NITROGEN CRISIS

DEBATE

Janneke Koorn

Felipe Perez de Arce Inostroza

Matt Decovsky

Turi Schäffer

Erasmus+

Amsterdam International Community School

natuur en milieu overijssel

Utrecht University

Dutch Nitrogen Crisis lesson plan

Lesson description

In two lessons the students will become familiar with the nitrogen problems that the Netherlands is dealing with. The students are introduced to the nitrogen problems with a video that identifies the current issues in the Netherlands. Subsequently, the students will have to do more research to get a comprehensive impression of the stakeholders in the crisis, and causes, effects, and solutions to nitrogen pollution. In the second lesson, the students place themselves in the shoes of a particular stakeholder and debate about a proposal from the Ministry of Agriculture concerning nitrogen emissions.

Domain: Geography / Civics / Dutch / Environmental systems and society (IB only)

Topic: Nitrogen pollution, solutions, and Dutch policies

Level: HAVO 5, VWO 5-6, IB DP

Time: 2 lessons + 1.5 hours homework

Connects to: Emissions of greenhouse gases, Dutch politics, debating skills.

Connects to exam programmes:

- Geography (aardrijkskunde) (Dutch VWO exam: C2, D2, E1, E2)
- Civics (maatschappijwetenschappen) (Dutch VWO exam: A1, D3-D5, E4, F1)
- Dutch (Nederlands) (Dutch VWO exam: B)

Pre-knowledge:

- Understanding of chemical elements and bonds, especially concerning nitrogen.
- Understanding of the notion of environmental cycles.
- Understanding of how a debate works.

Learning goals

Main goal: Analyze the causes and effects of nitrogen pollution; inquire for solutions to reduce nitrogen emissions and foresee the consequences of those solutions; identify the stakeholders that are involved in the nitrogen crisis in the Netherlands and justify a stakeholder's perspective in a debate.

Specific goals

Students are able to:

- **Identify** the 5 main sources of nitrogen emissions.
- **Explain** the influence of (a surplus of) nitrogen on the environment and society.
- **Explain** why nitrogen emissions need to be reduced.
- **Identify** the stakeholders in the nitrogen crisis in the Netherlands.
- **Identify** existing solutions and think of innovative ways to reduce nitrogen emissions.
- **Criticize** political measures that have been taken to manage nitrogen emissions.
- **Understand** the consequences of (existing and potential) political measures.
- **Justify** the nitrogen crisis from the perspective of an involved stakeholder.
- **Substantiate** a viewpoint from a given stakeholder using their ideals, values and interests.
- Participate fairly in a debate.

Materials

- ECCC E-book and website
- Nitrogen lesson plan
- Nitrogen worksheet
- Nitrogen answer sheet
- Screen to show video
- Classroom in which the tables can be set aside
- Access to internet for the students

Detailed lesson plan

Lesson 1: Theory

1.1 Introduction (20 min)

The teacher introduces the nitrogen crisis in the Netherlands and hands out the worksheet (digitally). The students are asked to fill in any pre-knowledge they have on the topic on their worksheet. After 5 minutes, the students can raise their hand to share their ideas. The teacher writes down relevant terms that are mentioned on the board. Subsequently, the video below is shown to give an impression of the nitrogen issues in the Netherlands. The students are instructed to write down relevant information from the video on the second page of their worksheet.

General introduction video (by CBS, Dutch with automatic English translation)

https://www.youtube.com/watch?v=A4TfzZ_D7X4&ab_channel=CentraalBureauvoordeStatistiek

(The link to this video is can also be found on the worksheet)

After watching the introductory video, students can raise their hand to share the notes that they made, which the teacher writes on the board. In this way a beginning is made on the worksheet. This activity also demonstrates how the worksheet has to be filled in.

