

# Learning pack #2

Teaching materials for schools and educational institutions  
For students aged 12 to 16 years old



# Protecting our forests

## A vital ecosystem under threat



# Imprint

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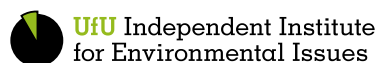
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# Introduction

Whether we're talking about deciduous, coniferous, rain or dry forests, a healthy forest is maintained by a delicate balancing act of give and take. Many animals, including, for instance, the near extinct orangutan, can only survive in the forest. In return for shelter, water and food, these animals disperse the seeds of trees through their excrement, so that the forest can continue to renew itself.

Forests are often called the "earth's green lung," because they store CO<sub>2</sub> and produce oxygen, thus helping to regulate the climate. Their underground system of roots protect our cities, towns and villages from landslides. Many people live directly from and in forests, which provide food, shelter and even medicinal plants for healing.

Still, when economic interests take over, this delicate symbiotic relationship can be thrown out of balance. Economic and environmental interests often clash in the forest because wood is a very popular and seemingly irreplaceable raw material for entire industrial sectors, including paper and pulp. But vast swathes of forest are also destroyed, not for their wood, but to make way for palm oil and soy plantations, cattle ranching and mining.

What can children and young people do to help protect the forest? How can they help restore balance? Deutsche Welle's learning pack "Protecting our forests: A vital ecosystem under threat" enables educators to tackle this topic with young people aged 12 to 16, as well as with youth and environment groups.

The learning pack consists of four modules. These include educational material in the form of **articles, films, infographics, picture cards** and an **interactive web-documentary**. The pack also includes **worksheets** for students and explanatory **handouts** for teachers and educators that will aid in preparing and implementing lessons.

The print version of the learning pack includes all the educational material on an accompanying **DVD**. Everything for the lessons is also available online for free download: [dw.com/learning-environment](http://dw.com/learning-environment)



**Icon for worksheets**



**Icon for handouts**

# Structure

## Module I

In the first module, students are introduced to the forest and its functions, including a detailed look at the importance of forests for climate protection and as a habitat for animals. The module also studies the reasons for and the extent of deforestation.

## Module II

The second module looks at problems forests face from an individual's perspective and asks questions such as, "which forest products and services do I use in my daily life?" Apart from learning about the obvious uses for wood, this module introduces students to the impact of non-wood uses of forest - because trees are also being cleared for palm oil plantations and cattle ranching. Depending on the group's interests and the relevance of the issues, educators can choose to tackle all three **topics (A, B and C)** or focus on just one.

## Module III

The third module concentrates on the structural dimension, bringing in three different suggestions for improving our interactions with the forest. These comprise one means of using firewood more efficiently and two strategies for sustainable agriculture that are in tune with nature. This module has also been structured so that just one or all three **topics (D, E and F)** can be tackled by the group.

## Module IV

The fourth module suggests various ways in which children and young people can make their own contribution towards forest protection. Activities around reforestation are the central focus. Educators can choose from two films as well as detailed instructions for an experiment that can be carried out with the group.

## Bonus

The learning pack also includes the bonus multimedia documentary "Dora — an orangutan returns home." It offers students a playful and informal way to learn about the importance of intact primary forest for the survival of endangered orangutans.

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The following table provides an overview of each module, including the duration of each lesson or unit, a short content description, an explanation of the learning objectives as well as the materials required. Each module builds on the previous one, but they can be shortened or focussed on individually depending on time restrictions and the students' existing knowledge.

# Module overview

## Module I – Problem and background

<b>Duration</b>	<b>Description of content</b>	<b>Learning objectives</b>	<b>Materials and implementation</b>
30 minutes	Introduction to the topic via picture cards	Getting to know the topic Engaging with the students' existing knowledge	<b>Picture cards</b> <b>Handout 1</b>
30 minutes	Introduction to the topic and definition of the term "forest"	Basic understanding of the forest and its functions	<b>Film 1</b> "What is a forest?" <i>dw.com/p/318MP</i> <b>Handout 2</b> <b>Worksheet 2</b>
30 minutes	Presenting the problem: Forests under threat	Understanding of the causes, dynamics and extent of global deforestation	<b>Article 1</b> "Forest SOS" <i>dw.com/p/32Qm2</i> <b>Handout 3</b> <b>Worksheet 3</b>
30 minutes	The importance of the forest as a habitat	Understanding the possible consequences of deforestation	<b>Film 2</b> "Madagascar's lemurs – cute forest dwellers soon losing their home?" <i>dw.com/p/1IclU</i> <b>Handout 4</b> <b>Worksheet 4</b>

## Module II – Individual dimension

### Use of forest and forested areas

Duration	Description of content	Learning objectives	Materials and implementation
	Engaging with different uses of the forest	Awareness of how the global population uses forest services and products	<b>Handout 5</b>
<b>Topic A</b>			
30 minutes	Firewood	Understanding what it means to use wood as a fuel for cooking	<b>Film 3</b> “Deforestation fueled by dirty water” (Kenya) <i>dw.com/p/30nOR</i> <b>Handout 5.1</b> <b>Worksheet 5.1</b>
<b>Topic B</b>			
30 minutes	Palm oil	Awareness of the link between deforestation and consumption of palm oil	<b>Article 2</b> “Palm oil: Too much of a good thing?” <i>dw.com/p/32jIg</i> <b>Handout 5.2</b> <b>Worksheet 5.2</b>
<b>Topic C</b>			
30 minutes	Livestock farming and agriculture	Knowledge of link between forest destruction and meat consumption	<b>Film 4</b> “Protecting Paraguay’s forests from cows and soy farms” <i>dw.com/p/184RL</i> <b>Handout 5.3</b> <b>Worksheet 5.3</b>

## Module III – Structural dimension

### Possibilities and strategies for improved interaction with the forest

Duration	Description of content	Learning objectives	Materials and implementation
	Solutions for sustainable forest use	Introducing ways to better deal with the forest	<b>Handout 6</b>
<b>Topic D</b>			
30 minutes	Energy efficient wood-burning stoves	Engaging with a method for more efficient wood usage	<b>Film 5</b> "Female power in Malawi" <i>dw.com/p/R7B6</i> <b>Handout 6.1</b> <b>Worksheet 6.1</b>
<b>Topic E</b>			
30 minutes	Diversifying farming products	Engaging with alternative ways of farming	<b>Film 6</b> "Putting people before palm oil in Guatemala" <i>dw.com/p/2WhEc</i> <b>Handout 6.2</b> <b>Worksheet 6.2</b>
<b>Topic F</b>			
30 minutes	Living sustainably from the forest	Engaging with smallholdings and sustainable forest use	<b>Film 7</b> "Ethiopia's last wild coffee forests" <i>dw.com/p/16zq8</i> <b>Handout 6.3</b> <b>Worksheet 6.3</b>



## Module IV – Taking action

How can we better protect the forest?

