

vmbo class 3 and 4

# TEACHING PACKAGE BIODIVERSITY & CIRCULAR AGRICULTURE



## Teachersmanual

july 2023 - Yuverta LLO

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## 1. Purpose of teaching package

Dear reader,

This teaching package, the “Teaching package Biodiversity and Circular agriculture” for vmbo (secondary vocational education) class 3 and 4, was developed as a response to the request from education for more lesson material around the theme biodiversity, nature-inclusive and the circular agriculture.

The teaching package is suitable for vmbo (secondary vocational education)-students class 3 and 4.

The modular design of the lesson material offers the possibility to use it in its entirety or in combination with existing material. The material is also excellently suitable to be used as a project.

We hope that the teaching package will find its way in education and practice and that the themes biodiversity, nature-inclusive and circular agriculture will get a regular place within the vmbo (secondary vocational education)-education.

Team Online learning – Yuverta LLO

## 2. Content of the teaching package

In overviews below you can find the chapters and their content.

### Chapter 1 Biodiversity

#### Theory

- This is biodiversity to me!
- What is biodiversity?
- The Sustainable Development objectives

#### Homework assignments

- Assignment 1 – Biodiversity at school and in your back garden
- Assignment 2 – Biodiversity in the soil

### Chapter 2 The soil

#### Theory

- The soil
- The earth worm in the spotlight

#### Homework assignments

- Assignment 1 – Bury your underwear
- Assignment 2 – Searching for soil animals

### Chapter 3 The nature-inclusive society

#### Theory

- The ecological footprint
- What can you do?

#### Homework assignments

- Assignment 1 – Checklist nature-inclusive neighbourhood
- Assignment 2 – Design a poster over a nature-inclusive society



## Chapter 4 Cycles and a circular agriculture

### Theory

- Cycles
- Circular agriculture

### Homework assignments

- Assignment 1 – From larva to food
- Assignment 2 – Meet the farmer

## Chapter 5 Value of nature

### Theory

- The value of nature

### Homework assignment

- Assignment – Come up with a green schoolyard.

## Chapter 6 Projects for biodiversity

### Theory

- Projects for biodiversity

### Homework assignment

- Assignment – Advertise a project

## Chapter 7 Final assignments

### Final assignments

- Assignment 1 – The city of the future
- Assignment 2 – The green afternoon
- Assignment 3 – You count too!



### 3. Set-up of the chapters

Every chapter contains a number of regular components. This fixed set-up contributes to the recognisability and the development of a routine in navigating within the teaching package.

#### 1.1. Theory

Every chapter starts with one or multiple theoretical sections. A theoretical section is usually followed by a group assignment. These assignments can be used well during the lesson and blend in with the previously discussed theory.

