












## "Food Waste"

UNIT 7: Intervention „Food Waste“	Preparation time	Requirements	Duration
<p>Students look at the challenge of food waste from different points of view of the regional food system:</p> <ul style="list-style-type: none"> <li>They research data on food loss and waste at the national level.</li> <li>They have a conversation with a food processor and reflect on the results.</li> <li>Students interview actors in their home country, such as regional farm stores, school kitchens, restaurants, grocery stores, bakery/confectionery ... and present the results.</li> <li>After the evaluation of the interviews, the students prepare an observation task and a flyer about waste and waste prevention.</li> <li>They identify the different causes of food loss and waste - taking into account the food loss pyramid and the FAO's "Reduce Food Waste Toolkit" - measures to avoid them.</li> <li>Finally, they discuss the impact of food loss and waste on the environment, the economy and world hunger.</li> </ul>	60 Min.	★★★★☆	10
	<b>Competence-oriented learning outcome:</b>		
	<p>AB 2.1.2 C I can evaluate raw materials from a socio-economic point of view.</p> <p>SPK 3.1.1 B I can contribute my own resources and competencies to a group.</p>		
	<b>Aim of the teaching sequence in the module:</b>		
	Getting to know the challenge of food losses and food waste and how to address it		
	<b>Learning outcome</b>		
Flipchart - food processing company, interview recordings, poster of the observation task, folder or flyer, letter			
<b>Required materials/media:</b>			
suitable rooms, Flip-chart with notebook / computer with projector to display movies, guest speakers from local gastronomy, farmer, processor, Pen, Paper, Resource			

## "Food Waste"

Phase	Duration in min	Social-setting	Materials/ Media	Methodical-didactic notes / implementation
Confrontation	100 min	PL GW	Pen, Paper, Guest Speaker, Flipchart Notebook Projector	Teacher shows the video "Verschwendung - Essen für den Müll ORF Weltjournal" about food waste. Teacher announces a visit to a local food processing plant to talk about food waste. Students form groups and prepare questions for the guest. The questions are discussed in the plenary and noted on the flipchart. At the end the teacher adds her own questions if they are not covered.  
Reconstruction	50 min	GW PL	Pen and paper	Teacher divides learners into groups of 3, each group is assigned its own interview partner (restaurant, supermarket, bakery, school kitchen, regional farm store...). Groups select the appropriate questions for the topic (food waste) and present the interview guide to the class for validation. Teacher adds outstanding questions if necessary.  
Intervention/ Intervention	100 min	GW PL	Voice recorder, Präsentation	The interview will be conducted in your free time. The hard facts are summarized and presented to the class by means of a creative presentation (PowerPoint, flipchart, pictures, ...). Group discussions take place.   
Deconstruction	150 min	PL GW	Pen, Flipchart, Internet, Workpaper	Students are given an observation task for home use. Next unit the results are discussed in marble groups and recorded on a poster. Afterwards, the students prepare a folder or flyer on the subject of waste and waste avoidance. With the help of a feedback sheet, the students products are evaluated by the learners.  
Reflection	100 min	PL GW IW	Flipchart, F.w.p., Video, Notebook, Newspaper-article	Teacher presents the FAO Food Waste Pyramid. Students describe the advantages and disadvantages and some examples of each of these possibilities with their own research. Teacher presents a video on statements and national data on food waste. Further, two articles are handed out, the class divides into two groups, the articles are presented to each other. At the end, each student is asked to write a letter to his or her ego that is 10 years from now, thanking it.  

