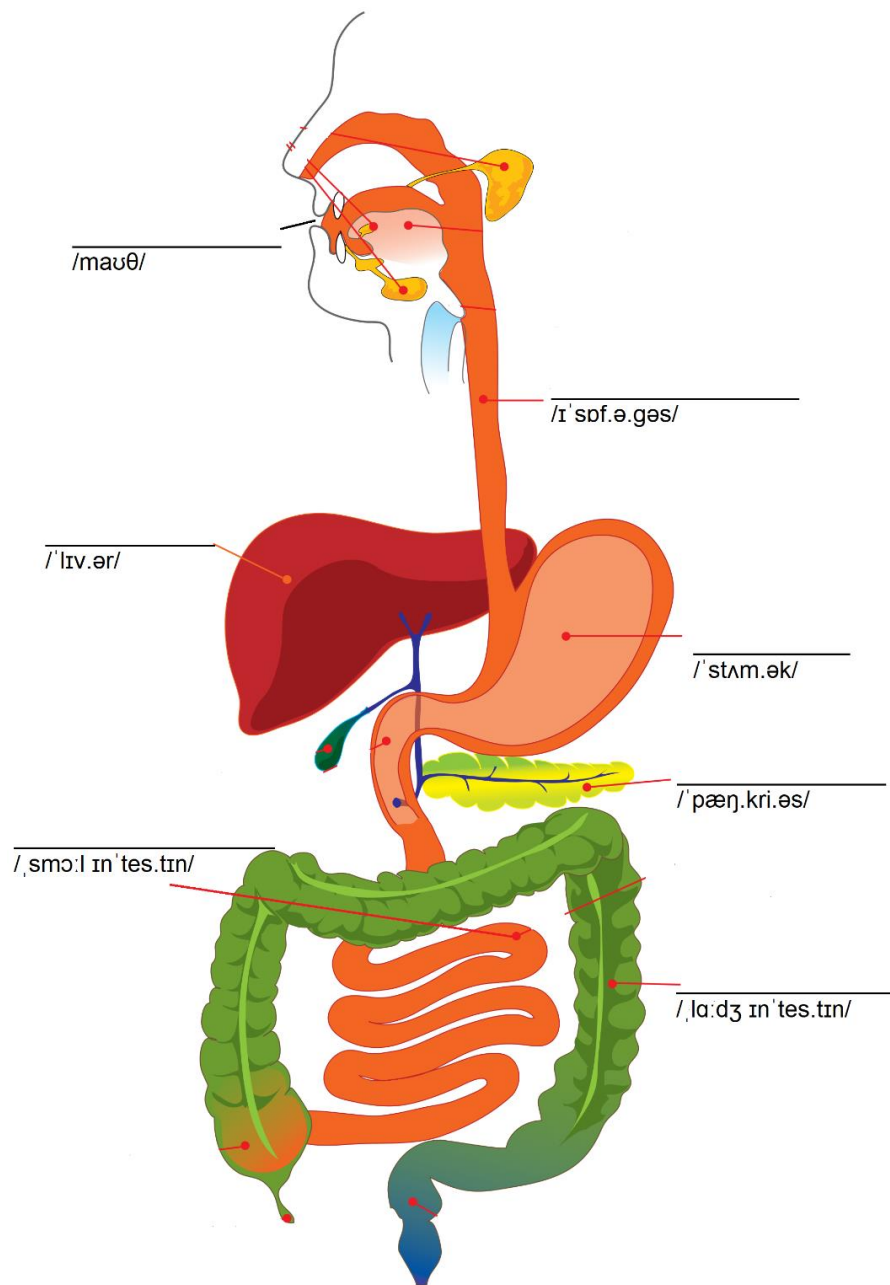
Appendix 9

Measuring heart rate and building a pulse reader
12.Pass out clay and straws. Ask pupils to find where on their necks their pulse rate is the strongest. Model if they are unsure where to look.
13.Stick a straw in the piece of clay and have them place the clay on their necks where they find the strongest pulse. They may need a student or teacher's assistance.
14.Pulse rate will be recorded for 15 seconds, counting the number of times the straw moves up and down.
15.Record results on the chart provided for the "Rest" category.
16.Have students participate in 30/60 second running on spot or jumping jacks to raise their heart rate.
17.After students have jumped for 30/60 seconds, have them take their pulse rate again.
18.Record these results in the „Running „or "Jumping Jacks" category.
19.Give time for heart rate to slow down.
20.Measure the heart rate again to find your final heart rate. Mark the results in „Rest „category.
21. Pupils fill in the big heart rate chart with different colours.
22.Discuss the results with the students.

Appendix 10

Digestive system. Why we need food?

1. Write the word (see the box below). Add translations.

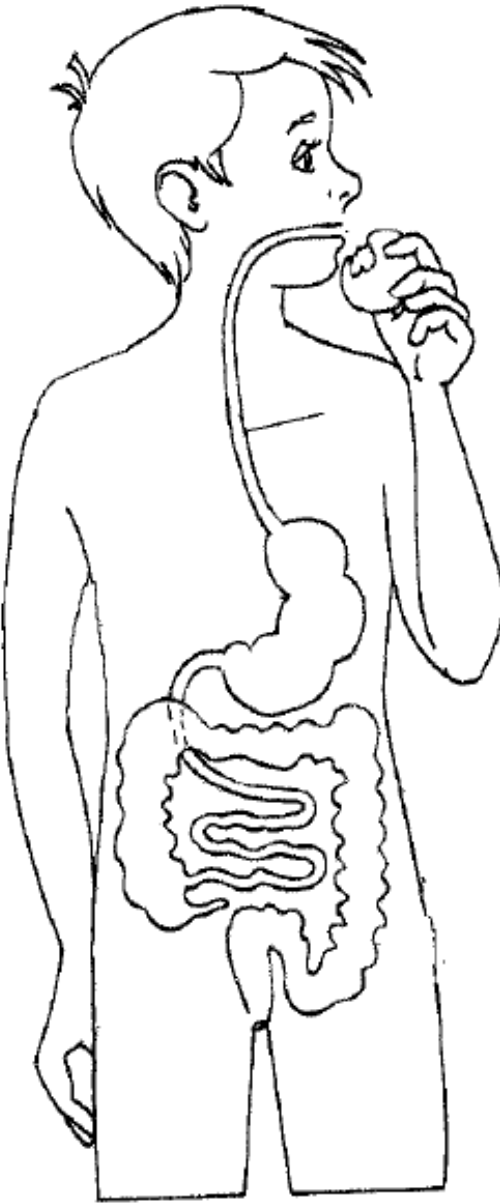


mouth suu	esophagus söögitoru	liver maks	stomach magu
pancreas kõhunääre	small intestine peensool	large intestine jämesool	urinary bladder põis

Appendix 11

Our Digestive System Name _____

Draw a line showing which part of the digestive system performs this function:



The food is chewed and mixed with saliva.

The food moves to the food tube.

The food moves to the food tube/esophagus.

The food moves into the stomach.

The food moves into the stomach.

Intestinal juices help to digest the food.

The stomach juices mashes the food and turns it to paste.

Nutrients get absorbed.

Waste is released.

<http://worksheetplace.com>

chew: mäluma

saliva: sülg

tube: toru

intestinal juices: maomahlad

mash: purustama

paste: pasta

nutrients: toitained

absorbed: imenduma

waste: jääkaine

Appendix 12**Experiment: Digestive system**

You need:

- Orange juice - acid
- Water - saliva
- crackers/bananas - food
- bowl - body
- Plastic cups
- Paper cup with the whole in the bottom- large intestine
- A sealed plastic bag – stomach
- one leg of a pair of tights - small intestine
- Pair of scissors

Step-by-step instructions:

1. Place bananas and crackers in a Ziploc bag (demonstrates the swallowing process)
2. Pour orange juice (acid) and water (saliva). Squeeze the bag with the hands simulating the action of the stomach churning food. Stomach walls squashing pur food together. It will take a couple of minutes to get a good consistency.
3. Food moves to small intestine. (tights =small intestine). Cut bottom of the plastic cup, use it as a funnel; cut a corner of the plastic bag and pour the food into intestine. As you squeeze the food through all the nutrients you need for growth and enery will flow into the tray which represents the body. The things body can't digest will be left in the tights.
4. Large intestine. Transfer solid material into a paper cup with a hole in the bottom which represents the large intestine. Use another plastic cup to push the waste through the hole. This mimics the act of going to the toilet.

Appendix 13**Human Body. Lesson 1. Feedback.****1. Õpetajalehel olevad tunni eesmärgid on õppematerjali abil saavutatavad.**

- ☐ Täiesti nõus
 - ☐ Nõus
 - ☐ Nii ja naa
 - ☐ Ei ole nõus
-
-

2. Õppematerjal ja õppetegevused on põhjendatud (ülesanded köitvad, eakohased, ainesisuliselt asjakohased, õppetegevused toetavad teksti mõistmist ja arendavad ka kõrgema taseme kognitiivseid oskuseid)

- ☐ Täiesti nõus
 - ☐ Nõus
 - ☐ Nii ja naa
 - ☐ Ei ole nõus
-
-

3. Õpilaste jaoks oli loodud piisavalt asjakohast tugistruktuuri. (Kuidas ainesisu mõistmist toetatakse? Tõlked, visuaalne tugi, seos eelnevate teadmistega vms)

- ☐ Täiesti nõus
 - ☐ Nõus
 - ☐ Nii ja naa
 - ☐ Ei ole nõus
-
-

4. Õppematerjalis olevate ülesannete juhendid on arusaadavalt sõnastatud.

- ☐ Täiesti nõus
 - ☐ Nõus
 - ☐ Nii ja naa
 - ☐ Ei ole nõus
-
-

5. Kui on esimese tunni materjali kohta veel kommentaare, siis lisa need siia:

1. Sõnarägistik/Taukar Human Body

Ülesanne on õppijakeskne	Ülesanne on õpilastele sisuliselt jõukohane.	Ülesanne on õpilastele keeleliselt jõukohane.
<input type="checkbox"/> Täiesti nõus	<input type="checkbox"/> Täiesti nõus	<input type="checkbox"/> Täiesti nõus
<input type="checkbox"/> Nõus	<input type="checkbox"/> Nõus	<input type="checkbox"/> Nõus
<input type="checkbox"/> Nii ja naa	<input type="checkbox"/> Nii ja naa	<input type="checkbox"/> Nii ja naa
<input type="checkbox"/> Ei ole nõus	<input type="checkbox"/> Ei ole nõus	<input type="checkbox"/> Ei ole nõus

2. KWL tabeli täitmine

Ülesanne on õppijakeskne	Ülesanne on õpilastele sisuliselt jõukohane.	Ülesanne on õpilastele keeleliselt jõukohane.
<input type="checkbox"/> Täiesti nõus		
<input type="checkbox"/> Nõus	<input type="checkbox"/> Täiesti nõus	<input type="checkbox"/> Täiesti nõus
<input type="checkbox"/> Nii ja naa	<input type="checkbox"/> Nõus	<input type="checkbox"/> Nõus
<input type="checkbox"/> Ei ole nõus	<input type="checkbox"/> Nii ja naa	<input type="checkbox"/> Nii ja naa
	<input type="checkbox"/> Ei ole nõus	<input type="checkbox"/> Ei ole nõus

3. Kraadiklaasimäng

Ülesanne on õppijakeskne	Ülesanne on õpilastele sisuliselt jõukohane.	Ülesanne on õpilastele keeleliselt jõukohane.
<input type="checkbox"/> Täiesti nõus		
<input type="checkbox"/> Nõus	<input type="checkbox"/> Täiesti nõus	<input type="checkbox"/> Täiesti nõus
<input type="checkbox"/> Nii ja naa	<input type="checkbox"/> Nõus	<input type="checkbox"/> Nõus
<input type="checkbox"/> Ei ole nõus	<input type="checkbox"/> Nii ja naa	<input type="checkbox"/> Nii ja naa
	<input type="checkbox"/> Ei ole nõus	<input type="checkbox"/> Ei ole nõus

Human Body. Lesson 2. Body systems. Feedback

1. Õpetajalehel olevad tunni eesmärgid on õppematerjali abil saavutatavad.

