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Teaching material on Ecological Footprint



LEARNING UNIT 3 – NUTRITION

AGE GROUP 1 (10 – 13 YEARS)

Version 2 | June 2020



This material is part of a course on Ecological Footprint for students. The course consists of the following modules for two age groups:

	Age group 1 10-13 years	Age group 2 14-18 years
	Calculator	
You are here	General Introduction	General Introduction
	Mini Hectare Workshop	Mini Hectare Workshop
	Nutrition	Nutrition
	Housing	A. Housing core B. Housing additional
	Mobility	Mobility
	Other Consumption	Other Consumption
	Background information	

All the material can be downloaded for free at www.e-co-foot.eu in different languages.

calculator.e-co-foot.eu is an online tool that allows students to log their daily activities and trace the Ecological Footprint of their habits. Group functions for teachers make it suitable for a warm-up or later check-up-session.

elearning.e-co-foot.eu is an e-learning with selected content from the lectures. E-learning can be used for blended learning of this course, as homework or as training and competence check after in-class lectures.

IMPRINT

akaryon GmbH, Austria www.akaryon.eu

Plattform Footprint, Austria www.footprint.at

Colegiul „Vasile Lovinescu” Fălticeni, Romania www.agricolfalticeni.ro

Eötvös Loránd University (ELTE), Hungary savariakemia.elte.hu

Environmental Education Center (K.P.E.) Pertouliou-Trikkeon, Greece <https://blogs.sch.gr/kpepertoul/>

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Agreement Number: 2017-1-AT01-KA201-035037



Co-funded by the
Erasmus+ Programme
of the European Union



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LEARNING UNIT 3

ECOLOGICAL FOOTPRINT OF NUTRITION

TEACHING MATERIAL AGE GROUP 1 (10-13 YEARS)

The aim of the Learning Unit is to understand what the Ecological Footprint measures, how big the Ecological Footprint of different food groups is and what impact our diet has on the climate, the consumption of nature's services and on the people of poorer countries.

Short Overview

Duration of Learning Unit: minimum 45 – 55 minutes

If the Learning Units 1 "General Introduction to the Ecological Footprint" or 2 "Mini-Hectare Game" have already been taken, Chapters 3 and 4 can be omitted ("What does the Ecological Footprint measure?" and "How much productive area do we have available?").

This Unit consists of:

- This PDF document with description of the Unit including sheets for printing at the end
- PowerPoint Presentation: [ecofoot Nutrition Presentation agegroup1.pptx](#)
- Optional Exercise: Calculate your daily Footprint of your nutrition: calculator.e-co-foot.eu

Brief description of the Learning Unit:

In the first exercise "The origin of my bread roll", the students get to know the measuring unit of the Ecological Footprint: area. Behind every kind of food there is a production chain that begins with a field and at each transport and processing step, area is consumed and CO₂ is produced.

Then the different areas we consume in everyday life are described and how much bio-productive area is available on Earth. How little soil there is, the basis of mankind, it is shown and explained by means of a graph how little soil (basis of all vegetation) there is available. The pupils learn, why the Ecological Footprint of animal products is so big and how they can reduce their Ecological Footprint of Nutrition.

Setting: classroom

Overview of content:

estimated duration in minutes

- | | |
|--|----------|
| 1. Introduction | 2 min. |
| 2. The origin of my bread roll | 9 min. |
| 3. optional: What does the Ecological Footprint measure? – repetition Unit 1 | (2 min.) |
| 4. optional: How much productive area do we have available? -repetition Unit 1 | (4 min.) |
| 5. How much soil do we have? | 2 min. |
| 6. Areas for livestock -
what does my hamburger have to do with the rainforest? | 9 min. |
| 7. Estimation game world scale | 9 min. |

8. What can WE do?
9. Food card activity

9 min.
15 min.

Items:

Optional exercise book and pencil, two white A3 sized papers, picture of a bread roll or a real roll, beamer (also possible without beamer), food cards if version with printed food cards is chosen

Connection to subjects: geography, biology, science, environmental sciences, national language, religion, English as a foreign language, mathematics, nutrition and household, project lessons

E-learning: <https://elearning.e-co-foot.eu/>

Sequence:

The spoken text of the teacher is in blue colour. The explanations of what the teacher does are written in black.

1. Introduction



Learning Unit 3:
The Ecological Footprint of Nutrition

Age group 1



Today we will talk about the Ecological Footprint of our food. Who has already heard of the Ecological Footprint? The teacher collects the answers of the students.

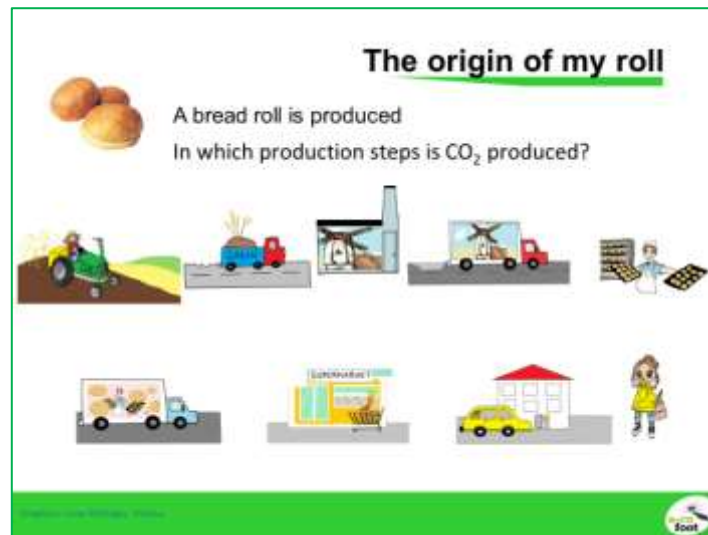
What does the Ecological Footprint tell us? It tells us, how much of Earths' natural resources we use - in the form of area - and area is limited on Earth. We humans need to eat and drink in order to survive. Our food has to grow somewhere, and also the food for the animals, we eat. Where does it grow? ... In a field or an orchard area! So it is an area, necessary for our food. But after the farmer has harvested the grain or vegetables or fruits, it still has to be transported and processed, until we can eat it. For the transport of the food, we need area again – for the streets and gas stations. For the production of our food we need area for factories and businesses.