IW: Individual work; PL: Plenum, GW: Group work;

# Planning of a systemic learning activity on local sustainable food systems

## C6 Intervention: "How do we lose food?"

Element/Topic



Names

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# Learning activity plan

## 1 Learning Module

### 1.1 Overview

Element/Topic	<b>C6/ "How do we lose food?"</b>
Curricula/Competences	<p>SPK 2.3.1 B I can communicate on a factual and relational level.</p> <p>SPK 2.5.1 B I can select presentation techniques in a target-oriented and address-oriented manner.</p> <p>SPK 3.1.1 B I can contribute my own resources and competencies to a group.</p> <p>AB 2.4.1.1 B I can select food for a complete diet according to available resources.</p> <p>AB 2.1.2 C I can evaluate raw materials according to socio-economic aspects.</p>
Learning objectives	Understand the challenge of food loss and waste and how to meet it.
Learning outcomes / Competences of professional subject-related learning	<p>I ...</p> <ul style="list-style-type: none"><li>• ... can recognize, interpret and present ecological, economic and social facts and systemic connections.</li><li>• ... can assess changes in the environment with regard to possible ecological, economic and social effects.</li><li>• ... is aware of the necessity to develop and apply resource- and environmentally friendly products and services in business and industry.</li></ul>

Learning outcomes /  
Competences of the  
methodical, social and personal  
area




I ...

- ... can deal with opposing points of view and interests and can assess and judge different perspectives.
- ... treat me, my fellow human beings and the environment in my respective learning, working and living spaces with respect and develop an empathic attitude for all living beings.
- ... I am willing to participate in the preservation of biodiversity and the sustainable development of the basis of life.
- ...can recognize the effects of my actions at school, local, regional and global level.

Schedule

10 units per 50 minutes = 500 minutes

## 1.2 Learning activity planning

Phase in Module (GP)	When? Guideline	What for? Learning objectives, partial competences	What? Detailed learning steps incl. technical questions/explanations/contents	How? Methodical procedure; learning outcomes learning materials	Who with whom? Social learning Role of teacher	What with? Media, Equipment Resources
confrontation	100 minutes	<ul style="list-style-type: none"> <li>√ <i>I can communicate on a factual and relational level.</i></li> <li>√ <i>I can evaluate raw materials from a socio-economic point of view.</i></li> <li>√ <i>I can deal with opposing points of view and interests and assess and judge different perspectives.</i></li> </ul>	<ul style="list-style-type: none"> <li>• video "Waste - Food for Waste ORF Weltjournal <a href="https://www.youtube.com/watch?v=NZCaEoOvJBI">https://www.youtube.com/watch?v=NZCaEoOvJBI</a></li> <li>• announce a visit to a local food processing plant - talk about food losses, the appearance of raw material/food, the importance of production and harvesting if the standard is not met.</li> <li>• group formation</li> <li>• preparing questions for the interview</li> <li>• discussion of questions in the plenary session</li> <li>• record results on the flipchart</li> <li>• teacher asks questions that students has not mentioned</li> </ul>	<p>video</p> <p>conversation/ interview</p> <p>personal responsibility of students</p> <p>flipchart notes by students</p>	<p>PL</p> <p>GA</p> <p>the teacher is a companion</p>	<p>pens</p>  <p>paper flipchart PC with projector</p>  <p>movie guest</p> 

reconstruction

50  
minutes

- √ *I can assess changes in the environment in terms of possible ecological, economic and social impacts.*
- √ *I treat myself, my fellow human beings and the environment with care in my respective learning, working and living spaces and develop an empathic attitude towards all living beings.*

- group of 3, each group is assigned its own interview partner (inn, grocery store, bakery, school kitchen, regional farmer's store, etc.)
- preparation of questions for the interview - topic food waste
- interview guide is validated by class
- teacher adds outstanding questions, if necessary, by discussing a prepared interview guide