- ☐ Täiesti nõus
 - ☐ Nõus
 - ☐ Nii ja naa
 - ☐ Ei ole nõus
-
-

2. Õppematerjal ja õppetegevused on põhjendatud (ülesanded köitvad, eakohased, ainesisuliselt asjakohased, õppetegevused toetavad teksti mõistmist ja arendavad ka kõrgema taseme kognitiivseid oskuseid)

- ☐ Täiesti nõus
 - ☐ Nõus
 - ☐ Nii ja naa
 - ☐ Ei ole nõus
-
-

3. Õpilaste jaoks oli loodud piisavalt asjakohast tugistruktuuri. (Kuidas ainesisu mõistmist toetatakse? Tõlked, visuaalne tugi, seos eelnevate teadmistega vms)

- ☐ Täiesti nõus
 - ☐ Nõus
 - ☐ Nii ja naa
 - ☐ Ei ole nõus
-
-

4. Õppematerjalis olevate ülesannete juhendid on arusaadavalt sõnastatud.

- ☐ Täiesti nõus
 - ☐ Nõus
 - ☐ Nii ja naa
 - ☐ Ei ole nõus
-
-

5. Kui on teise tunni materjali kohta veel kommentaare, siis lisa need siia:

6. Slaidid: Sõnavara omandamine slaididel

Ülesanne oli õppijakeskne

- ☐ Täiesti nõus
- ☐ Nõus
- ☐ Nii ja naa
- ☐ Ei ole nõus

Ülesanne on õpilastele sisuliselt jõukohane.

- ☐ Täiesti nõus
- ☐ Nõus
- ☐ Nii ja naa
- ☐ Ei ole nõus

Ülesanne on õpilastele keeleliselt jõukohane.

- ☐ Täiesti nõus
- ☐ Nõus
- ☐ Nii ja naa
- ☐ Ei ole nõus

7. Matching task (ümbrikes elundkonnad)+ ülesanded jaotusmaterjalil

Ülesanne on õppijakeskne

- ☐ Täiesti nõus
- ☐ Nõus
- ☐ Nii ja naa
- ☐ Ei ole nõus

Ülesanne on õpilastele sisuliselt jõukohane.

- ☐ Täiesti nõus
- ☐ Nõus
- ☐ Nii ja naa
- ☐ Ei ole nõus

Ülesanne on õpilastele keeleliselt jõukohane.

- ☐ Täiesti nõus
 - ☐ Nõus
 - ☐ Nii ja naa
 - ☐ Ei ole nõus
-
-

8. Video: How does are body move? + video kohta käiv ülesanne

Tugistrukuuri oli piisavalt (kiirus, subtiitrid)

- ☐ Täiesti nõus
- ☐ Nõus
- ☐ Nii ja naa
- ☐ Ei ole nõus

Ülesanne on õpilastele sisuliselt jõukohane.

- ☐ Täiesti nõus
- ☐ Nõus
- ☐ Nii ja naa
- ☐ Ei ole nõus

Ülesanne on õpilastele keeleliselt jõukohane.

- ☐ Täiesti nõus
- ☐ Nõus
- ☐ Nii ja naa
- ☐ Ei ole nõus

Human Body. Lesson 3. The heart and circulatory system. Feedback

Vali enda arvates sobilikum variant ja lisa selgitusse põhjendus.

1. Õpetajalehel olevad tunni eesmärgid on õppematerjali abil saavutatavad.

- ☐ Täiesti nõus
 - ☐ Nõus
 - ☐ Nii ja naa
 - ☐ Ei ole nõus
-
-

2. Õppematerjal ja õppetegevused on põhjendatud (ülesanded köitvad, eakohased, ainesisuliselt asjakohased, õppetegevused toetavad teksti mõistmist ja arendavad ka kõrgema taseme kognitiivseid oskuseid)

- ☐ Täiesti nõus
 - ☐ Nõus
 - ☐ Nii ja naa
 - ☐ Ei ole nõus
-
-

3. Õpilaste jaoks oli loodud piisavalt asjakohast tugistruktuuri. (Kuidas ainesisu mõistmist toetatakse? Tõlked, visuaalne tugi, seos eelnevate teadmistega vms)

- ☐ Täiesti nõus
 - ☐ Nõus
 - ☐ Nii ja naa
 - ☐ Ei ole nõus
-
-

4. Õppematerjalis olevate ülesannete juhendid on arusaadavalt sõnastatud.

- ☐ Täiesti nõus
 - ☐ Nõus
 - ☐ Nii ja naa
 - ☐ Ei ole nõus
-
-

Jaotusmaterjal: Süda A/B**Ülesanne oli õppijakeskne**

- ☐ Täiesti nõus
- ☐ Nõus
- ☐ Nii ja naa
- ☐ Ei ole nõus

Ülesanne on õpilastele sisuliselt jõukohane.

- ☐ Täiesti nõus
- ☐ Nõus
- ☐ Nii ja naa
- ☐ Ei ole nõus

Ülesanne on õpilastele keeleliselt jõukohane.

- ☐ Täiesti nõus
 - ☐ Nõus
 - ☐ Nii ja naa
 - ☐ Ei ole nõus
-

Video: How to feel your heart beat? + küsimused video kohta**Ülesanne on õppijakeskne (kiirus, subtiitrid)**

- ☐ Täiesti nõus
- ☐ Nõus
- ☐ Nii ja naa
- ☐ Ei ole nõus

Ülesanne on õpilastele sisuliselt jõukohane.

- ☐ Täiesti nõus
- ☐ Nõus
- ☐ Nii ja naa
- ☐ Ei ole nõus

Ülesanne on õpilastele keeleliselt jõukohane.

- ☐ Täiesti nõus
 - ☐ Nõus
 - ☐ Nii ja naa
 - ☐ Ei ole nõus
-

Töö paarilisega. Eksperiment: Ise tehtud pulsilugeriga pulsi lugemine +andmete kandmine tabelisse**Tugistrukuuri oli piisavalt**

- ☐ Täiesti nõus
- ☐ Nõus
- ☐ Nii ja naa
- ☐ Ei ole nõus

Ülesanne on õpilastele sisuliselt jõukohane.

- ☐ Täiesti nõus
- ☐ Nõus
- ☐ Nii ja naa
- ☐ Ei ole nõus

Ülesanne on õpilastele keeleliselt jõukohane.

- ☐ Täiesti nõus
- ☐ Nõus
- ☐ Nii ja naa
- ☐ Ei ole nõus

Human Body. Lesson 4. Digestive system. Feedback

Vali enda arvates sobilikum variant ja lisa selgitusse põhjendus.

1. Õpetajalehel olevad tunni eesmärgid on õppematerjali abil saavutatavad.

- ☐ Täiesti nõus
 - ☐ Nõus
 - ☐ Nii ja naa
 - ☐ Ei ole nõus
-
-

2. Õppematerjal ja õppetegevused on põhjendatud (ülesanded köitvad, eakohased, ainesisuliselt asjakohased, õppetegevused toetavad teksti mõistmist ja arendavad ka kõrgema taseme kognitiivseid oskuseid)

- ☐ Täiesti nõus
 - ☐ Nõus
 - ☐ Nii ja naa
 - ☐ Ei ole nõus
-
-

3. Õpilaste jaoks oli loodud piisavalt asjakohast tugistruktuuri. (Kuidas ainesisu mõistmist toetatakse? Tõlked, visuaalne tugi, seos eelnevate teadmistega vms)

- ☐ Täiesti nõus
 - ☐ Nõus
 - ☐ Nii ja naa
 - ☐ Ei ole nõus
-
-

4. Õppematerjalis olevate ülesannete juhendid on arusaadavalt sõnastatud.

- ☐ Täiesti nõus
 - ☐ Nõus
 - ☐ Nii ja naa
 - ☐ Ei ole nõus
-
-

Video: How the digestive system works + video kohta käiv ülesanne

Ülesanne oli õppijakeskne	Ülesanne on õpilastele sisuliselt jõukohane.	Ülesanne on õpilastele keeleliselt jõukohane.
<input type="checkbox"/> Täiesti nõus	<input type="checkbox"/> Täiesti nõus	<input type="checkbox"/> Täiesti nõus
<input type="checkbox"/> Nõus	<input type="checkbox"/> Nõus	<input type="checkbox"/> Nõus
<input type="checkbox"/> Nii ja naa	<input type="checkbox"/> Nii ja naa	<input type="checkbox"/> Nii ja naa
<input type="checkbox"/> Ei ole nõus	<input type="checkbox"/> Ei ole nõus	<input type="checkbox"/> Ei ole nõus

Jaotusmaterjal: Our Digestive System/Why we need food

Tugistruktuuri on piisavalt (tõlked, pildid)	Ülesanne on õpilastele sisuliselt jõukohane.	Ülesanne on õpilastele keeleliselt jõukohane.
<input type="checkbox"/> Täiesti nõus	<input type="checkbox"/> Täiesti nõus	<input type="checkbox"/> Täiesti nõus
<input type="checkbox"/> Nõus	<input type="checkbox"/> Nõus	<input type="checkbox"/> Nõus
<input type="checkbox"/> Nii ja naa	<input type="checkbox"/> Nii ja naa	<input type="checkbox"/> Nii ja naa
<input type="checkbox"/> Ei ole nõus	<input type="checkbox"/> Ei ole nõus	<input type="checkbox"/> Ei ole nõus

Experiment: Let's make a stomach

Ülesanne oli õppijakeskne	Ülesanne on õpilastele sisuliselt jõukohane.	Ülesanne on õpilastele keeleliselt jõukohane.
<input type="checkbox"/> Täiesti nõus	<input type="checkbox"/> Täiesti nõus	<input type="checkbox"/> Täiesti nõus
<input type="checkbox"/> Nõus	<input type="checkbox"/> Nõus	<input type="checkbox"/> Nõus
<input type="checkbox"/> Nii ja naa	<input type="checkbox"/> Nii ja naa	<input type="checkbox"/> Nii ja naa
<input type="checkbox"/> Ei ole nõus	<input type="checkbox"/> Ei ole nõus	<input type="checkbox"/> Ei ole nõus

Kui on neljanda tunni materjali kohta veel kommentaare, siis lisa need siia:

Human body Tagasisideleht (õpilased)

Vali enda arvates sobilikum variant ja lisa selgitusse mõni näide

(1 – Ei ole nõus, 2 – Nii ja naa, 3 – Nõus, 4- Täiesti nõus)

1. Mulle meeldis õppida inglise keeles inimkeha toimimist.

1 2 3 4

Too mõni näide:

2. Ma sain sisuliselt aru, mida tunnis õpiti.

1 2 3 4

Too mõni näide:

3. Ma sain keeleliselt aru, mida tunnis õpiti.

1 2 3 4

Too mõni näide:

4. Tundsin, et sain tundides ise aktiivselt osaleda.

1 2 3 4

Too mõni näide:

Vali ülesannete nimekirjast 3 ülesannet, mis sulle meeldisid. Põhjenda valikut.

(Nt: 16 – sest)

Vali ülesannete nimekirjast 3 ülesannet, mis sulle ei meeldinud. Põhjenda valikut.