Think of a bread roll (bun) for example:

2. The origin of my bread roll

Let's find out which kind of area is needed, from the beginning, when a bun is produced, until the moment we can eat it. The teacher starts a conversation with the pupils. As an option pupils can also write into their exercise books "The Ecological Footprint of a bun".

Let us think about the different steps of the production of a bun. Where does it start?... The teacher leads the answers of the kids to the field, where the grain grows.



The grain field is the first area, which is needed for the production of a bun. What could be the next? ... Here you can see the main areas of the production of a bun. The teacher asks and explains them in an open discussion.

At first, we have the field, where the grain is grown. What does the farmer need to cultivate the soil and sow the cereal seeds? A tractor and a plough and a seed drill. When the wheat grows, it is also fertilised so that the wheat grows stronger and bigger and the farmer can harvest more. The farmer can use chemical fertilizers, which are produced in a factory that consumes land and a lot of energy, or he can use organic fertilisers (manure, slurry, etc.), which need less Footprint area. What else does the farmer need?

The teacher goes through the production steps of the bun:

1	field	7	wholesale bakery
2	agricultural machinery that plows, sows and fertilizes	8	transport of bakery products
3	agricultural machinery for harvesting	9	bakery shop
4	truck transport of grain	10	car transport home
5	truck transport of flour	11	eat rolls
6	grain mill		

And with all these production steps machines are used. What does a car or machine use for its operation? ... the pupils answer e.g. „gasoline“....

Exactly, with fuels, such as gasoline or diesel oil. These are burned in the engine to drive the machines. What does this combustion produce?

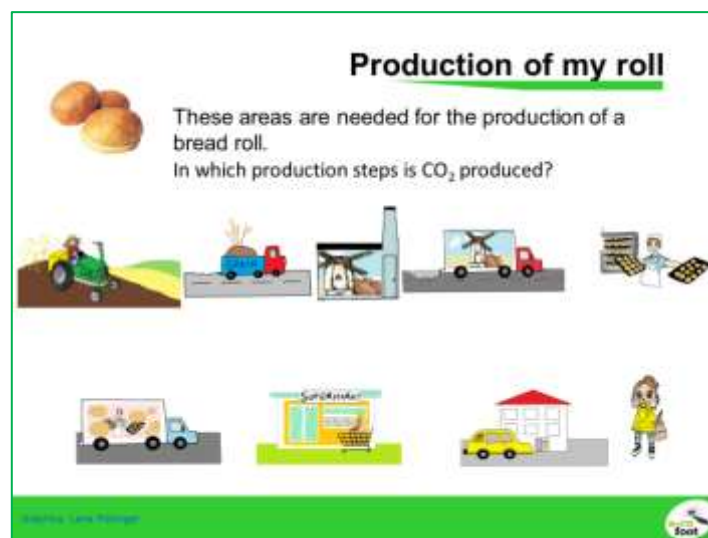
... the pupils answer e.g. "Smoke" exhaust fumes - and they mainly consist of carbon dioxide: CO₂. This is a gas that we can't see or smell. We humans exhale it too. But when it comes out of the tractor's exhaust, it's a waste that we have to bind again, otherwise there will be too much in the atmosphere.

The atmosphere is the layer of air that surrounds Earth, protecting us and providing a climate that is good for life. But if we burn a lot of fuels like gasoline or diesel, then more and more carbon dioxide, which is also called CO₂, gets into the atmosphere and our climate gets warmer and warmer. We do not want this! That's why it's important that we stop blowing out so much CO₂ and that we get it out of the air even more. For example, our trees can absorb CO₂, because they feed on it, so they can take out CO₂ from the air and bind it. The Ecological Footprint calculates the area of forest needed to bind CO₂. During the production of our bun, a lot of CO₂ is emitted and it takes a certain area of forest to bind this CO₂ again. This area is then part of the Ecological Footprint of our bun.

Please think about production steps that produce CO₂.

Optional writing in the exercise book: Please write CO₂ beside each production step where you think CO₂ is produced.

Together with the teacher, the pupils find out which production steps produce CO₂ and she/he shows the CO₂ cloud in the picture in the corresponding production steps. All production steps need CO₂ area until the eating of the bun.



You see now that we not only need the land for the wheat, but much more land to produce bread rolls. If we sum up all these areas we get the Ecological Footprint of the bun -.

(S)he picks up two white sheets of A3 paper and spreads the sheets side by side on the floor. Then (s)he puts the picture of a bun or a real bun in the middle of it. These are the global square meters needed to produce a roll. The Ecological Footprint of a bun is 0.3 global m² – just for one bun!