Duration	Description of content	Learning objectives	Materials and implementation
30 minutes	<p>Demonstrating ways to take action</p> <p>There is a choice of two films:</p> <p><b>Film 8</b> Restoring a lagoon with seedlings</p> <p><b>Film 9</b> Reforestation of a logged forest with "seed balls"</p>	Recognizing that individual actions can spark big changes	<p><b>Film 8</b> „Young mangrove defenders fight to save Panama’s wetlands” <i>dw.com/p/2YMby</i></p> <p>or</p> <p><b>Film 9</b> “Planting trees with a slingshot” (Kenya) <i>dw.com/p/2wtDv</i></p> <p><b>Handout 7</b> <b>Worksheet 7.1</b> or <b>Worksheet 7.2</b></p>
30 minutes	Concluding the course unit: Discussion	Recap of what has been learnt and ideas from the group	<b>Handout 8</b>
90 minutes	Experiment: Making seed balls	Planning and carrying out a planting campaign	<b>Handout 9</b> <b>Worksheet 9</b>

## Bonus – Independent learning

Duration	Description of content	Learning objectives	Materials and implementation
30-60 minutes	Accompanying Dora, a young orangutan who grew up in captivity, on her path to a new life in Sumatra’s rainforests	Experiencing the forest on a more personal level	<p><b>Interactive web documentary</b> “Dora – an orangutan returns home” <i>dw.com/orangutans</i></p> <p><b>Handout 10</b></p>



## Introduction to the problem via picture cards

 **Duration: 30 minutes**

### Tasks for educators

Place the **picture cards** on the wall or floor in such a way that a number of people can gather around them.

» **Picture Cards**

Ask the students to choose the card that most interests them.

(Duration: 5 minutes)

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First ask the students to describe:

- A) What strikes them about the picture
- B) Why they chose it
- C) In what way the picture might relate to them

(Duration: 10 minutes)

---

Once this is complete, ask the groups to consider how they would present the respective pictures to everyone else and which aspects of the forest they would most like to emphasize using their picture card.

Each group should take about one minute to present their photo to everyone else.

(Duration: 15 minutes)

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### Tasks for students

Please look at the cards laid out in front of you and choose the one you like most. Stand in front of this picture. In this way, small groups will form in front of each photo. Once you've discussed the picture in your own small group, briefly present your conclusions to everyone else.




If required, you may provide more information about the photos:

1. A holy tree in the Sheka Forest, Ethiopia
2. Intact rainforest in Sumatra, Indonesia
3. Rainforest timber, Colombia
4. Toilet paper made out of pulp (wood fibers boiled until they are soft)
5. Acacia forest in the Serengeti National Park, Tanzania
6. Mangrove seedlings, Thailand
7. Mixed forest, Germany
8. Bamboo containers, Vietnam
9. Baobabs in Madagascar
10. A child draws on paper with crayons
11. Mountain forests cleared for terraced farms, Rwanda
12. Rainforest as orangutan habitat, Indonesia
13. Palm-oil plantations, Malaysia
14. Marsh forest in the Ngiri Reserve, Democratic Republic of Congo
15. Firewood from walnut forests, Kyrgyzstan
16. Planting trees, Kenya
17. Indigenous settlement in the Amazon Rainforest, Peru
18. Sandwich spread made with palm oil
19. Fresh fiber paper made of pulp



## Introduction to the topic and definition of the term “forest”

 **Duration: 30 minutes**

### Tasks for educators

Please use **Film 1** “What is a forest?” which you will find online [dw.com/p/318MP](http://dw.com/p/318MP) or on DVD.

» **Film 1**

If required, you will find instructions on how to play the films on the last page of this learning pack.

Before you show the film, distribute the questionnaire in **Worksheets 2** to the students. Allow the students time to read the questions before playing the film.

» **Worksheet 2**

(Time for introducing the film, distributing worksheets and watching the film: 15 minutes.)

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### Tasks for students

Please fill out the questionnaire while you are watching the film. At the end, you will be given a further 10 minutes to complete it.

After filling out the worksheet, you should take turns presenting your answers to the group and subsequently discussing them. You will have 10 minutes to do so.



## Film questionnaire “What is a forest?”

1. What is the definition of a forest according to the United Nations Food and Agriculture Organisation (FAO)?  
.....  
.....
2. What percentage of the earth’s land surface is covered in forest?  
.....
3. What is the difference between a forest and a plantation?  
.....  
.....
4. Which countries have the most forest cover?  
.....
5. What functions does a forest ecosystem perform?  
.....  
.....  
.....
6. What functions does a forest perform for humans, specifically?  
.....  
.....  
.....
7. What are the most significant threats to the continued existence of forests?  
.....  
.....  
.....
8. What personally do you associate with the forest?  
.....  
.....  
.....  
.....



## Threats to the forest – causes, dynamics and the extent of deforestation worldwide

 **Duration: 30 minutes**

### Tasks for educators

Please use **Article 1** “Forest SOS: Earth’s green lungs disappear.”  
You will find a copy of the article below. It is also available online [dw.com/p/32Qm2](http://dw.com/p/32Qm2)

» **Article 1**

Distribute **Worksheet 3** to the students and allow them to read the questions.

» **Worksheet 3**

Please read out the article or have one of the students do so.

(Duration: 20 minutes)

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Lastly, discuss the answers with the group.

(Duration: 10 Minuten)

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### Tasks for students

Please read the questions on worksheet 3 and answer them as the article is being read to the group. Then present your answers to each other.

## Forest SOS: Earth's green lungs disappear

**Forests, particularly tropical ones, are fundamental to the fight against climate change. They produce oxygen, store carbon and are home to millions of people and animals. Yet they are disappearing at an alarming rate.**



*Giant trees in the Sumatran rainforest*

From a damp year-round lush green canopy, to a canvas of oranges and reds come the fall, to pointed trees with evergreen spindles, the mention of a forest will evoke strikingly different images depending on where in the world you live.

But for all those physical and geographical differences, forests have many things in common.

They help regulate weather patterns, prevent flooding and erosion, and provide food, water and shelter. They also provide oxygen, store CO<sub>2</sub> and, oceans aside, have the greatest biodiversity on the planet.

Still, forest is being lost all over the world. In 2017 29.4 million hectares (72.6 million acres) of tree cover disappeared. That's an area equivalent to 41 million soccer pitches and just slightly below the record set in 2016, according to the latest figures from Global Forest Watch (GFW).

Tropical tree cover loss, the monitoring tool noted, was particularly badly hit in 2017, with a decrease of 15.8 million hectares (39 million acres) — an area half the size of Poland.