(Nt: 17 – sest)

Ülesannete nimekiri:

Individuaalsed ülesanded:

1. Kraadiklaasiülesanne (hinda ennast)

Töölehed

2. Sõnarägistik/Taukar Human body (sõnavara meenutamine)
3. Body systems
4. The heart (Töö paarilisega. Küsimuste küsimine ja vastamine)
5. Digestive system (Our digestive system. Why we need food?)

Videod:

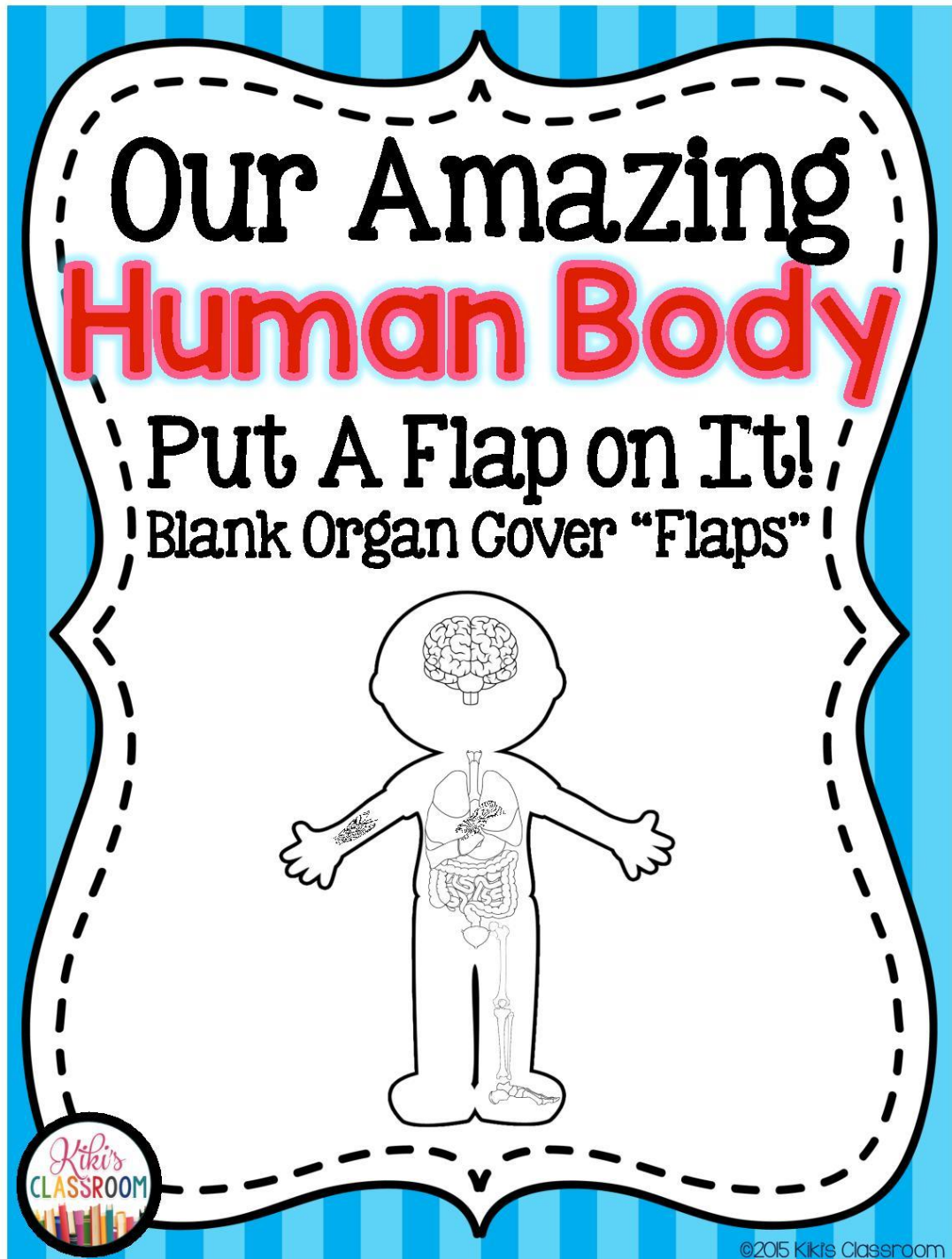
6. Video: How does are body move.
7. Video: How does your heart beat
8. Video: How the digestive system works

Ühisülesanded

9. Elundkondade uurimine 4D-Anatomy äpiga.
10. KWL tabeli täitmine
11. Matching task: Body systems (ümbrikes elundkonnad)
12. Kuldvillakumäng
13. Lõpuülesanne. Elusuuruses inimkeha loomine ja selle esitlemine.

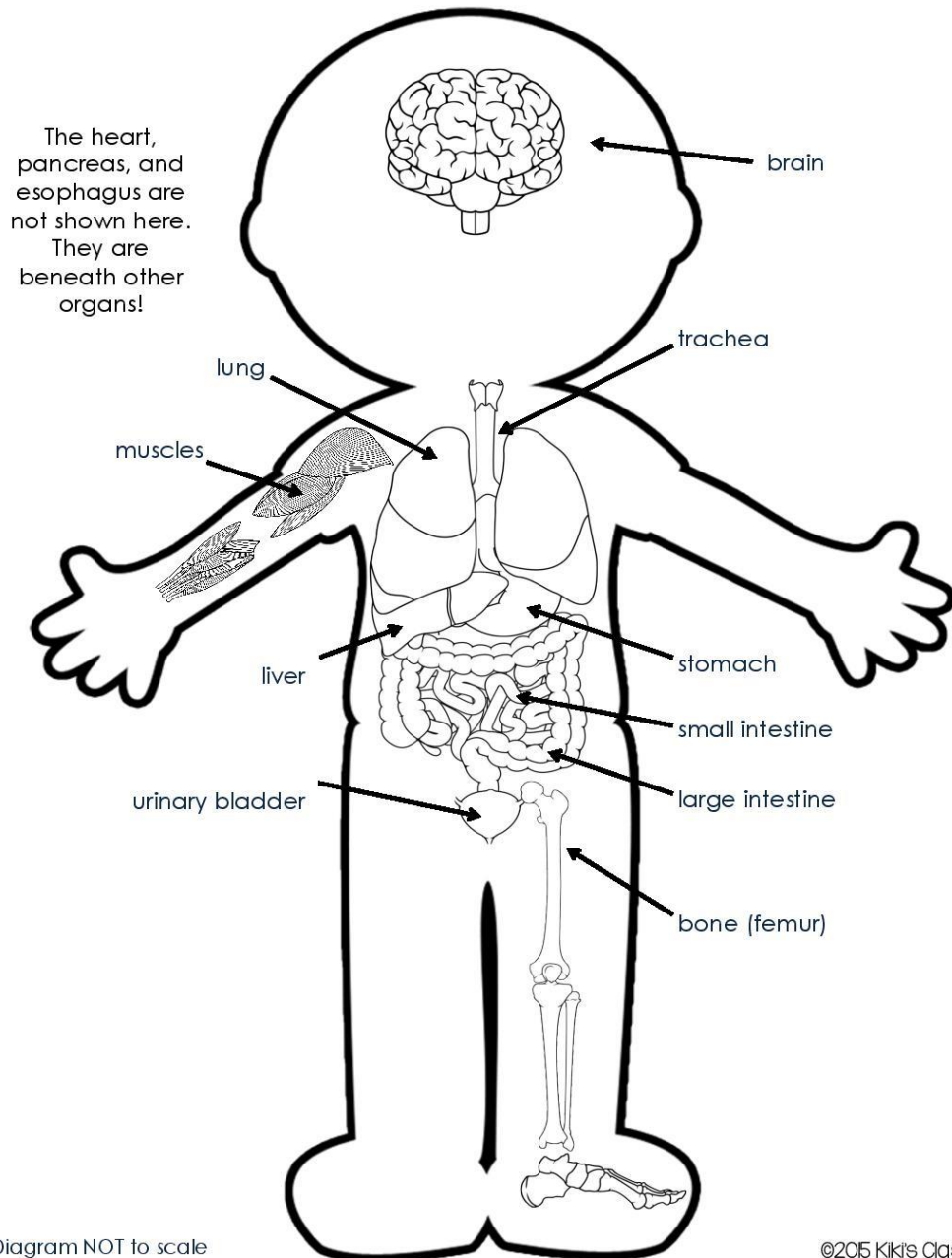
Katsed

14. Eksperiment: How to feel your heart beat (pulsi mõõtmine)
15. Eksperiment: Let's make a stomach



Assembly Diagram*

Your life-size human body will look like this before you add the ribcage in the last step.



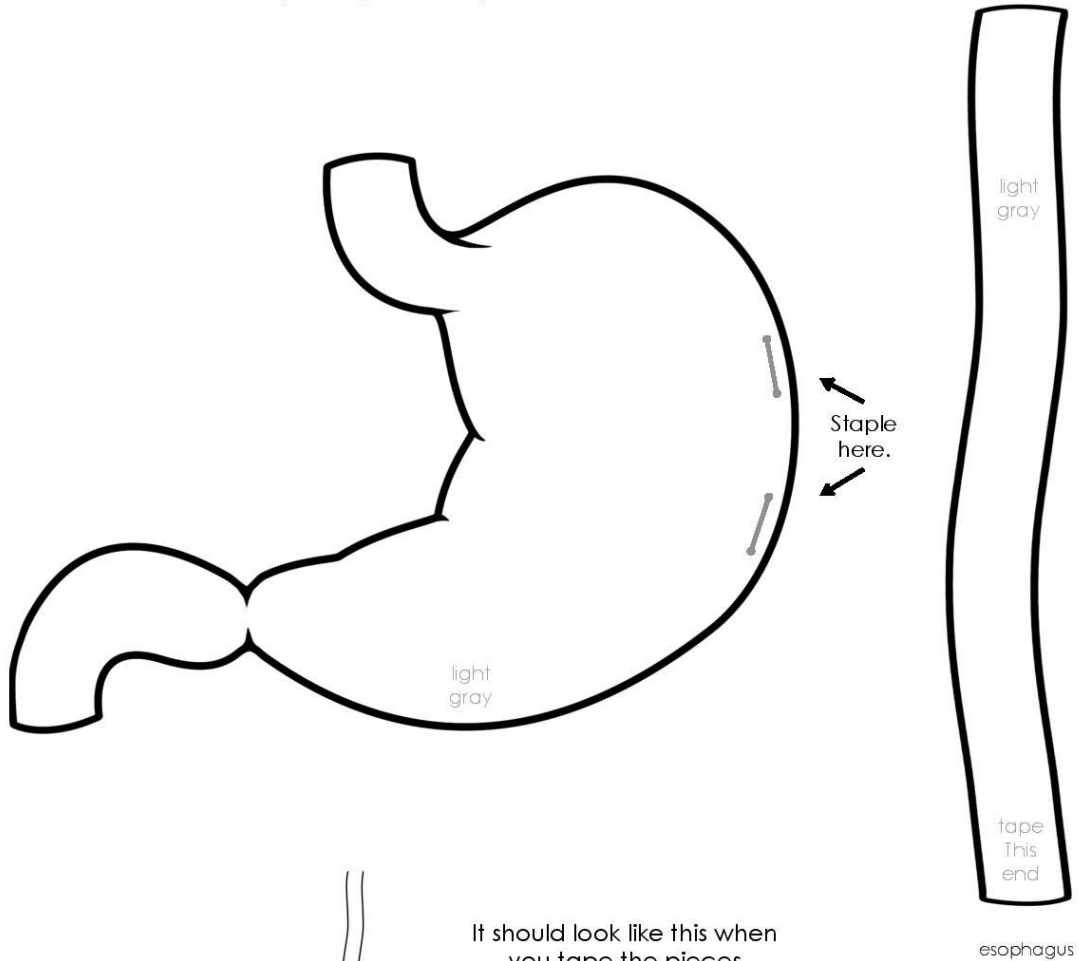
* Diagram NOT to scale

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The Stomach

Cover Flap

1. Color the stomach and esophagus light gray.
2. Cut out the esophagus.
3. Tape the bottom end of the esophagus to the top opening of **the stomach that has your writing on it.**
4. Cut out **this** stomach and staple it to the "Write About It!" piece where the staples are shown. This colored piece goes on top.