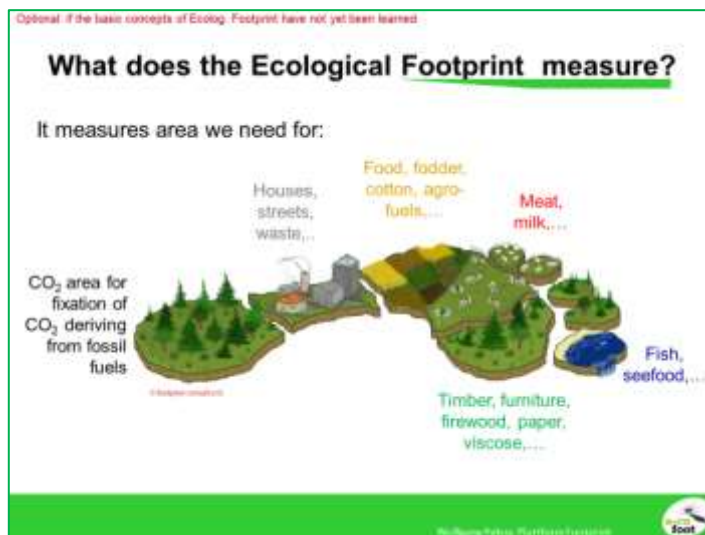
We do not eat only one roll, but many of them and many other things as well. Every single one of us Austrians consumes around 2 global hectares in one year for our food and drink - that's 20,000 global m²! That means, each of us needs about 2 and a half football fields per year for his / her nutrition.

3.

optional: **What does the Ecological Footprint measure?**¹ -
repetition of Unit 1

RPT
of Unit 1

The Ecological Footprint also measures the areas we need for the other things of our life: for paper, furniture or firewood we need forests, for fish and seafood we need lakes, rivers and oceans, farmland and pasture for food, fodder, cotton, meat and milk (e.g. space for cows to graze, ...). We need areas for factories, houses and roads and also for our waste. The last point at the “heel” of the Footprint, the area needed to bind CO₂, is related to climate change.



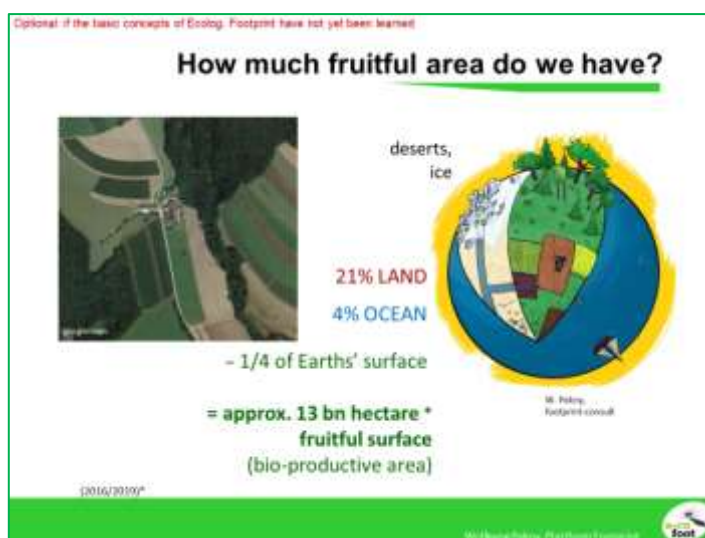
Why is it important how big our Ecological Footprint is? And why is it even called GLOBAL square meters or GLOBAL hectares?

Because there is only a specific area for us humans on our GLOBE that we can use.

4.

optional: **How much productive area do we have?** -
repetition of Unit 1

RPT
of Unit 1



¹ If the Ecological Footprint has not yet been covered in class in previous learning units.

Two thirds of Earth's surface is covered with water (seawater) and one third of Earth's surface is land.

But from this land area we cannot use the land covered with ice and deserts to grow food or wood or cotton because they are not bio-productive. Only a very small proportion of the oceans is bio productive, namely 4%. In total, around a quarter of Earth's surface can be used by us. And with this area, all the people that exist on Earth have to get along. Currently, about 7.5 billion people live on Earth, and this number is constantly increasing. What does not increase is the area available for us to live on.

5. How much soil do we have?

Now let's see how much soil we have. Imagine we scrape together all the soil that exists on Earth. Then it would make a ball of this size.²

The teacher points to the brown ball on the PowerPoint slide.



Who knows what soil is? ... This is the loose, fine-grained material that covers the solid rock below our feet. This little ball is the livelihood of all mankind! Because without soil no plants grow and without plants there is no food.

And how much humus is there? Does anyone know what humus is? This is the dark part of the topsoil, which contains many nutrients and makes the soil fertile. If we formed all the humus that exists into a ball, then this ball would have a diameter of only 18 km and would be so small. The teacher points to the yellow ball on the PowerPoint slide. Humus is reproducing, but much slower than we "degrade" it.

In a forest or in old grassland the humus content is stable, through industrial agriculture humus is degraded. Organic farming uses natural substances and processes and enhances soil fertility and humus building.

It takes at least 100 years for 1 cm of soil to form. And we humans are dealing with the ground as if we had so much of it! In Austria, over 10 hectares of soil area are taken away every day³, which is about 14 football fields! So much productive area has to give way to new roads, parking lots, houses or shopping malls every day and valuable soil layers are destroyed. But soil is precious - without it we cannot survive.

