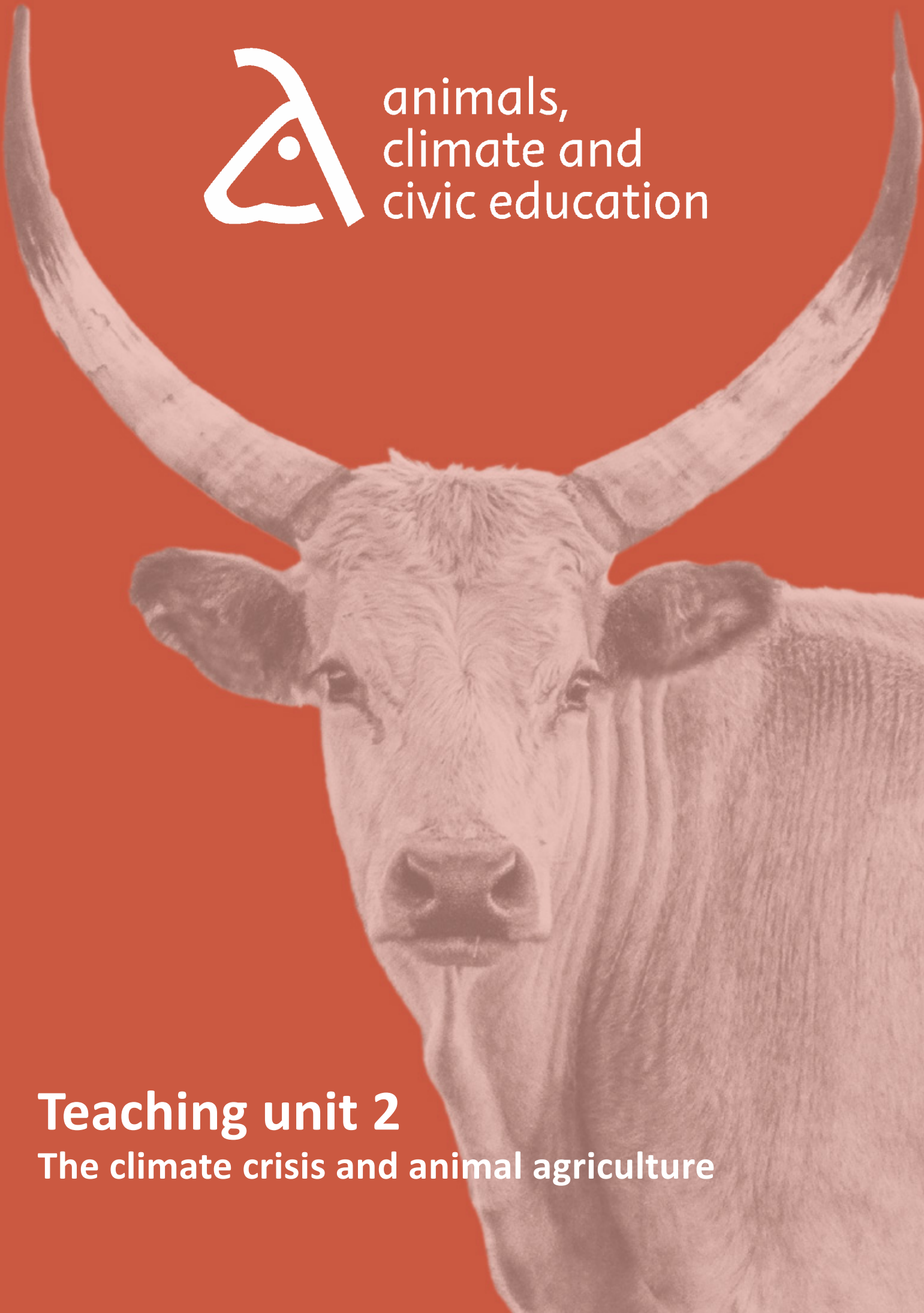
animals,
climate and
civic education



# Teaching unit 2

## The climate crisis and animal agriculture

# Imprint

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## Disclaimer



## Partner organisations of the project

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# 1. Introduction

## 1.1. Duration

90 minutes.

