



# DIGITAL TOOLS SUPPORTING LEARNING ACTIVITIES IN HOME ECONOMICS EDUCATION

MATERIALS OF A COLLABORATIVE LEAD PROJECT



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# **Digital Tools Supporting Learning Activities in Home Economics Education**

Materials of the Erasmus+ KA201 strategic collaboration project  
Learning and Digitalisation in Home Economics Education (LEAD)

Dear home economics teacher,

In this booklet, we present the lesson ideas and teaching materials for 12 different home economics lessons. The lessons were developed under the Erasmus+ KA201 strategic collaboration project Learning and Digitalisation in Home Economics Education (2018–2021), conducted as a Nordic–Baltic cooperative effort.

This material opens up various possibilities on how to implement digital tools purposefully in home economics lessons, prepare lessons according to the contemporary needs of the subject and promote students' learning outcomes. Each task in this material includes didactic explanations for the teacher, which open up the principles of developed learning materials and offer ideas on how to apply these concepts in your home economics lessons. These materials are available in five languages: Finnish, English, Estonian, Norwegian and Swedish. By translating the developed lessons, we have modified the original ideas to fit the aims of the national curriculum.

The developed tasks promote knowledge construction and student experimentation to support the integration of knowledge. Putting knowledge learned from school into action helps students to understand the task at hand, deepen their knowledge structures and see the possibilities to transfer their knowledge into everyday life situations. In this material, all ICT environments, apps and devices are uniformly referred to as digital tools. These digital tools named in the material are merely examples, and these may be replaced in case of having access to other possibilities at your school that serve a similar function.

We hope that this material could be widely used as an idea bank for teachers of home economics and other school subjects wishing to engage in cooperation within these subjects. We thus encourage you to apply and modify the grade levels, lesson time and activity order based on the needs of a specific group of learners.

Inspiring home economics lessons!

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The core team of the LEAD project:

Gun Åbacka, University of Agder

Jaana Taar, Tallinn University

Jenny Rendahl, University of Gothenburg

Kristi Koppel, Tallinn University

Päivi Palojoki, University of Helsinki

Co-operating colleagues:

Ann Parinder, University of Gothenburg

Anne Malin, University of Helsinki

Hanne Andersen Dversnes, University of Agder

Henriette Aamot Sørensen, University of Agder

Hille Janhonen-Abuquah, University of Helsinki

Jenny Lind, University of Gothenburg

Kristin Anderssen Ryghseter, University of Agder

Marit Nõmmik, Tallinn University

Sara McGarvie, University of Gothenburg

Silpa Maria Pöntinen, University of Helsinki

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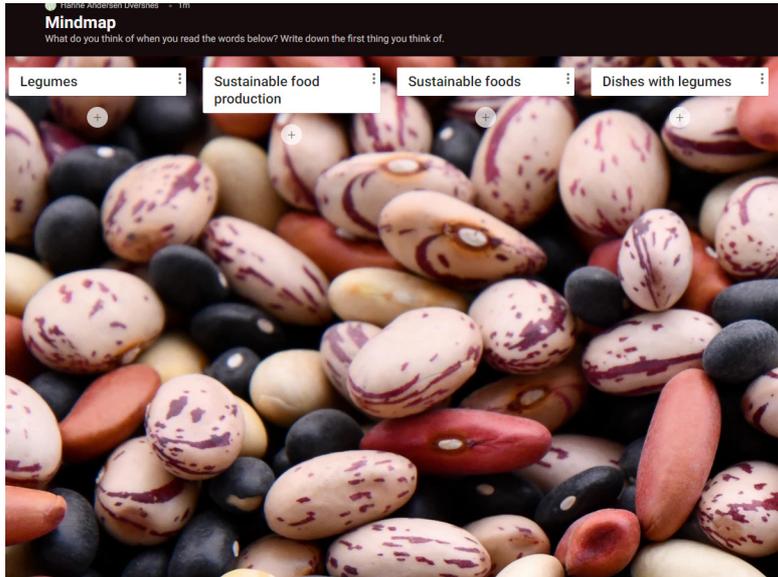


<b>Page</b>	<b>Title of the lesson</b>	<b>Digital tools included</b>	<b>Level</b>
7	Meatfree Monday - sustainable food choices	laptops, phones or tablets; Google accounts for students; Screencastify installed to students devices	Grade 9
10	Outdoor learning - making food on fire	tablets; Bookcreator	Grades 6-9
13	Bread and fibre - nutritional value of bread	phones or tablets, Mentimeter	Grades 5-10
18	Varying the nutritional value of the muesli bar	students' phones; laptops or tablets for each student; Whimsical	Grades 7-9
23	Wheat, rye, barley and oats - basic local cereals	laptops for each student; Thinglink	Grades 4-6
28	Food culture - local foods in different countries	tablets or laptops for each student; Padlet wall	Grades 7-9
34	Understanding the concept related to home economics	tablets or computers; Padlet wall with a question	Grades 6-9
36	Consumer rights and sustainability - what the world eats	tablets or computers	Grades 8-9
38	Consumer rights and financial awareness – QR-walking tour	tablets or phones, QR-codes	Grades 8-9 or special education
43	Solving consumer dilemmas through gamification and fictionality	tablets, video of a WhatsApp conversation	Grades 7-9
53	Sustainable development and water consumption	tablets or phones; Google Classroom for saving students answers; video	Grades 7-9
61	The life cycle of clothes - a home economics adventure game	tablets or computers ; QR-codes; Padlet; Kahoot questionnaire	Grades 7 (8-9)

## Lesson 1

# *Meat-free Monday - sustainable food choices*

Designed by Gun Åbacka and Hanne Andersen Dversnes, University of Agder, Norway

<b>CLASSROOM ACTIVITIES</b>	
TIME USE	135 minutes (3 x 45 minutes)
LEVEL	9 <sup>th</sup> grade
LESSON AIM(S)	The aim of the lesson is: <ul style="list-style-type: none"><li>– to reflect whether, or why, legumes are a sustainable protein source;</li><li>– to know critical aspects related to pan-frying .</li></ul>
SHORT DESCRIPTION	<p>The core of this lesson is to give students a deeper understanding of legumes as protein sources, and how the production of different protein sources affects the environment. In addition, through this lesson, the students will experience how to make sustainable food with legumes. The practical technique we focus on during this lesson is pan-frying.</p> <p>At the beginning of the lesson, the students create a mind map together using Padlet. The outline of the mind map has been prepared by the teacher in advance, and students write their thoughts under each heading.</p>  <p>Example 1.1 Mindmap in the Padlet environment</p> <p>The teacher uses the mindmap to start a discussion with the students about different sources of protein and how different protein sources affect the environment.</p> <p>Then, the students are divided into groups to prepare veggie burgers. Each group uses a different legume as the main ingredient for their veggie burger. The teacher points out critical steps in making the mixture for the patty and how to pan-fry the veggie burger.</p>

	<p>Every student should be involved in the pan-frying activity.</p> <p>The session ends with the students recording a 2 minutes movie on Screencastify in pairs. They answer two questions related to the learning aims of the day – which are written on the board. The students should explain the critical steps involved in pan-frying food. They should also answer two questions related to legumes as a protein source and their impact on the environment. This will act as a kind of self–assessment and summary of the session. The movie is sent to the teacher before the session is over.</p>
<p><b>TIME USE OF THE LESSON AND LEARNING ACTIVITIES</b></p>	
<p><b>INTRODUCTION TO THE TASK</b></p>	<p>The teacher starts the lesson by challenging the students to write their thoughts on a shared digital mind map in Padlet. The contributions to the mindmap are anonymous, but everyone can see what other students write. The teacher uses the mindmap as a starting point for further conversation about legumes as a protein source (and other nutrients) and why legumes are a sustainable protein source. Furthermore, the teacher explains how to prepare legumes in a tasty way so that people want to eat them. An example of such a tasty dish with legumes is the veggie burger that the students will cook in today's lesson. The teacher explains how to prepare the mixture for the patty and points out some critical steps during the cooking process.</p>
<p><b>LEARNING</b></p>	<p>Students start by making the mixture for the patty, preparing the dough for the hamburger bread, cutting vegetables, and preparing the dressing for the veggieburger.</p> <p>The teacher gathers everyone and demonstrates some vital steps involved in pan-frying. The teacher also demonstrates why it is wise to make a small sample patty to fry and taste first, before frying all the burgers.</p> <p>The students shape the hamburger buns and set them to rise. While the buns are rising, students start with frying the veggieburgers in the pan. All students must take their turn in the pan-frying activity. The burgers are placed in a refractory form in the oven to keep warm until the meal starts. The students also bake the hamburger buns in the oven. (If there is time, students can already start to write down what they want to say in their self-assessment in Screencastify (or similar) – look below).</p> <p>The students have a meal. During the meal teacher and students discuss further what they started in the introduction.</p> <p>Cleaning and washing dishes.</p>
<p><b>REFLECTION</b></p>	<p>The students should answer two questions related to the learning aims for today's lesson. The answers to the questions are recorded with Screencastify (maximum 2 minutes). When finished, students send it to the teacher.</p> <p>Questions for students to answer and record with Screencastify:</p> <ul style="list-style-type: none"> <li>• Explain critical steps when you are frying in a pan.</li> <li>• Explain why legumes are a sustainable protein source.</li> </ul>

## GOOD TO KNOW

BACKGROUND OF THE LEARNING ACTIVITY	This lesson is closely linked to the interdisciplinary topics in the curriculum: Public health and life skills (how to cook good, healthy food) and sustainable development. Teaching students about this enables them to make responsible choices and act ethically and environmentally conscious with knowledge on how different protein sources affect the environment. By starting the lesson with a mindmap where everyone is active, the students' thoughts and reflections on a complex topic are set in motion. The knowledge they already have is activated, and the basis for achieving in-depth learning is in place. This can be conveyed in the recording at the end of the lesson.
GOOD ADVICE	– We recommend that students have used Screencastify before, so they don't spend time getting familiarized with it during this lesson. It is a prerequisite that students are familiar with the term sustainability (this lesson can also be part of an interdisciplinary project with other subjects).

## PREPARATION FOR THE LESSON

MATERIALS AND TOOLS NEEDED	DIGITAL TOOLS: <ul style="list-style-type: none"><li>• Chromebook, phone or tablet for every student if possible</li><li>• Google account (for every student) for using Screencastify</li><li>• Screencastify (<a href="https://www.screencastify.com/">https://www.screencastify.com/</a>) installed on the students' laptop/tablet, phone</li></ul>
THINGS TO DO BEFORE THE LESSON	<ul style="list-style-type: none"><li>• Make a base for a mindmap in Padlet about legumes and sustainability.</li></ul>
USEFUL REFERENCES	<ul style="list-style-type: none"><li>• Veggie Burger Recipes. <i>The Spruce Eats</i>. <a href="https://www.thespruceeats.com/top-most-popular-veggie-burger-recipes-3378630">https://www.thespruceeats.com/top-most-popular-veggie-burger-recipes-3378630</a></li></ul>

## Lesson 2

### *Outdoor learning - making food on fire*

*Designed by Gun Åbacka and Hanne Andersen Dversnes, University of Agder, Norway*

<b>CLASSROOM ACTIVITIES</b>	
<b>TIME USE</b>	2 x 135 minutes or a full day if combined with other learning activities
<b>LEVEL</b>	6 <sup>th</sup> – 9 <sup>th</sup> grade
<b>LESSON AIM(S)</b>	<p>The aim of the lesson is:</p> <ul style="list-style-type: none"> <li>– to learn how to cut vegetables;</li> <li>– to learn how to prepare food on an open fire;</li> <li>– to learn about the nutritional content of fish, and the national recommendations for the intake of fish;</li> <li>– to create a digital story in Bookcreator</li> </ul>
<b>SHORT DESCRIPTION</b>	<p>This lesson includes outdoor food preparation. The core of the lesson is to give students a systemized understanding of the nutritional content of fish and how we can easily prepare fish on an open fire.</p> <p>Every student makes their own «chest treasure of the sea» to bring along on the trip. The students must cut the vegetables and the fish they chose to bring in their treasure chest. The students take pictures with their tablet during the process.</p> <p>The students go to a fireplace nearby, make fire, prepare food, and eat a meal together. The students take pictures during the process and of the result.</p> <p>While the food is preparing on the fire, the students individually or in pairs work with their digital book. They put pictures from the process and describe what they have done so far. Students with writing disabilities make an audio file and put this in the book instead of writing.</p> <p>The students should also include in the book how much fish we are recommended to eat, why we should eat it, what kind of nutrients there are in fish, and why these nutrients are important in our diet.</p> <p>The students go back to the classroom and finish their book. If there is time, the students present their book to the others and give feedback to each other. If there is not enough time for this in this lesson, this activity will be included at the start of the next lesson.</p>
<b>TIME USE OF THE LESSON AND LEARNING ACTIVITIES</b>	
<b>INTRODUCTION TO THE TASK</b>	<p>The teacher shortly introduces today's lecture and recapitulates the national recommendations for fish intake. The teacher also summarises again what the most valuable nutrients in lean and oily fish are. The students prepare their treasure chest of the sea. The teacher explains the importance of the size and thickness of the different vegetables and demonstrates how the students should cut the different vegetables.</p>
<b>LEARNING</b>	<b>Cooking</b>