² Calculated by Wolfgang Pekny, inspired by the computer graphics of water and air by physicist Adam Nieman

³ Umweltbundesamt (Environmental Agency Austria): Average of three-year period 2016-2018: 11,8 ha/day

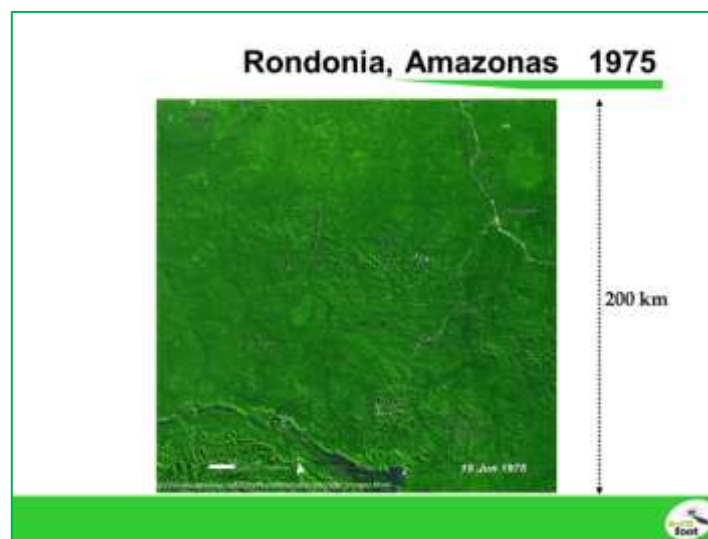
While the number of people on Earth is increasing, the productive areas on Earth don't grow - on the contrary! They are getting smaller and smaller.

If you want to know more about organic farming:

https://ec.europa.eu/info/food-farming-fisheries/farming/organic-farming/organics-glance_en

6. Areas for livestock - what does my hamburger have to do with the rainforest?

Here I have a satellite picture from South America for you. What can we see in this picture? ...



Green rainforest in the Amazon, photographed from above in 1975. This white, thin line, which can be seen on the top right, is a road. The only one! Otherwise there is only rainforest here. And now I'll show you the next picture that shows exactly the same section, but 26 years later:



What is different? The teacher shows the previous picture again, then the new one. What happened in the meantime? The many white lines are roads and cleared forest areas. When we get closer, it looks like this:



Rain forest is burned down to create agricultural land. Where once was lush rainforest...



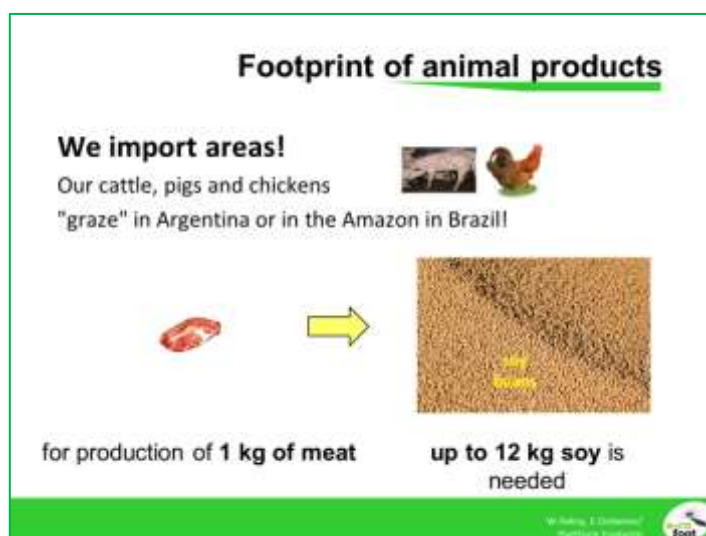
Only soybeans are grown!



Where once there was a huge biodiversity with many different animals, plants and indigenous people most of the time only one single plant is grown: soy! The soybeans serve as fodder for farm animals: for chickens, pigs and cattle.

Why are our farm animals not fed with grain from their own country or from Europe? ... The students answer ... Because we have so many farm animals that we could not feed them from the grain that grows on our continent. In Austria, for example, about 3 million pigs and over 15 million chickens live ⁴ (and 8 million Austrians). We would then have no more grain for our bread. We could therefore say that our farm animals graze in South America!

What was agriculture like before? Where did the farmers in earlier times get the food for their cattle, pigs and chickens? Exactly! From the own meadows and fields, which belonged to their own farm. It used to be that farmers did not have as many animals as they do today. Today, the animals eat the food that is grown in Brazil or Argentina and transported across this vast distance across the Atlantic Ocean (except in traditional farming).



Furthermore, you need about 12 kg of soybeans to produce only 1 kg of meat. ⁵

⁴ Grüner Bericht 2017, bmlfuw.gv.at

⁵ https://www.regenwald-schuetzen.org/fileadmin/user_upload/pdf/Projekt/Weil-wir/Fleisch/weil-wir-es-wert-sind-zahlen-fakten-fleischkonsum.pdf

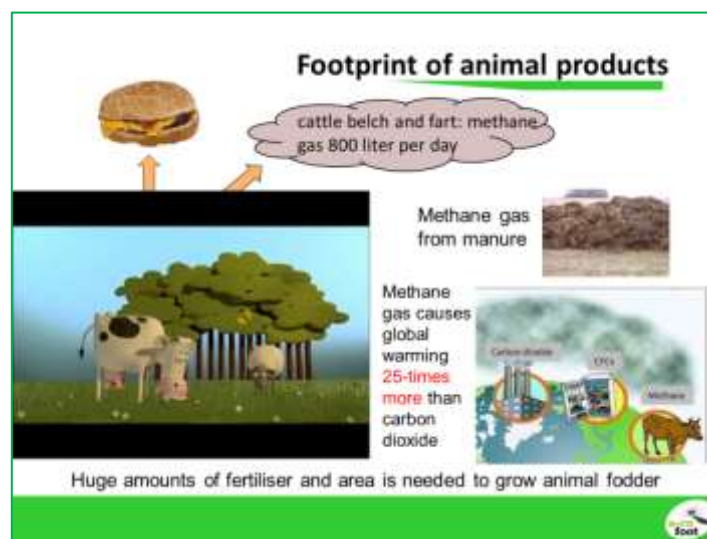
If you want to know more about soy production and its impacts on the environment:

<https://worldinfo.org/2012/01/food-for-thought-soybean-endangers-brazil-amazon-rainforest/>

Why do we have so much more farm animals today than we used to? Because we eat so much meat! Our great-grandparents or grandparents used to eat meat about once a week - Sunday roast on Sunday. Most of us today eat meat or sausage every day.

