

## Food only — zero waste

Intervention UNIT C4: Food packaging	Preparation time	Requirements	Duration
<p>As part of the Zero-Package-Challenge the students observe their own handling of food packaging for a week and consider the impacts of excessive use.</p> <p>The students use a structured analysis of the results to discuss the various possible uses and consider whether consumption within a regional food system would reduce the amount of packaging.</p> <p>Eventually the students are looking for unpackaged shopping opportunities in the region and reflect whether they would be willing to include these products in their shopping list.</p>	60 min	★★★★☆	9 TU
	<b>Competence-oriented learning outcome:</b>		
	I can ... <i>(incomplete extract)</i> <ul style="list-style-type: none"> <li>• evaluate different types of packaging and their effects.</li> <li>• distinguish types and functions of packaging.</li> <li>• recognize alternatives to conventional packaging.</li> <li>• evaluate the importance of content of information.</li> <li>• capture and link different areas and information.</li> <li>• recognize effects of my own behaviour and consumption.</li> <li>• acquire information and knowledge independently.</li> </ul>		
	<b>Aim of the teaching sequence in the module:</b>		
	Getting to know packaging materials, their effects and alternatives. Reflection of one's own behaviour. Waste avoidance.		
	<b>Learning outcome</b>		
	concept maps, study journal, numerous flipcharts		
<b>Required materials/media:</b>			
computer, beamer, internet, pens and paper, flipchart, padlet			

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Phase	Duration in	Social -	Materials/ Media	Methodical-didactic notes / implementation
Confrontation	60 min	GW PL	Computer Beamer Internet Pens Paper Flipchart	A caricature / <b>comic</b> is presented to the class and thereby stimulates a discussion in the plenum. 🗨️ The teacher then distributes a <b>newspaper article</b> on the subject of food packaging, in which its effects and possible solutions are shown. The students analyze the article in group work and present it to the plenum. 👥 The creation of a <b>flipchart</b> of the most important points follows. 📄 A video informing about the functions of packaging is shown to the class. 📺 As an exercise at home, the students should try the <b>Zero-Waste-Challenge</b> : one week of collecting packaging waste. ✍️
Reconstruction	60 min	GW PL IW	Pens Paper	In an <b>exhibition</b> of the collected packaging within the classroom, the students exchange ideas 🗨️ and write an entry of the observations in the <b>study journal</b> . 📖 👥 The plenary construction of a <b>concept map</b> on functions and effects of packaging follows, expanded in comparison with the flipchart of the article. 📄 ✍️ The teacher supports, validates and adds any missing information.
Intervention/ Interaction	60 min	PL GW	Computer, Beamer Internet Padlet	The teacher presents <b>photos</b> of preposterous food packaging. In groups students discuss and research alternatives. 🔍 The results and impulses are collected in the <b>padlet</b> . Next step: the creation of a <b>list</b> of regional possibilities for low packaging/free shopping. The intervention is concluded by a plenary <b>discussion</b> . 🗨️ 👥
Deconstruction	105 min	GW PL	Flipchart Pens Paper	The teacher asks what impacts both types of markets have, followed by a <b>discussion</b> in small groups and presentation in plenary. 🗨️ 🗨️ Additionally or as an alternative: <b>Research</b> and visit of regional stores in small groups with the possibility of questioning of employees and customers. 🔍 Students incorporate their findings into the <b>Concept Map</b> . ✍️
Reflection	60 min	PL	Created Flipcharts Pens Paper	The students <b>reflect</b> their own conclusions of the Zero-Waste-Challenge and experience in small groups. 🗨️ They create a <b>study journal</b> entry about what they can and want to change in packaging consumption in the long term or what they cannot and do not want to do. What remains of changed behavior and for what reason? 📖