	<p>Students work individually on their treasure chest. They can choose between different vegetables and two different fish types (lean and fatty fish). The students have been given homework (flipped classroom) to watch a video on how to prepare a treasure chest.</p> <p>They take pictures with their tablet during the process so that they can use the pictures in the book in Bookcreator (or something similar).</p> <p><b>On tour</b></p> <p>The teacher and the students walk to an outdoor area that is suitable for making an open fire. In 6<sup>th</sup> grade, the students need help from the teacher to build an open fire, but in 9<sup>th</sup> grade, the students should try independently, with guidance from the teacher. When embers have reached the fire, students put their treasure chest on. Students take pictures during the process.</p> <p><b>Work with the book</b></p> <p>While the fire is lit and the treasure chest is in the embers, the students work on their digital book. They put in pictures and text, or (possibly an audio file) from the cooking process. In their group (4 students per group), they discuss the nutritional content of lean and fatty fish and the recommended intake of fish. They add this information to their book in the appropriate place.</p> <p><b>Meal and meal- discussion</b></p> <p>The students take pictures of the finished treasure chest, and the class gathered around the fire. They eat the contents of their treasure chest and discuss the nutrient content of different fish types and the recommended intake for fish with their classmates. They also talk about critical steps to ensure a good result when preparing food on a campfire.</p> <p><b>Back to school</b></p> <p>The students go back to school and finish their book.</p> <p><b>Presentation of the book</b></p> <p>Every student–pair presents their book to the other student-pair in their group.</p>
REFLECTION	<p><b>Peer review, reflection of today's lecture.</b></p> <p>Individually each student gives peer review to the other student-pair using 2 stars and 1 wish. When several learning activities are to be combined, the students will continue to work on their book for the other activities. They will also implement any feedback from classmates and their teacher.</p> <p>End of class: The students discuss what they have learned today, and what they could have done differently.</p>
<p><b>GOOD TO KNOW</b></p>	

<b>BACKGROUND OF THE LEARNING ACTIVITY</b>	<p>This lesson provides a good link between theory and practical work through a student-centred approach to learning. By making a digital book with pictures and text from the process, students need to reflect on the critical points when working with fish and vegetables in the kitchen and what is important when cooking on a campfire. Simultaneously, they need to understand the nutritional content of fish and how much we should eat of it. Working in pairs and groups ensures a discussion and a sharing of knowledge that promotes learning. This is likely to increase learning outcomes.</p>
<b>GOOD ADVICE</b>	<ul style="list-style-type: none"> <li>– All tablets have to be fully charged. As the class is going on tour, they don't have access to electricity.</li> <li>– In advance of this lesson, the class has learned about the nutritional content of fish and the recommendations for consuming fish.</li> <li>– This lesson is designed for 6th grade. It can also be implemented in 9<sup>th</sup> grade. In such a case, there should also be a focus on the nutritional content of vegetables and the recommended intake of vegetables. In addition, the students can prepare an extra small dish on the fire (e.g. banana split) or any other dishes. The same type of lesson could also be implemented in an ordinary lesson in the kitchen where the students prepare simple dishes that are not as time-consuming.</li> </ul>
<b>PREPARATION FOR THE LESSON</b>	
<b>MATERIALS AND TOOLS NEEDED</b>	<ul style="list-style-type: none"> <li>• Ingredients and tools needed to prepare the treasure chest of the sea</li> </ul> <p>DIGITAL TOOLS:</p> <ul style="list-style-type: none"> <li>• Video of the treasure chest making</li> <li>• Tablets for students (fully charged)</li> <li>• Bookcreator app (<a href="http://www.bookcreator.com">www.bookcreator.com</a>) or something similar</li> </ul>
<b>THINGS TO DO BEFORE THE LESSON</b>	<ul style="list-style-type: none"> <li>• Homework for students - watch a movie on how to prepare a treasure chest of the sea</li> <li>• Ensure that the students have used the app Bookcreator (or something similar) in advance so they know how to use it.</li> <li>• Prepare a short presentation about the nutritional content of fish and the recommended intake of fish.</li> <li>• Give students textbooks (or some other source) where they can read about the nutritional content of fish and the recommended intake of fish.</li> </ul>
<b>USEFUL REFERENCES</b>	<ul style="list-style-type: none"> <li>• MHFA, 2020. <i>Digitalt fortalt historier i mat og helse</i> (in Norwegian). <a href="https://mhfa.no/historier-i-mat-og-helse">https://mhfa.no/historier-i-mat-og-helse</a></li> <li>• Foliebakte grønnsaker til grillen (in Norwegian). <i>BAMA</i>. <a href="https://www.youtube.com/watch?v=iLsVAHm_L6g">https://www.youtube.com/watch?v=iLsVAHm_L6g</a></li> <li>• Lemon, parmesan, salmon &amp; asparagus foil packs. <i>Cafe Delicates for all good food lovers</i> (video). <a href="https://cafedelites.com/lemon-parmesan-salmon-asparagus-foil-packs/">https://cafedelites.com/lemon-parmesan-salmon-asparagus-foil-packs/</a></li> <li>• Treasure chest with salmon. <i>LEROY</i> (Recipe). <a href="https://www.leroyseafood.com/en/tasty-seafood/recipes/treasure-chest-with-salmon/">https://www.leroyseafood.com/en/tasty-seafood/recipes/treasure-chest-with-salmon/</a></li> </ul>

Lesson 3

***Bread and fibre - the nutritional value of bread***

*Designed by* Gun Åbacka and Hanne Andersen Dversnes, University of Agder, Norway

<b>CLASSROOM ACTIVITIES</b>	
<b>TIME USE</b>	135 minutes (3 x 45 minutes)
<b>LEVEL</b>	6 <sup>th</sup> –10 <sup>th</sup> grade
<b>LESSON AIM(S)</b>	<p>The aim of the lesson is to learn:</p> <ul style="list-style-type: none"> <li>– the “wholemeal scale” of bread;</li> <li>– how flour, bran and flakes affect the nutritional benefits of bread (the content of dietary fibre, minerals and vitamins) and other bakery products;</li> <li>– which ingredients improve the nutritional aspects of bread.</li> </ul>
<b>SHORT DESCRIPTION</b>	<p>The session begins with students learning about the Wholemeal Bread Fibre Scale and guessing through Mentimeter what the fibre scale is of different loaves of bread.</p> <p>The students (two and two) bake buns with different types of flour mix (finer and coarser).</p> <p>While the buns are rising, the students calculate how much fibre their buns contain using the “fibre-calculator” (calculate the fibrous content of flour mix in bread <a href="https://brodogkorn.no/grovhets-kalkulator/">https://brodogkorn.no/grovhets-kalkulator/</a>).</p> <p>When the buns are ready, all pairs place one of their buns and a list of ingredients in the flour mix they have used on a plate.</p> <p>All plates are placed on a table.</p> <p>The students guess with the help of Mentimeter how “wholemeal” (1. white, 2. semi-wholemeal, 3. wholemeal, 4. extra fibre) the different buns are.</p> <p>The students get the opportunity to learn how they can use different types of bran and flour, different coarseness in flour, flakes etc. and how it can affect the content of dietary fibre, vitamins and minerals in bread.</p>
<b>TIME USE OF THE LESSON AND LEARNING ACTIVITIES</b>	
<b>INTRODUCTION TO THE TASK</b>	The lesson starts with a discussion of the fibre content of different bread products - students can estimate the fibre content of the products using the Mentimeter scale.



Example 3.1 Different breads

Introductory discussion based on responses to the scale.



Example 3.2 Slices of different breads

Students work in pairs and use a recipe for buns, which describes how to proceed. Students draw a card (with a number) stating the type of flour mix they will use when baking buns (see annex 3.1). All couples have different flour mixes. The recipe is attached (see annex 3.1).

**LEARNING**

The students bake buns in pairs (dough and baking). While the buns are rising, students use the “fibre-calculator” found at the website Information Offices of Bread and Cereals.

Using the “fibre-calculator”, the students calculate the fibre content of their buns and where on the wholemeal bread scale their buns end up. Students choose the correct symbols from the Breadscale and write the percentage of the fibre content on their buns (see annex 3.2).

**REFLECTION**

When all pairs have finished their buns, they break up one bun, and put it together with a list of ingredients in their flour mix on a plate. All the plates are placed on a table and the students are guessing again (using Mentimeter) where on the Breadscale the different buns (as many pairs there are in the group) are placed. Discussion about results from “Mentimeter answers”. Students then display the symbols of the Breadscale with the percentage of fibre content on their buns. Teachers and students talk together about how the type of flour, bran and grain affect the content of dietary fibre, minerals and vitamins in bread. Whole grain bread consists of soluble and insoluble fibre, which activate the digestive system.

**GOOD TO KNOW**

BACKGROUND OF THE LEARNING ACTIVITY	The lesson has a student-centred and problem-based approach. First, the students are to guess the fibre content of bread by only looking at several purchased loaves of bread. Then, they do the same with self-baked bread.
GOOD ADVICE	– The teacher can prepare different recipes with different types of flour mix, from fine to extra coarse (see annex 3.1).
<b>PREPARATION FOR THE LESSON</b>	
MATERIALS AND TOOLS NEEDED	<ul style="list-style-type: none"> <li>• Ingredients and utensils used to bake buns</li> </ul> <p>DIGITAL TOOLS:</p> <ul style="list-style-type: none"> <li>• Students’ phones or tablets</li> <li>• “Fibre-calculator”</li> <li>• Mentimeter (<a href="http://www.mentimeter.com">www.mentimeter.com</a>)</li> </ul>
THINGS TO DO BEFORE THE LESSON	<ul style="list-style-type: none"> <li>• Check that all students have access to the Mentimeter from their phone or tablet.</li> <li>• Bring out ingredients for buns.</li> <li>• Have a basic recipe for buns and different recipes on flour mix.</li> <li>• Have several copied symbols from the Breadscale.</li> </ul>
USEFUL REFERENCES	<ul style="list-style-type: none"> <li>• Grovhets kalkulator. <i>Information Offices of Bread and Cereals</i> (in Norwegian). <a href="https://brodogkorn.no/grovhets-kalkulator/">https://brodogkorn.no/grovhets-kalkulator/</a></li> </ul>

## ANNEX 3.1 Buns with different coarseness

### How much does 1 dl weigh?

Wheat flour (all-purpose) (60 g)  
Whole-wheat flour (55 g)  
Oatflakes (40 g)  
Wheat bran (25 g)  
Oat bran (45 g)

### Ingredients for buns

½ pack yeast  
2 ½ dl water / milk, lukewarm  
1 teaspoon sugar (optional)  
½ tsp. salt  
1–2 tbsp. oil  
flour mixture

### Examples of flour mixtures

#### Flour mixture 1 - 14% coarse: fine

1 dl oatflakes - 40 g  
4 dl wheat flour (all-purpose) - 240 g

#### Flour mixture 2 - 18% coarse: fine

½ dl oatflakes - 20 g  
½ dl whole-wheat flour 27 g  
3 ½ dl wheat flour - 210 g

#### Flour mixture 3 - 36% coarse: semi-coarse

½ dl oatflakes - 20 g  
1 ½ dl whole-wheat flour - 83 g  
3 dl wheat flour - 180 g

#### Flour mixture 4 - 43% coarse: semi-coarse

½ dl oatflakes - 20 g  
½ dl oat bran - 23 g  
1 dl whole-wheat flour - 55 g  
3 dl wheat flour - 180 g

#### Flour mixture 5 - 56% coarse: coarse (the original recipe)

½ dl oatflakes - 20 g  
2 ½ dl whole-wheat flour 138 g  
2 dl wheat flour - 120 g

#### Flour mixture 6 - 67% coarse: coarse

½ dl wheat bran - 15 g  
2 dl whole-wheat flour 110 g  
2 ½ dl wheat flour - 138 g