1.2 Research (20 min)

The students will have to search for information themselves to complete the worksheet. By filling in the worksheet, the students will get a general overview of the nitrogen crisis. The students can either look for sources themselves or use the sources below:

Text resources (Dutch)

https://www.biomaatschappij.nl/online-dossier/dossier-stikstof/

https://www.aanpakstikstof.nl/

Text sources (English)

https://www.greenfish.eu/the-dutch-nitrogen-crisis/

https://storymaps.arcgis.com/stories/7eb3084097fc4f6593ab269fdde55c94

https://www.arc2020.eu/nitrogen-crisis-dutch-farmers-rage/

Video resources

Consequences of nitrogen pollution

https://www.youtube.com/watch?v=ZvKXHQM6soo&ab_channel=OECD

Animated overview

https://www.youtube.com/watch?v=2L2Bn_Sr82w&ab_channel=WageningenLivestockResearch

General introduction (Dutch with automatic English translations)

https://www.youtube.com/watch?v=UcDM80wf7-Q&ab_channel=UniversiteitvanNederland

Farmers protest (Dutch with automatic English translations)

https://www.youtube.com/watch?v=FM3Ctir9tpY&t=87s&ab_channel=NOSop3

Zondag met Lubach: Farmers protest & Nitrogen explanation (Dutch with UK translation)

https://www.youtube.com/watch?v=7sNBUBlnJo8&ab_channel=vprozondagmetlubach

1.3 Closure (10 min)

At the end of the lesson, 4 groups are made that represent various stakeholders in the nitrogen crisis. The students can choose which stakeholder they want to represent:

- Ministry of Agriculture
- Ministry of the Interior (housing and construction regulations)
- Boeren Burger Beweging (BBB) (farmers)
- Commissie Remkes (scientists)

Optionally, one of the stakeholders mentioned above can be replaced by one of these stakeholders to add complexity to the debate:

- Urgenda (green activists)
- FvD (right-wing party)
- Partij van de Dieren (left-wing party)
- Regular citizens

Each group should consist of 3-4 students. If the class has more than 16 students, it is suggested to split the class in two and have two debates at the same time. Having more than 4 stakeholder teams in de debate is possible, but it may become too chaotic.

The scenario that the students have to prepare for:

> Although scientists have advised to set the goal for nitrogen emissions to 50% reduction by 2030, the Ministry of Agriculture is about to sign a deal with new measures that aim to reduce the nitrogen emissions with 26% by 2030. The deal proposes to buy out farmers near Natura 2000 areas and change the norms for proteins in livestock food. The amount of nitrogen emissions that are reduced by these measures will be used for 70% to create 'nitrogen space' to emit nitrogen elsewhere, and for 30% to restore nature. The 'nitrogen space' is used for construction work so that the country can continue to build houses, infrastructure and wind parks. With this deal, the farmers and scientists are not happy, but the Ministry of Agriculture and the Ministry of the Interior are. Are there alternatives that have been overlooked? Should there be more restrictions in the deal or less restrictions?

Source: https://www.tweedekamer.nl/kamerstukken/plenaire_verslagen/kamer_in_het_kort/kamer-spreekt-over-stikstof-en-natuurherstel

1.4 Homework

The students have to prepare for the debate. This can be done either individually or together with the team. From the stakeholder perspective that they have chosen the students will have to defend their position in the nitrogen crisis. The students need to understand thoroughly what their stance is and why they think that, find arguments for their stance and read up on their opponents to make their own argument stronger. The students are allowed to use their notes during the debate. It is important that they do their research well, otherwise the debate may become too superficial. If necessary, the teacher can provide more guidance and sources for the students.

Guiding questions for preparation (from the perspective of the chosen stakeholder):

- What do I want? What do I believe?
- Why do I want that? Why do I believe that?
- What arguments are in favour of my stance?
- What arguments are against my stance?
- Do my opponents want the same? Why (not)? Do my opponents believe the same?
- How can this crisis be solved?

The students keep the worksheet and fill it in further. The worksheet is brought to the debate and can serve as a resource.