If necessary, the unit could be divided into two separate lessons. In the first lesson, the main points about animal agriculture and the climate crisis would be introduced, worked through and then consolidated. If the lesson is split, it is important to use the worksheet for consolidation so that this content can be revisited in the next lesson. The quiz and ideas for action would then be covered in the second lesson.

## 1.2. Topic, target group and prior knowledge

The unit looks at the link between animals in agriculture and animal products and the climate crisis. Students learn about methane emissions from bovines in agriculture, the amount of land used to produce food for animals, and how slurry and other fertilisers pollute the climate and the environment. They also learn about the global impact of agriculture, such as the destruction of habitats for animals and humans.

- Suitable for students aged 10 - 14
- Basic terms used in the discourse on the climate crisis, such as "climate" as opposed to "weather"
- Existence of different gases to better understand the greenhouse gases introduced here
- To save time in this teaching unit: The explanation of the natural and anthropogenic greenhouse effect is covered before this lesson and only briefly reviewed here.

## 1.3. Subjects

The teaching unit is suitable for use in subjects such as biology, social studies and ethics. However, they can also be used in other subjects such as general studies, politics, humanities and religion, as well as economics and environmental education.

## 1.4. Learning objectives

**Expertise:**

- Recognising the links between the climate crisis and animal agriculture
- Recognising the links between different food systems and the climate crisis to develop a more comprehensive understanding.
- Work in depth on one of the main topics of methane emissions, land use, slurry/fertiliser or energy use to develop a more comprehensive understanding of them

**Presentation skills:**

- The students present the main topic they have worked on in their small group to the class.

**Evaluation/judgement skills:**

- Reflecting on and presenting one's own options for democratic participation and influence.

**Communication skills:**

- Especially in the worksheets on land use and methane emissions (additional tasks): describing and understanding the diagram

## 1.5. Materials

All materials for this learning unit are available at the following link:

**https://tinyurl.com/alice-teaching-unit-2**

- Presentation (introduction, greenhouse effect and solutions to the worksheets)
- Worksheets: 1) methane emissions, 2) land use, 3) energy use and 4) slurry and fertiliser
- Document with solutions to the worksheets
- Worksheet for taking notes during presentations
- Quiz presentation
- Quiz background information (for teachers)
- Flipchart and pens
- Whiteboard, facilitation cards, magnets and pens

## 1.6. Differentiation

In order to meet the different needs and abilities of the students, different levels of difficulty are built into the teaching unit. The worksheets on methane emissions and land use contain additional tasks that can be completed by faster learners. The worksheets on energy use and slurry/fertiliser are available in two versions: * (easier) and ** (more challenging).

## 1.7. Linguistic aspects

Our language is shaped by our view of the world and conditions this view in a complex interaction. Hence it is important to use language consciously. Many established terms used to talk about animals imply a fundamental otherness of animals. Mammals like bovines and pigs for example are talked about as “livestock” rather than as animals. From biological and ethological perspectives, these distinctions in language cannot be justified. They suggest fundamental differences where there are none, and are often meant to be derogatory. Therefore, we recommend that these distinctions be avoided and, if necessary, discussed during lessons.

In the ALICE materials we avoid linguistic differentiations between humans and animals where not appropriate, and use less common terms when the usual terms seem problematic. For example we use the term “fishes” instead of “fish”, to emphasise the fact that fishes are also individuals. Terms

such as “farm animals” and “pets” are written in quotation marks or replaced with other terms such as farmed animals.

Terms such as “honey bees” and “dairy cows” reduce animals to their current use by humans and are avoided. “Dairy cows”, for example, are not bovines that simply “supply milk” to humans, but female bovines that, like other mammals, produce milk for their offspring after birth.

The original German text contains a section on gender conscious language, this has been left out as it is not relevant to the English language.