And we also eat a lot of dairy products: milk, cheese, cream, yogurt, butter or cream cheese are served every day.

Meat and fat dairy products have the BIGGEST Ecological Footprint, with beef having the biggest of the big Footprints. One reason for that is, that the cattle belches and farts (LOL).



A cow produces methane and this gas causes climate warming 20-times more, than carbon dioxide. Now you're probably thinking, what can a little cow burp make out?

But a cow farts and burps 800 liters of methane per day. How many cattle are there in the world, what do you think? ... the children estimate 1.3 billion! (short video 41 sec.:

https://www.youtube.com/watch?v=6iLOb_9DbKQ

Cows produce a significant part of the world's greenhouse gases. The climate-effective gas methane is produced during the digestion process of ruminants (cattle and sheep) and during the storage of manure (solid manure, liquid manure). Also huge amounts of fertilizer is used to grow the animal feed.

Meat and animal products have an enormous Ecological Footprint and huge greenhouse gas emissions - as much as the total global traffic! (about 15 percent of man-made greenhouse gas emissions)⁶

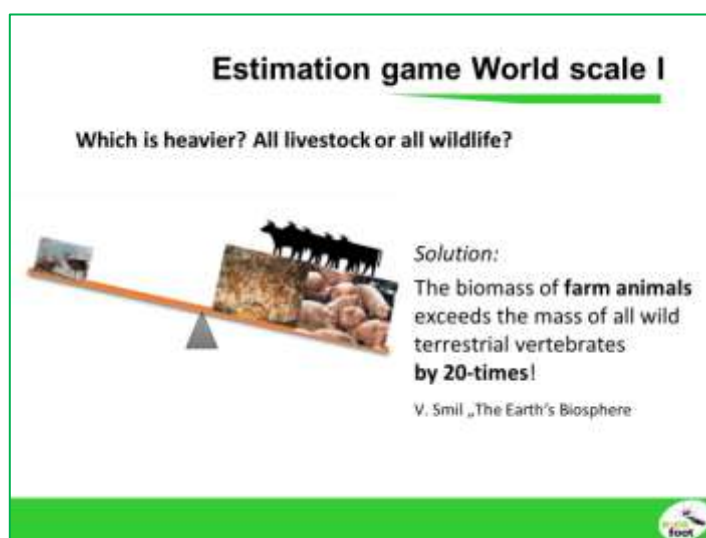
Farm animals are inefficient sources of food. They need a lot of area: from one hectare of land you can either feed one cow for one year or produce for example 30 tons of potatoes in one year.

⁶ Dr. Marco Springmann, Oxford Martin Programme on the Future of Food ,
<https://www.welt.de/kmpkt/article171128188/Das-wuerde-passieren-wenn-wir-alle-sofort-aufhoeren-wuerden-Fleisch-zu-essen.html>, 2017

There are regions and countries in the world, where only grassland exists and no agriculture is possible, because it is too dry or too cold for example e.g. in savannah and steppe regions, in the mountains (e.g. Mongolia, Tibet, alpine farming in the Alps). In these regions cattle is an important livelihood of people. It can transform grass, which can't be eaten by man, to valuable meat, which can be eaten by man.

7. Estimation game world scale

Now let's see how many animals there are in the world at all. We're now playing a guessing game where I'm the world scale and we estimate the weight of the animals in the world. The teacher stands with arms spread out to the side, similar to a balance, with the palms facing upwards, representing the scales.

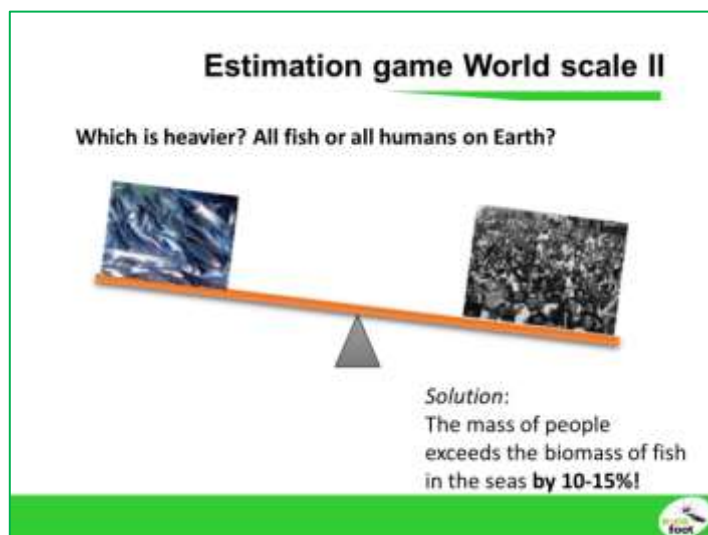


In one pan, I weigh **all livestock** on Earth. Do you know what farm animals are? The pupils list livestock. Yes, these are all animals that we eat and whose milk or wool we use. These are cattle, pigs, chickens, sheep, goats. And in the other pan - the teacher points with his second palm - I weigh all the wild animals on earth that live on land and have a spine: elephants, giraffes, zebras, deer and so on to the mouse and the lizard. What do you think is heavier? All livestock or all wildlife?