#### Flour mixture 7 - 75% coarse: extra coarse

½ dl oat bran - 23 g  
½ dl oat flakes - 20 g  
2 ½ dl whole-wheat flour 138 g  
1 ½ dl wheat flour - 90 g

#### Flour mixture 8 – 83 % coarse: extra coarse

½ dl oat bran - 23 g  
½ dl wheat bran - 15 g  
2 dl whole-wheat flour - 110 g  
2 dl wheat flour - 120 g

ANNEX 3.2 Symbols explaining coarseness in bread



**FINE**  
\_\_\_\_\_ % COARSE



**SEMI-COARSE**  
\_\_\_\_\_ % COARSE



**COARSE**  
\_\_\_\_\_ % COARSE



**EXTRA-COARSE**  
\_\_\_\_\_ % COARSE

## Lesson 4

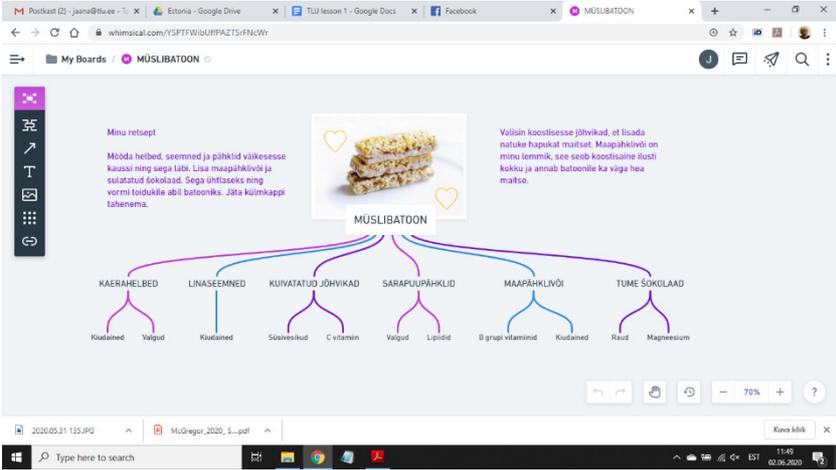
### *Varying the nutritional value of muesli bars*

Designed by Jaana Taar and Kristi Koppel, Tallinn University, Estonia

<b>CLASSROOM ACTIVITIES</b>	
TIME USE	90 minutes (2 x 45 minutes)
LEVEL	7 <sup>th</sup> –9 <sup>th</sup> grade
LESSON AIM(S)	The aim of the lesson is: <ul style="list-style-type: none"> <li>– to gain a systemised understanding of the food’s nutritional content by creating a mind map that gives an overview of the ingredients in a muesli bar.</li> </ul>
SHORT DESCRIPTION	<p>The core of the lesson is to give students a systemised understanding of the nutritional content of the food prepared in the lesson.</p> <p>The lesson starts with the practical task in which each student makes a muesli bar, deciding between the different ingredients.</p> <p>Students’ phones are used to take pictures of the muesli bars they make so they can use these images to personalise their mind maps.</p> <p>While the muesli bars settle, the students have the theoretical task of creating a mind map with the ingredients of the muesli bar, giving a systemised overview of the main nutrients in the product. The mind map helps to organise a set of knowledge by displaying it visually.</p> <p>This task is challenging, as students must use their previous knowledge of nutrients and search for additional information to present the recipe in the form of a mind map.</p>
<b>TIME USE OF THE LESSON AND LEARNING ACTIVITIES</b>	
INTRODUCTION TO THE TASK	The teacher gives an overview of the lesson and explains the lesson’s goals. The students get themselves ready to work in the study kitchen.
LEARNING	<p><b>Food preparation</b></p> <p>Students are working individually, following the worksheet (see Annex 4.1). Their task is to make a muesli bar. Students are given a worksheet with the table of possible ingredients for the muesli bar. Each student chooses their favourite ingredients from the table, taking one ingredient from every row.</p> <p><b>Group work</b></p> <p>When the muesli bar is left in the freezer to set, students work in groups of 3–5. Although the mind map is done individually, students can start with the group discussion to activate their previous knowledge about the nutrients in the ingredients being used. The internet is used for finding additional information. The students in each group can make common decisions about the main nutritional value of each ingredient.</p> <p><b>Individual task</b></p>

Each student has a laptop that they use to make a mind map of the ingredients of their own muesli bar, using Whimsical or a similar visual workspace (see the instructions in Annex 4.2).

At the end of the task, they will analyse the mind map and add an explanation/summary as a free text to advertise the muesli bar. They can personalise the mind map with a picture of their own muesli bar along with accompanying emoticons.



Example 4.1 Mind map in Whimsical webpage

Every student presents their mind map to their group members. They thus have the opportunity to compare and discuss the content of the different muesli bars.

**REFLECTION**

A discussion about the contents of muesli bars—what they contain, why we need these nutrients, etc.

End of the lesson: Reflection about one thing learned today (may also be in written form, such as post-its).

**GOOD TO KNOW**

**BACKGROUND OF THE LEARNING ACTIVITY**

This lesson allows for student participation and includes a student-centred approach to learning about the ingredients of the muesli bar. Students have the opportunity to talk to one another and discuss the main nutrients in the ingredients being used. This creates the possibility of generalising and transferring their previous knowledge. Visualising the content of a muesli bar on a mind map supports students’ thinking and helps them build a deeper understanding.

**GOOD ADVICE**

- If finding the nutrients of the ingredients from the internet is too time-consuming or difficult for students, the teacher can prepare small cards next to every ingredient with a short introduction.
- The same task can be used with other quick and simple foods (e.g., smoothies or salads).
- To add another layer to the mind map tasks, students can compare the nutrients of their own muesli bars with chocolate bars, which are often chosen by the students as a quick snack.

**PREPARATION FOR THE LESSON**

<p>MATERIALS AND TOOLS NEEDED</p>	<ul style="list-style-type: none"> <li>• Selection of ingredients and tools for food preparation</li> </ul> <p>DIGITAL TOOLS:</p> <ul style="list-style-type: none"> <li>• Students' phones</li> <li>• Laptops or tablets for each student</li> <li>• Whimsical (<a href="http://www.whimsical.com">www.whimsical.com</a>) or a similar website</li> </ul>
<p>THINGS TO DO BEFORE THE LESSON</p>	<ul style="list-style-type: none"> <li>• Making sure the students have Google accounts, as these are needed for logging into Whimsical. Each student may do 4 free mind maps in their given workspace.</li> <li>• Think about how you want the students to share their mind maps. It is possible to share them with a link, copy them to another file or print them (which is good for creating posters on the classroom wall).</li> </ul>
<p>USEFUL REFERENCES</p>	<ul style="list-style-type: none"> <li>• <i>Toitumise infosüsteem</i> (in Estonian). <a href="http://www.tka.nutridata.ee/et">www.tka.nutridata.ee/et</a></li> </ul>

## ANNEX 4.1 A recipe for making a muesli bar

### ***TIC-TAC-TOE OF A MUESLI BAR***

*Pick one ingredient from every row of the table. Mark your choice with an X in the table.*

<i>15 g</i>	<i>Butter</i>	<i>Peanut butter</i>	<i>Coconut oil</i>
<i>1–2 tsp</i>	<i>Pieces of chocolate</i>	<i>Honey</i>	<i>Condensed milk</i>
<i>2 tbsp</i>	<i>Oat cereals</i>		
<i>2 tsp</i>	<i>Almonds</i>	<i>Coconut flakes</i>	<i>Cashews</i>
<i>2 tsp</i>	<i>Pumpkin seeds</i>	<i>Sunflower seeds</i>	<i>Flaxseed</i>
<i>2 tsp</i>	<i>Dried apricots</i>	<i>Dried cranberries</i>	<i>Raisins</i>

- 1. Measure the fatty substance and melt it in the microwave oven.*
- 2. Add the binding ingredient (from the second row).*
- 3. Add the rest of the ingredients. You can cut the nuts and berries into smaller pieces.*
- 4. Add a little SALT!*
- 5. Mix all ingredients together and form between the food film into the desirable shape.*
- 6. Leave the muesli bar in the refrigerator to harden.*

## **ANNEX 4.2 Instructions for the students to make a mind map**

### ***MIND MAP: 'THE COMPOSITION OF MY MUESLI BAR'***

Create a mind map that gives an overview of the main nutrients that are represented in your muesli bar. Please follow these steps:

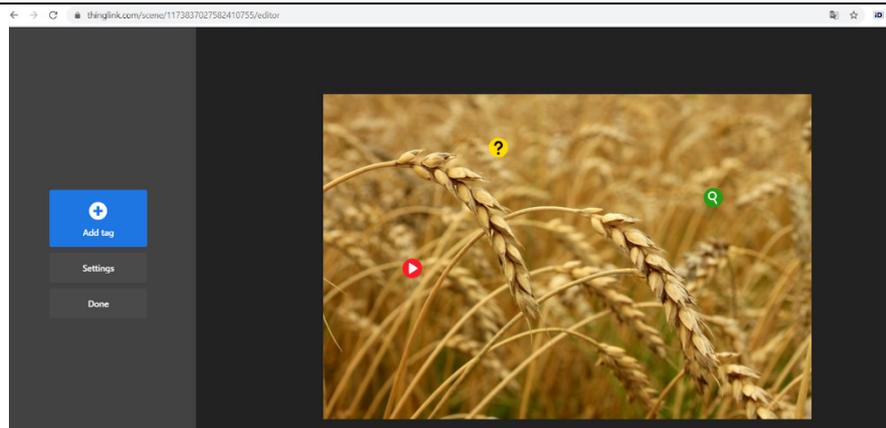
1. Open whimsical.com and log in with your Google account.
2. Open a new Mind Map to make your own map.
3. Write the title of your mind map in the opened box.
4. Add as many boxes as you have ingredients in your muesli bar. To do this, click on the icon that is connected to the heading box. Later, it will be possible to reorganise the added boxes.
5. For each ingredient, add one or two valuable nutrients that we get from this specific ingredient. Use the internet to get the information (for example: [tka.nutridata.ee/et](http://tka.nutridata.ee/et)).
6. Design your mind map by using the possibilities on the black toolbar. Pick suitable colours and add the picture of your muesli bar.
7. Add the recipe of your muesli bar to the mind map along with a short description of why you have chosen these specific ingredients.
8. Share the completed mind map with your teacher.

Lesson 5

***Wheat, rye, barley and oats—basic local cereals***

*Designed by home economics student teacher Marit Nõmmik, Tallinn University, Estonia*

<b>CLASSROOM ACTIVITIES</b>	
<b>TIME USE</b>	90 minutes (2 x 45 minutes)
<b>LEVEL</b>	4 <sup>th</sup> –6 <sup>th</sup> grade
<b>LESSON AIM(S)</b>	<p>The aim of the lesson is:</p> <ul style="list-style-type: none"> <li>– to learn about the main cereal grains by finding information and consolidating this knowledge into a digital poster;</li> <li>– to use different senses (sight, taste and smell) to recognise the main cereal grains.</li> </ul>
<b>SHORT DESCRIPTION</b>	<p>The core lesson is to learn about the four main cereal grains used in Estonia. The main task is to create a digital poster about one select cereal. This task is performed in groups of three or four students.</p> <p>The task is challenging, so that the students need to seek out information, distinguish significant information, find freeware pictures to use and visually combine all these features into a poster.</p> <p>Laptops are used to search for information, to look at certain videos about the subject and to find pictures. The students have 90 minutes to complete the task.</p> <p>Between sessions of working on the main task, students have an additional practical task, in which they must determine the correct name and combine it with the cereal product.</p>
<b>TIME USE OF THE LESSON AND LEARNING ACTIVITIES</b>	
<b>INTRODUCTION TO THE TASK</b>	At the beginning of the lesson, the teacher draws on help from the students to add the cereal mind map to the board and introduces the main task. Students are divided into groups of 3–4. Each group selects a brand of cereal from the teacher’s samples.
<b>LEARNING</b>	<p>After the cereals are selected, the teacher hands out the electronic devices and books and introduces the learning task with the illustrative examples from their computer (using the data projector).</p> <p>Students open their devices and begin the learning task with the help of the written instructions (see Annex 5.1). The main task is to create a digital poster with these elements in Thinglink or a similar software platform:</p> <ul style="list-style-type: none"> <li>• At least one freeware image related to the chosen cereal.</li> <li>• The main characterisation of this cereal.</li> <li>• Why should you eat this cereal?</li> <li>• What could be made from it? Name the relevant foods and find one recipe.</li> <li>• A video featuring activities such as harvesting or processing the cereal or something related.</li> </ul>



Example 5.1 The background of the poster in Thinglink

While students work on this task, the teacher prepares an activity for the corner/back of the classroom. In this activity, students can use their various senses to recognise the numbered products made from cereal and fill in their worksheets (see Annex 5.2). The teacher sends each group one by one to fulfil this additional task during their main task.