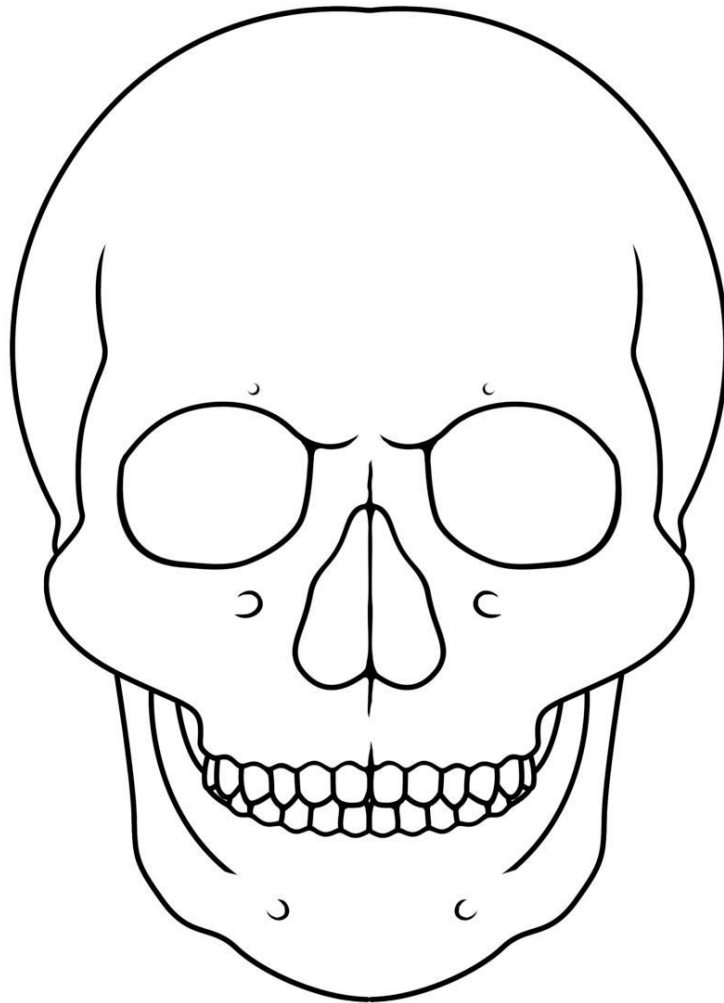
It should look like this when you tape the pieces together. Your "Write About It! Stomach" will be underneath the stomach flap that you colored.

The Skull

Cover Only

Leave the skull white and cut it out.

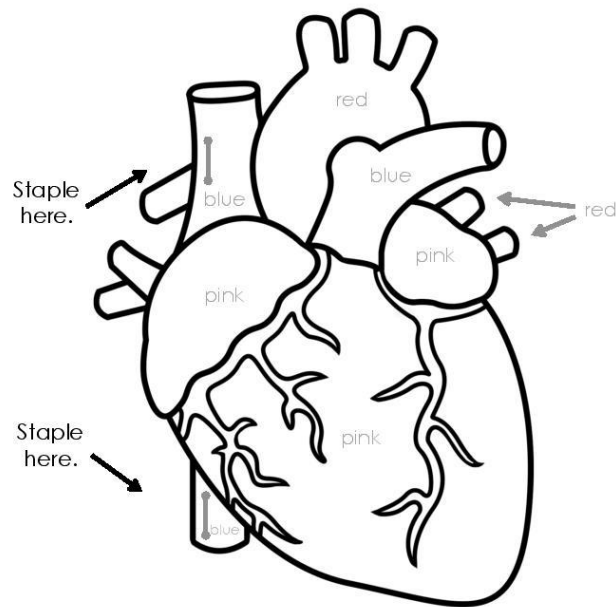
↓ Glue this edge ONLY. ↓



The Heart

Cover Flap

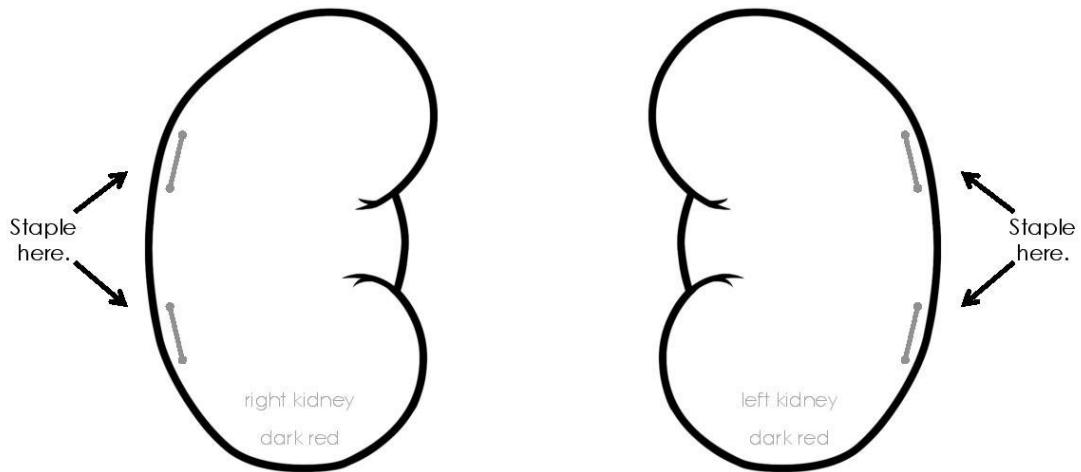
1. Color the heart. Color the blood vessels on the surface of the heart blue.
2. Cut out this piece and staple it to the "Write About It!" piece where the staples are shown. This colored piece goes on top.



The Kidneys

Cover Flap

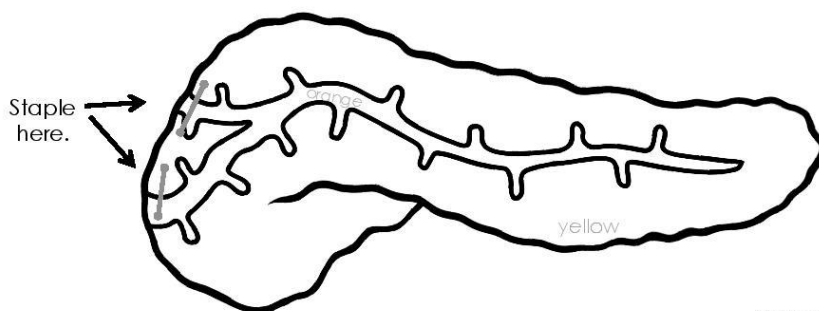
1. Color the kidneys dark red.
2. Cut out these pieces and staple them to the "Write About It!" pieces where the staples are shown. These colored pieces go on top.



The Pancreas

Cover Flap

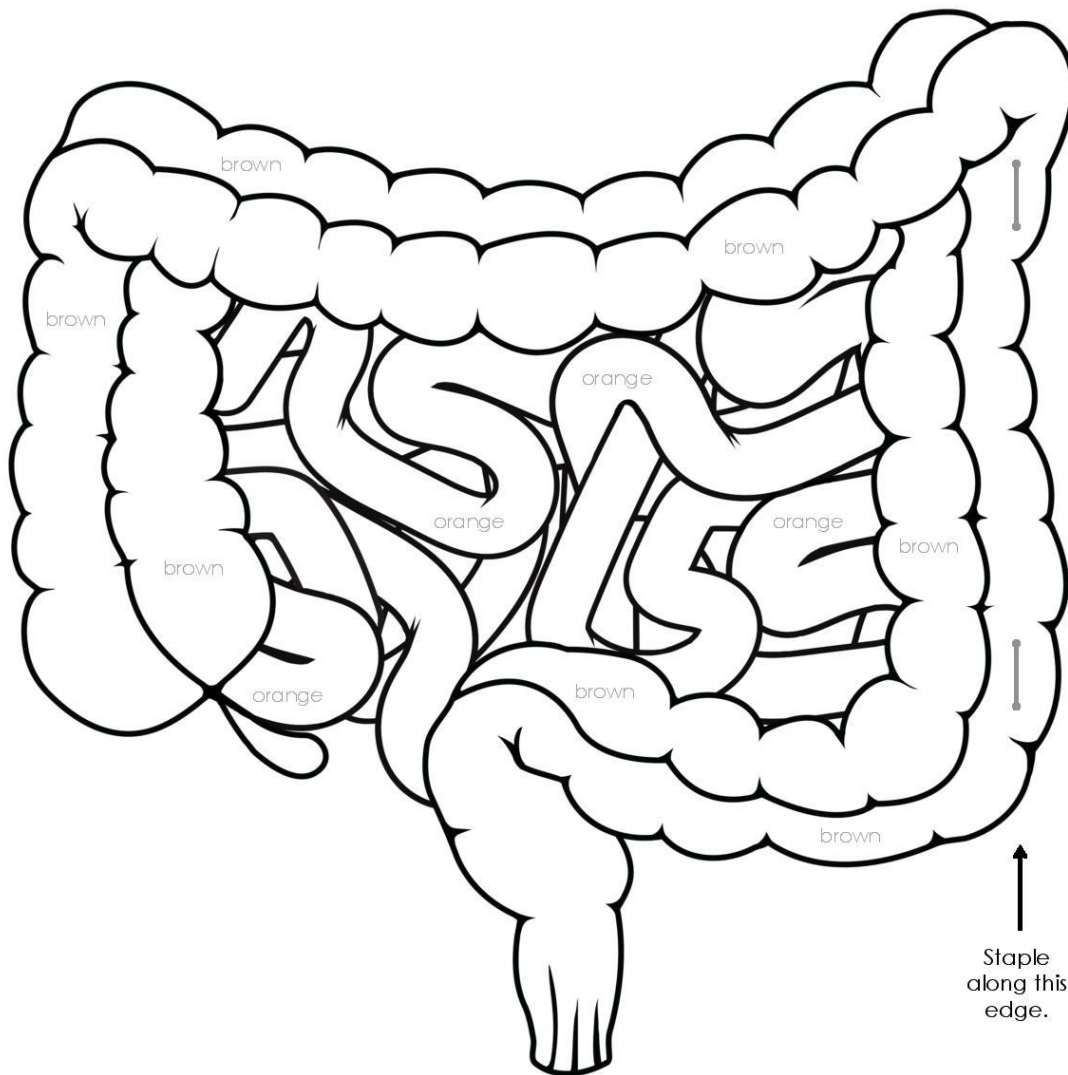
1. Color the pancreas yellow.
2. Cut out this piece and staple it to the "Write About It!" piece where the staples are shown. This colored piece goes on top.