1. If you think that livestock are heavier, please stand up. ... some students get up. Those who stand are right!
2. But please keep standing, because now I ask you: how MUCH heavier do you think livestock are, than the wild animals? Anyone who thinks that farm animals are **more than twice as heavy** remain standing, the others sit down. ... individual students sit down. Those who stand are right again!
3. And I ask you further: Who believes that the farm animals are **more than FIVE times as heavy** as the wild animals, remain standing, the others sit down. ... individual students sit down. Those who stand are unfortunately right again!
4. And those who believe that farm animals in the world are **more than TEN times as heavy** as wild animals continue to stand. ... The teacher waits until the surprised pupils decide. Those who stand are pessimists and are right!
5. I keep asking: who of those who are still standing believe that the farm animals of this world are **TWENTY-times as heavy** remain standing ... **YOU are right!** The students are usually surprised. It is hard to believe, but the mass of our farm animals is twenty times as big as the mass of all wild

animals! Only 5% of all animals that live on land are wild animals (only the animals with a spine were included, no snails, worms, insects, etc.).

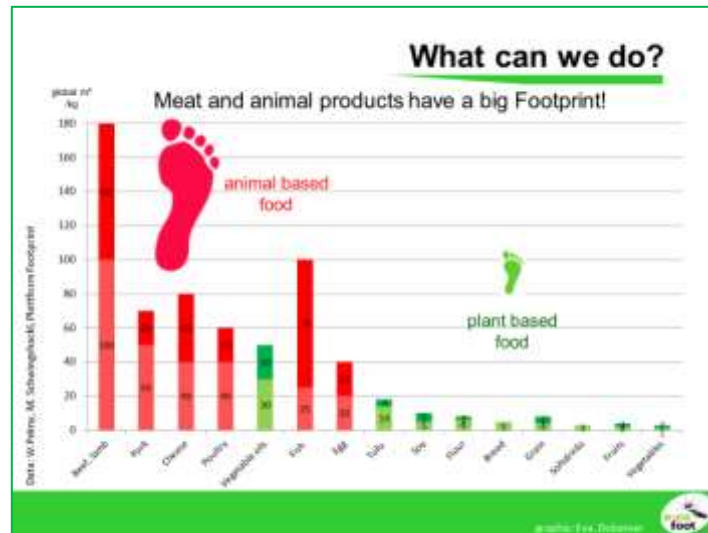
The biomass of farm animals exceeds the mass of all wild terrestrial vertebrates twentyfold.
The world has become a huge farm, an oversized farm and a very poorly managed farm!



What about the animals in the water, namely the **fish in the sea**? How much fish is there? I'm the world scale again - the teacher spreads his/her arms on both sides like a scale with two weighing pans. In one balance I weigh all the fish in all the oceans of Earth and in the other I weigh all humans on Earth. Which is heavier? All fish or all humans on Earth? Those who believe that people are heavier stand up students think - some get up. Those who stood up are right! The mass of humans exceeds the mass of all fish in the seas by 10-15%.

Was it always like that? No, probably some pupils answer. No, of course not. For centuries and millennia there were more and more fish in the sea than humans. This changed in the middle of the nineties. What do you think, why?

The students give reasons. One reason is overfishing by industrial fishing. If you have one kilogram of fish on your plates, in addition up to 6 kg of other sea animals have died. This is called bycatch. These animals are caught together with the fish and thrown back dead into the sea. In sustainable fishing, you only try to catch the fish you really need. There is this MSC seal (the teacher points to the blue symbol) found on the fish packaging in the supermarket. If you keep attention to buying fish with this seal, you have probably saved some sea creatures, that didn't end up as by-catch.



The reason, why there are 2 columns for each food (Beef = 100 and 180 g_m²/kg) is, that the Footprint depends on the type of animal husbandry and on the way the food is produced. E.g. fish, which is fed with other fish (salmon) has a higher Footprint, than fish, which is fed with plants (pangasius) or fish, which is not fed at all because it is a wild fish (sardine, herring). Bread has a higher water content than flour or grain, this is why the Footprint of bread is smaller.

Worldwide we consume twice as much meat today as 50 years ago.⁷

Austria is a country of meat lovers; in the EU we occupy 3rd place with our meat consumption (behind Luxembourg and Spain). Every year an average of 65 kg of meat is eaten by each individual. That is about five portions of meat per week.⁸

If all people in the world lived like us in Europe, then we would **need THREE planets like the Earth!** Do we still have a planet in reserve somewhere? ... Do you know a planet where there are still bio-productive areas? No, there is no one that could be available in the foreseeable future! Therefore, we humans on Earth have to get along with the area we have.

What can we do?

Reduce Ecological Footprint of nutrition:

- Reduce meat, eggs and milk products (especially fat milk products)**

You don't need meat to become strong

You need proteins that can come from plants



⁷ <https://www.global2000.at/fleischkonsum-Österreich>

⁸ <https://www.global2000.at/fleischkonsum-Österreich>

How can we use less land in our diet and reduce our Ecological Footprint? ...

1. We eat LESS meat and animal products! That is the most important point of today's lesson.

As an adult you can choose a **vegan** diet, which has the greatest effect on your Footprint. A balanced, healthy diet is also possible as a vegan if you are well informed, select the individual components of a meal and put together the entire diet correctly. As a child you should not become a vegan so that you get all the necessary ingredients for your adolescence and stay healthy. The lesson learned should be especially for kids, not to avoid animal products but to reduce them, because eating meat every day is certainly not healthy and bad for the planet.

Many people and men think that you have to eat meat to get muscles, but this is not true. You have to eat proteins to get muscles, but the **proteins** don't have to come from animals. The strongest animals in nature are pure plant eaters, like the elephant for example. Also the strongest man in Germany is vegan⁹ and some competitive athletes.