Example 5.2 Different products for identification

**REFLECTION**

Each group presents one major conclusion their group has made to the other groups. The others can complete the process in a joint discussion.

**GOOD TO KNOW**

**BACKGROUND OF THE LEARNING ACTIVITY**

This is an introductory lesson for the theme of *cereals and cereal products*. For this lesson, the teacher should schedule time for a presentation of the prepared posters and a practical activity involving the different cereals.

During the part of the presentation when each group introduces their poster, the other students should make notes about the presentation and discuss the essence of this specific cereal. These discussions of the presentations should lead the students to develop an understanding of the

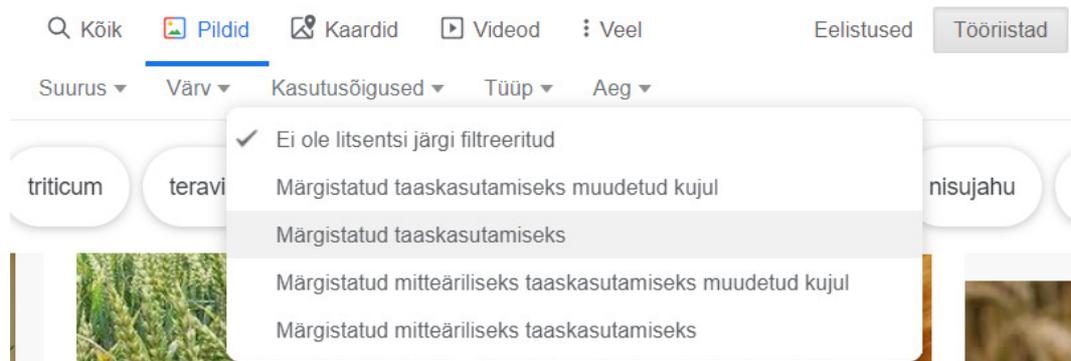
	<p>similarities and differences between different cereals and how they are used in everyday foods.</p> <p>With this lesson, the development of the students' digital competence is also in focus.</p>
GOOD ADVICE	<ul style="list-style-type: none"> <li>- The additional task during the main task helps to activate students and get their minds off the computers for several minutes.</li> <li>- The platform of Thinglink does not work properly with tablets.</li> </ul>
<b>PREPARATION FOR THE LESSON</b>	
MATERIALS AND TOOLS NEEDED	<ul style="list-style-type: none"> <li>• Samples of the cereals</li> <li>• Samples of different cereal products for the additional task (e.g., wholemeal flour, bran, flour, flakes and grains)</li> </ul> <p>DIGITAL TOOLS:</p> <ul style="list-style-type: none"> <li>• Laptops for each group</li> <li>• Thinglink (<a href="http://www.thinglink.com">www.thinglink.com</a>) or similar</li> </ul>
THINGS TO DO BEFORE THE LESSON	<ul style="list-style-type: none"> <li>• Preparing the additional task.</li> <li>• Making an account on Thinglink.</li> <li>• Printing the work instructions.</li> </ul>
USEFUL REFERENCES	

## ANNEX 5.1 Instructions for making a poster

### *Instructions*

1. Use a digital environment to make a poster about your chosen cereal.
2. First, find one picture from the internet about your chosen cereal. Save it on your device.

**Make sure that it is a freeware picture!**



3. Go to thinglink.com.
4. Register as a user:
  - Start now—sign in with Google.
  - Click create on top.
5. Upload a saved picture to the poster as a wallpaper.
6. Start using tags in your poster—add tag.

You can find additional information about your cereal from the internet.

**The poster must consist of:**

- At least one freeware image related to the chosen cereal.
- The main characterisation of the cereal.
- Why should you eat this cereal?
- What could be made from it? Name some foods and find one recipe.
- A video such as harvesting or processing the cereal or something related.

**ANNEX 5.2 Instructions for the additional task**

Group members: .....  
.....  
.....  
.....

Match the products on the table with the names on the table and write the correct number into each box.

WHEAT FLOUR	
RYE FLOUR	
WHEAT BRAN	
RYE HEAD	
OATMEAL	
BARLEY GROATS	
OAT BRAN	
BARLEY FLOUR	

Lesson 6

***Food culture—local foods in different countries***

*Designed by home economics teacher Edda Rei, further developed by Kristi Koppel and Jaana Taar, Tallinn University, Estonia*

<b>CLASSROOM ACTIVITIES</b>	
<b>TIME USE</b>	90 minutes (2 x 45 minutes)
<b>LEVEL</b>	7 <sup>th</sup> –9 <sup>th</sup> grade
<b>LESSON AIM(S)</b>	<p>The aim of the lesson is:</p> <ul style="list-style-type: none"> <li>– to gain an understanding of local and global foods.</li> <li>– to find a recipe of a national/local food.</li> <li>– to add a post to the Padlet wall.</li> <li>– to introduce the result to one’s fellow students.</li> <li>– form a question about the chosen foods or foodstuffs used in this dish.</li> </ul>
<b>SHORT DESCRIPTION</b>	<p>The core of the lesson is to develop an understanding of local and global foods—how can you identify national foods from different countries? Students work independently, searching for information on local foods and national dishes and making a post about one dish to the Padlet wall.</p> <p>Students share their findings in a group, and within this group, they can decide on which dish(es) they would like to prepare for their home economics lesson.</p> <p>In the whole class activity, each student sends a question with a correct answer based on their dish to the teacher’s email. The teacher collects all questions and prepares a quiz based on local/national dishes. All questions and answers will be discussed in the classroom.</p>
<b>TIME USE OF THE LESSON AND LEARNING ACTIVITIES</b>	
<b>INTRODUCTION TO THE TASK</b>	<p>The teacher introduces the aims of the lesson and appoints the outcomes/stages of the lesson that students need to complete:</p> <ol style="list-style-type: none"> <li>a. Discuss what the national and/or local foods of different countries are and how to identify them.</li> <li>b. Find a local dish of one country (the countries could be the students’ free choice, or the teacher could list possible countries and students could choose between them or draw from a lot). The criteria for choosing the food for the post indicates that it should be possible to make it during the home economics lesson, with the available resources (time, money and equipment).</li> <li>c. Make a post to a prepared Padlet map.</li> <li>d. Ask a teacher about your chosen national dish or a foodstuff used in it.</li> <li>e. Later, choose a dish to be made in the practical lessons and provide a list of needed foodstuffs.</li> </ol>
<b>LEARNING</b>	<p>According to the selected method of choosing their countries (from a list or blind choice), each student will pick a country.</p>

The teacher gives out the digital devices and directs the students to find the local dishes of their chosen countries. The criteria for the dishes could be written on the board: it would be possible to make them in a home economics lesson, with the available resources (time, money and equipment). That means that students must choose between different national/local dishes and finally come up with one that is specific to a given country and suitable for cooking.

The teacher shares a prepared link to Padlet (or a link to a similar platform) and students post the chosen dish to a Padlet map (the + symbol on the Padlet page enables users to add a post).



Example 6.1 An example of the Padlet wall

After posting, students come up with a question related to their chosen dish and send it to the teacher's email address. The students must also provide the correct answer to the question. The questions can be multiple choice, right/wrong or other questions that enable quick answers. The teacher creates a quick quiz on Quizizz or a similar platform so that students can later test their knowledge about different national foods and learn something new.

The teacher can form groups of three or four students for the next practical lesson in order of when they have completed their work. Students in the small group have to introduce one another's dishes, which they have chosen, and make a choice as to which one(s) to prepare in the practical lessons. The teacher supervises these choices. The students must make a list of the needed foodstuffs and agree on who will bring what to the next lesson.

**REFLECTION**

Discussion with the whole class. The teacher's role is to summarise the discussion in the lesson and to open the discussion to topics such as different foods, what was identified by the students and what are local

	<p>and global foods. What are the reasons why something is considered local and eaten more locally? The factors may include local ingredients, production and geography.</p> <p>The teacher shows the quiz to the whole class, and students can answer the questions. It is important that all the questions must be openly discussed, including what was learned and what was interesting about each question.</p> <p>The lesson will end with a reminder on what was agreed on for the next week's lesson.</p>
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**GOOD TO KNOW**

<p><b>BACKGROUND OF THE LEARNING ACTIVITY</b></p>	<p>This lesson should initiate a discussion about how people in specific countries eat. How can we identify what is local food and what is global food? The teacher can also cooperate with the teachers of other subjects to create a broader multicultural context on the topic.</p> <p>These lessons enable students to work actively, perform the task according to their chosen nation and find their dish based on their own preferences, which should support increased interest in their theme of choice. In addition to their own criteria for choosing a dish, such as their likes or dislikes of certain foodstuffs, the student must also consider whether the dish can be made during home economics lessons using available resources.</p> <p>The task supports using the previous knowledge and experiences one has of different cultures and dishes when choosing one's dish and having the classroom discussion.</p>
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<p><b>GOOD ADVICE</b></p>	<ul style="list-style-type: none"> <li>- There are options on how to organise the students' work in the lesson: students can work alone or in pairs (depending on the number of students, the available digital tools and the number of preferred entries). The current lesson is written in single-working mode, which ends with having more different recipes to choose from.</li> <li>- An important factor when working with Padlet is that students can only edit their posts with the same digital device they used to make the post. This means that if students used one specific device at school, they cannot make changes to their post from their device at home.</li> <li>- Using Kahoot (<a href="http://www.kahoot.com">www.kahoot.com</a>) for the quiz may not be a good idea, as it contributes more to quick answers and competitive elements rather than supporting discussion.</li> <li>- If there is not enough time in the lesson to have the quiz, it could be carried out in the next lesson. The teacher then has more time to prepare the quiz.</li> <li>- The added value of the digital tool—the teacher and students can return to the Padlet wall and find and add information, add pictures, make changes, etc.</li> </ul>
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**PREPARATION FOR THE LESSON**

<p><b>MATERIALS AND TOOLS NEEDED</b></p>	<ul style="list-style-type: none"> <li>• (White)board to make a list of criteria for choosing a dish</li> <li>• Instructions for students (see Annex 6.1)</li> </ul> <p><b>DIGITAL TOOLS:</b></p> <ul style="list-style-type: none"> <li>• Tablets or laptops for each student (if possible), or depending on the number of devices, the students can also work in pairs</li> <li>• Padlet wall (<a href="http://www.padlet.com">www.padlet.com</a>) or a similar platform</li> <li>• Quizizz (<a href="http://www.quizizz.com">www.quizizz.com</a>) or similar</li> </ul>
<p><b>THINGS TO DO BEFORE THE LESSON</b></p>	<ul style="list-style-type: none"> <li>• The teacher must have an account for the Padlet and make themselves familiar with the environment.</li> <li>• The teacher must create a new page in the Padlet environment (make a Padlet → map). The teacher should preferably rename the Padlet wall (e.g., nationaldishes2020) if (s)he plans to do this every year.</li> <li>• If the teacher wants the students to find and add recipes or make a choice about what to create in practical lessons later on, she can add a <i>vote</i> option, either with stars or likes. Teachers can share the prepared Padlet page with students by giving them a direct link or using other sharing options, such as a QR-code.</li> <li>• The teacher also must choose the platform for making the quiz from the questions that students send to her. The teacher can choose the platform she has used beforehand or she can try something new from the list of possible platforms, such as Quizizz or Google Forms.</li> </ul>
<p><b>USEFUL REFERENCES</b></p>	

## ANNEX 6.1 Instructions for the students

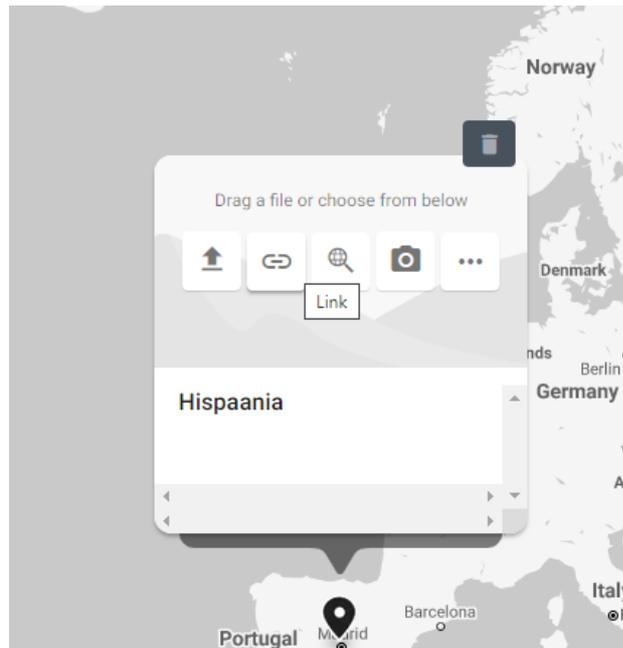
1. Pick a country (either through one's own choice or draw from a lot).
2. Find the national dishes of that country using digital devices. The easiest way is to Google the combination of the country + national dishes. More information can be found in English.
3. Evaluate the dishes according to these criteria: they should be possible to make in a home economics lesson with the available resources (time, money and equipment).