The tropical forests of South and Central America, Africa and Asia are home to about 80 percent of the

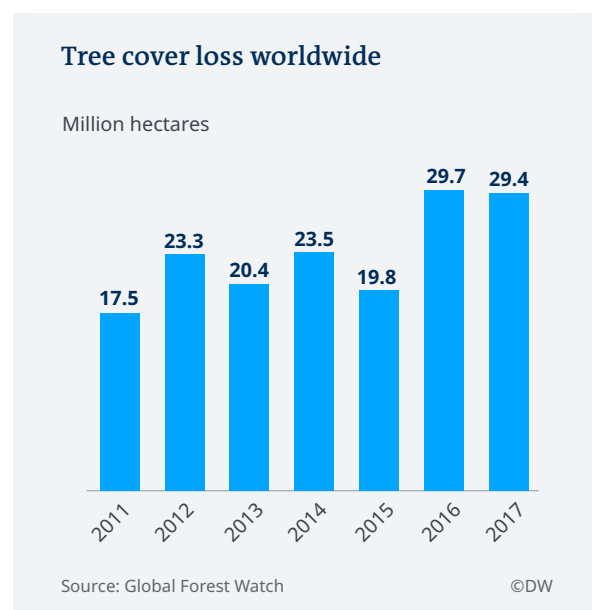
world's documented species, although they cover just 6 percent of the earth's land surface. Yet, the financial gains to be made of their soil and huge hardwood trees have made them one of the planet's most endangered habitats. That's bad news for the fight against climate change, considering they also store massive amounts of carbon.

"Between 12 and 17 percent of all carbon emissions come from the loss of tropical forests," Jake Bicknell, a conservation scientist at the University of Kent in Great Britain, told DW.

"We are talking the horror stories of football fields," he said, referring to calculations based on analysis of forest change, indicating that the equivalent to an average of 50 soccer pitches are disappearing every minute. "This is real," Bicknell added.

### Deforestation ticks upward

The Amazon is the world's largest rainforest. Some two-thirds of tropical woodland is found in Brazil, where it has seen some of the worst deforestation and degradation (whereby the "quality" of the forest worsens, reducing the number of species therein).



In the later part of the 20th century and early 2000s, as demand for meat soared, vast areas were cleared to make way for cattle ranching, which is one of the leading causes of deforestation.

Between 2000 and 2012, deforestation rates in Brazil dropped by 75 percent due to better conservation efforts, monitoring and the commitments by some international companies to stop selling meat or leather from cattle reared on deforested land.



*Huge tracts of forest disappear every minute*

But according to Brazil's National Institute for Space Research, rates have risen steadily since 2012 when the country's government began to weaken environmental regulations and abandoned plans for new conservation areas. In recent years, the rate of forest loss has increased sharply and reached a new high of 5.4 million hectares in 2016, according to GFW.

Dirk Embert, a biologist and South America spokesperson with environmental group, WWF, partly attributes the deteriorating situation to "new laws that facilitate deforestation" brought after a government change in 2016. Environmentalists have accused the country's president Michel Temer of loosening deforestation regulations under pressure from agricultural lobby groups.

He also says clearance of forest for oil palms is a newly emerging problem. Palm oil has been one of the other main factors in driving global deforestation in other parts of the world. "We are getting reports from more and more countries in South America that the first palm oil plantations are planned or already installed," said Embert.

### **Palm oil: A major contributor**

Until recently, palm oil production had largely been confined to Indonesia and Malaysia. Oil palm and wood fiber (mainly used for pulp and paper) plantations are the two largest contributors to forest loss

in both countries, according to studies by GFW and Indonesia-based Center for International Forestry Research (CIFOR).

Between 2001 and 2015, around 1.5 million hectares of primary forest were converted to such plantations in Indonesia. Primary forest is defined as woodland that has not been significantly disturbed by human activities and is considered to be the "best" in terms of biodiversity and carbon storage.

"You can't replace a primary forest," said forest ecologist Markus Eichhorn from the University of Nottingham in the United Kingdom. "You can't just regrow one, unless you're willing to wait a good few centuries to do so."

As demand for palm oil increases, more companies are looking to Congo River Basin. It's an area conservationists are calling the "new frontier." Dubbed the world's second set of lungs because the rainforest there is the second-largest after the Amazon, the basin's woodlands are already facing threats from agriculture, logging and charcoal production, and are disappearing at a rate of 2-3 percent a year. Much of the forest there is primary.



*Palm oil monocultures*

### **No Amazon, no future**

Forests are on the frontline in the defense against climate change. "Losing the Amazon will mean that we have no chance to save our planet," said WWF's Embert, adding that the world's largest remaining rainforest is now dangerously close to 20 percent deforestation that would constitute a "tipping point," from which there would be no return.



If that happens, he says the Amazon could become “so weak that it cannot maintain its ecosystem and may become a savannah.”

The consequences of the damage done so far, are already being felt in Brazil where many parts of the country depend on “flying rivers” as a source of water. The wet jungle channels water vapor through the atmosphere from the Amazon River Basin to cities such as Sao Paulo. The vapor is now evaporating over the dry, hot soil in deforested areas. The upshot is urban water shortage.

### Looking for solutions



*Monarch butterflies overwinter in forests*

Bicknell believes there is no way to stop deforestation for now, and says conservationists should, therefore, focus on reducing impacts, such as species’ expulsion and extinction.

One way to do this is by supporting protected and indigenous territories. In the Amazon, for example, deforestation rates are significantly lower inside such areas, says Embert.

Another is to promote certified sustainable wood products harvested through carefully planned selective logging. This entails felling selected trees in 30 to 40-year cycles and leaving behind a structurally intact forest.

A similar approach could be used for palm oil plantations, says conservation scientist Bicknell. “Either the entire area can be cleared,” he said. “Or we can do it cleverly by leaving patches (of forest) that have the highest conservation values, that are maybe important for rare species and connecting those patches of forest through corridors that animals can move through.”

New technology is also helping in the fight. Conservationists and forest communities are using smartphone apps and mobile phones to record damage and changes in the forest, as well as to report illegal happenings.

The small NGO Rainforest Connection, for instance, repurposes old phones and installs them in forests to detect illegal logging. The microphones in the solar-powered phones pick up the sound of chainsaws, similar to the way an app like Shazam recognizes a song, and sends an alert to the authorities. Thanks to the phone’s GPS tracker, forest rangers know where to look for loggers.

“The scope for policing things on the ground is really improving through these sorts of initiatives,” says Eichhorn. “Plus the higher resolution of earth observation systems through satellite technology is giving us much more eyes in the sky. So we are getting much better at it.”