# 2. Overview of the teaching unit

| Phase and duration | Action | Method | Materials |
|---|---|---|---|
| **Greeting** 2′ | Welcome and overview of the lesson | Whole group discussion | |
| **Introduction** 5′ | Create awareness of the connection between the consumption of animal products and environmental destruction and the climate crisis | Working in pairs and/or whole group discussion | Presentation |
| **Development I** 8′ | Definition and emergence of the climate crisis with the help of an explanation of the natural and man-made/anthropogenic greenhouse effect | Whole group discussion | Presentation |
| **Development II** 15′ | Focus topics in expert groups: Methane emissions, land requirements, energy requirements, liquid manure and fertiliser | Group work | Differentiated worksheets |
| **Consolidation** 20′ | Option 1: Presentation of the results in class | Whole group discussion | Flipchart; if lesson is divided, then worksheet for taking notes |
| | Option 2: Mixed group sharing with at least one expert in each group | Group work | Solutions to the worksheet as a presentation or printout |
| ***Possibility to end the lesson here and*** work on the ***following phases in the next lesson*** | | | |
| **Revision and extending knowledge III** 20′ | Option 1: Quiz to consolidate knowledge and ideas for action | Group work and whole group discussion | Presentation and additional information |
| | Option 2: Quiz to extend knowledge and ideas for action | Group work and whole group | Presentation and additional information |

| | | | |
|---|---|---|---|
| | | discussion | |
| **Ideas for action** 20′ | Individual ideas for action are developed and considered | Working in pairs and/or whole group discussion | Whiteboard, facilitation cards, magnets and pens |

# 3. Detailed description of the teaching unit

## 3.1. Welcome

**Duration: 2 min.**

*Today we are going to look at the link between animal agriculture and the climate crisis. Farmed animals are animals kept by humans to be killed for meat and/or to produce other animal products such as milk or eggs. Some people use the word climate change, others use the word climate crisis. I suggest that we use the word climate crisis because it better expresses the urgency of the problem of global warming and because it is a social crisis. Today you will learn how this is happening and what global warming has to do with animal agriculture.*

## 3.2. Introduction: Climate crisis and food

**Duration: 5 minutes**

The first slide of the on-screen presentation is projected onto the wall. This slide shows a burger and the Earth. In some learning groups you can use Think-Pair-Share and in others you can go straight into a whole group discussion to save time.

*First, look at the picture by yourself. Then describe the picture to the person sitting next to you. Now work in pairs to think about what this picture might mean. Finally, we will talk about it together in the whole group.*

Write the answers on the board and add to them if necessary.

**Expected answer:**

- Our world is being destroyed by meat consumption.

Show the second picture of the burger with thermometer and ask:

*The thermometer is meant to show more clearly how our world is being destroyed by meat consumption. What do you think it is all about?*

**Expected answers:**

- The world is getting warmer when/because we eat meat.
- There is a link between the climate crisis and our diets.
- The climate crisis is global.

- The climate crisis is destroying habitats for animals and humans.
- The climate crisis is causing species extinction.
- Animal products (meat, milk, eggs) produce a lot of greenhouse gases.
- Animal products (meat, milk, eggs) are contributing to the climate crisis.

**Follow-up question:**

*Our topic today is the link between animal agriculture and the climate crisis. How does this picture show this link?*

**Transition:**

*From the picture we have seen that eating meat, for example, has an impact on our world in that animal agriculture leads to the destruction of habitats and contributes to the climate crisis. Now I am going to explain how the climate crisis comes about.*

## 3.3. Development I: Explanation of the climate crisis and the greenhouse effect

**Duration: 8 minutes**

Depending on the region in which the lesson takes place, relevant examples of the effects of the climate crisis can be given to the students. The following spoken text is an example.