	Dish 1	Dish 2
Time (for preparation + cooking)		
Special foodstuffs		
Special equipment		

4. Choose one dish that you think would be interesting to make and suits the criteria.
5. Go to the link ([www.padlet.com/](http://www.padlet.com/)) and make a post on a prepared Padlet map. By pressing + in the pink circle, you can add your post to the map.



Next, you will need to pick a location (type in the name of the country) and then add your recipe through a link or by copying it into the text box.



You can only edit your post with the same digital device you used to make the post.

6. Think of one question about the dish you selected. It can be about its ingredients, interesting facts or cultural questions. Send the question to the teacher's email (...@...) with a correct answer. The questions can be multiple choice, right/wrong or any other questions that enable quick answers.
7. **Group Work:** Share information about your dish and hear what the others have found. Make a decision in your group as to what dish you would like to make in the home economics lesson. Check whether this dish meets the criteria.

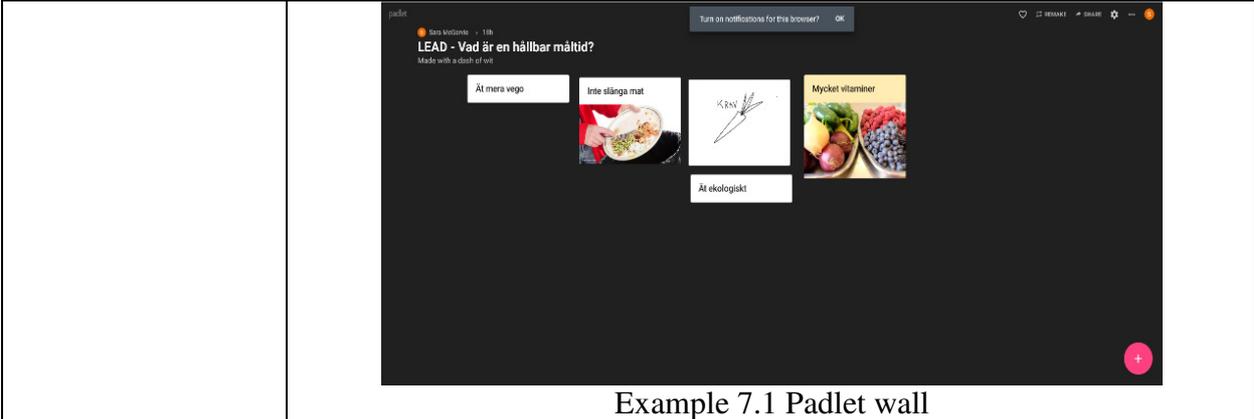
	Our dish
Time (for preparation + cooking)	
Special foodstuffs	
Special equipment	

## Lesson 7

### ***Understanding a concept related to home economics***

*Designed by Sara McGarvie, Ann Parinder and Jenny Rendahl, University of Gothenburg, Sweden*

<b>CLASSROOM ACTIVITIES</b>	
<b>TIME USE</b>	15–30 minutes
<b>LEVEL</b>	6 <sup>th</sup> –9 <sup>th</sup> grade
<b>LESSON AIM(S)</b>	<p>The aim of the lesson is:</p> <ul style="list-style-type: none"><li>– to introduce a word or concept that is substantial in home and consumer studies that might be taken for granted.</li></ul> <p>It also highlights the pupils' understanding, perceptions and ideas of the concept /word. The activity also aims to deepen the pupils understanding of the concept/word</p>
<b>SHORT DESCRIPTION</b>	This activity is designed to work with the understanding of Home and Consumer studies concepts in a specific area. This activity is used as both a start or to summarize the subject area.
<b>TIME USE OF THE LESSON AND LEARNING ACTIVITIES</b>	
<b>INTRODUCTION TO THE TASK</b>	The teacher introduces the task and the aim with the task.
<b>LEARNING</b>	<p>The teacher prepares by creating a question in relation to the concept/word. In this example, the concept “sustainable meal” is used. “What is a sustainable meal?” The teacher creates a digital board on Padlet to publish the question. Padlet is a digital interactive board that is free to use.</p> <p>During the lesson the students are invited to the digital board where they create digital post it notes. They create the post it notes from the question to define, explain and give examples of the concept/word. The post it-note entries can be either text, picture, sound, film or a link etc. The pupils work in pairs or smaller groups. This activity promotes participation among the pupils to define the concept/word.</p> <p>The teacher together with the pupils sort and create the post it notes into categories. In this stage there is no right or wrong. It is important that all pupils post it-notes remains on the board.</p> <p>The pupils work with different assignments in the subject area “sustainable meals” for a number of lessons.</p>



Example 7.1 Padlet wall

<p><b>REFLECTION</b></p>	<p>When it is time to summarize and assess the learning in this subject area the same digital board with the students post it notes are shown again. In groups or pairs, the pupils will now get the opportunity to discuss the original digital board using for example these questions:</p> <ul style="list-style-type: none"> <li>• What would you like to add?</li> <li>• Would you like to take something away?</li> <li>• How would you like to re-group?</li> </ul> <p>The teacher together with the pupils revise the digital board according to the pupil’s discussions. By revising the digital board, the learning process will be visible.</p>
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**GOOD TO KNOW**

<p><b>BACKGROUND OF THE LEARNING ACTIVITY</b></p>	<p>It is important that the pupils will have access to tablets or a computer.</p>
<p><b>GOOD ADVICE</b></p>	<ul style="list-style-type: none"> <li>– If the group of pupils are large there could be a need to have two digital boards.</li> <li>– Could be good to limit the time for creating post it notes and also to limit the number of post it notes one group can upload.</li> <li>– The class can be divided into small groups where each group gets a concept/word to define and then share with the others in the class.</li> </ul>

**PREPARATION FOR THE LESSON**

<p><b>MATERIALS AND TOOLS NEEDED</b></p>	<p><b>DIGITAL TOOLS:</b></p> <ul style="list-style-type: none"> <li>• tablets or computers</li> <li>• Padlet wall (<a href="http://www.padlet.com">www.padlet.com</a>) with a question</li> </ul>
<p><b>THINGS TO DO BEFORE THE LESSON</b></p>	<ul style="list-style-type: none"> <li>• Choose the word/concept.</li> <li>• Create a digital board in Padlet with the question.</li> </ul>
<p><b>USEFUL REFERENCES</b></p>	

Lesson 8

***Consumer rights and sustainability - what the world eats***

*Designed by home economics teacher student Johan Johansson, University of Gothenburg. Further developed by Sara McGarvie, Ann Parinder and Jenny Rendahl, University of Gothenburg, Sweden*

<b>CLASSROOM ACTIVITIES</b>	
<b>TIME USE</b>	Minimum 120 minutes, can be divided into two lessons
<b>LEVEL</b>	8 <sup>th</sup> -9 <sup>th</sup> grade
<b>LESSON AIM(S)</b>	The aim of the lesson is: <ul style="list-style-type: none"> <li>- to give pupils an overview of food consumption in different parts of the world and see the relation to sustainable consumption.</li> </ul>
<b>SHORT DESCRIPTION</b>	<p>The pupils choose or are provided with a picture of one family's consumption taken from the Time article "Hungry Planet: What The World Eats".</p> <p>The pupils work in small groups or pairs and study and analyse their picture. The pupils get questions from the teachers in order to reflect over what they have found.</p> <p>The pupils present their analysis in a digital poster. The digital poster can be created in Powerpoint, Word, Popplet or another suitable tool.</p> <p>The pupils will cook a meal from the food they saw in the picture.</p> <p>The poster can be done in one lesson and the cooking can be done in the following lesson.</p>
<b>TIME USE OF THE LESSON AND LEARNING ACTIVITIES</b>	
<b>INTRODUCTION TO THE TASK</b>	The teacher introduces the task and the aim of the task for the pupils.
<b>LEARNING</b>	<p>The pupils choose, or are provided with, one picture per group to analyse. To assist with the analysis the pupils use the following questions</p> <ul style="list-style-type: none"> <li>• What is your first impression of the picture?</li> <li>• What kind of foods can you see in the picture?</li> <li>• How much does the family's food cost?</li> <li>• How many and what kind of packages can you see?</li> <li>• How do you think the family's food will affect the environment?</li> </ul> <p>The pupils choose something they want to cook using the food in the picture. The food they make could be either a meal they see in the picture or a combination of the different foods in the picture. The pupils take photos both during the cooking process and when they have completed the meal.</p> <p>The pupils create a digital poster where they present the result of their analysis and the photos of preparing the food and the meal. In the poster</p>

	they also have their picture from the Times article. The pupils show and talk about their poster for the whole class.
REFLECTION	The class will have a discussion and reflection together with the teacher after they have seen all the posters. They will discuss how food consumption differs in the different families. For example: Is there disparity in the kind of food eaten? Difference in food cost? Difference in how many packages are used? To sum up they relate their posters and the differences to sustainable consumption both local and global.
<b>GOOD TO KNOW</b>	
BACKGROUND OF THE LEARNING ACTIVITY	The pupils need to have a tablet or computer. The teacher needs to give the pupils the link to the times article.
GOOD ADVICE	<ul style="list-style-type: none"> <li>– Select some pictures from the article which most reflect the difference in food consumption in the world.</li> <li>– This task can be carried out in two lessons depending on the time available for the lesson.</li> <li>– The pupils can also calculate the climate effect of their meal using the food calculator and can compare their own meals' climate effect with the other pupils.</li> </ul>
<b>PREPARATION FOR THE LESSON</b>	
MATERIALS AND TOOLS NEEDED	DIGITAL TOOLS: <ul style="list-style-type: none"> <li>• tablet or computer</li> <li>• Popplet (<a href="http://www.popplet.com">www.popplet.com</a>) or similar</li> </ul>
THINGS TO DO BEFORE THE LESSON	<ul style="list-style-type: none"> <li>• Choose which picture can be used from the Time article.</li> </ul>
USEFUL REFERENCES	<ul style="list-style-type: none"> <li>• <i>Food calculator</i> (in Swedish). <a href="https://www.matkalkylatorn.se/">https://www.matkalkylatorn.se/</a></li> <li>• Hungry Planet: What the world eats? (2013). <i>Time</i>: <a href="https://time.com/8515/what-the-world-eats-hungry-planet">https://time.com/8515/what-the-world-eats-hungry-planet</a></li> </ul>

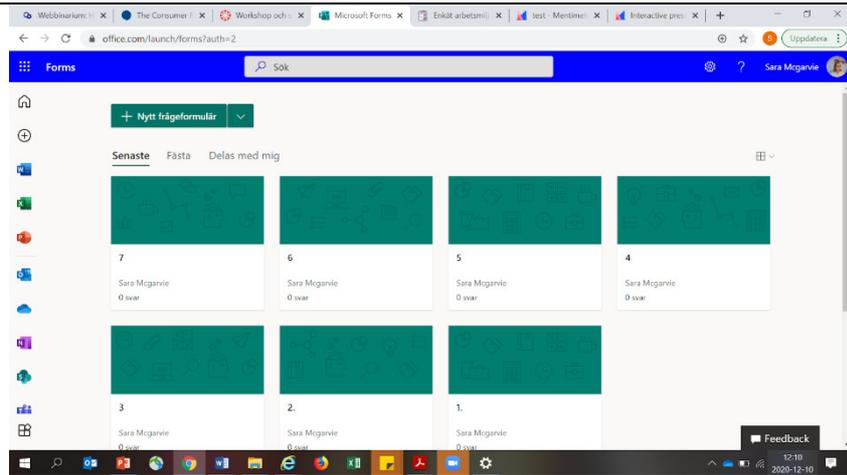
Lesson 9

## ***Consumer rights and financial awareness – QR-walking tour***

*Designed by home economics teachers Åsa Henry, Sara McGarvie, University of Gothenburg, Sweden*