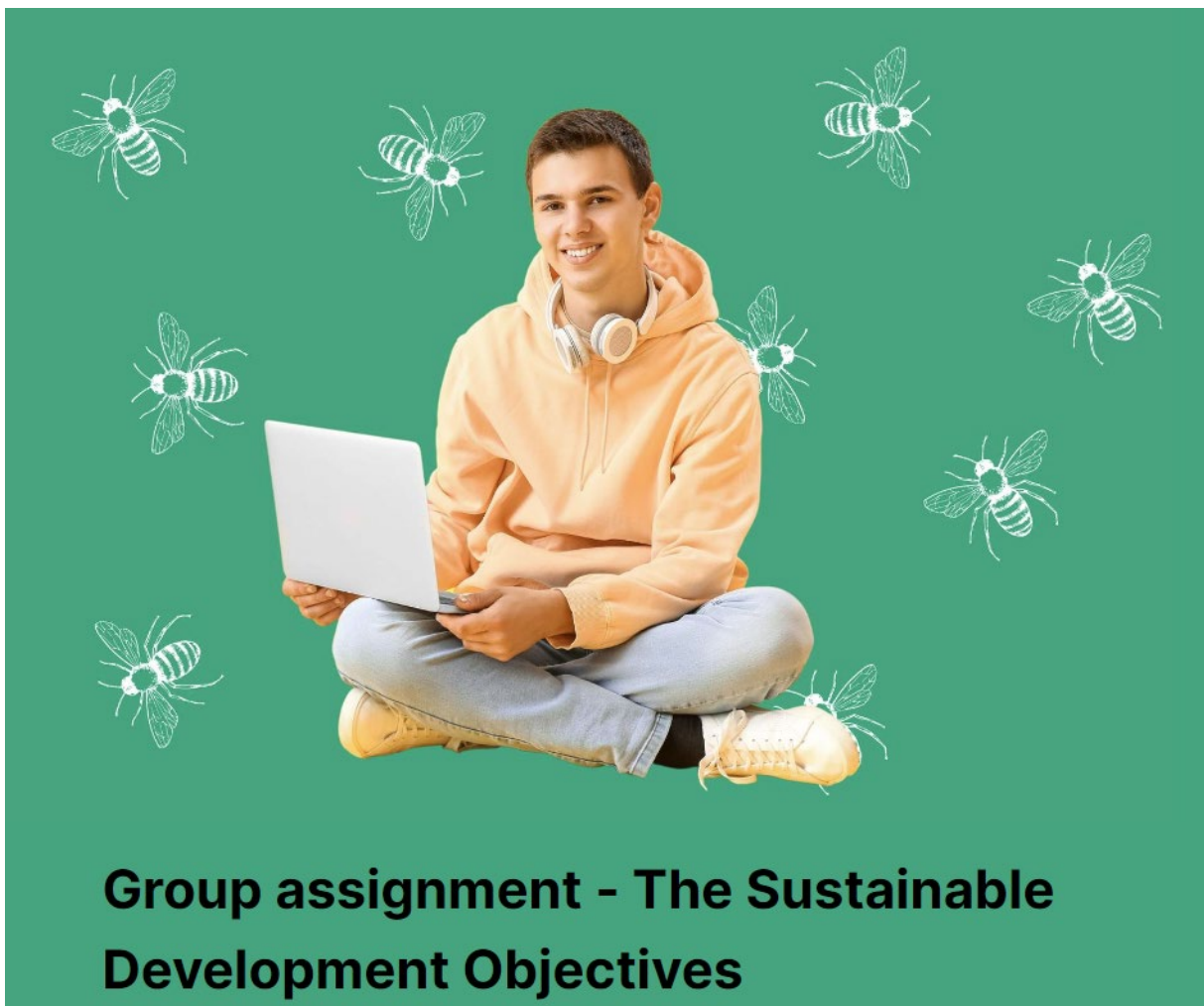
#### 1.2. Assignments

This teaching package includes three types of assignments.

1. Group assignments
2. Homework assignments
3. Final assignments

##### 1.2.1. The group assignments



The group assignments can be found at the end of each theoretical section. They are expressly intended to be implemented during the lesson. The assignments were designed such that it requires little preparation by the teacher and will fit well within part of the lesson.



### 1.2.2. The homework assignments

For every subject, the homework assignments can be found under the header homework assignments. These assignments require more time and effort of the student and teacher.



For each homework assignment, the assignment can be downloaded as a PDF. This way, the assignment can easily be saved in an ELE, without the student having to search the entire teaching package. These assignments could be issued as homework or as a BPV-assignment, or could serve as a formative or summative test.

 **The nature-inclusive society - Assignment 2 - Design a poster about a nature-inclusive society.pdf** 

64.6 KB

### 1.2.3. The final assignments in the last chapter

The final assignments are based on the theory of the previous chapters. The student will actively engage with the themes biodiversity and nature-inclusive society. These assignments too can be downloaded as a PDF.

 **Final assignments - Final assignment 1 - The city of the future.pdf** 

61.8 KB

### 1.2.4. Overview of the assignments

This matrix shows an overview of the group and homework assignments. Also the options around the assignment can be found quickly.

- Can the assignment be carried out inside or outside the school?
- Is the assignment suitable for autonomous learning?
- Can this assignment be carried out in cooperation with business?
- Is the assignment suitable for customisation?
- Which Kolb learning style/styles is/are engaged?