*1 August 2018, Jennifer Collins  
dw.com/p/32Qm2*



Article questionnaire:

“Forest SOS – Earth’s green lungs disappear”

1. Why is the forest so important for climate protection?

.....  
.....

2. How much forest was cleared in 2017?

.....

3. What percentage of the earth’s land surface is covered in tropical forest and what percentage of known species live in these forests?

.....

4. Why are forests being cut down?

.....  
.....

5. Why did deforestation sink in Brazil between 2000 and 2012, and why has the rate been increasing since 2012?

.....  
.....

6. How do you interpret these developments?

.....  
.....

7. What will happen if the Amazon loses more than 20 percent of its tree cover?

.....  
.....

8. What solutions are presented to protect the forest and what do you think of them?

.....  
.....

9. Please take a look at the infographic showing the loss of tree cover globally: What is your interpretation of the developments A) between 2011 and 2015? B) since 2016?

.....  
.....  
.....



## The importance of the forest as a habitat

**Duration: 30 minutes**

### Tasks for educators

Please use **Film 2** "Madagascar's lemurs – cute forest dwellers soon losing their home?" which you will find online [dw.com/p/1IcIU](http://dw.com/p/1IcIU) or on DVD.

» **Film 2**

If required, you will find instructions on how to play the films on the last page of this learning pack.

Before you show the film, distribute the questionnaire in **Worksheets 4** to the students. Allow the students time to read the questions before playing the film.

» **Worksheet 4**

(Time for introducing the film, distributing worksheets and watching the film: 15 minutes.)

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### Tasks for students

Please fill out the questionnaire while you are watching the film. At the end, you will be given a further 10 minutes to complete it.

After filling out the worksheet, you should take turns to present your answers to the group and subsequently discuss them. You will have 10 minutes to do so.



## Film questionnaire “Madagascar’s lemurs – cute forest dwellers soon losing their home?”

1. Why is the forest being destroyed and what effect is it having on lemurs?

.....  
.....  
.....  
.....

2. Do you empathize with the reasons for the destruction of the lemurs’ habitat? Please give reasons for your answer.

.....  
.....  
.....  
.....

3. What eventually happens to the soil after a forest has been cleared?

.....  
.....  
.....

4. What strategies are the scientists from “Friends of Kirindy” using?

.....  
.....  
.....

5. What do you think of their activities? Please give reasons for your answer.

.....  
.....  
.....  
.....



## Use of the forest and forest area

### Tasks for educators

This module addresses the different uses of the forest. These differ greatly depending on the country and region.

In some countries, wood from the forest is burned for cooking and heating. In other places, vast tracts of forest – usually tropical ones – are cleared to cultivate palm oil, which is used in many food items and cosmetics. Trees are also cut down to make room for cattle ranches and farmland to grow crops such as soy.

It is important to highlight that using forest wood isn't fundamentally bad for the environment or the climate. It becomes problematic when too much forest is destroyed. For many years now, more forest has been cleared than is growing to replace it. Old-growth or primary forests need most protection, as they are particularly important for biodiversity and the climate.

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### Engaging with different uses of the forest

Please think about which forest uses are particularly relevant and interesting for your group. The following topics are available to choose from:

#### Topic A Firewood

**Film 3** "Deforestation fueled by dirty water" (Kenya) shows the link between deforestation and the use of forest wood for cooking.

» **Film 3**

#### Topic B Palm oil

**Article 2** "Palm oil: Too much of a good thing?" explains where palm oil is used, why its production has increased dramatically in the past few years and what effect this has on forests.

» **Article 2**

#### Topic C Livestock and agriculture

**Film 4** "Protecting Paraguay's forests from cows and soy farms" (Paraguay) examines the link between our meat consumption and deforestation.

» **Film 4**



## Topic A: Firewood

 **Duration: 30 Minuten**

### Tasks for educators

Please use **Film 3** "Deforestation fueled by dirty water" which you will find online [dw.com/p/30nOR](http://dw.com/p/30nOR) or on DVD.

» **Film 3**

If required, you will find instructions on how to play the films on the last page of this learning pack.

Before you show the film, distribute the questionnaire in **worksheet 5.1** to the students. Allow students time to read the questions before playing the film.

» **Worksheet 5.1**

(Time for introducing the film, distributing worksheets and watching the film: 15 minutes.)

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### Tasks for students

Please fill out the questionnaire while you are watching the film. At the end, you will be given a further 10 minutes to complete it.

After filling out the worksheet, you should take turns presenting your answers to the group and subsequently discussing them. You will have 10 minutes to do so.



## Film questionnaire

### “Deforestation fueled by dirty water”

1. Why are people drinking water from the river?

.....  
.....  
.....

2. Why does the water have to be boiled?

.....  
.....  
.....

3. How is the water boiled?

.....  
.....  
.....

4. Why is this method of getting clean water a problem for the people and the forest?


.....  
.....  
.....

5. Can you think of any alternatives to purifying water in this way?

.....  
.....  
.....



## Topic B: Palm oil

 **Duration: 30 Minuten**

### Tasks for educators

Please use **Article 2** "Palm oil: Too much of a good thing?"

» **Article 2**

You will find a copy of the article below. It is also available online [dw.com/p/32jIg](http://dw.com/p/32jIg)

Please read out the article or have one of the students do so.

Before you begin reading the article to the group, distribute **Worksheet 5.2** to the students and allow them to read the questions.

» **Worksheet 5.2**

(Duration: 20 minutes)

---

Lastly, discuss the answers with the group.

(Duration: 10 minutes)

---

### Tasks for students

Please read the questions on worksheet 5.2 and answer them as the article is being read out. Then present your answers to each other.



## Palm oil: Too much of a good thing?

**Palm oil can be used in everything from cosmetics to fuel, and is cheap and efficient to produce. But this versatile crop has a dark side – its incredible popularity has caused widespread environmental destruction.**



*The number of industrial palm oil plantations is growing*

Ancient humans were buried with casks of it. In traditional African medicine, it’s used to treat pain. It can be found in about 40 percent of everyday products on supermarket shelves, from donuts to shampoo, chips to ice-cream – and even appears in the gas tank of your car.

Palm oil is nothing if not versatile, and humans have known that for a long time. It’s probably been on the menu since hunter-gatherers realized that the thick clusters of reddish, plum-sized fruits growing in the tropics on African oil palm trees (*Elaeis guineensis*) yield far more rich fat than any other plant.

Archaeological evidence shows we’ve been processing palm oil fruit for at least 5,000 years. Long a regional trade good in Africa, it rose to global prominence in the late 1800s when the British established the first commercial palm plantation in Indonesia.