The Intestines

Cover Flap

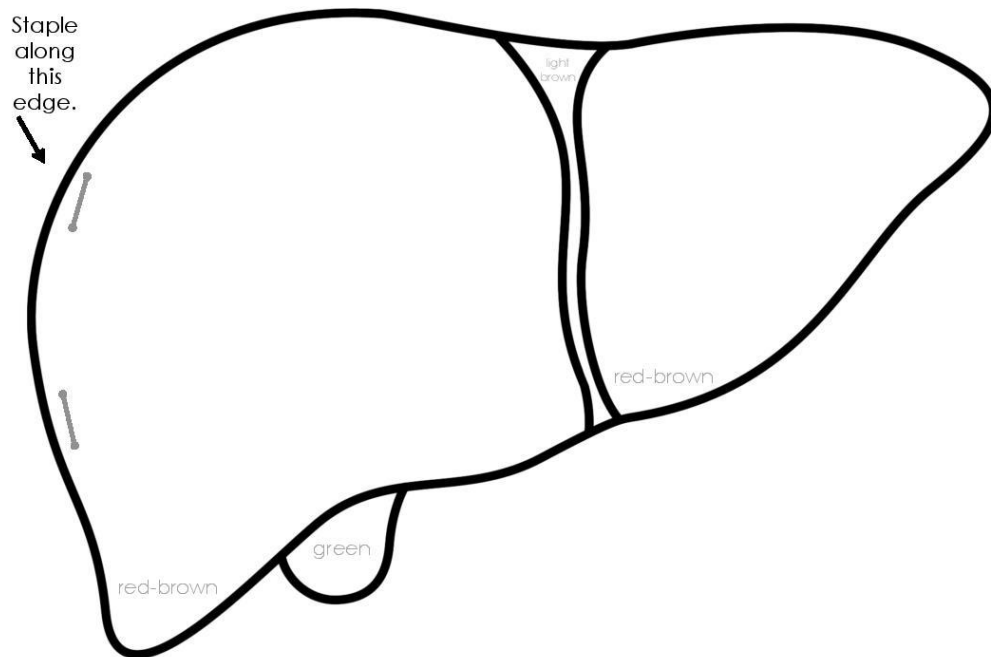
1. Color the small intestine orange. Color the large intestine brown.
2. Cut out this piece and staple it to the "Write About It!" piece where the staples are shown. This colored piece goes on top.



The Liver

Cover
Flap

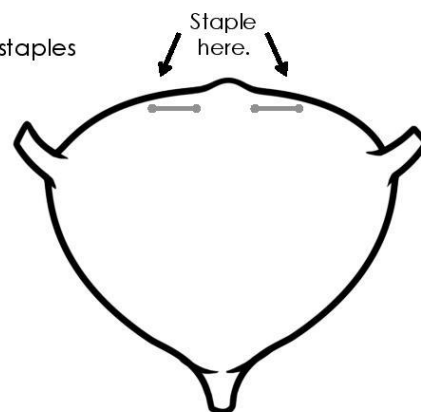
1. Color the liver a red-brown color. Color the gall bladder green.
2. Cut out this piece and staple it to the "Write About It!" piece where the staples are shown. This colored piece goes on top. *Do not cut off the gall bladder!*



The Urinary Bladder

Cover
Flap

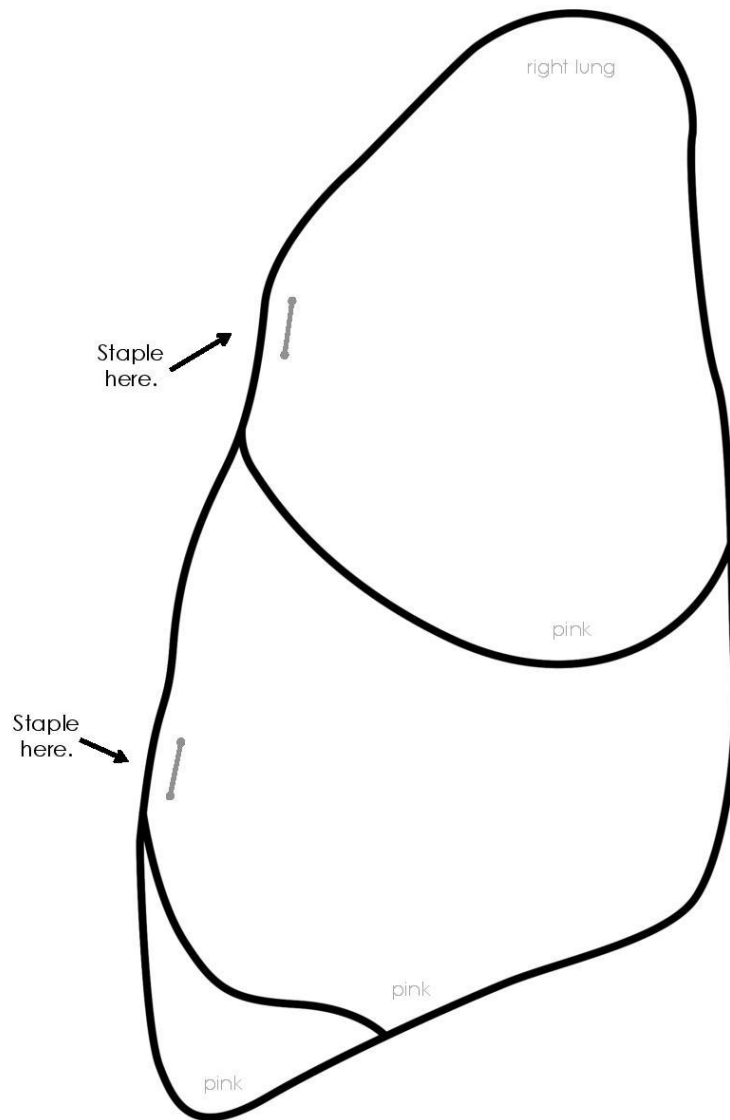
1. Color the bladder yellow and cut it out.
2. Staple it to the "Write About It!" piece where the staples are shown. This colored piece goes on top.



The Lungs

Right Lung Cover Flap

1. Color the lungs pink.
2. Cut out this piece and staple it to the "Write About It!" piece where the staples are shown. This colored piece goes on top. **This is the only lift-the-flap lung.**



The Lungs

Left Lung One Piece ONLY

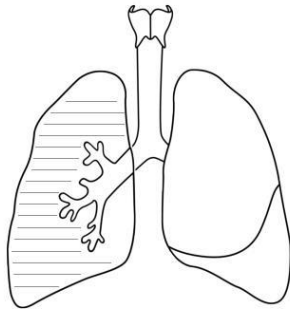
Color the lung pink and cut it out. You will attach the trachea to the lungs next. There is no writing to do for the left lung.



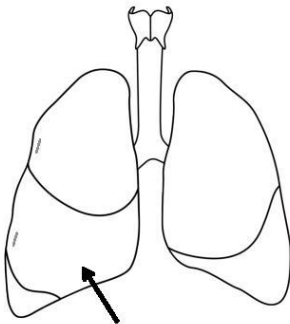
The Trachea

Cover Flap

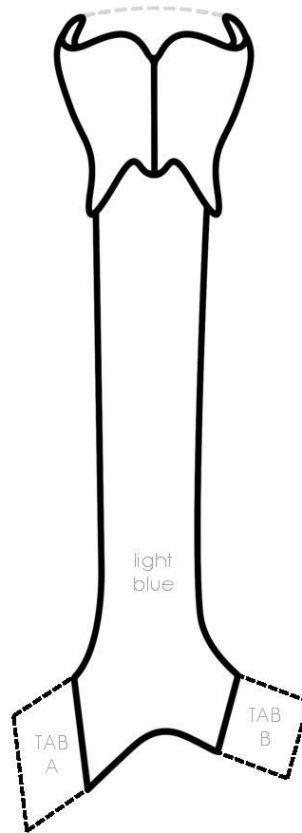
1. Color the trachea light blue. Cut it out.
2. Attach TRACHEA TAB A to the BACK of the **right lung** that has your writing on it.
3. Attach TRACHEA TAB B to the BACK of the **colored left lung**. Use a small piece of tape.
There is no writing to do for the trachea.



You will attach the trachea to these two lung pieces.



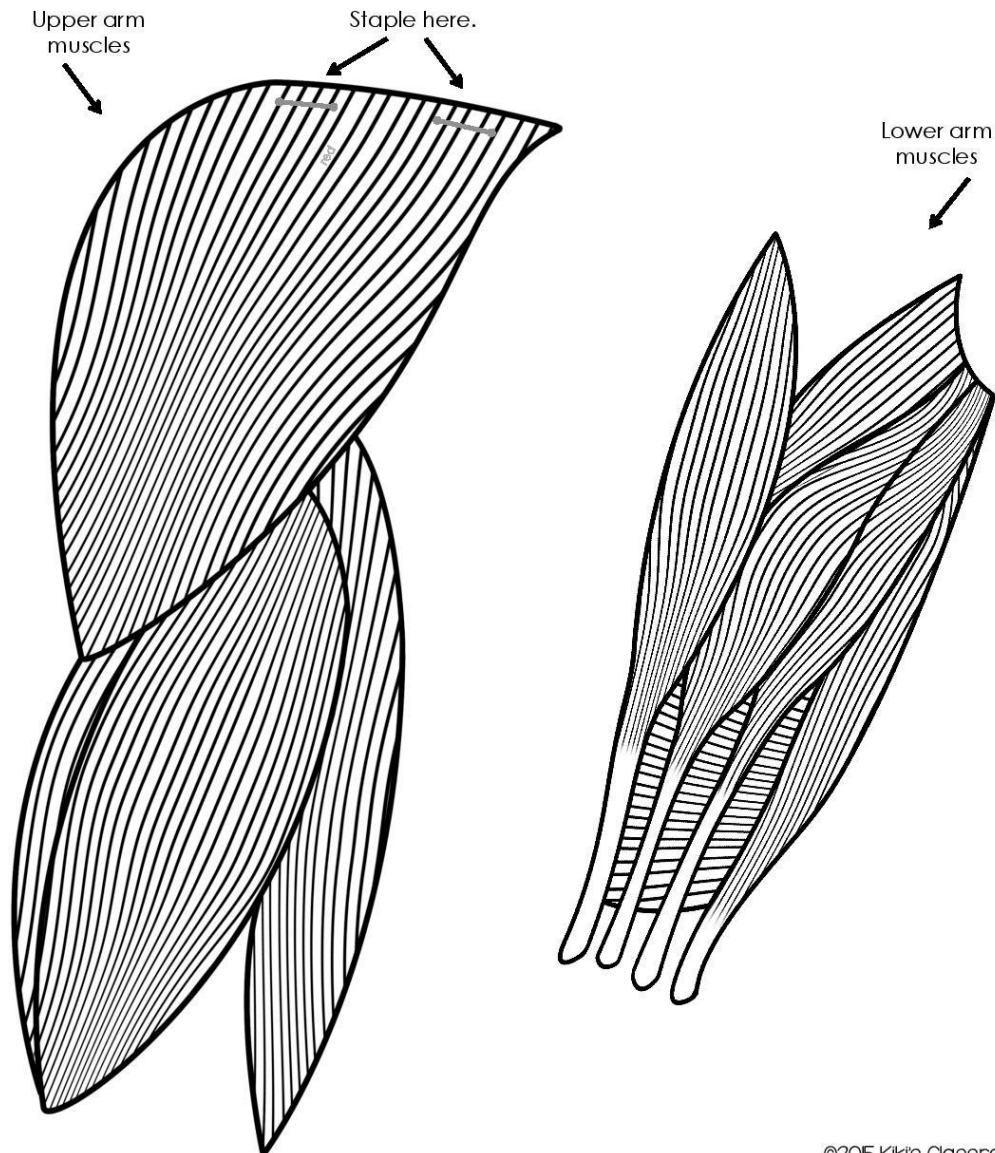
With the colored right lung flap attached, it will look like this. Your writing piece will be underneath the **right lung flap**.