Vegetarians do not eat meat or fish. However, their Ecological Footprint is only smaller than that of meat eaters if they also reduce cheese, dairy products and eggs.

If you eat meat, you can remember the following rule of thumb: The smaller an animal is, the less Ecological Footprint it has. You can also reduce your Ecological Footprint a little bit by eating poultry instead of beef.



2. We can also downsize our Ecological Footprint, if we choose local and season-compliant food.

- What is local food? If the students can't figure it out for themselves: these are foods that were produced in the region and have a short transport route or come from your own garden.
- What does season-compliant mean? If the students do not come up with it by themselves: If we eat those fruits and vegetables which are just ripe. For example, strawberries in May. Or grapes in September, October. We also call them seasonal fruits and vegetables. When we eat strawberries in November, they come from far away from a country where it is warm in October or November, or from a heated glasshouse, and therefore they have a particularly large Ecological Footprint. "Eat seasonably now" offers a calendar, where you can look up, which food is seasonable at the moment: <http://eatseasonably.co.uk/what-to-eat-now/calendar/>

⁹ Patrik Baboumian

What else could we do to reduce our Ecological Footprint of nutrition?

- Buy organic food or harvest fruits and vegetables from the garden. It does not have to be your own garden. In parks or on country roads we can often find fruit and nut trees; picking wild herbs from a meadow for the salad.

Organic food is produced without artificial fertilizers, “weed killers” and insecticides (pesticides). It generally has a Footprint that is about 10% smaller (except meat). Organic-certified farms must use natural methods for soil fertilisation, weed prevention and pest control. Antibiotics and growth hormones cannot be used to raise food animals, and there are standards of care which prevent cruelty to livestock. Livestock are able to go outside or roam the fields and eat their natural food – grass for cattle – rather than being force-fed with corn.

- 3. Don't waste food.** In Austria and in the EU almost one third of all food is thrown away. This happens not only at home but also in the supermarket and at the wholesaler.



How could this be avoided?...The pupils bring ideas.

- To withhold consciously on special offers such as "Buy 1 get 1 free!"
- Only buy what we really need
- Write a shopping list at home before shopping
- Food beyond the expiration date is not automatically spoiled, trust your senses!
- If you go to a restaurant and the portions are too big ask them to pack the rest for taking home
- etc.

If we throw away food, not only waste is generated that has to be disposed of, but we also wasted the Ecological Footprint which resulted from cultivation, transportation, processing and storage of the food. Think of our bun at the beginning!

We can collect the vegetable waste produced during cultivation, sale or during our cooking as organic waste and throw it onto a compost heap or into a composter. There, with the help of microorganisms, compost soil is produced which we can work then into the soil. The result is humus, which keeps the soil healthy and fertile and makes our food plants grow well.

If you want to know more: out of “Background Information on the Footprint concept” <https://www.e-co-foot.eu/materials-downloads/>:

Along the production and supply chain of our food, quantities that have been spoiled, unattractive for sale, inadequate etc. or produced too much are disposed of. Even though we usually do not see these quantities, they leave an Ecological Footprint. The better the supply chain is organized, the lower it is, but for some foods the proportion of food thrown away is almost half of our direct influence.

The proportion of food thrown away at home is usually lower and can of course be optimized.



Here you can see a food pyramid. What does this illustration mean? ...the students answer...

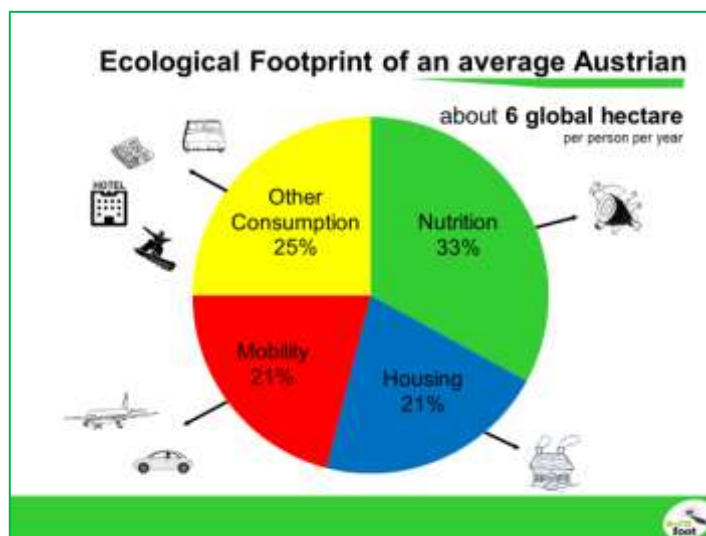
It was developed by health experts and shows what a healthy diet looks like. The foods you should eat often form the broad base of the pyramid: carbohydrates such as cereals, bread, potatoes, rice, noodles, and legumes. The narrower the pyramid becomes towards the top, the less one should eat of the food shown.

This advice for a healthy diet also largely coincides with the advice for a diet with a smaller Footprint. Animal foods are higher up in the pyramid, which means that eating less animal products is good for the environment and your own health. (One exception is sugar, which as a plant-based food has a small Footprint but is still at the top of the food pyramid.)

Every time we eat, the whole world is at stake! Several times a day we have the opportunity to act responsibly by eating food with a small Ecological Footprint.

A small step ALL people take towards a healthier and less thickening diet is more effective than an extreme step of a few.

But we do not only cause our Ecological Footprint through our diet, but also through the housing, the mobility and the other things we buy or consume. The average Ecological Footprint of an Austrian is 6 global hectare and looks like this:



RPT
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The teacher explains the graphic presentation.