Lesson 2: Debate

2.1 Introduction (15 min)

The students are divided into their stakeholder teams. The groups get 10 minutes to prepare for the debate with their teammates and formulate an opening statement. Every team should appoint at least 1 note-taker and 1 fact-checker. The note-taker writes down the arguments of the other parties to ensure that their own team can formulate an appropriate response. The fact-checker can look up claims by the other parties online in order to ensure that no false claims are made.

2.2 Debate (25 min)

The debate is held. The teacher is the chairperson and leads the debate, giving every team the right to speak one-by-one. The teacher also times the statements of the teams to ensure a good flow of the debate.

1. Every team makes an opening statement (max. 2 minutes)
2. Within their teams, the students summarize and formulate a rebuttal (max. 5 minutes)
3. In the same order as the opening round, every team is allowed to state their rebuttal (max. 2 minutes)
4. Optionally step 2 and 3 are repeated. It is also possible to only let the teams speak who raise their hand.
5. In the last round, the teams form a closing statement (max. 2 minutes)

While managing the debate, the teacher also has to pay attention to the involvement of the students for grading (see rubric). Optionally a student can be appointed as the chairperson of the debate, giving the teacher more space to pay attention to the grading.

If the debate is not taking off, the following scenarios can be added to get the debate going:

- The European Union has read up on the deal and does not agree with the current ambitions. They impose that more measures have to be taken to reduce nitrogen emissions.
- The Ministry of Finance has warned that there is little budget for new measures. Buying out farmers is not an option anymore. They will either have to stop farming for free or other, cheaper measures have to be taken.
- If the new agreement involves exporting less dairy and meat to other countries: The Netherlands has contracts with other countries for the next 10 years, they cannot lower their export more than 15% on such a short notice.

2.3 Closure (10 min)

The chairperson of the debate determines which group had the strongest arguments and ‘won’ the debate. Did the scientists convince the Ministry that the reduction and nature restoration ambitions should be higher? Did the farmers

convince the others that they cannot always be the ones who have to make sacrifices? Can the construction workers provide valid reasons why they do not have to commit to reducing nitrogen?

During the closure it is also possible to reflect on certain statements that the stakeholders made and explain whether they were correct and why they were strong or less strong.

Assessment

The worksheet and debate can be graded with the rubric on the next page. The worksheet is to be handed in at the end of lesson 2 or at the beginning of the following lesson if it is graded.

Rubric Nitrogen Crisis

	Insufficient	Sufficient	Good	Excellent	Grade:
IB equivalent	**1-2**	**3-4**	**5-6**	**7-8**	
Grade equivalent	**1-5**	**6**	**7-8**	**9-10**	
Nitrogen worksheet					
Stakeholders, sources and consequences (20%)	Some stakeholders; less than the 5 main sources; little consequences	Several stakeholders and sources; several consequences	Almost all stakeholders and sources; many different consequences	All stakeholders; primary and secondary sources; long term and short-term consequences	
Solutions, policies and outcomes **(20%)**	Less than 5 solutions; few policies and outcomes	Existing solutions; several policies; several outcomes	Existing and new solutions; most policies listed; outcomes that are related to the policies	Innovative ways to reduce nitrogen emissions; complete overview of policies; inclusion of outcomes in the future	
Debate					
Research (20%)	Incorrect arguments	Arguments are valid but familiar and not convincing	Arguments are well researched and documented	Arguments are well researched; sources are provided; innovative solutions are proposed	
Expression of ideals, values and interest of stakeholder	Ideals, values and interests do not match the stakeholder	Ideals, values and interests of the stakeholder barely shine	Expressing good understanding of ideal, values and interests of the	Expressing deep understanding of ideals, values and interests by 'becoming' the	

(20%)		through	stakeholder	stakeholder	
Involvement in debate **(20%)**	Not involved in the debate	Little arguments and/or not responding appropriately to others	Providing decent arguments; listening and responding to others	Giving strong arguments; listening and responding to others; key player in the team	
				Total:	