The Arm Muscles

Cover Flap

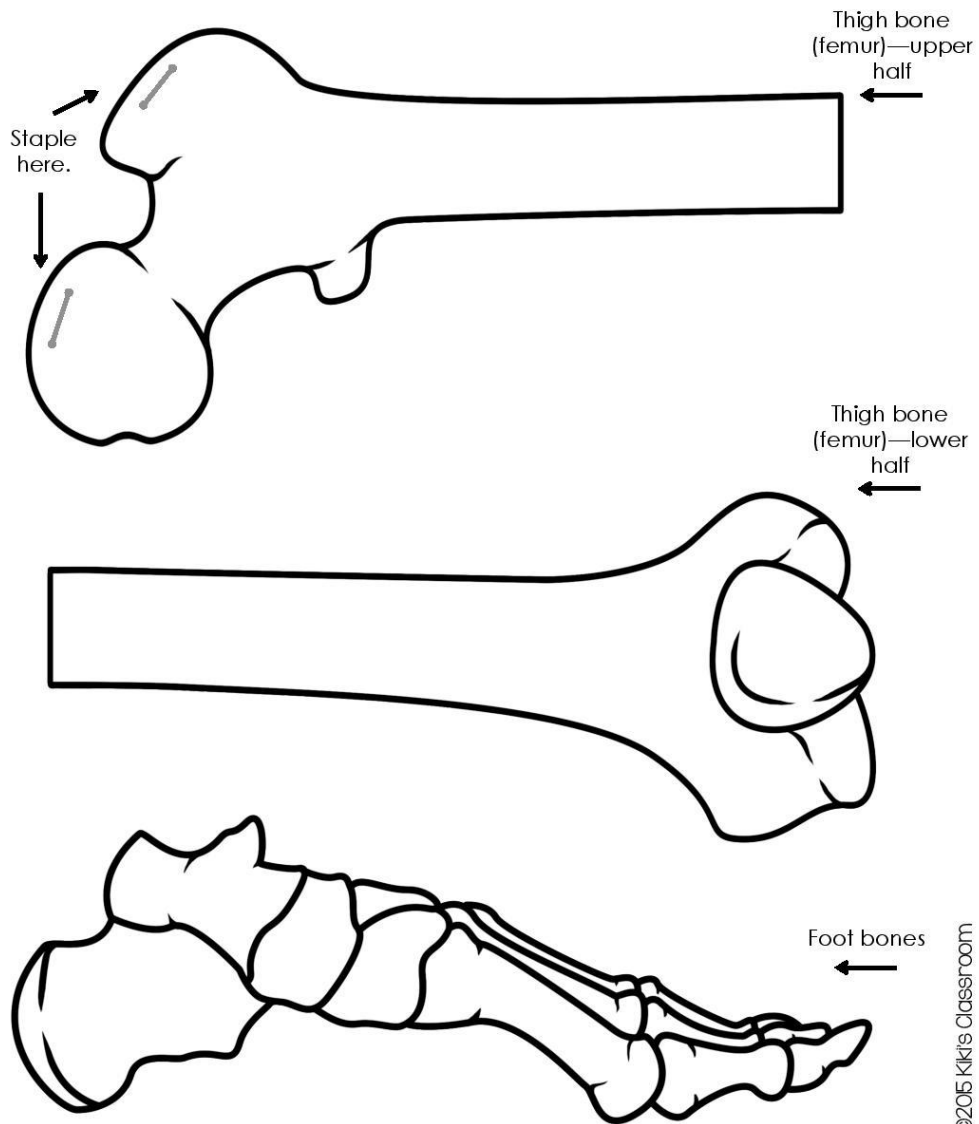
1. Color the muscles red.
2. Cut out this piece and staple it to the "Write About It!" piece where the staples are shown. The colored piece goes on top. Only the upper arm muscles have a cover flap.



The Leg & Foot Bones

Femur (Thigh) & Foot Cover Flap

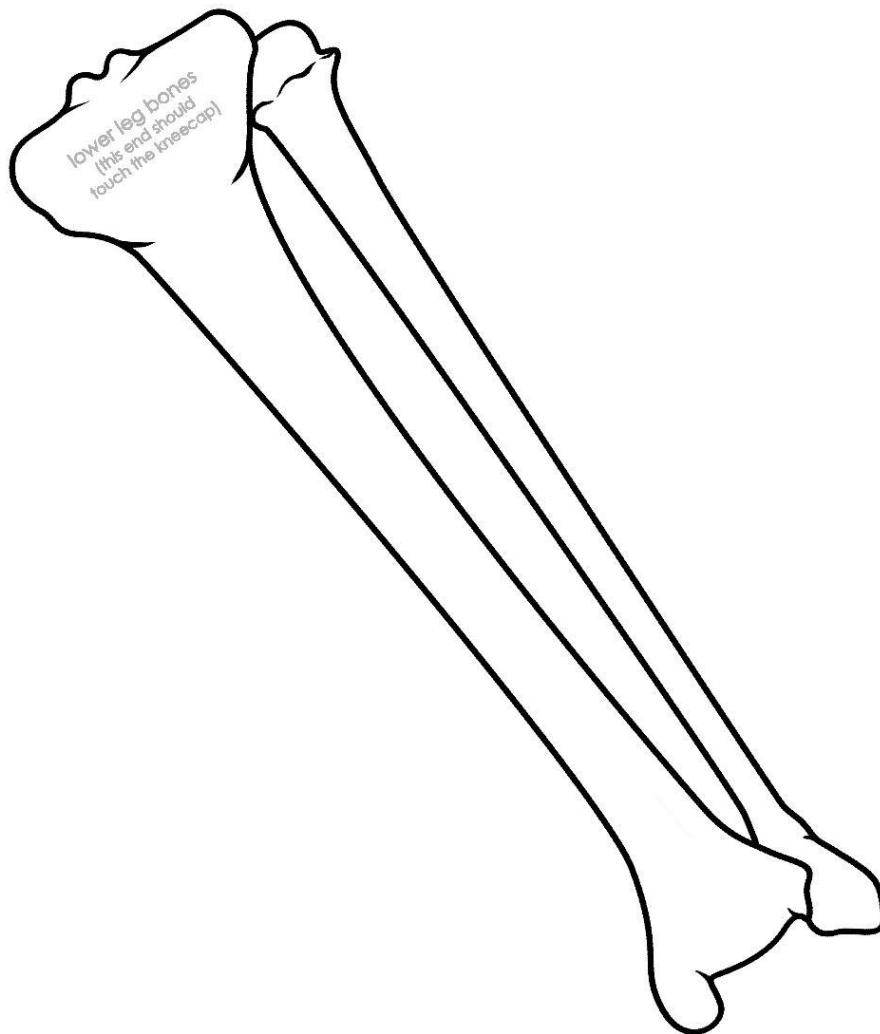
1. Leave the bones white.
2. Cut out the leg bone halves.
3. Connect the two bone halves with tape. You may also put a small piece of tape on the front.
4. Staple the bone to the "Write About It!" piece where the staples are shown. This piece goes on top. Then cut out the foot bones. There is no writing for the foot.



The Leg Bones

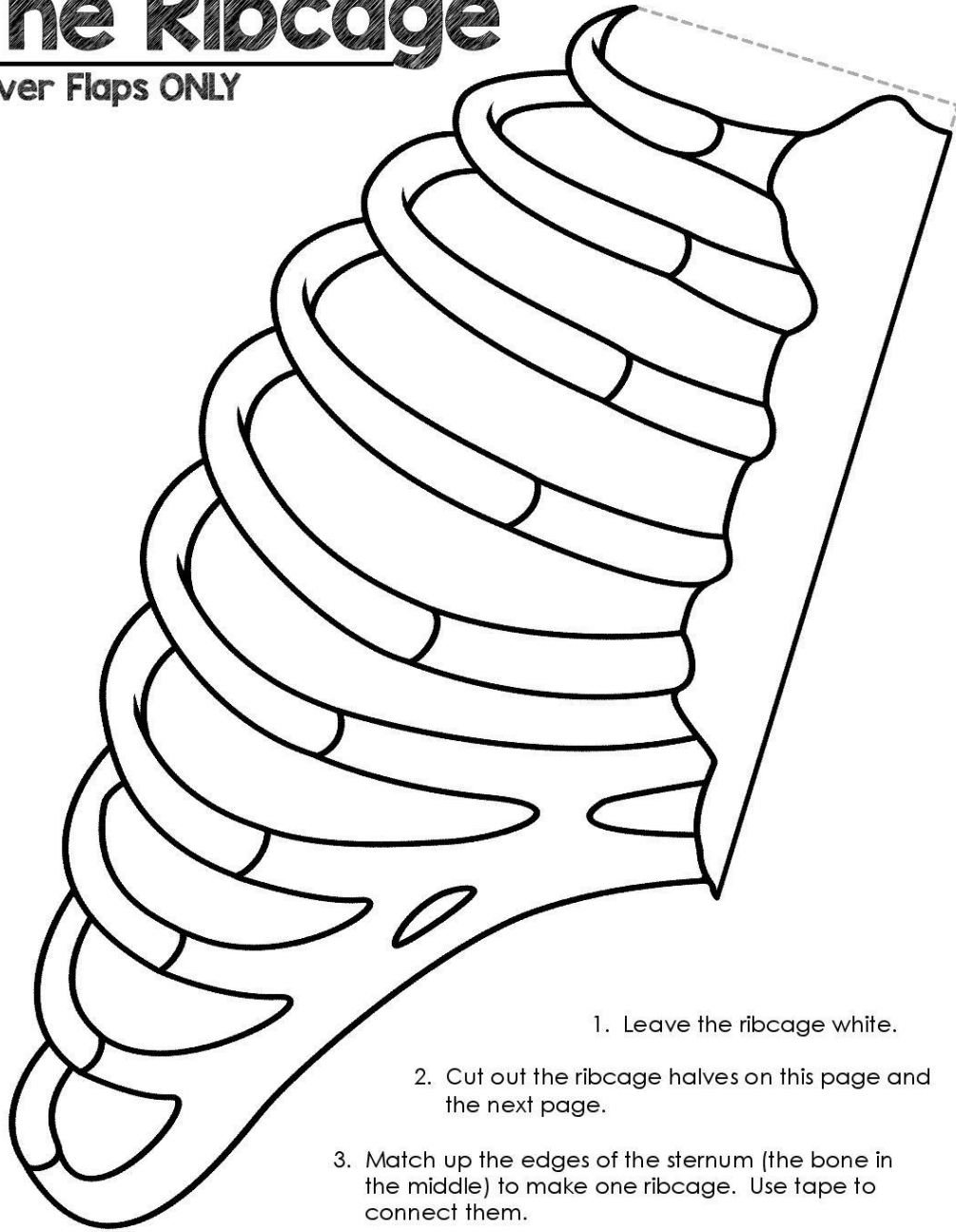
Lower Leg
One Piece ONLY

1. Leave the bones white.
2. Cut out the bones around the outer edge. Do not cut them apart. Leave them connected to each other. There is no writing to do for the lower leg bones.