Nutrition has the biggest part of the Ecological Footprint of an Austrian, thereof 75% for meat and animal products. The Footprint of housing is mostly caused by heating and electricity. More than 90% of the mobility Footprint comes for from driving and flying. Within the consumption of Goods and services paper, holidays, furniture, appliances and sports equipment have the biggest Footprint.

There are five footprint rules to successfully shrink the Footprint in the other areas as well:

The teacher lists the 5 Footprint rules using the PowerPoint slide:

The most important things YOU can do!

- E**njoy life with a smaller footprint: more friends, family, time, fun.
- A**ct together to create a sustainable world that supports living on a small Footprint!
- R**educe meat and animal products! Prefer seasonal and local products, as much as possible from organic farming.
- T**ravel with a small Footprint – by train, bike and bus. Don't fly! Ride cars less, never alone, with green electricity!
- H**ome green home! with green energy, well insulated, smaller, access to public transport

RPT
of Unit 1

Earth could feed ALL people on Earth much easier if we changed our eating habits in the developed countries and if we reduced our Ecological Footprint according to the 5 Footprint rules. You and your children and all the people on Earth will have a bright future! In this sense – always remember in your future meals what you have learned today!

9. Food card activity

Duration: 15 minutes (can be extended by explaining more foods)

Aim of the game: to learn what animal products are and which foodstuff consists of animal products and to get a feeling for food groups with a big, medium and small Ecological Footprint.

Three sheets with three different sized Footprints (see Annex) are placed on the floor or on the tables in the middle: one sheet is showing a little Footprint, the next a medium sized Footprint and the third sheet is showing a big sized Footprint. The pupils build small groups of two or three and each group gets a certain number of food cards, the teacher had printed out before (see last pages), or the pupils had cut out from food packages before. Each food card shows a certain food or meal. The children should consult each other in the group and then assign the food cards to the correct Footprint sizes and place the cards on the appropriate Footprint.



Then the teacher looks through the result: the cards lying on a false Footprint are picked up and discussed.

Note:

In this activity, only the Ecological Footprints of each single food is compared. Of course, it also depends on how often a food is eaten in a year. The more vegetable food is eaten instead of animal foodstuffs, the smaller the Ecological Footprint of a person.

Food with SMALL Footprint: (< 20 global m²/kg)

Drinks:

Water, tea, coffee, juice, soft drinks, oat milk, almond milk, soy milk, rice milk, cocoa with plant-based milk, (not for this age group: beer, wine)

Cold food:

bread, cereals, muesli, fruits, vegetables, salad, margarine, jam/marmalade, vegetable spreads (with sunflower seeds, legumes (soy, chickpeas, pea, bean) e.g. hummus), fruit cakes, nut cakes, poppy seed strudel, apple pie, pop corn, wheat sticks like salt-, sesame-, rosemary sticks, tortilla chips

Warm food:

Potatoes (cooked, baked, fried), rice, pasta, couscous, polenta, gnocchi, dumplings, bulgur, all kinds of vegetables (fried, stewed, baked), lentil-stew, baked beans, soy-stew, tofu, seitan-steak, vegetable rice, pasta with pesto, spaghetti with tomato sauce

Veggie burger, Falafel Kebab

Food with MEDIUM Footprint: (20 – 50 global m²/kg)

Drinks:

Cow milk, yoghurt or fruit-yoghurt, cocoa (with cow milk)

Cold food:

Low fat cheese, tzatziki, salads with white marinade, cakes with whipped cream, sandwich with egg spread

Warm food:

Eggs, bio-chicken from the back yard, fish, sea food, pizza, risotto with frutti di mare, fish burger, (oil=part of meals)

Food with LARGE Footprint: (> 50 global m²/kg)Drinks:

None?

Cold food:

Butter, cheese, sausage, meat, tiramisu

Warm food:

Chicken, pork, lamb, beef, spaghetti carbonara, spaghetti Bolognese, hamburger, cheeseburger

More Exercises

10. Exercise: Calculate your daily Footprint of your nutrition

<https://calculator.e-co-foot.eu/>

Sources and Bibliography

Footprint data: 2019/2016

Global Footprint Network. <http://www.footprintnetwork.org/en>

Plattform Footprint www.footprint.at

Picture credits can be found at the end of the PowerPoint presentation.

11. PLEASE PRINT THE FOLLOWING 3 or 4 PAGES

Big Ecological Footprint



Animal products like meat, cheese, eggs, fish,...

Medium Ecological Footprint



Vegetable foods mixed with animal products

Small Ecological Footprint



Vegetable foods

Juice	vegetable soup with pasta	baked chicken	Rice	Green salad	Fruit salad
Tea	Broccoli cream soup with sour cream	Fried pork	Potatoes	Tomatoes	Apple pie
Milk	Pork or beef soup	Roast beef	Pasta	red, green, yellow peppers	Chocolate cake (with eggs)
Soy milk	Pizza with tuna, onions, cheese	Roast backyard chicken	Mixed vegetables	Cucumbers	Cherry cookies (with milk)
Oat milk	Spaghetti Bolognese (with meat)	Fried fish	French Fries	Coleslaw	Cereal bar
Margarine	Spaghetti carbonara	Broccoli / cauliflower / green beans casserole with cheese	Dumplings	Bread 1 slice	Curd cheese strudel
Cheese	Vegetable Lasagne	Potato casserole with sour cream and bacon pieces	Risotto with mushroom or spinach	Roll	Fried cheese
Egg	Chicken Burger	Chili con carne	Soy schnitzel	Butter	Falafel
Marmelade	Hamburger	Veggie burger	Fried mushroom / zucchini / cauliflower	Cold meat	Grilled zucchini /mushroom / eggplant