<b>CLASSROOM ACTIVITIES</b>	
<b>TIME USE</b>	40–120 minutes
<b>LEVEL</b>	8 <sup>th</sup> –9 <sup>th</sup> grade, special education
<b>LESSON AIM(S)</b>	<p>The aim of the lesson is:</p> <ul style="list-style-type: none"> <li>– to learn and discuss terms connected to financial awareness and consumption</li> <li>– to summarize the knowledge gained after working with the following subject areas: consumption, economics and financial awareness.</li> <li>– to develop knowledge about: <ul style="list-style-type: none"> <li>• Where to get help and advice related to financial and consumer issues.</li> <li>• Personal finance such as borrowing money, buying on credit or hire purchase and subscriptions.</li> <li>• Rights and obligations of consumers.</li> <li>• Issues to consider when choosing goods and services, such as the purchase of clothes, food and travel from the perspective of economic, social and environmental sustainability.</li> </ul> </li> </ul>
<b>SHORT DESCRIPTION</b>	<p>Prior to this lesson the pupils have already learnt key words and concepts connected to the area. The pupils have also worked with economic planning/budget and consumer dilemmas.</p> <p>The pupils will work in groups and answer questions by walking together and finding QR-codes. The QR-codes should be placed in the neighbourhood or the school. The pupils read the QR-codes with a mobile or a tablet and the code will lead them to a question. In their group they will discuss and answer the question. The theme is consumption and economic awareness.</p>
<b>TIME USE OF THE LESSON AND LEARNING ACTIVITIES</b>	
<b>INTRODUCTION TO THE TASK</b>	<p>A short introduction to the lesson will take place. The students are briefly prepared before the lesson. They need to know that the lesson will take place outside and that they will need to use and bring a school-tablet or their own phone.</p> <p>The introduction presents the aim of the task, groups (approx. 3 students per group) and timeframe.</p> <p>A map or description of where to go is supplied</p> <p>The teacher also reminds the students to cooperate during the task.</p> <p>If needed, a member of staff will support discussions and reading.</p>

LEARNING	<p>After the introduction, the groups will start the QR-code walk at the same time. This example has 8 codes and questions (see annex 9.1). When the pupils come to a code they scan the QR-code with their phone or tablet. The code will take them to a question in a digital questionnaire. They read it, discuss and find an answer. Some of the questions have multiple-choice design, for some a short written answer is required. In this example the digital questionnaire can be answered individually but anonymous. You can use Forms (Microsoft Office 365). The pupils complete as many QR-codes and questions as possible, they do not have to do them all or in any particle order.</p> <p>After the walk the answers can be seen in the digital questionnaire.</p>
REFLECTION	<p>After the walk you can discuss the following questions:</p> <ul style="list-style-type: none"> <li>• What was easy/hard?</li> <li>• What did you discuss? What did you not agree on in the group?</li> <li>• The teacher focuses on how the group has performed rather than the individual answers.</li> </ul>
<b>GOOD TO KNOW</b>	
BACKGROUND OF THE LEARNING ACTIVITY	This lesson is also suitable for students with learning difficulties.
GOOD ADVICE	<ul style="list-style-type: none"> <li>– Use a QR-code reader that is free and preferably without ads.</li> <li>– This example uses Forms (Microsoft Office 365) for the questionnaire. Other programs can be used, for example Google forms. Make sure that QR-codes are put up within reach of the school network so that they have an internet connection.</li> <li>– Let the students start from different locations and different codes.</li> </ul>
<b>PREPARATION FOR THE LESSON</b>	
MATERIALS AND TOOLS NEEDED	<p>DIGITAL TOOLS:</p> <ul style="list-style-type: none"> <li>• tablets or phones</li> <li>• an app to scan the QR-codes</li> <li>• a program for the digital questionnaire that provides QR-codes</li> </ul>
THINGS TO DO BEFORE THE LESSON	<ul style="list-style-type: none"> <li>• Prepare questions in the digital questionnaire. Depending on the program used this is done in different ways. The example used Forms in Microsoft Office 365. Put in one question per questionnaire to get a QR-code per question.</li> </ul>



Example 9.1 Preparing the questions

- Print the QR-codes and laminate.
- Hang in the school or in the neighbourhood.
- Download an app for reading QR-codes on tablets or phones if not already provided (sometimes it is part of the camera function).
- Prepare if needed a map or instructions for finding the QR-codes.
- *Konsumentverket* (in Swedish). <https://www.konsumentverket.se/>

USEFUL  
REFERENCES

## ANNEX 9.1 An example of the questions

1		<b>Multiple choice question:</b>  What will happen if you don't pay a bill? <ul style="list-style-type: none"><li>• Nothing</li><li>• They will sell your things, like your car or computer</li><li>• You will get a fine from the police</li><li>• You will first get a reminder and you have to pay an extra amount</li></ul>
2		<b>Open question:</b>  Give an example of an income.
3		<b>Open question:</b>  What is a good way to save money?
4		<b>Multiple choice question:</b>  You bought a pair of headphones online. You don't like them, what can you do? <ul style="list-style-type: none"><li>• You have to keep them. You can't send them back.</li><li>• You can try to send them back. If you are lucky the online shop is nice and might return the money.</li><li>• You have the right to return the headphones within 30 days if the online shop is in Europe.</li></ul>
5		<b>Open question:</b>  Borrowing money can be tempting, but what can the negatives (consequences) be?

6		<p><b>Multiple choice question:</b></p> <p>Who of the following can you share your card/bank PIN with?</p> <ul style="list-style-type: none"> <li>• Your grandmother</li> <li>• Your best friend</li> <li>• Your bank ringing you</li> <li>• No one</li> <li>• The online shop</li> </ul>
7		<p><b>Multiple choice question:</b></p> <p>When can it be justified to borrow money? (Choose one or more of the following suggestions)</p> <ul style="list-style-type: none"> <li>• For a holiday</li> <li>• For new furniture</li> <li>• For studies</li> <li>• For a flat or a house</li> <li>• For at new phone</li> </ul>
8		<p><b>Multiple choice question:</b></p> <p>Where can you get help if you find it hard to manage your money? (Choose one or more of the suggestions)</p> <ul style="list-style-type: none"> <li>• The shop</li> <li>• Parents</li> <li>• The Bank</li> <li>• The (Swedish) Consumer agency (Konsumentverket)</li> <li>• The local consumer guide</li> </ul>

Lesson 10

***Solving consumer problems through gamification and fictionality***

*Designed by home economics teacher students Reetta Kaarnakorpi, Henna Korkala, Irene Rydberg and Lilli Suhonen, University of Helsinki, Finland*

<b>CLASSROOM ACTIVITIES</b>	
<b>TIME USE</b>	120–140 minutes, can be divided into two lessons
<b>LEVEL</b>	7 <sup>th</sup> –9 <sup>th</sup> grade
<b>LESSON AIM(S)</b>	The aim of the lesson is: <ul style="list-style-type: none"> <li>– to integrate other subjects in the teaching of home economics (e.g. mathematics, biology, chemistry, social studies).</li> </ul>
<b>SHORT DESCRIPTION</b>	<p>Learning games are participatory and make information and learning content more attractive and understandable for students.</p> <p>This gaming experience incorporates storytelling elements. The plot of the game is based on the screenshot video from a WhatsApp discussion, which serves as an initial motivator for the tasks to be performed during the lesson.</p> <p>Students tour the workstations in small groups (3–4 students) to perform the tasks and solve the embedded codes.</p> <p>Each code-based task involves 10 minutes working time, and the teacher is expected to provide help if students need it.</p> <p>Once the students have solved all the codes, they can identify the place and the final code to open the mystery box.</p> <p>The mystery box contains the ingredients for food to be prepared during the lesson. After solving the mystery box riddle, the teaching experiment topics are recapitulated and discussed in the form of a story. Finally, the students prepare the food and dine with their own group. If there is not enough time, food preparation can be done during the next lesson.</p>
<b>TIME USE OF THE LESSON AND LEARNING ACTIVITIES</b>	
<b>INTRODUCTION TO THE TASK</b>	<p>Video of WhatsApp discussion between Helmi (who has bought a defective T-shirt and has an unpaid phone bill) and Iines (a friend who wants to help but does not know the facts). You can change the students' names according to your country.</p> <p>The students' task is integrated in this storyline: help Helmi and Iines to find relevant information about consumer rights and responsibilities.</p>



payment). When the groups are ready, the teacher gives one of the following words to each group: teacher, open, cold, refrigerator. (These can be changed according to the situation in the classroom). All groups then come together to discuss where the box might be.

The groups must have digital devices, and the teacher must prepare a folder for saving the answers.



Example 10.2 The student is getting the code into the lock and is opening the Mystery box.

**Solving the mystery:**

Working as a whole group the students solve together what is the numeral code to open the Mystery box. They also put together the keywords ‘teacher, open, cold, refrigerator’ and conclude that the box is inside the refrigerator.

Opening the box together and looking what is in there. The box links to the storyline: this is similar box what Helmi has ordered from internet. However there are more ingredients than what ordered (based on the list in the box). What to do now?

Group discusses this matter. They ‘call to’ the internet-company providing the ingredients (the teacher is performing to be the internet-company sales person). The “answer” from the company is that they can keep all what is in the box.

**Food preparation and eating:**

From the box the students find the recipe and ingredients for preparing vegan wraps.

	<div style="display: flex; justify-content: space-between;"> <div style="width: 45%;"> <p>4 tortillaa</p> <p><b>Täyte:</b> n. 60 g Härkistä 100 g kaura-fraichea 1 rkl salsaa</p> <p><b>Lisänä:</b> salaattia ½ kurkku ½ paprika 1 porkkana (mausteet: suola, mustapippuri, öljy)</p> </div> <div style="width: 45%; text-align: right;"> <h2 style="margin: 0;">WRAPIT (8 kpl)</h2> <ol style="list-style-type: none"> <li>1. <b>Sekoita</b> täytteen raaka-aineet kulhossa.</li> <li>2. <b>Huuhtelee</b> kasvikset.</li> <li>3. <b>Pilko</b> kurkku ja paprika pieniksi kuutioiksi ja <b>suikaloi</b> salaatti.</li> <li>4. <b>Suikaloi</b> porkkanasta pitkiä siivuja juustohöylän avulla.</li> <li>5. <b>Levitä</b> täyte tortillalle niin, että tortillan reunat jäävät ilman täytettä.</li> <li>6. <b>Lisää</b> kasvikset täytteen päälle.</li> <li>7. <b>Taita</b> tortillan reunat ja <b>kääri</b> se tiukaksi rullaksi. <b>Leikkaa</b> keskeltä kahtia.</li> </ol> <p style="text-align: center;"><b>8. Aloita jälkityöt!</b></p> </div> </div> <div style="text-align: center; margin: 10px 0;">  </div> <p>Example 10.3 Example of the recipe of vegan wraps. Teacher chooses the recipe from the textbook or gives freedom to search the recipe from the internet.</p> <p>Reading the recipe together, considering possible special diets. Since the food is vegan, discussion about the price of these products.</p> <p>Preparing the vegan wraps. Compare price of the ingredients.</p> <p>Washing the tools used, and cleaning the kitchen.</p> <p>Eating and enjoying the wraps.</p>
REFLECTION	<p>Discussion of key learning points:</p> <ul style="list-style-type: none"> <li>• What are Helmi’s rights and responsibilities?</li> <li>• Why should bills be paid on time?</li> <li>• What should you do if a purchased product fails?</li> <li>• Where one can easily find information about these issues?</li> </ul>
<b>GOOD TO KNOW</b>	
BACKGROUND OF THE LEARNING ACTIVITY	<p>The goal is to develop new ways of teaching consumer and economic skills and knowledge, which are often considered difficult for upper-level students to understand.</p> <p>During the lesson, students learn to solve problems, set goals and act independently as well as interacting with others.</p> <p>Learning together promotes students’ creative and critical thinking and problem-solving skills and improves their ability to understand different perspectives.</p>
GOOD ADVICE	<p>- Food preparation can be done during the next lesson if there is not enough time.</p>
<b>PREPARATION FOR THE LESSON</b>	

<p>MATERIALS AND TOOLS NEEDED</p>	<ul style="list-style-type: none"> <li>• A large box (for the ingredients), which must fit into the fridge; a lock for the box with a numerical code (in the example 271)</li> <li>• Crosswords (prepared before the lesson)</li> <li>• Work sheet (check that content corresponds to consumer information in your country)</li> <li>• National consumer agency online information (video or text)</li> </ul> <p>DIGITAL TOOLS:</p> <ul style="list-style-type: none"> <li>• Tablets and an application for making notes (saving possibility is optional), either one tablet per student or per group</li> <li>• WhatsApp (or similar chat option) application and a digital tool for video-recording the imaginary story (discussion with pupil and friend about payment disruption) – for teacher only</li> </ul>
<p>THINGS TO DO BEFORE THE LESSON</p>	<ul style="list-style-type: none"> <li>• Prepare folder for saving answers.</li> <li>• Add nationally relevant video link to the task.</li> <li>• Record the WhatsApp video using the AZ screen recorder application for Android phones; iPhone users can use a similar feature by recording activities directly on the screen (Go to Control Centre-&gt; tap video recording button). This is a key element, as it involves the story about payment problems.</li> </ul>
<p>USEFUL REFERENCES</p>	<ul style="list-style-type: none"> <li>• FAO (1992). Sustainable development and the environment: FAO policies and actions—Stockholm 1972–RIO 1992. Rome: FAO.</li> <li>• <i>Video about payment disruptions</i> (in Finnish): <a href="https://www.youtube.com/watch?v=O2IR3FX5d6I">https://www.youtube.com/watch?v=O2IR3FX5d6I</a></li> </ul>

## ANNEX 10.1 Translation of the storyline



Helmi: How are you doing?

lines: Hello, I'm just fine! I was out with my dog.