The Ribcage

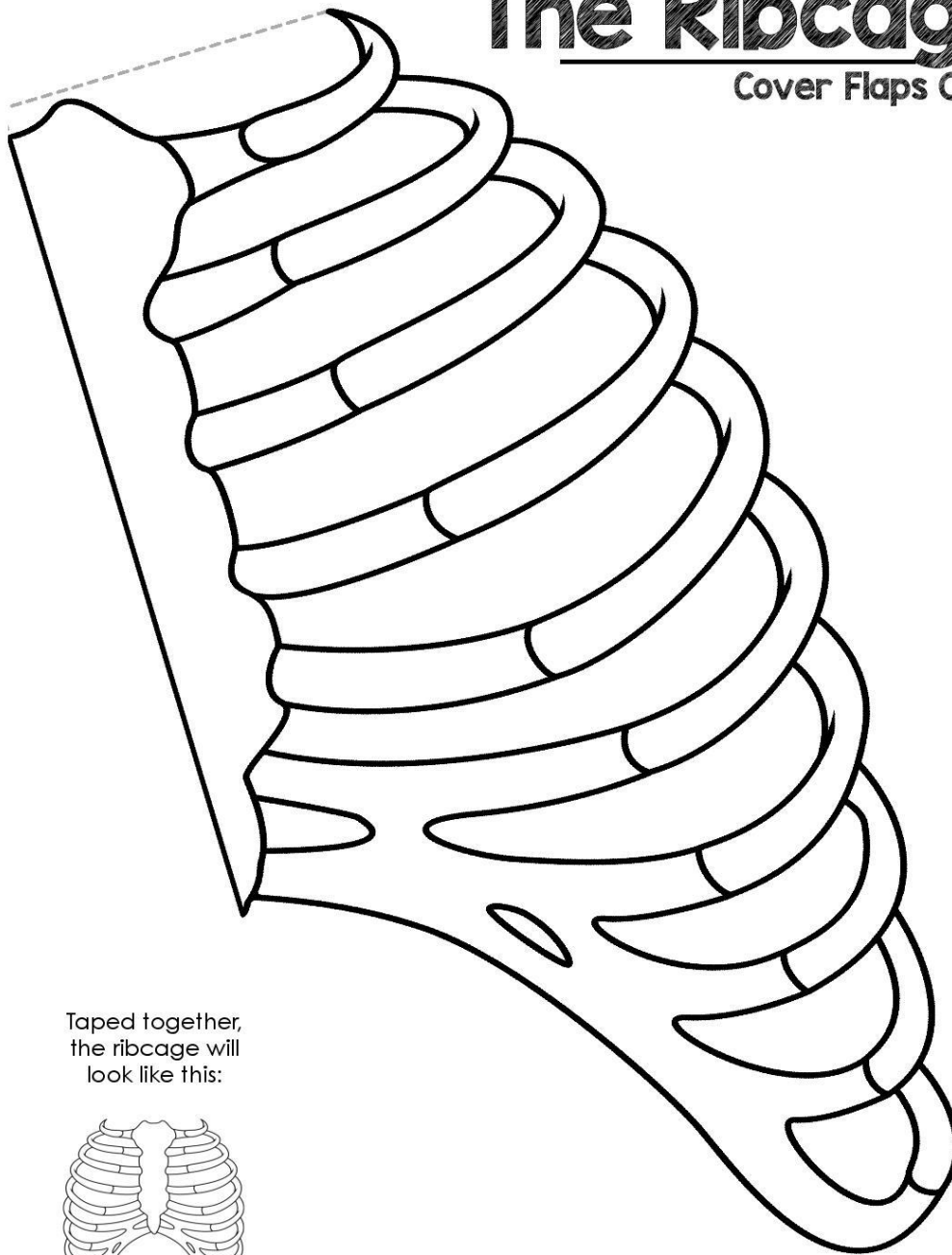
Cover Flaps ONLY



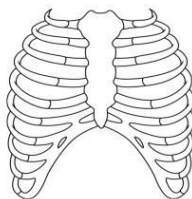
1. Leave the ribcage white.
2. Cut out the ribcage halves on this page and the next page.
3. Match up the edges of the sternum (the bone in the middle) to make one ribcage. Use tape to connect them.

The Ribcage

Cover Flaps ONLY



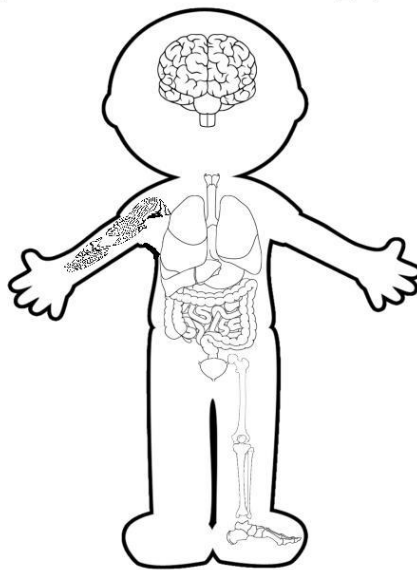
Taped together,
the ribcage will
look like this:



Our Amazing Human Body

Write About It!

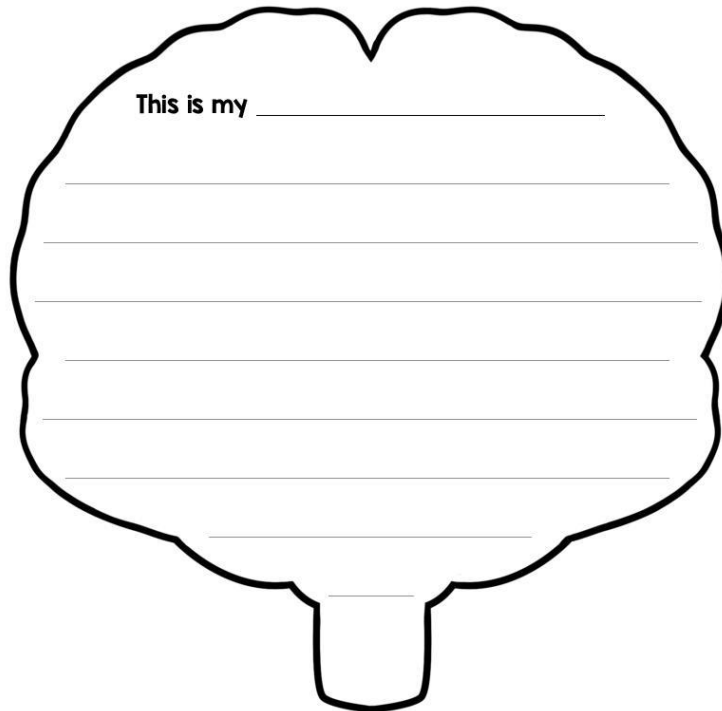
Lined Organs
For Student Writing



The Brain

Write About It!

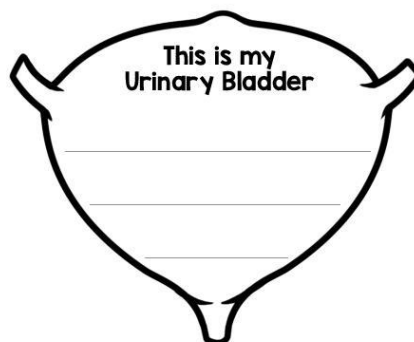
On the outline, record important information about the brain. Use complete sentences. Be sure to tell what the brain does for your body.



The Urinary Bladder

Write About It!

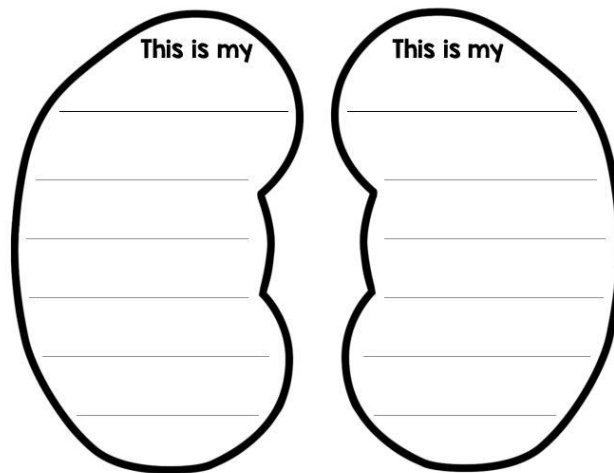
On the outline, write one sentence that tells what the bladder does for your body.



The Kidneys

Write About It!

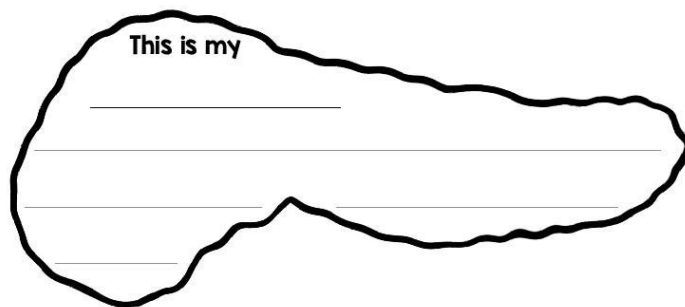
On the outlines, record important information about the kidneys. Use complete sentences. Be sure to tell what the kidneys do for your body.



The Pancreas

Write About It!

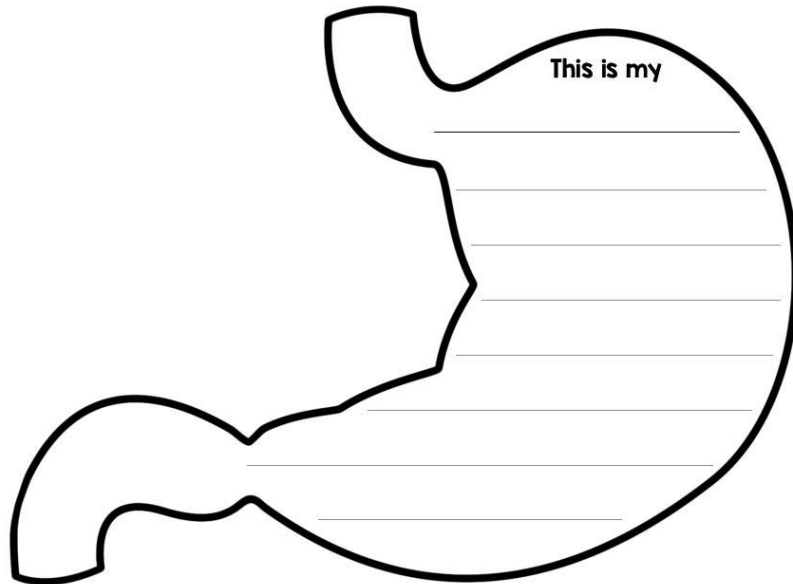
On the outline, record important information about the pancreas. Use complete sentences. Be sure to tell what the pancreas does for your body.



The Stomach

Write About It!

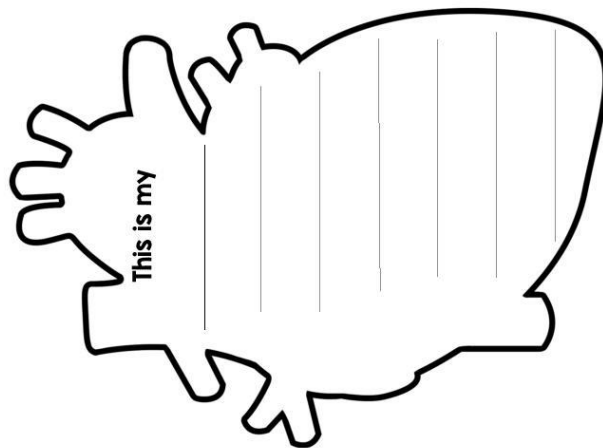
On the outline, record important information about the stomach. Use complete sentences. Be sure to tell what the stomach does for your body.



The Heart

Write About It!

On the outline, record important information about the heart. Use complete sentences. Be sure to tell what the heart does for your body.



The Intestines

Write About It!