interview



notes by learners

PL and GA

the teacher is a companion

pens

paper

<p style="writing-mode: vertical-rl; transform: rotate(180deg);"><b>intervention/ interaction</b></p>	<p>100 minutes</p>	<p>√ I can select presentation techniques in a target-oriented and address-oriented manner.</p> <p>√ I can recognize, interpret and present ecological, economic and social facts and systemic connections.</p>	<ul style="list-style-type: none"> <li>interviews are conducted in the spare time (on-site or online) and transcribed.</li> <li>summarize hard facts by means of a creative and presentation of the class.</li> <li>group discussions</li> </ul>	<p>ready transcribed interview</p> <p>presentation (flip-chart, powerPoint, pictures, film, ...)</p> <p>discussion group</p> <p>discussion rules</p>	<p>group of 3</p> <p>PL</p> <p>GA</p>	<p>Dictaphone</p> <p>PC</p> <p>presentation</p>
<p style="writing-mode: vertical-rl; transform: rotate(180deg);"><b>deconstruction</b></p>	<p>150 minutes</p>	<p>√ When working with a group, I can bring my own resources and skills to the group.</p> <p>√ I am willing to contribute to the conservation of biodiversity and the sustainable development of the foundations of life.</p>	<ul style="list-style-type: none"> <li>explain observation task for at home</li> <li>discussion of the results in marble groups</li> <li>results are recorded by each group on a poster</li> <li>group formation</li> <li>design of a flyer/ folder in the group</li> <li>placing the finished learning products in the classroom</li> <li>all students fill out a card for the evaluation of each flyer</li> </ul>	<p>worksheet</p> <p>ideas are exchanged</p> <p>Poster</p> <p>finished Flyer</p> <p>each group receives feedback</p>	<p>PL</p> <p>GA</p>	<p>pens</p> <p>paper</p> <p>flipchart</p>  <p>internet</p> <p>worksheets</p> <p>feedback form</p> 

reflection

100  
minutes

- √ *I can select food for a complete diet according to available resources.*
- √ *I am aware of the necessity to develop and apply resource- and environmentally friendly products and services in my job and in the economy.*
- √ *I can recognize the effects of my actions at school, local, regional and global level.*

- teacher presents the FAO Food Wastage Pyramid
- learners describe the advantages and disadvantages, give examples with own research work
- teacher shows a video (<https://www.youtube.com/watch?v=bcvhgYD81VE>)
- statements and national data on food waste
- link for further information (<https://www.muttererde.at/fakten/>)
- distribute two articles (class divides into two groups, articles are presented to each other
- conclusion, as a reflection, all learners write a letter to themselves, to their "I" that is in 10 years, thanking them for the right measures they took at that time. --> learning diary

discuss poster of the Food Wastage Pyramid

flipchart with advantages and disadvantages

video

link

two article- introduce each other

write a letter

PL

GA

EA

expression Food waste pyramid

pens

paper

flipchart

movie

PC

projector

article



### 1.3 Sources:

Baldwin, G. (Regisseur). (2015). *Verschwendung - Essen für den Müll*.

Britta, D., & Karin de Miguel, W. (Regisseure). (2013). *Systematischer Irrsinn - Lebensmittelverschwendung*.

maitreuweb. (2017). *ERKLÄRUNG VON NYÉLÉNI, Nyéléni, Gemeinde Sélingué, Mali*. nyeleni.  
<https://nyeleni.org/spip.php?article331>

Mathe, M. (2020). *Entfremdung von Mensch und Natur: Zentraler Faktor für Hunger- und Umweltkrisen*. Österreich: FIAN Österreich.  
<https://fian.at/de/artikel/entfremdung-von-mensch-und-natur-zentraler-faktor-fur-hunger-und-umweltkrisen/>

Welt", U. ". (2020). *Mutter Erde*. Von <https://www.muttererde.at/fakten/> abgerufen 5.11.2020

# Basic considerations about teaching and learning

## **2 Didactical analysis**

### **2.1 Pre-knowledge/pre-concepts/pre-experience**

Students must be proficient in using computers and the Internet. Students must be able to work with programs such as PowerPoint, Word, etc. Furthermore, the students must be able to use different presentation techniques and have a confident personal appearance. They must also be used to working in groups and have an adequate knowledge of German and English. A correct spelling is also necessary.