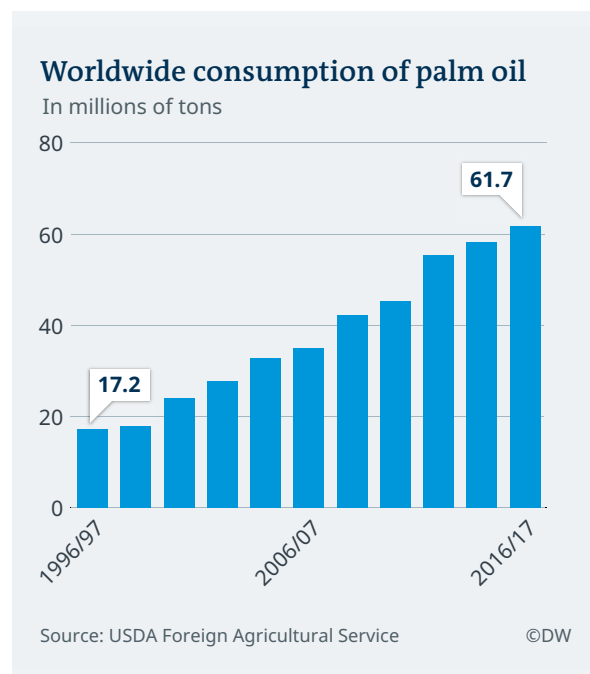
In the intervening years, palm oil production and demand have exploded. Between 1996 and 2017 global consumption more than tripled from just over 17 million to more than 60 million metric tons, according to the US government (see graphic 1). The boom is taking an environmental toll, wiping out tracts of forest to create space for sprawling monocultures.

“It creates immense pressure on land in the regions where they are grown. The pace of deforestation is blistering and it’s really unnecessary,” says William Todts, director of a Belgium-based nonprofit sustainable transportation organization, Transport & Environment.

### A threat to species and the climate?

In many places oil palms are grown unsustainably on clearcut jungle. Globally, plantations now cover about 160,000 square kilometers (62,000 square miles) of tropical landscapes, an area larger than Greece, according to the Rainforest Alliance. By some estimates, 300 soccer fields worth of land are being cleared for the crop every hour.

In Borneo and Sumatra, that’s wiping out habitat areas for rhinos, tigers and orangutans and driving those species toward extinction. One recent study found that more than 100,000 Bornean orangutans have been killed since 2009 – in part by hunters, but also by logging for paper mills and palm oil plantations.



Graphic 1

Palm oil production is the leading driver of tropical deforestation, which accounts for 18 percent of all global human-caused greenhouse gas emissions. Clearing Indonesian forests is a particular problem,



Orangutans are threatened with extinction

because they store more carbon per hectare than the Brazilian Amazon thanks to their “carbon-rich” soils, according to US-based Union of Concerned Scientists.

Land clearing for palm oil was also linked with giant fires in Indonesia in 2015 that became one of the world’s biggest climate disasters in terms of greenhouse gas pollution. The fires released more heat-trapping gases than all of Germany’s annual emissions from fossil fuels.

Rod Taylor, director of the World Resources Institute forest program says Indonesia has been trying to prevent a repeat of that situation through national policies to promote sustainable palm oil production.

“There’s a large push in Indonesia to avoid the peat soils, and to re-wet ones that were drained to restore their ability to capture carbon,” Taylor tells DW. “The challenge is how far can you wind back the clock...to find some kind of balance between landscape and production.”

Indonesia and Malaysia account for over 80 percent of global production (*see graphic 2*). But as demand for palm oil grows, the frontiers are shifting and companies are increasingly moving into West African countries like the Democratic Republic of Congo. The Amazon isn’t immune either, according to Dirk Embert, a biologist and South America spokesperson with environmental group, WWF.

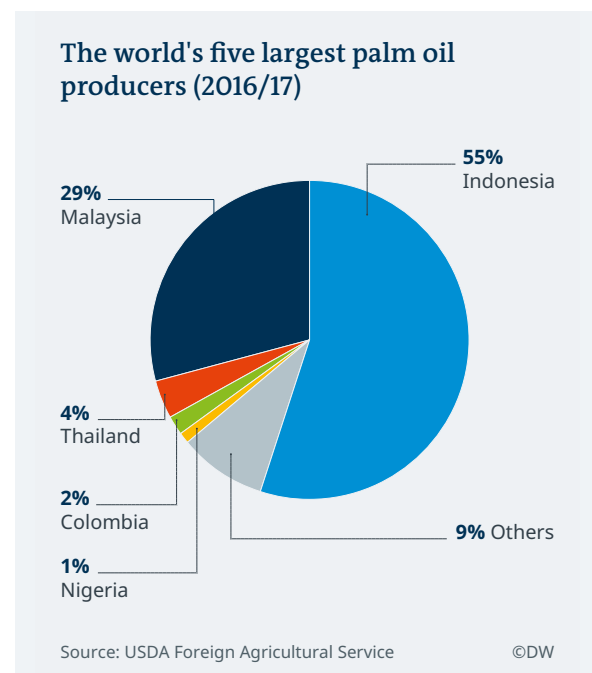
“We are having reports from more and more countries that the first palm oil plantations are already installed and if you see other tropical forests, that has been the main cause of total deforestation,” Embert told DW.

### Why is palm oil so popular?

Oil palms are valuable because they are the most efficient oil-producing crop in the world. Producing a ton of palm oil requires significantly less space than producing the equivalent amount in soybean, sunflower or rapeseed (*see graphic 3*).

Its production contributes to gross domestic product in South Asia, Africa and increasingly South America, and fills a huge demand for cheap plant oil for cooking and fuel in developed and developing countries, including China, India and Europe.

It’s commonly found in lipstick, for example, because it holds color well, and has almost no taste. Manufacturers of shampoo use it to restore oil that’s stripped away by other chemicals in the product. Even bakers use it widely because it’s solid at room temperature, inexpensive and easy to bake with.



Graphic 2

### Toward sustainability?

As palm oil can be an economically beneficial and sustainable product, nobody wants to ban it completely. The long-term goal is to lessen its environmental impact, says Frans Claassen, chair of the trade group European Palm Oil Alliance.

“Global sustainability means we do not want to have any more deforestation of land. The question is how to do that as palm oil production increases,” said Claassen. More productivity on existing plantations is one answer, as is accountability and transparency in the entire supply chain, he added.

Industry-wide standards for “sustainably-produced” palm oil do exist. The Roundtable on Sustainable Palm Oil (RSPO), for instance, has established perhaps the most widely-used palm oil certification scheme for producers, processors and consumer-goods manufacturers. Only about one-fifth of the palm oil produced globally is certified by the RSPO. And the certification leaves loopholes by only protecting old-growth forests, leaving others vulnerable, according to watchdog groups like the UCSUSA.