*We use the word climate crisis to describe the problems we are currently facing as a result of the rapid increase in global warming. These problems are first and foremost ecological, such as flooding. Another example is forest fires, such as in the south of France,[1] which ignite and spread more quickly because forests are drying out. The number and size of forest fires are constantly increasing in many European countries.[2] Social problems can also arise, for example when there is a shortage of drinking water in summer, as in the south of France[3] or when people have to leave their homes due to flooding, as in the Ahr valley in North Rhine-Westphalia.[4] The Earth's temperature has changed continuously throughout history. However, the speed at which this is happening today is very problematic. Humans are responsible for this global warming. But why? Let's have a look.*

With the help of the diagram and the accompanying explanations, you can see how the greenhouse effect is being exacerbated by humans.

*"**Climate change**" is a rather neutral term, just like "**global warming**" or "**global warming**". Many people use the term **"climate crisis"** to emphasise the threat and urgency and to point out that this is a social crisis.*

*It is a long-term process in which the average global temperature is rising.*

1 dpa (2023a)
2 Effis Statistical Portal (2023)
3 dpa (2023b)
4 Weidinger (2023)

*This happens because cars, planes, factories and animals raised for their meat and other products produce gases. You've probably heard of $CO_2$. Who knows what it stands for? It's the chemical abbreviation for a gas called carbon dioxide. Along with methane and nitrous oxide, carbon dioxide is one of the so-called greenhouse gases. They are so called because they are the basis of the greenhouse effect. This is how it works: The greenhouse gases form a bubble around the Earth. The sun's rays reach the Earth through this bubble. On Earth, some of this light radiation is then reflected back into the atmosphere as heat radiation. The greenhouse gases block part of it so that this heat radiation reaches the earth again and the Earth becomes warmer and warmer. This is a natural process. However, humans are currently also producing a lot of greenhouse gases. This increases the temperature of the atmosphere and the oceans, which has a negative impact on plants, humans and animals. This greenhouse effect is human-made and intensifies the natural greenhouse effect. The natural greenhouse effect works in exactly the same way as just explained, except that there are fewer gases in the atmosphere, which means that global warming is much weaker. Without human-made greenhouse gases, the climate would only change very slowly, much more slowly than at present.*

**Additional information for more advanced learners:**

*If greenhouse gases surround the earth like a bubble, they should also block the rays when they enter, not just when they leave, right? No, because these are different rays with different wavelengths: short-wave light and long-wave heat radiation.[5] Gases such as carbon dioxide, methane and nitrous oxide allow light radiation to pass through, i.e. that which is directed towards the Earth and also that which is reflected by the Earth. Some of the light rays are converted into short-wave heat rays. These are partially blocked by the gases and radiated back to the Earth. This causes global warming.*

## 3.4. Development II: Expert groups on the links between animal agriculture and the climate crisis

**Total duration: 15 minutes**

Students are now divided into at least four expert groups to explore some of the links between animal agriculture and the climate crisis. Depending on the size of the class, up to eight groups can be formed. In this option, two groups work on the same worksheet.

**1. Form groups and explain tasks - 5 minutes**

*You are now in your working groups where you will explore topics of methane emissions from bovines, animal agriculture and land use, slurry / fertiliser or animal agriculture and energy use.*

**2. Group work phase - 10 minutes**

*Students work through their worksheet in their group. They have 10 minutes to do so.*

During this time, you could provide the following support:

5 Madry and Fischer (2014)

- **Group "Methane emissions from bovines":** Help with describing and understanding the diagram. In the additional task, you can help the students to find arguments.
- **Group "Animal agriculture and land use":** Making sure that the students do task 2. correctly and understand how big 1 m² is.
- **Group "Slurry / fertiliser":** Worksheet **: Helping them to draw and place the arrows.
- **Group "Animal agriculture and energy use":** Worksheet **: Making sure it is clear that each arrow means that energy is being used. This also means that greenhouse gases are emitted.

## 3.5. Consolidation: Presentations or mixed group sharing

**Total duration: 20 minutes**

The students now consolidate the findings from their expert group and share them with the other students either through presentations to the whole group (option 1) or through exchange in mixed groups (option 2).