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

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

Element/Topic

## Intervention C4 - Packaging of food products



Names

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# Learning activity plan

## 1 Learning Module

### 1.1 Overview

Element/Topic	Intervention C4 - Packaging of food products
Curricula/Competences	<ul style="list-style-type: none"> <li>• Students can separate garbage and dispose of it properly.</li> <li>• Students can act socially responsible and have a spectrum of adequate forms of communication.</li> <li>• Students can deal with conflicts in a solution-oriented and self-controlled manner.</li> <li>• Students can shape situations in a controlled, reflective, and proactive manner.</li> </ul>
Learning objectives	<p>Getting to know packaging materials, their effects, and alternatives.</p> <p>Reflection of one's own behavior.</p>
Learning outcomes / Competences of professional subject-related learning	<p>I can ...</p> <p>C1. recognize different types of packaging and evaluate their effects.</p> <p>C2. distinguish types and functions of packaging.</p> <p>C3. recognize alternatives to conventional packaging.</p>
Learning outcomes / Competences of the methodical, social, and personal area	<p>Ich can...</p> <p>C4. recall my own knowledge.</p> <p>C5. evaluate the importance of content of information.</p> <p>C6. capture and link different areas and information.</p> <p>C7. pursue communication rules and act in groups.</p> <p>C8. recognize effects of my own behavior and consumption.</p> <p>C9. acquire information and knowledge independently.</p> <p>C10. work independently and in a group.</p> <p>C11. form my own opinion.</p> <p>C12. present information adequately.</p>
Schedule	335 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	Part 1: 10-15 min	<p><i>The complexity of the topic becomes visible. Students are getting curious.</i></p> <p>C7 C11</p>	<p>A caricature / comic is presented to the class and thereby initiates a discussion.</p> <p>Attention: Conversation rules have to be followed: if not already in place, agree on class rules for a respectful, valuing conversation culture and place them visibly.</p> <p>Questions the teacher asks the class:</p> <ul style="list-style-type: none"> <li>• Why did I choose to show you this particular picture?</li> <li>• Do you feel emotions rising in you? Which ones?</li> <li>• Do you think, the caricature exaggerates? If so, why?</li> <li>• Does the caricature represent real, current events?</li> <li>• Which themes is the artist trying to address with this caricature?</li> </ul>	<p>Online: e.g. with zoom, discussion in (video) chat</p> <p>Offline: Chair circle for an outgoing atmosphere</p>	plenary session, teacher acts as a moderator	 <p>beamer, computer, internet</p> <p>possibly printouts of the comics</p>

Confrontation

PART 2: 30-35 min

C2  
C5  
C6  
C10  
C12

The teacher distributes a newspaper article about food packaging, in which its effects and possible solutions are shown. The article can be divided into thematic sections, which are then analyzed by student groups. Students are invited to summarize the central statements of the section in order to present it to the whole class. In this way, everyone will learn the content of the entire article. **RC4/2**

In the large group, the article is then presented with the contribution of each small group. The central statements are collected on a flipchart and hung on the wall.

The teacher presents the students with a video on the most important functions of packaging. The partial necessity of packaging is discussed.

The teacher presents the Zero Waste Challenge website to the learners and the following is decided in the class: the learners spend a week collecting their food packaging that accumulates in their everyday life, which is then analyzed in the further course of the lesson. Learners register voluntarily. **RC4/3**

Austria: This (four-week) Challenge is held every year in October. If you do not meet this time slot, the challenge for the students is following: Collect the packaging waste of food for one week (please clean it first!) and bring it back to class. Alternatively, a protocol can be kept - the type of packaging, weight and volume should be noted. Ideally the protocol includes daily photos of the collected waste.

Outcome: flipchart

Plenum, group work,  
Individual work (at home)

Plenum



newspaper article






Flipchart paper, pens









computer, internet





## Reconstruction

<p>Part 1: 25-30min</p>	<p>C2 C7 C11 C12</p>	<p>The teacher asks the students to prepare an exhibition of the collected packaging and to use the classroom as a showroom. The students are asked to present their own part of the exhibition and to share their thoughts. The other students are invited to share their impressions and thoughts about what they see in the exhibition of their colleagues (e.g. "I notice that there is mainly packaging of fast food / processed / fresh / finished food"). The teacher brings in his/her own observations at the end of the exhibition.</p> <p>The students are then asked by the teacher in small groups to reflect on their observations made during the exhibition and collect them in a study journal.</p>	<p>Plenum, teacher acts as supporting role</p>	
<p>PART 2: 25-30min</p>	<p><i>The complexity of the topic is recognized, named, and made visible to everyone. Students contribute their individual points of view and apply their previous knowledge of the topic.</i></p> <p>C4 C6 C7 C10</p>	<p>The next step is to jointly create a concept map: Why do our foods have packaging at all? What functions does packaging have? The students are asked to remember the most important effects of food packaging.</p> <p>Attention: Conversation rules must be observed. Each opinion is valid and may be brought in, it will not be evaluated. This is to be communicated to the students as well.</p> <p>The teacher can gradually insert terms to expand on established structures. Examples: transport, storage, protection, quality assurance, retail, information, damage, conservation, portioning, disposal, pollution, environmental impact, health effects (softeners in plastics), mineral oils, microplastics, aluminum, ...</p> <p>-&gt; Have the courage to leave a gap, you can't think of everything right away.</p> <p>Afterwards the teacher adds the flipchart page with the collected points on the newspaper article and asks what else should be added - the</p>	<p>Entry into the study journal</p> <p>Outcome: Concept Map</p> <p>Online: e.g. with lucidchart.com or simply with the whiteboard</p> <p>Offline: with sticky notes/cards on the blackboard or pin board (advantage: movable!) and a wool thread as connecting arrows</p>	   <p>Online: Computer, Internet</p> <p>Offline: pin cards/cards, blackboard/pin board, chalk/wool thread</p>