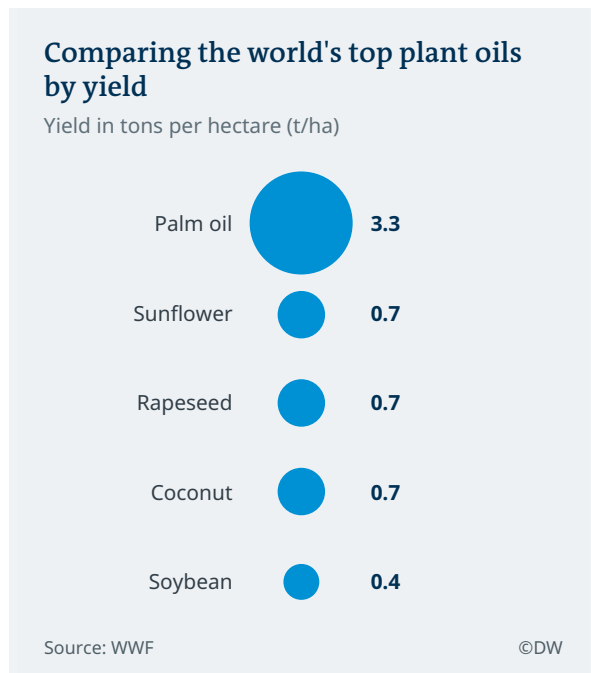


*Palm oil can be sustainable: Smallholders in Sierra Leone cultivating oil palms*

Taylor, who worked on sustainable forestry issues in Indonesia for 12 years, says the RSPO is a serious attempt to distinguish the bad practices from the good ones. And there are a lot of good tools out there to help consumers do that, including a recently launched smartphone app that scans barcodes on products to help identify sustainably sourced palm oil.

“I’m definitely in the camp that thinks boycotts ‘don’t help’. Trying to reward good practice is the better way. The best option for a consumer is to be part of the solution,” he says.

*6 August 2018, Bob Berwyn  
dw.com/p/32jlg*



Graphic 3



## Article questionnaire “Palm oil: Too much of a good thing?”

1. What is palm oil used for and what products contain palm oil?

.....  
.....  
.....

2. What is the problem regarding the amount of palm oil produced?

.....  
.....  
.....

3. How large is the global area currently covered by palm oil plantations? Which countries have the largest palm oil plantations?

.....  
.....

4. What are the consequences of these cultivation practices?

.....  
.....  
.....

5. Why is palm oil so popular?

.....  
.....  
.....  
.....

6. What alternatives exist? How should we deal with the current challenges posed by palm oil cultivation? What is your opinion?

.....  
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**Graphics questionnaire**

7. Please take a look at *graphic 1* showing global palm oil consumption: How much has consumption increased in the time period shown? What are the possible consequences for forests?

.....  
.....  
.....

8. Please look at *graphic 3* showing the yields of the world's most important plant oils: Why is palm oil so popular?

.....  
.....  
.....

9. What do you notice when you look at *graphic 2* showing the world's five largest palm oil producers?

.....  
.....  
.....  
.....



## Topic C: Livestock farming and agriculture

 **Duration: 30 Minuten**

### Tasks for educators

Please use **Film 4** "Protecting Paraguay's forests from cows and soya farms" which you will find online [dw.com/p/184RL](http://dw.com/p/184RL) or on DVD.

» **Film 4**

If required, you will find instructions on how to play the films on the last page of this learning pack.

Before you show the film, distribute the questionnaire in **Worksheets 5.3** to the students. Allow the students time to read the questions before playing the film.

» **Worksheet 5.3**

(Time for introducing the film, distributing worksheets and watching the film: 15 minutes.)

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### Tasks for students

Please fill out the questionnaire while you are watching the film. At the end, you will be given a further 10 minutes to complete it.

After filling out the worksheet, you should take turns presenting your answers to the group and subsequently discussing them. You will have 10 minutes to do so.



## Film questionnaire

### “Protecting Paraguay’s forests from cows and soya farms”

1. How much forest disappears in Paraguay every day?  
.....  
.....
2. What are the reasons behind forest loss? What arguments does the representative from the Rural Association of Paraguay make?  
.....  
.....  
.....
3. What effects can be seen in the east of the country? What is being farmed here?  
.....  
.....
4. What strategies are being used by Alberto Yanosky and his NGO Guyra Paraguay?  
.....  
.....  
.....
5. What do you think of these strategies?  
.....  
.....  
.....
6. How does Eusebio Chaparro from the Mbyó community live from the forest and what is the difference between this and the livestock sector?  
.....  
.....  
.....  
.....
7. Why are the Mbyó teaming up with the NGO and what do you think of the move? Please give reasons for your answer.  
.....  
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.....  
.....

## Possibilities and strategies for improved interaction with the forest

### Tasks for educators

This module addresses strategies that serve both the basic needs of people as well as the protection of the forest.

Students will learn about different ways of using forests sustainably so they can be conserved for future generations.

Please consider which strategies and solutions are particularly interesting and relevant for your group. The following topics are available to choose from:

#### Topic D Efficient wood stoves

**Film 5** “Female power in Malawi” introduces an energy-efficient stove as alternative, locally produced technology for more efficient use of wood. This lesson can be combined with *Module II Topic A “Firewood.”*

» **Film 5**

#### Topic E Diversifying farming products

**Film 6** “Putting people before palm oil in Guatemala” shows sensible alternatives to monocultures that protect the forest and enable people to be resilient in the face of climate change.

» **Film 6**

#### Topic F Eco-friendly use of the forest as a source of income

**Film 7** „Ethiopia’s last wild coffee forests” shows how communities in Ethiopia are earning a living from the forest without destroying it.

» **Film 7**





## Topic D: Efficient woodburning stoves

**Duration: 30 Minuten**

### Tasks for educators

Please use **Film 5** "Female power in Malawi" which you will find online [dw.com/p/R7B6](http://dw.com/p/R7B6) or on DVD.

» **Film 5**

If required, you will find instructions on how to play the films on the last page of this learning pack.

Before you show the film, distribute the questionnaire in **Worksheet 6.1** to the students. Allow the students time to read the questions before playing the film.

» **Worksheet 6.1**

(Time for introducing the film, distributing worksheets and watching the film: 15 minutes.)

---

### Tasks for students

Please fill out the questionnaire while you are watching the film. At the end, you will be given a further 10 minutes to complete it.

After filling out the worksheet, you should take turns presenting your answers to the group and subsequently discussing them. You will have 10 minutes to do so.