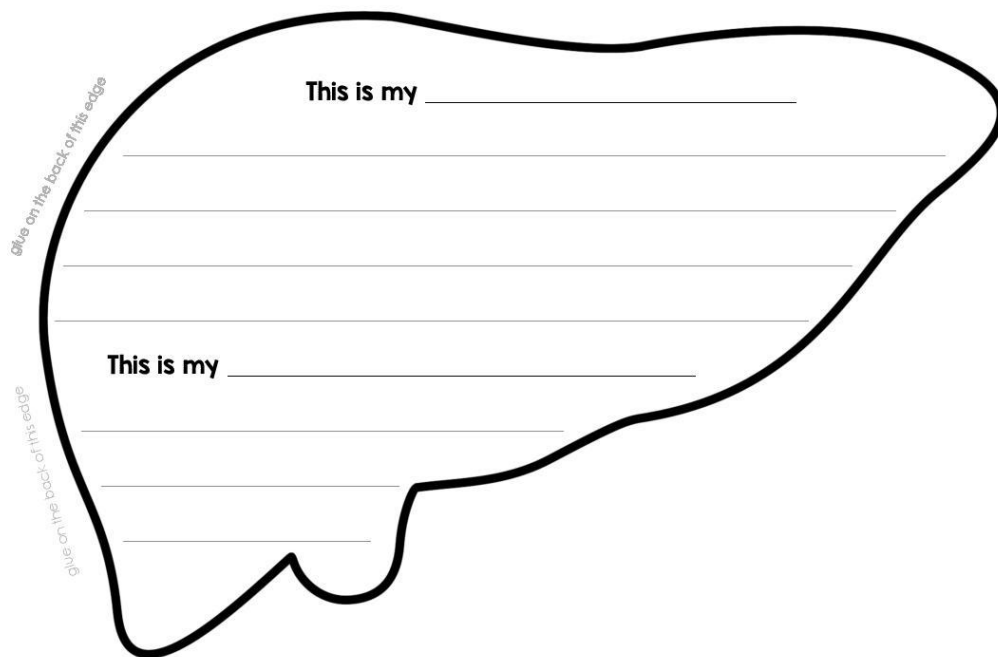
On the outline, record important information about the small **AND** large intestines. Use complete sentences. Be sure to tell what these organs do for your body.



The Liver

Write About It!

On the outline, record important information about the liver. **Write about the gall bladder in the bottom section.** Use complete sentences. Be sure to tell what the organs do for your body.

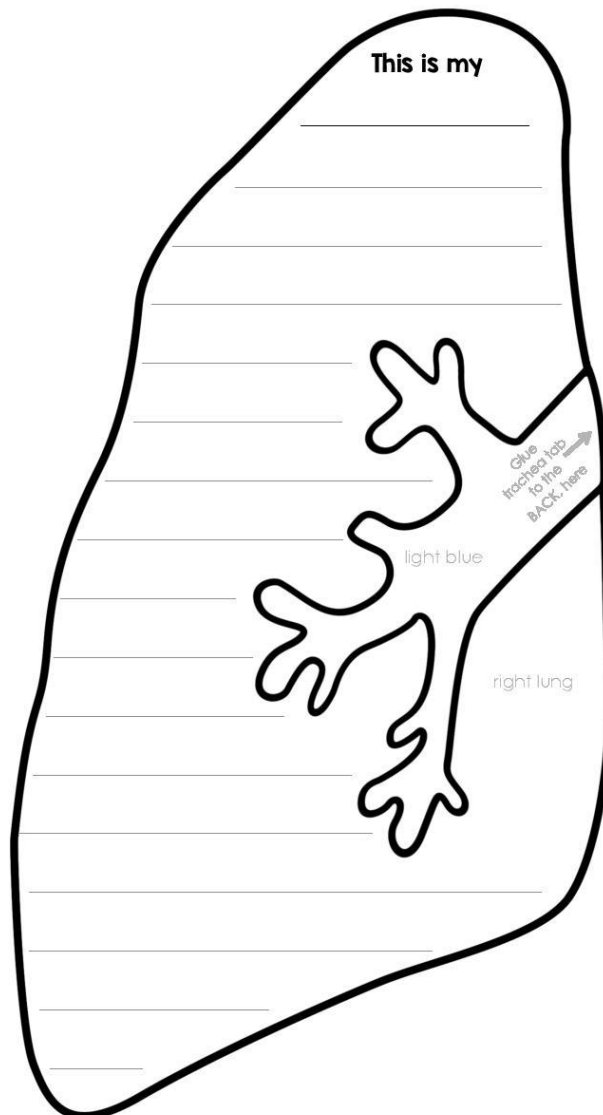


The Lungs

Right Lung Write About It!

Color the airway light blue. These are called *bronchial tubes*.

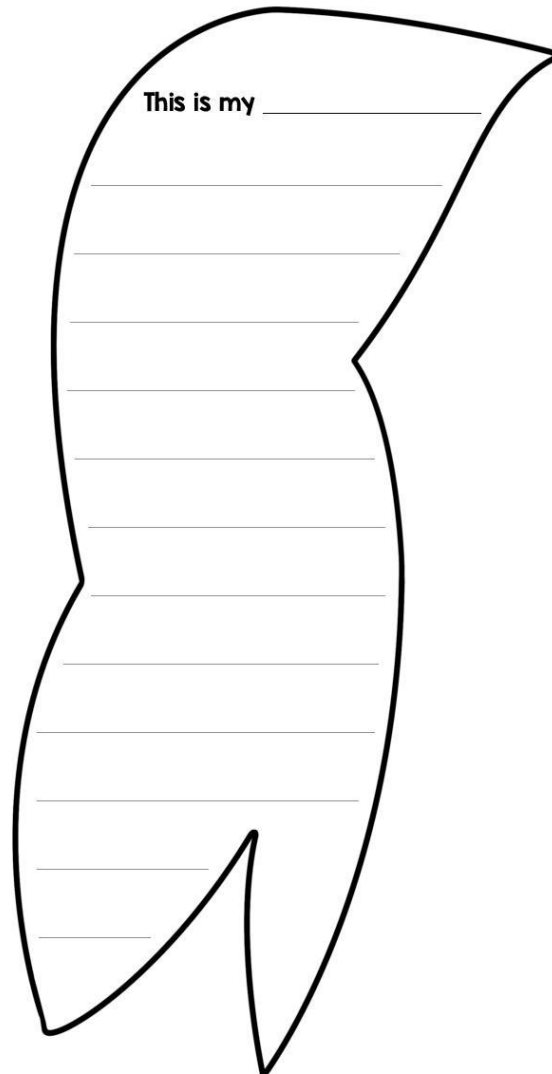
On the outline, record important information about the lungs. Use complete sentences. Be sure to tell what the lungs do for your body.



The Muscles

Shoulder/Bicep
Write About It!

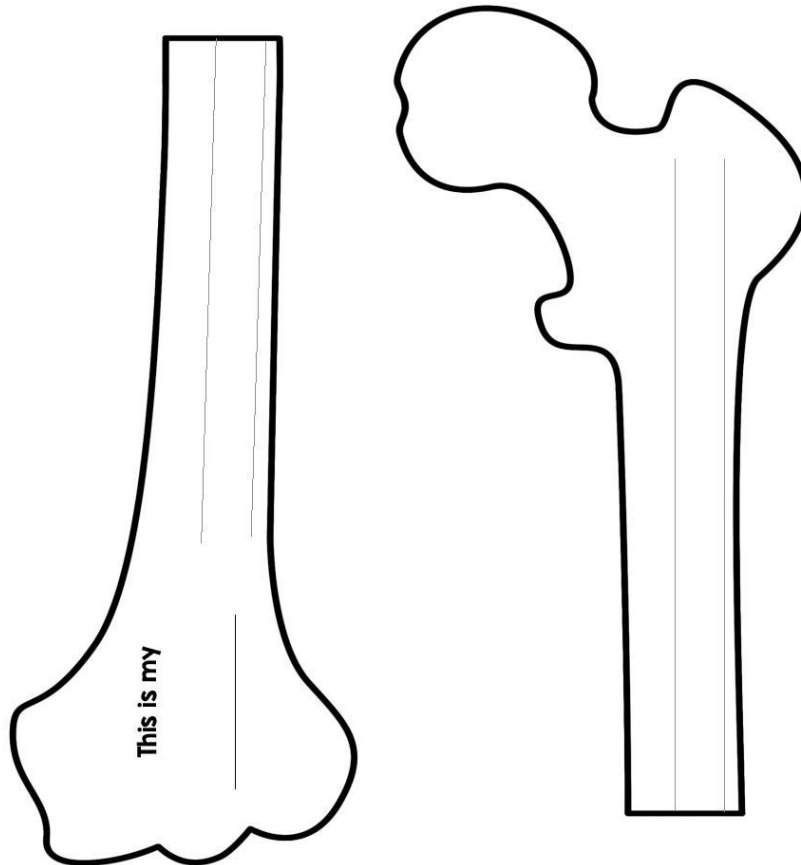
On the outline, record important information about muscles. Use complete sentences. Be sure to tell what muscles do for your body.



The Leg Bones

Write About It!

On the outline, record important information about bones. Use complete sentences. Be sure to tell what bones do for your body.



Thank you!

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<http://www.teacherspayteachers.com/Store/Kimberly-Geswein-Fonts>

KB3Teach <https://www.teacherspayteachers.com/Store/Kb3teach>



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RESÜMEE

TARTU ÜLIKOOL

ANGLISTIKA OSAKOND

Kai Koort

Implementing CLIL with Young Learners in Primary School: Creating, Conducting and Evaluating of Science-English CLIL Project

LAK-õpe rakendamine noorte õppijatega algkoolis: Loodusõpetuse-inglise keele LAK-projekti õppematerjalide loomine, läbiviimine ja hindamine.

Magistritöö

2018

Lehekülgede arv: 122

Annotatsioon:

Antud töö eesmärk on uurida, kas LAK-õppe meetodit on võimalik rakendada noorte õppijatega, kes on võõrkeelt õppinud umbes aasta. Kuigi LAK-õppe meetodit on viimasel ajal palju uuritud ja selle hüvesid esitletud, siis Eesti koolides lõimitakse õppeaineid väga ebaühtlaselt. Tihti on probleemiks see, et puudu on asjakohastest LAK-õppe materjalidest, mida kasutada noorte õppijatega. Selleks, et lihtsutada LAK-õppe rakendamist noorte õppijaga, loodi inglise keele/loodusõpetuse *Inimkeha LAK-õppe projekt* koos sinna juurde kuuluvate tunnikavade ja ülesannetega.

Töö koosneb teoreetilisest ja empiirilisest osast. Esimeses osas antakse ülevaade LAK-õppest, selle tähendusest ja välja on toodud erinevad rahvusvahelised uuringud, kus LAK-õpet on kasutatud noorte õppijatega. Töö teoreetilises osas analüüsitakse ja hinnatakse loodud LAK-õppematerjale. LAK-õppe eesmärk on saada n-õ ühe asemel kaks. See tähendab, et aine sisu õpitakse läbi võõrkeele. Loodud materjalid on toetatud erinevate meetmetega, et tõhustada kahefookuselist õppimist. Projektis osalevate õpetajatega tehti eelnevalt kokkulepped ja nende arvamusi ja ettepanekuid arvestati õppematerjalide loomisel.

Erinevate rahvusvaheliste uuringud on tõestanud, et LAK-õppe meetodid saab edukalt rakendada noorete õppijatega, kuid tuleb arvestada noorte õppijate eripärade ja arengufaasidega. Samuti peavad õppemeetodid olema vahelduvad, õppijakesksed, sisaldama piisavalt koostöövõimalusi ja olema toetatud tugistruktuuriga.

Õpetajatelt ja õpilastelt saadud tagasiside põhjal võib samuti väita, et loodud LAK-õppe projekt oli valdavalt hästi kokku pandud. Õppematerjalidega oli võimalik jõuda õpitulemusteni; õppijad tundsid, et nad on õppimiseprotessi kaasatud ja valdavalt mõistsid sisuliselt õpitavat. Siiski olid ülesanded keeleliselt liiga rasked noortele õppijatele, seega materjalid oleksid vajanud põhjalikumat ja mitmekülgsemat tugistruktuuri.

Märksõnad: LAK-õpe (lõimitud aine- ja keeleõpe), lõimitud õpe, ainetevaheline lõiming, integreeritud õpe; noored õppijad.

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