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			teacher supports, validates, and completes any missing information <a href="#">RC4/4</a>			
Intervention/Interaction	60 min	C3 C4 C7 C10 C12	<p>The teacher shows photos of preposterous food packaging. The students describe what they see and exchange their views in group work. Alternative systems, possibilities and abstrusities are collected in a padlet created by the teacher. Several links are already available to the students at the start. <a href="#">RC4</a></p> <p>The students are asked if there are possibilities in the region (school or home address) to avoid food packaging. The teacher may present a printout of two photos of products from different markets (packaged food in a supermarket and unpackaged food at a farmers' market) taken somewhere in the region. Working in small groups, the students compile a list of possible locations where packaged or unpackaged products can be found. During the presentation to the large group, the teacher summarizes the ideas in keywords on the flipchart.</p>	Padlet	Plenum, group work	 Computer, internet  (Printed pictures) Flipchart, pens   

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<b>Deconstruction</b>	Part 1: 30min	C1 C6 C9 C10 C12	The teacher asks what effects both types of markets have and refers to the flipchart and the concept map. The students discuss and collect ideas in small groups, which are later presented in the plenum. The teacher notes the conclusions on the flipchart and the list of possible shopping locations. The teacher asks how local/regional/seasonal food systems could help to reduce the use of packaging materials.	Flipchart	Plenum, group work	Flipchart, pens 
	(Part 2: 60min)		Additional/Alternative: The students are asked to work in groups to research, visit and inspect stores with alternative forms of packaging (refilling of soap or detergent, bringing own packaging,...) in their area (school or home address). They may also briefly interview store operators or customers. The results are summarized in the group and presented to the other groups.	Free form of presentation (e.g. acting, video, PowerPoint...)	Plenum, group work	 Depending on the form of presentation
	Part 3: 15min	C4 C7	The insights gained through the exercises are incorporated into the original concept map and a concept map 2.0 is created.	Concept Map	Plenum	



Phase in Module (GP)	<b>When?</b> Guideline	<b>What for?</b> Learning objectives, partial competences	<b>What?</b> Detailed learning steps incl. technical questions/explanations/contents	<b>How?</b> Methodical procedure; learning outcomes learning materials	<b>Who with whom?</b> Social learning Role of teacher	<b>What with?</b> Media, Equipment Resources
Reflection	60 min	C3 C6 C8 C11	The teacher places the flipchart pages containing the suggestions for minimizing packaging from the newspaper article and the conclusions of the Zero-Waste-Challenge on the wall. The students are asked to reflect in small groups on their own conclusions of the Zero-Waste-Challenge and consider how much packaging material they avoided, which products they replaced by unpackaged alternatives and which they didn't replace. The students describe how and why they are taking further steps to reduce the consumption of food in individual packaging and why they are not willing or able to do so. The students write a diary entry about what they are able and willing to change in packaging consumption, or what they are unable and unwilling to do. What part of changed behavior remains and for what reason?	Entry in the study journal	small group work, individual work	Flipcharts, Concept Maps, study journal    

## 2 Annex to the learning activity plan

### 2.1 Medias

#### Collection of links for confrontation:

English:

- <https://warandpeas.com/tag/zero-waste/>
- [https://www.instagram.com/p/CCR\\_2\\_WgZ7J/](https://www.instagram.com/p/CCR_2_WgZ7J/)
- <https://www.instagram.com/p/Bzty22VgGdg/>
- <https://www.instagram.com/p/BzrNpM8A0cF/>
- [https://www.instagram.com/p/B0kUKNXJX\\_a/](https://www.instagram.com/p/B0kUKNXJX_a/)
- <https://www.instagram.com/p/B0F51f-JVjk/>
- <https://www.gocomics.com/brevity/2015/08/31>
- [https://www.boredpanda.com/waste-aware-animals-environmental-comics-mira-petrova/?media\\_id=2043918](https://www.boredpanda.com/waste-aware-animals-environmental-comics-mira-petrova/?media_id=2043918)
- <https://imgur.com/gallery/MP2J4ei?nc=1>

German:

- [https://de.toonpool.com/cartoons/Plastikt%C3%BCtenverbot\\_341417](https://de.toonpool.com/cartoons/Plastikt%C3%BCtenverbot_341417)
- [https://de.toonpool.com/cartoons/Plastikt%C3%BCtenverbot\\_341560](https://de.toonpool.com/cartoons/Plastikt%C3%BCtenverbot_341560)

Mission statement: "Nude your Food"

- <https://www.instagram.com/p/Bz1f69knuqc/>

Video (English): <https://www.youtube.com/watch?v=grU9mOJ88yk>

#### Collection of links for intervention:

- Pictures: Preposterous packaging: <https://utopia.de/absurde-plastikverpackungen-17699/>
- Video: future packaging (English) <https://www.youtube.com/watch?v=hJtleCmLzZl>
- Video: (German) [https://www.youtube.com/watch?v=sSD8uQ14lQ4&list=PLB7\\_f-JvetLMYEhampKoznC1TnUJ10gKB&ab\\_channel=ZDFbesseresser](https://www.youtube.com/watch?v=sSD8uQ14lQ4&list=PLB7_f-JvetLMYEhampKoznC1TnUJ10gKB&ab_channel=ZDFbesseresser)
- Video and article: Edible Packaging-Algae pods (English) <https://www.dezeen.com/2019/04/29/london-marathon-ooho-edible-drinks-capsules-seaweed/>
- Other ideas as a suggestion: Branding laser, deposit system, potato vending machine,...

# Basic considerations about teaching and learning

## 3 Didactical analysis

### 3.1 Pre-knowledge/pre-concepts/pre-experience

No special content requirements. The students should be accustomed to working independently or in groups; if this is not the case, working hours can be extended. Students are familiar with the most important foods.

### 3.2 Didactical and methodological considerations

#### 3.2.1 Importance of the educational content for the learners

The students learn to recognize the consequences and impacts of their behavior on their own life and the environment, now and in the future. Which food products should be bought and consumed when, how and where in a sensible and healthy way?

#### 3.2.2 Didactic Reduction / Didactic Focus

The main focus is on recognizing which packaging is necessary and useful for which foods and the impact of the packaging on the individual and the environment.

Reduction:

- work with comics or newspaper articles, not with both.
- Minimize (one day instead of a week) or loose the Zero Waste Challenge. Work with average values of household waste per country instead.
- No need to go to a store with alternative forms of packaging.

#### 3.2.3 Aspects of individualization and differentiation

What can/might I contribute as an individual to avoid unnecessary packaging? How can I collect information where I can obtain food in appropriate packaging according to my individual ideas and goals?

#### 3.2.4 Performance review, result assurance, assessment

Evaluation of the learning products and involvement in the collaboration.

##### Learning Products:

- Concept Maps (Whole Class)
- Study journal (individual)

##### Evaluation of the participation:

The concept maps and other group work are included in the participation grade. A competence table is compiled during the lectures and the learners' participation is noted in it. Emphasis is placed on the individual learning process regarding the competencies mentioned above. Increases and decreases are being documented. The competencies

relevant for assessment can be chosen according to the teacher's assessment, also a special focus on one or more competencies per unit is possible.

Example of a competence table:

Evaluation scheme													
Date:												Class:	
Phase:	Assessment relevant competences											Ongoing participation records / notes	
competence	1	2	3	4	5	6	7	8	9	10	11	12	
students name													
													The students (I) can...
													K1. recognize different types of packaging and evaluate their effects.
													K2. distinguish types and functions of packaging.
													K3. recognize alternatives to conventional packaging.
													K4. recall my own knowledge.
													K5. evaluate the importance of content of information.
													K6. capture and link different areas and information.
													K7. pursue communication rules and act in groups.
													K8. recognize effects of my own behaviour and consumption.
													K9. acquire information and knowledge independently.
													K10. work independently and in a group.
													K11. form my own opinion.
													K12. present information adequately.
													<b>Phases:</b> Confrontation, Reconstruction, Intervention, Deconstruction, Reflection

### Evaluation of the study journal - evaluation criteria:

The study journal entries are collected and are handed in at the end of the arrangement. All the following criteria must be met:

- ✓ neat way of working
- ✓ completeness: all entries are present
- ✓ completeness: all questions are answered
- ✓ independent work, no plagiarism

A positive conclusion of the arrangement is given if the table of competences shows an effort or an increase and the learning diary fulfills all criteria.

### 3.2.5 How is personal learning progress reflected and documented?

Study journal based on key questions

- What of what I learned (today) will especially remain in my memory and why?
- What I found most interesting about what I learned (today) was the topic .... because ... .
- How can I share my new knowledge with others?
- What do I want and what am I able to change about my packaging consumption long term?
- In which areas will I be unable to change my packaging consumption and for what reason?