## Film questionnaire „Female power in Malawi“

1. What does Mpandasoni from Malawi use to cook her food?  
.....  
.....
2. What are the advantages according to Ms Mpandasoni?  
.....  
.....
3. What is the most important source of energy in Malawi and what effect does this have on the forest?  
.....  
.....  
.....
4. What problems do traditional cooking methods pose for people and nature?  
.....  
.....  
.....
5. What is Chitetezo Stove Project's strategy?  
.....  
.....  
.....
6. How are the improved stoves produced and who is making them?  
.....  
.....  
.....
7. What are the advantages of these stoves and the method of producing them?  
.....  
.....  
.....
8. Do you know similar examples from your region? Could the example in the film be applied where you live?  
.....  
.....  
.....



## Topic E: Diversifying farming products

**Duration: 30 Minuten**

### Tasks for educators

Please use **Film 6** "Putting people before palm oil in Guatemala" which you will find online [dw.com/p/2WhEc](http://dw.com/p/2WhEc) or on DVD.

» **Film 6**

If required, you will find instructions on how to play the films on the last page of this learning pack.

Before you show the film, distribute the questionnaire in **Worksheet 6.2** to the students. Allow the students time to read the questions before playing the film.

» **Worksheet 6.2**

(Time for introducing the film, distributing worksheets and watching the film: 15 minutes.)

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### Tasks for students

Please fill out the questionnaire while you are watching the film. At the end, you will be given a further 10 minutes to complete it.

After filling out the worksheet, you should take turns presenting your answers to the group and subsequently discussing them. You will have 10 minutes to do so.



## Film questionnaire

### “Putting people before palm oil in Guatemala”

1. What did the Jimenez family previously farm and why was that problematic?

.....  
.....  
.....

2. What has changed since then?

.....  
.....  
.....

3. What strategies were used by Heidi Garcia from conservation organization “Defensores de la Naturaleza?”

.....  
.....  
.....

4. What’s behind the success of the new farming strategies?

.....  
.....  
.....

5. How does the new system – known as agroforestry – protect the rainforest?

.....  
.....  
.....

6. How does the system help people?

.....  
.....  
.....

7. What conclusion does the farmer Jimenez draw from his new approach to farming and what is your opinion of it?

.....



## Topic F: Living sustainably from the forest

**Duration: 30 Minuten**

### Tasks for educators

Please use **Film 7** "Ethiopia's last wild coffee forests" which you will find online [dw.com/p/16zq8](http://dw.com/p/16zq8) or on DVD.

» **Film 7**

If required, you will find instructions on how to play the films on the last page of this learning pack.

Before you show the film, distribute the questionnaire in **Worksheet 6.3** to the students. Allow the students time to read the questions before playing the film.

» **Worksheet 6.3**

(Time for introducing the film, distributing worksheets and watching the film: 15 minutes.)

---

### Tasks for students

Please fill out the questionnaire while you are watching the film. At the end, you will be given a further 10 minutes to complete it.

After filling out the worksheet, you should take turns presenting your answers to the group and subsequently discussing them. You will have 10 minutes to do so.



## Film questionnaire “Ethiopia’s last wild coffee forests”

1. What statements does coffee grower Aregash Ago Ambo from Ethiopia make about the importance of the forest?

.....  
.....  
.....

2. Project coordinator of the Kafa Biosphere Reserve explains the forest’s functions. What are those functions?

.....  
.....  
.....

3. How many tons of CO2 does this protected cloud forest store?

.....

4. Why is the forest in Ethiopia under pressure and what are the consequences of deforestation?

.....  
.....  
.....

5. What roles do “buffer zones” and “core zones” play in the protected forest?

.....  
.....  
.....

6. What changes in the climate has Aregash Ago Ambo observed and why is she worried?

.....  
.....  
.....

7. What concrete measures has the conservation project implemented?

.....  
.....  
.....



## How can we better protect the forest?

**Duration: 30 minutes**

This module aims to encourage young people to take action to help protect the forest. The following films show two concrete examples of ways they can do something for the forest and reforestation.

**Please note:** Handout 9 accompanies film 9 and provides instructions on how to make your own seed balls.

» **Handout 9**

---

### Tasks for educators

Please choose one of the following films:

- **Film 8** “Young mangrove defenders fight to save Panama’s wetlands” which you will find online [dw.com/p/2YMby](http://dw.com/p/2YMby) or on DVD.

» **Film 8**

- **Film 9** “Kenya: Planting trees with a slingshot” which you will find online [dw.com/p/2wt-Dv](http://dw.com/p/2wt-Dv) or on DVD.

» **Film 9**

If required, you will find instructions on how to play the films on the last page of this learning pack.

Before you show the film, distribute the questionnaire in **Worksheet 7.1** or **7.2** to the students. Allow the students time to read the questions before playing the film.

» **Worksheets 7.1 or 7.2**

(Duration: 15 minutes)

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### Tasks for students

Please fill out the questionnaire while you are watching the film. At the end, you will be given a further 10 minutes to complete it.

After filling out the worksheet, you should take turns presenting your answers to the group and subsequently discussing them. You will have 10 minutes to do so.



## Film questionnaire

### “Young mangrove defenders fight to save Panama’s wetlands”

1. How much of Panama’s mangrove forest area has disappeared?  
.....  
.....
2. In which project is Silvia Mariano participating and what is the aim of the project?  
.....  
.....
3. What exactly are the young mangrove defenders doing?  
.....  
.....
4. What important functions do mangroves have when it comes to climate protection?  
.....  
.....
5. Why are mangroves being cut down?  
.....  
.....
6. What line of argument does Harrys Tejeira from “Grupo de Cascareros de San Lorenzo” use and what do you think of it?  
.....  
.....
7. What is the bark of the mangrove used for and why is it so important in the region?  
.....  
.....  
.....
8. Why is Silvia planting mangroves? What does she say exactly?  
.....  
.....
9. Do you find the example inspiring? Please explain your answer in your own words: If your answer is no, why not? If the answer is yes, why?  
.....  
.....





## Film questionnaire

### “Kenya: Planting trees with a slingshot”

1. Why do the Kenyan school kids find this unique way of planting trees so much fun?

.....  
.....

2. Why is forest being lost in Kenya?

.....  
.....  
.....

3. What does farmer Samuel Kariuki say about the matter?

.....  
.....  
.....

4. Why did Elsen Karstad set up “Seedballs?”

.....  
.....  
.....

5. How do the seed balls work and why is charcoal dust used?

.....  
.....  
.....

6. What do you think of the idea? Please give reasons for your answer.

.....  
.....  
.....  
.....  
.....



### Concluding the lesson

 **Duration: 30 minutes**

Discussing what has been learned and collecting ideas

#### Tasks for educators

We suggest concluding the lessons with a **discussion** of what the students have learned and how they might implement their own ideas.

A **“fishbowl” discussion** is usually recommended for larger groups:

The group should place seats in an inner circle and outer circle to form a kind of arena. The inner circle should have 4-6 chairs and the outer circle should be reserved for the remainder of the group. The students in the inner circle should start the discussion.