### **2.2 Didactical and methodological considerations**

In this teaching-learning setting, students are given the opportunity to get to know the world and its food waste, to investigate its nutrition in a research- and interdisciplinary way and to critically and constructively reflect on the results, as well as to reflect on their personal lifestyles and to rethink the relevance of individual actions for their impact on the environment. Students should be given the opportunity to bring their previous knowledge into the classroom and to motivate them to take part in class. By means of an exemplary problem definition (based on the film) the pupils should be confronted directly. Furthermore, they can put themselves in the current situation better. The aim of this learning setting is to reconstruct the actual situation. To make this possible, a variety of media (film, links, guest speakers, ...) are used. The learning should cognitively activate, emotionally appeal and challenge to independent action. Furthermore, in this setting an intervention, provocation and irritation should be produced by means of the guest speaker and the conducting of an interview. It is important to establish a connection to the origin, use and waste of food. The reference to the learner should also be established in order to include their knowledge and experience in the learning process.

Through the observation task the learner should be confronted with the current state of his or her daily life. The learner should consider and reflect on his current behavior with regard to shopping and climate protection. His observations will be presented and discussed in class by so-called marble groups. Different ways of looking at things, attitudes, approaches, but also an exchange of knowledge will be constructed. With the results the students will create a flyer or folder for proper, sustainable waste management and waste avoidance. The learners will discover and recognize the relevance of the topic - wastefulness. They build their knowledge, creativity and experience into the learning process. The learners may/should use the internet

as a support and read up on the subject. In doing so, each learner can strengthen his/her awareness, sense of responsibility and competence for their future. By working out a flyer/folder, which is distributed at the end of the course at the school and possibly in cooperation with other partners (community, stores, ...), environmental education can be strongly promoted. They are therefore able to develop common, sustainable and future-oriented examples and to implement concrete steps in everyday life. Through an intermediate check, the student can exchange ideas with his or her classmates and also benefit from each other. In this way, a multi-perspective can be created. Also, the thinking patterns of the students can be broken through and new views become visible.

At the end of the learning setting, each team presents its final product flyer or folder. There will be a feedback from the fellow students as well as from the teacher. (Another suggestion for a final presentation would be to plan a presentation with various possible interested parties, such as the community, ... and the whole school). It is important that the students realize that not only the opinion of the teacher counts, but also their votes are valuable. Involving the students is very important to make the lessons livelier and more successful (Basic Decree Environmental Education for Sustainable Development, 2014, p. 2-7).

Finally, the Food Wastage Pyramid will be explained. Through the active cooperation of the learners, by means of advantages and disadvantages and a research work, the learner can deal with the topic intensively. As support a film is shown and links are provided. On the basis two articles, the understanding for the actual situation is to be explained again. By presenting the articles to each other, the students can check whether the content of the text has been understood.

Last but not least, a task is carried out to deepen the understanding of the text. Each student is asked to write a letter to their own self. He/she should write his/her "I" that is in 10 years time, thanking him/her for the right measures he/she took at that time. These should go into more detail and offer the students the opportunity to change their future behavior themselves.

### **2.2.1 Importance of the educational content for the learners**

Systemic thinking, multi-perspectivity should be promoted. The focus here is on showing environmental education how the complex interweaving of diverse social influences has led to the current state of our environment. In this way, the awareness, the sense of responsibility and the competencies of the students for the shaping of their future can be strengthened. The students can apply the acquired knowledge about waste avoidance and waste recycling on their own farms. The evaluation of results is an important competence and can be acquired in

this teaching-learning setting. The personal appearance of students is important in all areas of life and is developed and trained in these teaching units.

### **2.2.2 Didactic Reduction / Didactic Focus**

A didactic reduction takes place in the sense that the questions for the interview are already made available to the students. It would also be possible for the interview guide to be prepared by the learners. A further didactic reduction takes place in the sense that the evaluation criteria for the assessment of the flyers are specified.

### **2.2.3 Aspects of individualization and differentiation**

According to this mix of methods, knowledge construction takes place both in individual work and in the whole class (in plenum/small groups). Through the ongoing discussions, the students can hear the opinions and knowledge of others, expand their knowledge and adapt or break through thought patterns.