Helmi: Ok, fine here too, just came home.

lines: Great!

Helmi: I was thinking about when we went shopping last week ... This new shirt of mine already has a hole! I don't get it ... a new shirt!

lines: Oh, no how can that be!

Helmi: Yep, maybe I should complain to some place. And another thing ... I just noticed that I haven't paid my phone bill, and now I've been sent a reminder—a letter...

lines: ...

Helmi: Aah, what should I do ... those bills get lost in my email... Can you help me...?

lines: I don't know...

## ANNEX 10.2 Workstation 1

### *Consumer rights and responsibilities*

*Answer the following statements by marking them as either true or false. If the statement is wrong, please give the right answer.*

*The code is the number of false statements.*

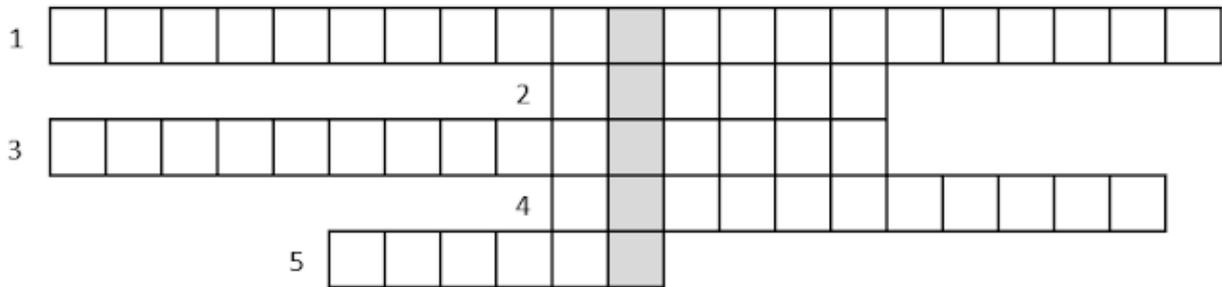
1. The rights of sellers and buyers are defined in the tax laws and tax administration.
2. Part payment for a product means that you pay the whole sum at once.
3. When online shopping, you make payments using either a credit card, internet banking, or billing.
4. Any proof you receive regarding online shopping transactions (product description, order confirmation, terms of delivery) must be saved immediately.
5. Bills should always be paid by the due date.
6. Bills that have not been paid by the due date will attract increasing penalty interest.
7. Sustainable consumption takes account of workers' rights and working conditions.
8. When you buy things, you should consider how you will pay and what agreements are involved.

*For the teacher:* The statements numbered 1 and 2 are wrong; the others are right. There are also some additional statements for you to choose. The teacher is expected to choose statements according to the aims of the national or local curriculum.

- Your record on the credit payment disruption register remains there for life.
- Our own consumption habits do not affect the use of energy, raw materials and natural resources.
- Most household income is spent on clothing and food.
- You can stay in control of your finances when you understand how MobilePay works.
- Advertisements affect only a few customers' buying decisions.

## ANNEX 10.3 Workstation 2

### Crossword



The vertical word provides the number needed for the code.

1. If I cannot reach a settlement with the shop, it is possible to complain to a place called:  
....
2. If the product I have bought is defective, it is possible for me to get:...
3. Who can help if I need help to settle a dispute with a seller?
4. Complaining, giving feedback = ...
5. If I have to get my money back, I have to:....

Answers for the teacher:

1. consumer diSputes board
2. rEfund
3. consumer adVisor
4. rEclamation
5. return

**The answer to the crossword is SEVEN.**

## APPENDIX 10.4 Workstation 3

### *The phone bill that has not been paid*

Instructions for solving the case: What should Helmi do if the phone bill is not paid in due time?

1. (ONE) Look at the video about payment disruptions (<https://www.youtube.com/watch?v=O2lR3FX5d6I>), search for information in the textbook or online. Complete this task in pairs or as a group.

2. Answer the following questions.

- a) What happens if you do not pay the bill in due time?
- b) What happens if you ignore the reminder?
- c) What happens if you repeatedly ignore your bills?

FOR THE TEACHER: As the number ONE is underlined on the sheet, therefore the students conclude that this is the number needed for the code.

Answers:

- a) You will get a reminder.
- b) You may get a reminder from a collection agency.
- c) This may be recorded in your credit report.

## ANNEX 10.5 Workstation 4

### *Different methods of payment*

*Look at the video or read from the textbook.*

	1. Cash (notes and coins)	2. Debit card	3. Credit card	4. Mobile payment (e.g. MobilePay)
1. What is good about this payment method?				
2. What is bad about this payment method?				
3. Any other thoughts?				

When the task is finished, you will get a tip (word) from the teacher.

Lesson 11

## ***Sustainable development and water consumption***

*Designed by home economics teacher students Liisa Lavonen, Silja Hakala and Anna Paatero, University of Helsinki, Finland*

<b>CLASSROOM ACTIVITIES</b>											
TIME USE	135 minutes (3 x 45 minutes)										
LEVEL	7 <sup>th</sup> –9 <sup>th</sup> grade										
LESSON AIM(S)	The aim of the lesson is: <ul style="list-style-type: none"> <li>– to look at water consumption from different everyday perspectives,</li> <li>– to integrate other subjects in the teaching (e.g. mathematics, biology, chemistry, social studies).</li> </ul>										
SHORT DESCRIPTION	<p>The lesson centres on four workstation tasks to be performed in groups of three to four students. The tasks address the issue of water consumption in everyday life from different perspectives. All workstations include both practical and theoretical tasks.</p> <p>The tasks are challenging, requiring students to explore their previous knowledge of the subject, searching for and associating it with new information.</p> <p>Students use tablets to write notes and take pictures of the workstation content, to search for information and to look at relevant videos. The students have 20 minutes to complete each task.</p> <p>The prepared smoothie should be linked to the theme of water use for discussion with the students.</p>										
TIME USE OF THE LESSON AND LEARNING ACTIVITIES											
INTRODUCTION TO THE TASK	<p><i>Waters of the world</i> is a motivating assignment at the beginning of the lesson. Addressing the world's water resources, the task combines measurement, thinking, perception and group discussion.</p> <div style="text-align: center;"> <table border="1" style="margin: 0 auto;"> <tr> <td>1.75%</td> <td>0.73%</td> <td>0.03%</td> <td>0.00%</td> <td>97.5%</td> </tr> <tr> <td>Jää/lumi</td> <td>Pohjavesi</td> <td>Järvet/joet/suot</td> <td>Elävät olennot</td> <td>Meret</td> </tr> </table> </div> <p>Example 11.1 The proportions of the water in the world</p> <p>Group work (groups of 4 students): Determine the amount of water corresponding to the different categories (ice/snow, groundwater, lakes/streams, living creatures, oceans).</p>	1.75%	0.73%	0.03%	0.00%	97.5%	Jää/lumi	Pohjavesi	Järvet/joet/suot	Elävät olennot	Meret
1.75%	0.73%	0.03%	0.00%	97.5%							
Jää/lumi	Pohjavesi	Järvet/joet/suot	Elävät olennot	Meret							

	<p>The aim of this task is to develop an understanding of the proportion of the world's water in each of the specified categories.</p>
<p>LEARNING</p>	<p>Students work simultaneously in three of the four stations, changing after 20 minutes. Keep in mind that workstation 2 presumes that students have already visited workstation 1. The four workstations are:</p> <p><b>1. Water and food</b> (annex 11.1)  The aim is to explore food from the perspective of water consumption and to learn the term <i>water footprint</i> (virtual water) in the context of food. The students search the information and discuss ecological and water-saving food options. They prepare different smoothies and estimate the water used (for washing hands, washing the ingredients, adding liquids etc.).</p> <div data-bbox="612 703 1310 1025" data-label="Image"> </div> <p>Example 11.2 Chocolate (2400 litres), one almond (4 litres), cup of coffee (140 litres)</p> <p><b>2. Water and home</b> (annex 11.2)  The aim is to examine water consumption in everyday activities, highlighting the process of dishwashing. The students learn about the 'water footprint' concept, discuss ecological options for dishwashing, and estimate how much water they use to wash the smoothie preparation tools.</p> <div data-bbox="600 1395 1326 1816" data-label="Image"> </div> <p>Example 11.3 Washing dishes</p> <p><b>3. Sewage water</b> (annex 11.3)  This workstation focuses on the water cycle, water purification and wastewater. Each group drafts a description of the household water</p>

	<p>cycle. The workstation helps students to understand the water purification process.</p> <p><b>4. Water and clothing</b> (annex 11.4)  This workstation helps students to learn different ways of sorting and washing laundry. They study laundry symbols and learn about ecological and water-saving laundry care.</p>  <p style="text-align: center;">Example 11.4 The grid for sorting the laundry</p> <p><b>Discussion</b>  While eating together the smoothie, students discuss the average amount of water used to produce the ingredients (linking to workstation 1). More generally, they discuss the thoughts evoked by the workstation assignments.</p>
REFLECTION	Each group presents one major conclusion to the other groups for joint discussion.
<b>GOOD TO KNOW</b>	
BACKGROUND OF THE LEARNING ACTIVITY	The teaching experiment adopts a student-centred approach to ensure that students play an active role during the lesson. To that end, the lesson is experimental, visual and active and aims to promote sustainable development by developing an understanding of water as a source of life and the importance of preserving water resources.
GOOD ADVICE	– Teachers may find it useful to create an appropriate web solution (e.g. Google Classroom) that allows students to upload their answers.
<b>PREPARATION FOR THE LESSON</b>	
MATERIALS AND TOOLS NEEDED	<ul style="list-style-type: none"> <li>• For the motivation task: notes specifying water amounts and sources; bowls and a bucket filled with water to indicate the relative amounts of water in the world; a world map (optional)</li> <li>• Blender and smoothie ingredients; notes specifying amounts of water used for production</li> <li>• Various clothes for sorting; tape</li> <li>• Large bowl; measuring equipment (e.g. litre or decilitre cup)</li> </ul> <p>DIGITAL TOOLS:</p>

	<ul style="list-style-type: none"> <li>• Tablets or phones with notes application (saving optional): one device per student or group</li> <li>• Solution for saving students' answers (e.g. Google Classroom)</li> <li>• Video about what to put into the sewage water system</li> </ul>
THINGS TO DO BEFORE THE LESSON	<ul style="list-style-type: none"> <li>• Prepare 3 x 2 metre grid on the classroom floor (using tape) for laundry sorting.</li> <li>• Prepare the relevant amounts of water for students.</li> </ul>
USEFUL REFERENCES	<ul style="list-style-type: none"> <li>• FAO (1992). Sustainable development and the environment: FAO policies and actions—Stockholm 1972–RIO 1992. Rome: FAO.</li> <li>• Video about sewage water. <i>Do not feed the rat.</i>  <a href="https://www.youtube.com/watch?v=En2JuYhYHe8">https://www.youtube.com/watch?v=En2JuYhYHe8</a> </li> </ul>

## **ANNEX 11.1 Workstation 1**

### ***Water and food***

*At this station, you will learn about food in relation to water use.*

*1. Prepare a smoothie. The recipe can be chosen from the home economics textbook (page xx). Put your smoothie into the fridge until the end of the lesson.*

*2. On the table, you will see food items in different forms. Name the various foods.*

*3. Producing these foods consumes a lot of water. Link the food to the amount of water used. Take a picture of the result with your device and add it to your group's folder. Discuss and make notes about different food choices that can help to save water. What foods need most water for their production? Which ones are water-saving?*