## Chapter 1 Biodiversity

Group assignment	Can be carried out inside or outside the school?	Suitable for learning autonomously?	Suitable for cooperation with business?	Suitable for customisation?	Kolb learning styles			
					Thinker	Dreamer	Decider	Doer
The Sustainable Development objectives	Indoors	Yes	No	No		•	•	

Homework assignments	Can be carried out inside or outside the school?	Suitable for learning autonomously?	Suitable for cooperation with business?	Suitable for customisation?	Kolb learning styles			
					Thinker	Dreamer	Decider	Doer
Biodiversity on school and je back garden	Outdoors	Yes	Yes	Yes	•			•
Biodiversity in the soil	Outdoors	No	Yes	Yes		•		•



## Chapter 2 The soil



Group assignment	Can be carried out inside or outside the school?	Suitable for learning autonomously?	Suitable for cooperation with business?	Suitable for customisation?	Kolb learning styles			
					Thinker	Dreamer	Decider	Doer
View a soil animal	Indoors	No	No	No	•	•	•	•

Homework assignments	Can be carried out inside or outside the school?	Suitable for learning autonomously?	Suitable for cooperation with business?	Suitable for customisation?	Kolb learning styles			
					Thinker	Dreamer	Decider	Doer
Bury your underwear	Outdoors	No	Yes	No	•	•	•	•
Searching soil animals	Outdoors	No	No	No	•	•	•	•

## Chapter 3 The nature-inclusive society



Group assignment	Can be carried out inside or outside the school?	Suitable for learning autonomously?	Suitable for cooperation with business?	Suitable for customisation?	Kolb learning styles			
					Thinker	Dreamer	Decider	Doer
The ecological footprint	Indoors	No	No	No	•			•

Homework assignments	Can be carried out inside or outside the school?	Suitable for learning autonomously?	Suitable for cooperation with business?	Suitable for customisation?	Kolb learning styles			
					Thinker	Dreamer	Decider	Doer
Checklist nature-inclusive neighbourhood	Outdoors	Yes	No	No	•	•	•	•
Design a poster about a nature-inclusive society	Indoors	Yes	No	Yes	•	•	•	•

## Chapter 4 Cycles and a circular agriculture



Group assignment	Can be carried out inside or outside the school?	Suitable for learning autonomously?	Suitable for cooperation with business?	Suitable for customisation?	Kolb learning styles			
					Thinker	Dreamer	Decider	Doer
Photograph a cycle	Both	Yes	No	Yes	•	•	•	•

Homework assignments	Can be carried out inside or outside the school?	Suitable for learning autonomously?	Suitable for cooperation with business?	Suitable for customisation?	Kolb learning styles			
					Thinker	Dreamer	Decider	Doer
From larva to food	Indoors	Yes	No	No		•	•	
Meet the farmer	Both	No	Yes	Yes	•	•	•	•

## Chapter 5 Value of nature



Group assignment	Can be carried out inside or outside the school?	Suitable for learning autonomously?	Suitable for cooperation with business?	Suitable for customisation?	Kolb learning styles			
					Thinker	Dreamer	Decider	Doer
The value of nature	Indoors	No	No	No		•	•	

Homework assignment	Can be carried out inside or outside the school?	Suitable for learning autonomously?	Suitable for cooperation with business?	Suitable for customisation?	Kolb learning styles			
					Thinker	Dreamer	Decider	Doer
Come up with a green schoolyard	Outdoors	No	Yes	Yes	•	•	•	•

## Chapter 6 Projects for biodiversity



Homework assignment	Can be carried out inside or outside the school?	Suitable for learning autonomously?	Suitable for cooperation with business?	Suitable for customisation?	Kolb learning styles			
					Thinker	Dreamer	Decider	Doer
Advertise a project	Both	Yes	Yes	Yes	•	•	•	•