### **2.2.4 Performance review, result assurance, assessment**

Throughout the unit, the teacher can continuously monitor and document the students' cooperation. The learning products to be developed can also be used for grading. In the case of confrontation, the teacher can observe the students during group work and assess their cooperation and the development of the questions. Subsequently, in the reconstruction phase, the written interview guidelines can be used for assessment. With the help of an evaluation sheet, the teacher can record the presentation and the cooperation of the students for the intervention/interaction. In order to support the deconstruction, a poster and a folder or flyer will be created, which can be used for success control with the help of a feedback sheet. In the reflection phase, the students are asked once again to reflect their acquired knowledge in the form of a letter.

### **2.2.5 How is personal learning progress reflected and documented?**


The teacher leads the lessons and is supposed to support and accompany the students in their learning processes.

The students document the results and collect the worksheets/notes in a folder. In this way, they can also be accessed at a later date. The knowledge can be checked during the presentations of the learning progress / learning results (interviews, flyers ...).

By the constant notes, which the pupils have to hold on to during the unit on the worksheet and the common, made poster at the end, as well as the execution of the interviews and elaboration of the task of observation, the teacher can recognize, note and thus also hold acquired abilities of the pupils.

### 3 medias

	<p><b>Video</b> <b>"Waste - Food for the Garbage"</b> <a href="https://www.youtube.com/watch?v=NZCaEoOvJBI">https://www.youtube.com/watch?v=NZCaEoOvJBI</a></p>
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	<p><b>Interview</b> <b>Prepares questions for the conversation, with a local food processing company.</b> <b>Topics:</b></p> <ul style="list-style-type: none"><li>• Food waste</li><li>• Appearance of raw material/food</li><li>• Importance for production and harvesting, if food is not up to standard Food for the garbage"</li></ul>
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	<p><b>Discuss the questions in plenary and record the results on the flipchart.</b></p>
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**Conduct an interview, in groups of 3, with a regional actor or actor!**

**Topic: Food waste - "How is food lost?"**

**Goal: to shed light on different aspects of how food waste occurs and to identify relevant influencing factors.**

- Record the interview so you can write down your findings later, use your cell phone for this.
- Report on your findings – creative presentation!

### **Sample interview guide (to be individualized)**

#### **Topic of food wastage with regional stakeholders**

##### **Preliminary remark**

Good day Mr./Mrs. ...,

Thank you very much for taking the time for this interview. I have already informed you about our plan to work on the topic of food waste - "How is food lost?" at school. In order to obtain comprehensive and valid information, we would like to conduct an interview with experts from various community catering facilities. The aim of this interview is to shed light on various aspects of food waste and to identify relevant influencing factors.

##### **Informed consent**

Before we start the interview, we need your consent to record the interview. Do you agree that we may tape-record this interview for later analysis?

##### **Start of sound recording- setup, date, time are mentioned**

##### **Question 1.**

We would like to know more about your organization, what is the composition of the group of people you serve?

##### **Question 2.**

What are the main reasons for food waste in your institution?

- Do you have accurate metrics, or can you estimate how much food waste is generated in your institution per day/per year?
- Are there other regulations in your institution besides the legal regulations when food has to be thrown away?
- What influence do customer expectations (e.g., large food selection, constant refilling of the buffet, low price) have on the generation of food waste?

Question 3.

What effective measures can you think of to reduce food waste generation in community catering institutions?

- What food waste prevention measures/targets are already in place or planned at your institution?
- Have your expenses changed as a result of reducing food waste? (Increased or decreased spending?)
- What problems/obstacles do you face in preventing food waste?

Question 4.

What would you like to see businesses do in terms of policy to make a more active contribution on your part to food waste prevention or food reuse and recycling?

**Conclusion**

In your opinion, are there any other important aspects of this topic that you would like to address?

Do you have any further questions?

Thank you very much for the detailed interview!