A moderator poses the initial questions:

- What aspects of the learning pack have stuck in your mind?
- What aspects were new for you?
- What conclusions have you drawn from the experience?
- What could you do to protect the forest?

After answering the questions, some students in the inner circle can move to the outer circle, giving those in the outer circle a chance to move in and add to the discussion.

---

During the discussion, it is important that the moderator encourages students to come up with concrete ideas that can actually be implemented afterwards by the students themselves.

Such ideas could include a **trip to the forest**, **reducing paper use** or starting a “peer to peer” forest protection **information campaign** at school. We suggest producing your own **seed balls**. You will find instructions for making them in **Handout 9**.

» **Handout 9**

At the end of the discussion, these ideas should flow into a kind of “agreement” and include concrete deadlines for implementation.



## Experiment: Making seed balls

### Tasks for educators

If you want to start a planting campaign with your groups, we've got a very simple experiment for you that follows the example in **film 9** "Kenya: Planting trees with a slingshot." As it can be difficult to find a spot to plant trees, we've also included instructions for flower and herb seeds.

---

### Tree seeds

#### Choosing seeds

When choosing seeds for the seed ball please ensure they come from an indigenous tree species. Trees not native to your region can have an undesired impact on the environment. They often compete directly with native species and can supplant these species. This can reduce regional biodiversity, for instance, by affecting the number of bees and other insects. Nature conservationists refer to such foreign species as "invasive." In preparation for the experiment, you can collect local tree seeds with the group or get some from a local tree nursery.

#### Choosing a site

Ideally, you should choose a site with good growing conditions. Lawns, areas already densely planted, forests and protected areas are not suitable. If in doubt, ask your local tree nursery, gardening center or environmental protection agency.

Trees need plenty of space, sun and time to grow, so you should choose a site on which the trees can flourish over a long period. Depending on the local climatic conditions, the seeds should be watered regularly at the beginning.

### Flower or herb seeds

#### Choosing seeds

Please have the group choose the seeds of native species that are typical for your region. No invasive species should be used for the seed balls.

#### Choosing a site

There are many brownfield sites that are waiting to be "greened," particularly in cities. The group can bring suggestions from their own surroundings and everyone can then choose which areas are most suitable.

---

To make the seed balls, please use the illustrated instructions in **Worksheet 9**

» **Worksheet 9**



## Experiment: Making seed balls

You will need:

- 1 part native seeds (flower, herb or tree seeds)
- 3 parts clay (ideally dry in powder form)
- 5 parts soil (ideally compost or potting soil)
- Some water
- 1 surface lined with paper (e.g. a wooden board or a baking tray)

### Instructions

1. Choose the seeds that are best suited to the area. They should come from native plants, typical to your region.



2. Add the clay, seeds and earth together. Mix everything well and add a few drops of water. Knead the mixture.

3. Using your hands, make a ball the size of a walnut.



4. Place the seed balls on your tray or board lined with paper (e.g. newspaper). Place them in a warm area to dry out, for instance on a windowsill or in the oven at a low temperature.




**Be careful:** If the seed balls don't dry quickly enough, they may sprout before you've had a chance to plant them

5. Now you can disperse the seed balls to your heart's content – but please only in areas where you have permission and they will have a chance to grow.





Independent work

 **Duration: 30 – 60 Minuten**

**Interactive web documentary** “Dora — an orangutan returns home”

### Tasks for educators

You will need the technical means to play the documentary:

- A PC or laptop with a good internet connection
- A set of headphones for each student

The documentary is available online only under [dw.com/orangutans](http://dw.com/orangutans)

It is a multimedia storytelling format combining videos, texts and pictures and takes a look at an orangutan rescue center run by the Frankfurt Zoological Society (FZS).

The viewer is immersed in the action when the young orangutan Dora completes her first jungle school lessons in climbing, nest-building and finding food.

The documentary vividly shows the importance of an intact primary forest for animals – and what we lose through the deforestation of tropical forest.

### Tasks for students

The interactive web documentary “Dora – an orangutan returns home” allows you to follow Dora, a young orangutan who grew up in captivity, as she sets out on her journey to a new life in Sumatra’s rainforest.

- Go to [dw.com/orangutans](http://dw.com/orangutans)
- The documentary will start automatically once it has loaded
- Simply scroll through to continue reading
- For an overview of the chapters, films and text, move the cursor over the right-hand corner of the screen. Choose “overview” from the sidebar that appears. You will jump directly to the chapter you click on.
- After scrolling through the multimedia documentary, you can share your impressions and what you have learned with the group.



# Instructions for playing films

You have a number of options for playing the films accompanying this learning pack:

### 1. Playing films from DVD

If you have a hard copy of the learning pack, you will find all of the films on an accompanying DVD. You will need a DVD player connected to a TV screen, or a laptop/PC with a DVD drive, as well as software for playing video (media player).

### 2. Playing films from the internet

If you don't have the learning pack DVD, you can stream all of the films directly online. You will find the film links in the handouts, as well as the right column of the module overview (materials and implementation).

Please test your internet connection to ensure the film plays smoothly. If the picture is choppy, then your internet connection likely isn't stable. In this case, we recommend that you download the films beforehand and save them as mp4 files.

### 3. Downloading and playing films as mp4 files

To download the films, follow the links in the handouts and module overview.

You can start the download by clicking "Download: Save MP4 file" in the sidebar to the right of the screen. You can save the film as an mp4 file on your computer or external storage device (e.g. USB key, SD card or external hard drive).

Please plan enough time to download the films. Downloading the material can take between a few seconds and a few hours depending on the speed of your internet.

---

#### **Notice:** Playing the films on a projector

If you connect your DVD player, PC or laptop to a projector to show the films, we recommend using speakers for the sound.

Please also ensure that the room is dark enough and you have a large and smooth enough white wall for the projection.

# Global Ideas

## The multimedia environment magazine

**Around the world, imaginative people and innovative projects are working to protect our climate and biodiversity. Global Ideas tells their stories on TV and online.**

**Global Ideas** is Deutsche Welle's multiple award-winning, multimedia environment magazine supported by the German Environment Ministry's International Climate Initiative. Established in 2009, it showcases TV reports, background articles, web features and more, as a means of informing people all over the world about solution-based initiatives to protect the planet.

**Global Ideas** is more than just television. Think interactive specials such as a visit with Africa's wild animals or explainers that answer complex questions like "does global warming really exist?" The magazine also has an educational element in the form of carefully crafted "learning packs" on key environmental topics. Available free of charge in German, English and Spanish, these learning materials include videos, articles, worksheets and teacher handouts, as well as other educational materials such as posters, picture cards and practical experiments.