## Chapter 7 Final assignments

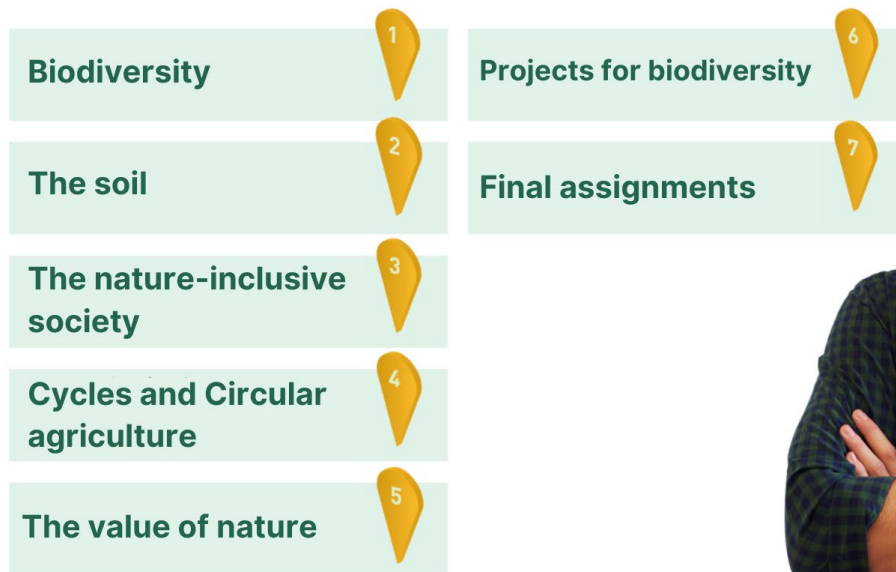


Final assignments	Can be carried out inside or outside the school?	Suitable for learning autonomously?	Suitable for cooperation with business?	Suitable for customisation?	Kolb learning styles			
					Thinker	Dreamer	Decider	Doer
The city of the future	Indoors	Yes	No	Yes	•	•	•	•
The green afternoon	Both	No	Yes	Yes	•	•	•	•
You count too!	Outdoors	Yes	Yes	Yes	•	•	•	•

## 2. Suggested routes

The teaching package can be used in different ways. Please find below a number of suggestions.

### Route 1 - I want to follow the route



This route is suitable for teachers who wish to go through the entire package and stick to the basic route.

## Route 2 - I want to be able to choose for myself



Biodiversity	✓	The value of nature	✓
The soil	✗	Projects for biodiversity	✗
The nature-inclusive society	✓	Final assignments	✗
Cycles and Circular agriculture	✓		

Of course it is also possible to decide the order of the chapters yourself. The chapter Cycles and Circular agriculture could, for instance, be discussed at an earlier stage. The chapters can also be dealt with as individual chapters, separate from the other chapters. This could be favourable if the teacher feels the need to explain the theme that the chapter is about.

## Route 3 – We turn it into a project

**Biodiversity**

**The soil**

**Cycles and Circular  
agriculture**



**The nature-inclusive  
society**

**Final assignments**



**Projects for biodiversity**

**The value of nature**



Why not discuss within your team which other teachers could be involved in providing the lessons. Some of the assignments are perfectly suitable for teachers of Dutch, maths, economy, biology, soil science, etc.

The teaching package could also be an excellent basis for a project week.

### 3. Blended learning

The teaching package can be used perfectly with the different forms of blended learning.

Blended learning is the mixing of different learning methods, as a result of which the education can be better coordinated to the needs of the individual students. As a teacher, one alternates between plenary teaching, the use of online material and practical learning.

Below you can find three types of blended learning that can be well used within this teaching package.

1. Flipping the classroom
2. Station rotation
3. Self-blend

### 3.1. Flipping the classroom



When Flipping the classroom, the traditional way of teaching, meaning plenary teaching and doing homework, is reversed. In this case the student studies the lesson material in his own time and the time during the lesson in the classroom is spent on assignments, visiting a company or a different activity to process the lesson material. Thus the time in the classroom is used to explore deepening of the subject.

This is how to implement Flipping the classroom using the teaching package:

Allow the student to autonomously go through the theory of the chapter Soil in his own time. The time saved during the lesson can then be spent on searching for animals in the soil.

## Chapter 2 The soil

START COURSE

- ☐ The soil
- ☐ The earth worm in the spotlight

} Own time student

HOMEWORK ASSIGNMENTS

- ☐ Assignment 1 - Bury your underwear
- ☐ Assignment 2 - Searching for soil animals

} Searching for soil animals during lesson



### 3.2. Station rotation



Station rotation is a work practice during which the teacher divides the group into (for example) three sub-groups. The first group will start working on the online lesson material, the second group works on a group assignment and the third group is being guided by the teacher. This last group can be given final instructions by the teacher, or even further explore the subject. After a certain amount of time, the groups will change tasks.