Naming the time, END

	<b>Notes:</b>
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**Write down the most important statements of the interview!**



**Create a creative presentation with your group, present your findings from the interview.**



**Group discussions will take place in plenary.**

#### **HOW DO WE DISCUSS PROPERLY?**

- **Everyone follows the rules**
- **Only one person speaks**
- **We let each other finish**
- **We listen actively to the others**
- **We remain objective**
- **All opinions are equally important**



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**Observation task for home:**

**Write a short observation report - in the next session, groups of marbles will be formed and the observations will be discussed in plenary!**

**You can ...**

**... investigate which foods end up in the garbage at home.**

**... which and how much food is thrown away unprocessed.**

**... which and how much food ends up on your plate and is then thrown away.**

**... make a note of what and how much food you throw away over a period of one week.**

**... check your shopping behavior. (Criteria: quantity, with shopping list, spontaneous shopping, ...)**

**... check how food is stored at home.**



**In the group, the results are discussed, and the results are recorded on a poster.**

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**Design a flyer/ folder in the group**



**Evaluate your colleagues according to the evaluation criteria and assign points!**

**Are the desired specifications present?**

**Fully met- 2 points, partially met- 1 point, not met- 0 points.**

**Add up the points at the end after each presentation.**

**At the end of each presentation, collect the assessments!**

**(cut out the boxes)**

Name of the team: _____ Creativity or idea of the title/headline: Pictures, comics, or graphics: Readable font, size, typeface: Content, information, links: Vividness- creative, stylish, clear: Format: Overall:	Name of the team: _____ Creativity or idea of the title/headline: Pictures, comics, or graphics: Readable font, size, typeface: Content, information, links: Vividness- creative, stylish, clear: Format: Overall:
Name of the team: _____ Creativity or idea of the title/headline: Pictures, comics, or graphics: Readable font, size, typeface: Content, information, links: Vividness- creative, stylish, clear: Format: Overall:	Name of the team: _____ Creativity or idea of the title/headline: Pictures, comics, or graphics: Readable font, size, typeface: Content, information, links: Vividness- creative, stylish, clear: Format: Overall:
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## "Food Wastage Pyramid" of the FAO



Information from the teacher!

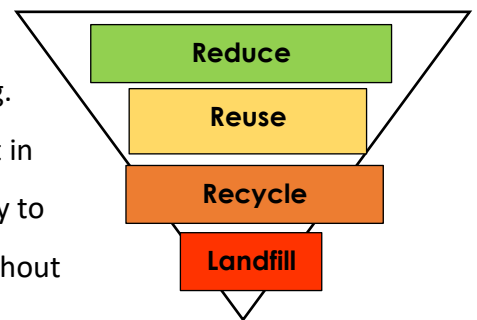
To make the hierarchy more manageable for companies in the food and beverage sector, a specific food and beverage material hierarchy has been created.

The food waste hierarchy sets out steps to prevent and manage food waste to minimize its impact on the environment. The best action is to prevent raw materials, ingredients and products from becoming waste in the first place.

If surplus cannot be prevented, then redistribution to people and then animal feed is the next best option. The best way to handle food waste is to

recycle it by sending it to anaerobic digestion or composting.

Recycling by incinerating waste with energy recovery is next in the hierarchy. At the bottom of the hierarchy, the worst way to treat food waste is to dispose of it by waste incineration without energy recovery or by sending it to a landfill.



Describe the advantages and disadvantages of the Food Wastage Pyramid and give some examples! You can use cell phone/internet for support.

<http://www.fao.org/3/i3342e/i3342e.pdf>





Film- Watch this film: Systemic Insanity- Food Waste  
<https://www.youtube.com/watch?v=bcvhgYD81VE>

Write down, for you, five important pieces of information from the film.

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Read the assigned article carefully and discuss it with your group. Then present the articles to each other.

Article 1



Article 2



Article 1 <https://fian.at/de/artikel/entfremdung-von-mensch-und-natur-zentraler-faktor-fur-hunger-und-umweltkrisen/>

Article 2 <https://nyeleni.org/spip.php?article331>

Notice:

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More exciting links to delve deeper:

- <https://www.muttererde.at/fakten/>
- Food waste: Too good for the garbage can  
<https://www.global2000.at/lebensmittelverschwendung>



As a conclusion, compose a letter to yourself, to your "ME" who is 10 years from now, thanking you for the right actions you took at that time. → learning diary