# **Instruction**

1. Prepare your breakfast
2. Try to find out the CO2-Emissions by using the carbon-footprint-calculator
3. Think and research about the water-footprint of the products
4. Think and research about transportation, regionality, saisonality of your food
5. Rate your breakfast (scale 1-10)
6. Exchange some food - to make your breakfast more climate-friendly.
7. Compare with other groups in your class!

This is a calculator: [Climate change food calculator: What's your diet's carbon footprint? - BBC News](https://www.bbc.co.uk/news/science-environment-46459714)

Overview: [Greenhouse gas emissions per kilogram of food product (ourworldindata.org)](https://ourworldindata.org/grapher/ghg-per-kg-poore)

# **Worksheet**

**Read some background about nutrition and summarise it in 3 sentences**

Animal husbandry primarily emits the greenhouse gas methane. Certain animals produce it during digestion: cattle belch and fart it into the atmosphere. It is also released when manure is spread on fields. Once emitted into the atmosphere, methane causes about 25 times more damage to the climate than carbon dioxide.

However, carbon dioxide is degraded much more slowly than methane. While CO2 takes several hundred thousand years to do so, methane is degraded after only about 12.4 years. This means that in the short term, methane is much more harmful to the climate, but CO2 is much longer harmful to the climate than methane. Overall, much more CO2 is emitted, so the impact of CO2 on our climate is greater than that of methane.

Not only the methane emitted by cattle, for example, is harmful to the climate, but also the feed for farm animals such as chickens, pigs and cattle. 80% of the soy grown worldwide comes from the USA, Brazil and Argentina. This means that the transport routes are very long and therefore a lot of CO2 is emitted.

The world's hunger for meat is growing, and since the animals get a lot of soy to eat, soy production has increased many times over in recent years. An unbelievable 385,520 tonnes of soy are grown worldwide every year. In order to grow so much soy, other areas have to give way, for example, many rainforest and savannah areas are cleared. However, the rainforest is a habitat for many animals and could store large amounts of CO2 if it were not cut down. Vegetarians are often criticised for eating soy products. However, the largest amount of soy, 70-75%, is used for animal feed and less than 2% of soy is processed into tofu or soy milk.

# **Deepening**

Look at the problem that animals' digestive processes pose for the climate. You will produce CO2 and alcohol (ethanol) if you give yeast sugar to eat. You can see the gas produced impressively - and imagine what happens within a cattle when they eat, chew, ruminate and finally excrete or "burp" their food. Therefore, beef has a great negative impact on our climate and you should avoid it if you want to be a "climatarian".

**If you want to take time for this experiment, you need:**

A balloon, a plastic bottle with a marker, one packet of dry yeast, 3 lumps of sugar cubes or a teaspoon of loose sugar, Warmth from sunlight, a warm lamp, lukewarm water, must not be too hot!

**Explanation of the experiment - you can read it in advance or later!**

Our baker's yeast consists of real living organisms! But not from plants or animals, but from so-called "yeast fungi". You can use them to bake bread or to make yeast plaits. Yeast is also needed for brewing beer. Yeast fungi feed on sugar. When they digest the sugar, it starts to "ferment" in the bottle. Carbon dioxide and alcohol are produced. The invisible gas carbon dioxide "pushes" the dough up. This is how the yeast dough later becomes nice and fluffy. You can smell the alcohol when you remove the balloon later!

When a cow digests its feed, fermentation also occurs. But because a cow has a much more complicated digestion, not only carbon dioxide is produced, but also another gas called "methane". You may remember, we have already mentioned the so-called methane: Like carbon dioxide, it is a so-called greenhouse gas and significantly increases climate change.

# **Reflection activity**

Publish a statement, hang them in the class-room, make a “gallery-walk” quietly reading the statements of your fellow-students.

**If I ate a breakfast that I liked myself - but that was also good for the climate - I would ...**

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# **Action!**

* Organise a summer festival where everyone eats in a climate-friendly way, so avoid animal products and those that have been transported a long way.
* Even if you like sausage and meat very much, you can try to eat less of it. You can consider meat as something special that is only available on special occasions, for example.
* If you think vegetables don't taste as good as meat or sausage, ask for recipes at home that you can try out together. There are also many delicious vegetable dishes on the internet, such as vegetable lasagne, pumpkin soup, millet casserole and so on😊.
* What you can also look out for: Eat seasonally! But what does that mean? The word seasonal comes from season. It is a period of the year. For example, strawberries grow here from June to September, so you can enjoy strawberries for 4 months in the strawberry season, hmmm ... delicious, you don't need to eat strawberries in winter that have to be flown in from warmer countries, because that emits a lot of CO2 into the air again. There are many seasonal calendars for fruit and vegetables that you can print out and hang in your kitchen, so you can always check what is growing in your region or in Germany at the time of your shopping and then buy it. On the fruit and vegetables themselves, you can sometimes see where the food comes from, but the producers like to hide this information so that we consumers can't easily find it, because that can lead to people deciding not to buy the food.
* Eating mainly regionally is also good! Try to eat food that comes from Germany and its neighbouring countries so that the transport distance is as short as possible, so you can also save CO2 . This does not mean that you should never eat bananas, pineapples, etc. again, but it is best to eat these foods less often in order to protect the climate and our planet.