This is how to use Station Rotation with the teaching package:

- Group 1 autonomously processes the theory about the soil.
- Group 2 carries out the group assignment.
- Group 3 compares the results of the profile pit and shares the findings with the teacher.

The screenshot shows the teaching package interface with three stations for different groups:

- Group 1:** A mobile app interface for "Chapter 2 The soil". It shows a progress bar at "25% COMPLETE" and a list of topics: "The soil", "The earth worm in the spotlight", and "HOMEWORK ASSIGNMENTS". Under homework, it lists "Assignment 1 – Bury your underwear". Below the list is a circular graphic of a soil profile with a red pin labeled "2".
- Group 2:** A station titled "Group assignment – Look at a soil animal". It features a woman in a yellow jacket pointing upwards, surrounded by small white worms. Below the image is the text "Group assignment – Look at a soil animal".
- Group 3:** A station titled "Assignment 2 - Biodiversity in the soil". It includes a "Finally." section followed by four numbered tasks: "11. Take the jars with soil, the answers to your questions and the photo of the profile pit to the next lesson.", "12. Use a microscope. Which living organisms in the different layer in the glass jar do you see?", "13. Compare the jars with those of your classmates. What strikes you?", and "14. Explain how quickly the water in the profile pit has drained. What strikes you?".

### 3.3. Self-blend



In the work practice Self-blend, the teaching package mainly has a deepening character. The student follows the original lesson programme, but will receive supplementary instructions when he/she requires more deepening. In this method, customisation can be provided well by establishing a different learning route for each individual student.

This is how to use Self-blend with the teaching package:

Agree with the student which supplement or additional deepening is required.

**Chapter 7 Final assignments**

START COURSE

FINAL ASSIGNMENTS		
Yes	Final assignment 1 - The city of the future	<input type="radio"/>
Yes	Final assignment 2 - The green afternoon	<input type="radio"/>
No	Final assignment 3 - You count too!	<input type="radio"/>

Appointment with Suze

## 4. The navigation of the teaching package

### 4.1. The navigation in the start screen

The teaching package consists of seven chapters. These can be found below the digits in the start screen. A chapter can be opened by clicking on the number next to the chapter title. The student can read what the chapter is about. By clicking on “Start” the chapter will open in a different tab. To return from a chapter to the start screen, one must close the chapter tab.



## 4.2. The navigation during the lesson

### 4.2.1. Starting a chapter

A chapter always starts with an overview of the content. At the top of the screen you will find a start button. When you click this button, the chapter will open.

It is also possible to go directly from the overview to a part of the chapter. By selecting a section, you will immediately be directed to that section.

### 4.2.2. Navigation between sections

Once being inside a chapter, the content can be navigated in two different ways.

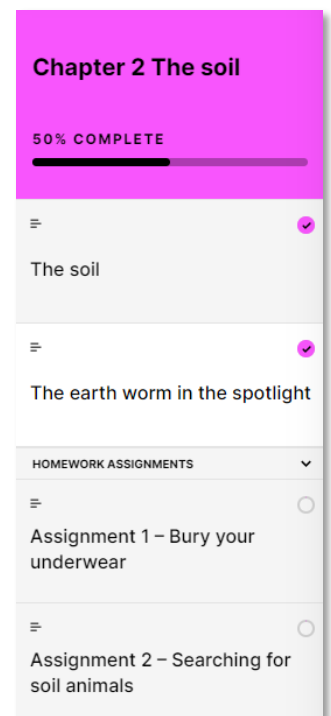
1. The content can be viewed by way of scrolling down. At the end of the section a grey bar with a button will appear, to automatically go to the next section.

↓ 2 of 4 — The earth worm in the spotlight

2. It is also possible to go to the next section by using the menu at the left hand side of the content. This way, not only is it possible to navigate to the next section, but also directly to any other section within the lesson.

As soon as a section is completed, a pink check mark will appear behind the section.

Please note: the progress is only monitored at the moment that the chapter is open. During a subsequent visit it is no longer visible. It is however not compulsory to finish a section before clicking on the next. The student can thus simply proceed with the lesson material.



### 4.2.3. Closing a chapter

The start screen, as well as every individual chapter, will open in a separate tab. To return to the start screen, one must go back to the tab Teaching package, which is still open.