### Option 1: Presentation of the results to the whole group

**1. Discussion of the results in small groups - 7 minutes**

*Now discuss your findings in your small group. Write key points clearly on flipchart paper. Don't write down everything on your worksheet, but select the most important points.*

**2. Presentation to the whole group - 13 minutes**

One person from each group presents the key points using the flipchart paper.

If the quiz is not due until another day, hand out the worksheet for taking notes during the presentations. You decide to what extent it is feasible for the learning group to listen and take notes at the same time and, if necessary, choose a different type of reinforcing the learning.

### Option 2: Mixed group sharing

**1. Discuss results in small groups - 7 minutes**

*Discuss your results in your small group. Then compare your results with the answer sheet I have provided. Get ready to form new groups with one person from each expert group. You will then explain each group's results to each other.*

**2. Mixed group sharing - 13 minutes**

Students from groups 1, 2, 3 and 4 now explain to each other what they have learnt from the worksheets. There must be at least one representative per group.

*Now present your new knowledge to each other. Pay attention - your knowledge of all the key topics will be tested in the quiz.*

The expert groups share their findings so that everyone is aware of the results at the end.

## 3.6. Revision and extending knowledge III: Quiz

**Duration: 20 minutes**

Depending on the learning group, you can either use the questions to consolidate what has been learnt (C) or the questions to extend knowledge (E). The questions on ideas for action (I) are suitable for all groups and should be asked in any case, as they introduce the transition to the next phase of the lesson.

Option 1: The expert groups compete against each other. If you use this option, then for questions that consolidate knowledge, respective groups do not participate in those questions that were covered by their worksheet

Option 2: Students can also compete against each other in random groups. We recommend designating three points in the room as answers 1, 2 and 3 and having all students stand up. When the questions are read out, the groups move to the points in the room to indicate their answer. This allows for physical activation.

Provide additional information after each slide (see quiz instructions).

## 3.7. Ideas for action

**Duration: 20 minutes**

The final activity encourages students to think about possibilities for change and their own capacity for action. It is important to collect ideas at both a structural and individual level. Initially, you should not give possible answers. This is to avoid the effect of social desirability, where students come up with ideas that they think will be seen as positive by the teacher. However, if they cannot think of anything, ask questions that encourage them to think and that relate to what they have just learnt. You may then add to their ideas.

**Three options:**

1. **Whole group:** Collect ideas with the whole. Write answers up on the whiteboard and group them in the following categories: for me/friends/family, at school, in society/politically. Then discuss the different suggestions.
2. **Teams of two:** Collect ideas on cards in teams. Different colours are used for the categories: for me/friends/family, at school, in society/politically. The small groups then pin the cards to the board.
3. **Small groups:** The small groups work in the same way as the teams of two.

For the last two activities, group the cards together and then discuss them.

*We have just learnt a lot about the climate crisis and the link between animal agriculture and the climate crisis. Now we will take some time to discuss what we can do to stop or reduce the climate-damaging effects of animal agriculture. This is our guiding question:*

Write the question on the board and read it out again:

*What can I/we do to stop the climate-damaging effects of animal agriculture?*

The students collect ideas for action using one of the methods outlined above.

**Possible ideas for action:**

for me/friends/family

- Buy or eat less or no animal products
- Educate family and friends about the link between the climate crisis and animals in agriculture
- Learn more

at school

- Set up a climate action group
- Get involved in the student council and campaign for more vegan products in the vending machines and in the school canteen or cafeteria
- Hold presentations on the subject
- Put up posters in the building
- Organise workshops and climate action days / campaign for a climate day

in society/politically

- Join a demonstration for changes to agriculture and/or against the climate crisis
- Meet with politicians
- Inform other people through a public theatre play, social media, panel discussions
- Work in an NGO or political party youth organisation for changes in agriculture
- Go and vote (if you are eligible)
- Sign petitions for a change in agriculture

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