## **ANNEX 11.2 Workstation 2**

### ***Water and homes***

*At this station, you will learn about water consumption related to various home activities.*

- 1. Search for information about the concept of 'water footprint' using your textbook or the internet. What does this term mean? Make a note of two important things about it on your tablet.*
- 2. Place a bowl in the dishwashing sink. Wash the dishes you used when preparing the smoothie UNDER RUNNING WATER. Measure the amount of water used. Note the exact amount of water on your tablet.*
- 3. Search for information about how to save water while washing dishes and identify the three most important tips.*

## ANNEX 11.3 Workstation 3

### *Sewage water*

*At this station, you will learn about the recycling of household sewage water.*

- 1. In your group, discuss how sewage water is collected and processed in your home. Draw a diagram of the process.*
- 2. Search for information about the local sewage water processing system. Complete your diagram based on this new information and add explanatory concepts (e.g. wastewater treatment plant). Use your device to make a picture, and upload it to the group folder.*
- 3. Look at the video provided ('Clean Sewer'). In your group, discuss the best way to recycle oil used for deep frying (e.g. when preparing French fries). See for example 'Do not feed the rat' <https://www.youtube.com/watch?v=En2JuYhYHe8>*

## **ANNEX 11.4 Workstation 4**

### ***Water and clothing***

*At this station, you will learn how to save water while doing laundry. You will also learn how to recognize and sort various clothes before washing them.*

*1. On the floor, you will find a pile of clothes. There is also a grid of 6 squares, each representing one laundry basket.*

*2. Learn the various symbols for clothing care. Where can you find them? What do they mean? Use your textbook or the internet for reference.*

*3. Discuss and sort the laundry in various ways (e.g. by colour, material, temperature, dirtiness, washing method). You can also invent other methods of sorting and argue for them. Take a picture of the best sorting system based on your views and explain why that system is best. Use your tablet to add a picture and explanations.*

*4. Discuss and list ways of doing laundry in the most environmentally friendly and water-saving way. Add this to the list on your tablet.*

*5. The laundry pile includes a pair of jeans. Search for facts about how much water it takes to make a pair of jeans and discuss with your group. Write your group's estimate on the tablet.*

## Lesson 12

### *The life cycle of clothes - a home economics adventure game*

*Designed by home economics teacher students Annukka Rytty, Rosa-Maria Laitinen and Sanna Mäenpää, University of Helsinki, Finland*

<b>CLASSROOM ACTIVITIES</b>	
TIME USE	135 minutes (3 x 45 minutes). Each lesson comprises 3 x 45 minute sessions.
LEVEL	7 <sup>th</sup> grade (also applicable to 8 <sup>th</sup> and 9 <sup>th</sup> grades)
LESSON AIM(S)	The aim of the lesson is: <ul style="list-style-type: none"> <li>– to develop an Amazing Race-style adventure game with the students (Lesson 1),</li> <li>– to learn about textiles and sustainable clothing in everyday life (Lessons 1 and 2).</li> </ul>
SHORT DESCRIPTION	<p>During Lesson 1, students work in groups of 3–4 to create small assignments for the final game (5 assignments in total). The final game is played during Lesson 2.</p> <p>Students choose one stage of the life cycle of clothes (e.g. by lottery) from the following list: a) <i>from field to fabric</i>; b) <i>from fabric to clothes</i>; c) <i>from factory to store</i>; d) <i>from store to consumer</i>; e) <i>from consumer to recycling</i>.</p> <p>The students are actively involved in creating the assignments, helping them to find their inner motivation for achieving the learning goals of Lessons 1 and 2.</p>
<b>LESSON 1. TIME USE AND LEARNING ACTIVITIES</b>	
INTRODUCTION TO THE TASK	<p>For an introduction to the theme, the whole class watches a video The life cycle of a t-shirt (2017).</p> <p>Discuss the key points of the video and how it addresses sustainable consumption patterns in relation to textiles and clothing.</p>
LEARNING	<p>To begin creating the small assignments, textbooks, internet and other materials can be used to find information about the content of the workstation task. Alternatively, teachers can compile a list of reliable links using Padlet wall or Google Drive.</p> <p>Students are given freedom to plan the workstation assignments (some ideas for the teacher are presented in annex 12.2), which can be based on games they already know (e.g. Kahoot, Trivial Pursuit, Alias, Draw and Guess).</p> <p>Students are encouraged to use the entire classroom space and corridor areas as needed. In creating the assignments, they can use QR-codes or provide extra information (links) related to the task.</p>

	<p>The assignments can involve any relevant practical task (e.g. sorting textiles, reading symbols for textile care, learning about washing powders).</p>  <p>Example 12.1 Students preparing small assignments for Lesson 2.</p> <p>End of assignment creation session: teacher checks assignment contents and helps if needed.</p> <p>If there is enough time, the whole class can watch excerpts selected by the teacher from a documentary film about short-lived textiles. E.g. Blood, sweat and t-shirts, section 7.</p>
REFLECTION	<p>No food is prepared during this lesson unless the teacher and students decide to do so.</p> <p>To summarise issues related to sustainability and textile theme, the students complete a Kahoot questionnaire together, based on content chosen by the teacher.</p> <p>Thoughts are shared about the next lesson and the game.</p>
<b>LESSON 2. TIME USE AND LEARNING ACTIVITIES</b>	
INTRODUCTION TO THE TASK	<p>Recapitulate the lesson aims. Summarize current learning methods and why gamification is a useful learning tool.</p> <p>Summarize key points about why sustainable textile care is important (including active discussion with the students).</p> <p>The teacher may opt to use supporting Powerpoint images.</p> <p>To introduce the game, present the tasks at each of the five workstations.</p>
LEARNING	<p>Students solve the tasks in groups (not at the workstation they created themselves).</p> <p>Teacher provides help as needed.</p> <p>Activity continues until all students have completed all of the workstations.</p>

	No food is prepared during this lesson unless the teacher and students decide to do so.
REFLECTION	<p>Joint discussion of what was learned.</p> <p>The discussion can be supported by a Kahoot questionnaire addressing the main themes of the workstations.</p> <p>The aim is to reflect individually and in groups on one's own learning.</p>
<b>GOOD TO KNOW</b>	
BACKGROUND OF THE LEARNING ACTIVITY	<p>The teaching experiment is based on a student-centred approach to learning, in which students play an active role during the lesson.</p> <p>This two-lesson series provides excellent opportunities for increased dialogue across different subjects (e.g. craft education, geography, social studies).</p> <p>The tasks are challenging, as students must explore their existing knowledge and link it to new information from their search.</p> <p>Creating the assignments requires skills that include information search and self-determination.</p> <p>Any food prepared must be linked to the lesson's sustainability theme and discussed with the students</p>
GOOD ADVICE	
<b>PREPARATION FOR THE LESSON</b>	
MATERIALS AND TOOLS NEEDED	<p>Lesson 1:</p> <ul style="list-style-type: none"> <li>• If needed, the teacher can create a reliable information platform (e.g. Padlet wall (<a href="http://www.padlet.com">www.padlet.com</a>) or Google Drive) that already contains a range of interesting links for students to choose from</li> <li>• Tablets or phones for students to write notes and take pictures of the workstations, to search for information and to watch relevant videos</li> <li>• Different videos</li> <li>• Applications and tools for preparing and reading QR-codes</li> </ul> <p>Lesson 2:</p> <ul style="list-style-type: none"> <li>• Based on students' plans, workstation materials are needed for the practical assignment (e.g. sorting textiles, reading symbols for textile care, learning about washing powders).</li> </ul>
THINGS TO DO BEFORE THE LESSON	<p>Lesson 1:</p> <ul style="list-style-type: none"> <li>• Prepare the Padlet wall</li> <li>• Create a Kahoot questionnaire for summarizing the main points of the two lessons</li> <li>• Provide digital devices and other necessary tools (papers, pens, cardboards of various colours) as required</li> </ul> <p>Lesson 2:</p> <ul style="list-style-type: none"> <li>• Create a Powerpoint page to recapitulate the main points at the beginning of lesson 2</li> </ul>

<p>USEFUL REFERENCES</p>	<ul style="list-style-type: none"> <li>• Angel Chang. (2017). <i>The life cycle of a t-shirt</i>. <a href="https://www.youtube.com/watch?v=BiSYoeqb_VY&amp;t=16s">https://www.youtube.com/watch?v=BiSYoeqb_VY&amp;t=16s</a></li> <li>• <i>Blood, sweat and t-shirts</i>, section 7. YleAreena (in Finnish) <a href="https://areena.yle.fi/1-50183634">https://areena.yle.fi/1-50183634</a></li> <li>• Fletcher, K. (2008). <i>Sustainable fashion &amp; textiles. Design Journeys</i>. London: Earthscan.</li> <li>• Karell, E. (2013). Planned continuity: Multi-life garments through modular structures &amp; supplemental services. In: K. Niinimäki (Ed.), <i>Sustainable fashion: New approaches</i> (110–123). Helsinki: Aalto University.</li> <li>• Niinimäki, K. (2013a). Tenets of sustainable fashion. In: K. Niinimäki (ed.), <i>Sustainable fashion: New approaches</i> (12–29). Helsinki: Aalto University.</li> <li>• Niinimäki, K. (2013b). Values and green aesthetics. In: K. Niinimäki (ed.), <i>Sustainable fashion: New approaches</i> (32–37). Helsinki: Aalto University.</li> </ul>
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## **Annex 12.2 Examples of Amazing Race-style task design**

### ***Workstation 1: How is the price of clothing determined?***

#### **Materials:**

- Information about the prices of various items of clothing (online, textbooks and e-books).

#### **Instructions:**

- Explore the life cycle of a pair of jeans. Address the following themes and what they mean, and be ready to argue in support of your choices:
- Clothing life cycle: distance from factory to user; fair trade issues; differences and similarities between cheap and expensive clothes; factory workers' conditions; brands and logos; profit-takers; reusing and recycling clothes.

#### **Additional readings:**

- Sustainable Marketplace. <https://www.weecos.com/fi/tuotteen-hintarakenne>
- Costs of producing a jumper. <https://www.is.fi/mystyle/art-2000005914520.html>

### ***Workstation 2: Taking care of clothes***

#### **Materials:**

- Brush for removing lint from a woollen jumper
- Various items of woollen clothing

#### **Instructions:**

- Know how to take care of your clothes. How clothing material affects care. Caring helps to maintain clothes for longer. (Be ready to argue in support of your choices.)
- Practical tasks: removing lint, brushing textiles, other tasks (depending on students' age).

#### **Additional materials:**

- Care of wollen clothes. <https://www.arkiveatelier.com/hienojakoiset-villaneulokset/?v=f0aa03aaca95>

### ***Workstation 3: Recycling and reusing clothes***

#### **Materials:**

- Boxes containing various items of clothing for recycling (e.g. socks, woollen jumper in good condition, jeans with broken zipper, T-shirt with hole, towels).

#### **Instructions:**

- Study the clothes. Discuss why they are being recycled, and sort them into three boxes: flea market, old usable clothes, and textiles no longer in use. Why do people throw away useable clothes? How can textile waste be avoided?
- Note that there may be several 'right' boxes for each item of clothing. Be ready to argue for your choices. Discuss what the various collection operators do with the textiles (e.g. UFF, Church, Red Cross, Salvation Army).

#### **Additional material:**

- Recycling of textiles.  
<https://www.hsy.fi/fi/asukkaalle/lajittelujakierratys/lajitteluohjeet/vaatteettekstiilit/Sivut/default.aspx>
- Reusing textiles. <https://www.martat.fi/marttakoulu/kodinhoito/lajittelu-ja-kierratys/tekstiilijatteen-kierratys/>

### ***Workstation 4: The future of the textile industry***

Cases and solutions (printed on separate sheets). Put case and possible solution/s together. Argue for your choices; if necessary, search online for more facts about the issue.

- *The textile industry is more polluting than aeroplanes and ferries combined.*
- *Clothes pollute throughout their life cycle (from fibre production to destruction of used clothes).*
- *Our consumption patterns are not sustainable.*
- *To minimize emissions, use clothes for as long as you can.*
- *Future technology can help to solve these problems.*
- *New techniques can help us to reuse textile waste and make new clothes from that waste.*
- *Care and repair can help to minimize textile waste.*

- *New innovations are needed to minimize textile waste.*
- *New consumption patterns are needed to minimize textile waste.*

**Instruction:**

- Put case and possible solution/s together. Use facts to argue for your choices. Can you find other solutions to these problems?