



Your CO₂- Calculator

Pedagogical material to
complement the CO₂
Calculator: project ideas and
work suggestions

Foreword – Däin CO₂-Rechner

Today, climate change is no longer questioned by science, but how can global warming be stopped and, if necessary, reversed? It is a complex problem, although the goal is supposedly simple: reducing the CO₂ footprint.

All living things release carbon dioxide into the atmosphere. Plants need it to live. Everyday activities, from surfing the internet to a burger to a cup of coffee, similarly release greenhouse gases. However, these gases can store a lot more heat than the atmosphere normally does. The result is a greenhouse effect where the planet's temperature rises. This increase in the global temperature can lead to ecosystems failing, species dying out, and an increase in extreme weather events in the form of storms, floods and droughts.

However, the less CO₂ and other greenhouse gases that are released into the atmosphere, the easier it will be for the climate to stabilise itself. Thus it is possible to aspire to CO₂ neutrality and to avert climate change.

The stimuli and ideas for project work in lessons presented below are intended to enable learners to inform themselves about this subject, to research facts and to form an opinion about the extent to which they are affected and which actions are appropriate, in their opinion.

The booklet is intended as educational support material for the online tool.

The calculator was developed by the klimAktiv organisation and adapted to the Luxembourgish context in collaboration with the Nohaltegkeetsrot (High Council for Sustainable Development). Calculating a personal CO₂ footprint is based on questions which are answered in the following categories: lifestyle, travel, living and electricity. There are exercises in the booklet for each of the categories, which can be used to gain a deeper understanding of the subjects.

Däin CO₂-Rechner:



I. Mobility

I.1. My mobility - My footprint

Discussion and survey

Phase 1: The teacher discusses the following, or similar, questions with the students. It is also possible to display photographs or pictures in advance, as stimuli to encourage students to speak. The results are recorded on the board, as keywords.

- How do you travel to school, or to the cinema?
- How do you travel when visiting your friends?
- How do you travel when you go on holiday?

Phase 2: Based on the keywords, a survey is prepared together (e.g. using Microsoft Forms, Doodle, SurveyMonkey or similar). Small groups can devise 3–4 questions each. However, clarify in advance what kind of questions should be asked (open questions, yes-no questions, questions involving estimates, etc.). **REMINDER:** The questions should be worded as objectively as possible, in order not to influence those giving answers.

Phase 3: The survey is tried out in the class and can be shared with other classes, to make the figures more reliable.

Phase 4: The statistics are evaluated: What trends can be observed? What are the challenges in relation to mobility? And to sustainability?

TIP: Young people and adults fill out the questionnaires separately. Whose footprint is more environmentally friendly?

I.2. Planning a class outing

Planning the project

The students plan an imaginary or a real class outing. They consider the following questions:

- What are the criteria in choosing where to go?
- What aspects need to be considered when travelling?
- Which means of transport is chosen (judged on travel time, duration, comfort, price, CO₂ emissions or the nature of the experience)?
- Which means of transport would the students choose, and for what reasons?

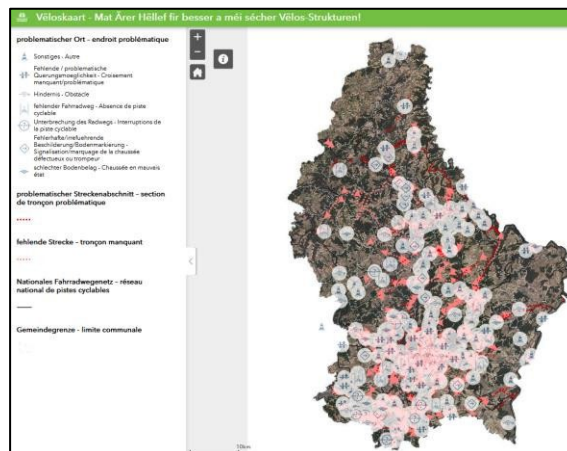
I.3. On foot or by bike to school – “safe school routes”

Carrying out a project

The class produces a “green” school routes map for one or more schools in the area: What is the safest route for cyclists and pedestrians? The map can be produced digitally, so that it can be shared more easily with other classes or other young people from the local area later on. Green (safe) routes are drawn in on the map and possible danger areas marked.

Once this work is completed, there is an opportunity to get in touch with the school management, local authority officers/councillors and the Ministry of Mobility to alert them to identified dangers, to put forward possible solutions and to find out whether people are already working on solutions.

TIP: This link shows one possible way of evaluating cycle routes: www.veloskaart.lu



I.4. Car as status symbol?

Discussion

The class arranges the chairs in a circle. The teacher lays out photos of possible status symbols in the centre of the circle: cars, travel photos, selfies, photos of nice-looking meals, clothes, a yoga course, bikes, brand logos, etc. The students each choose one to two photos and explain why these photos in particular appeal to them.

A numbered rating scale (1–10) is drawn on the board. The students put their photo under it, based on the importance they attach to it *personally*. Once everyone has presented their status symbols, the class votes to create a joint ranking of the five most important status symbols.

Next, the students should use the scale to show the suspected compatibility of the status symbols with the environment and the climate (1 = not at all, 10 = very compatible).

- What does comparing the two rating scales tell us? How can we explain that?

The teacher guides the discussion onto the value of the car in society.

- What is seen as a status symbol today? Why?
- What do the students think about the car? Why?