



CLIMATE PROJECT - PLANNING SHEET

Title: An Introduction to CO2

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Age: 3-6

Content:

This project offers children the opportunity to actively engage with the issue of climate change by conducting specific environmental measurements and jointly evaluating the data obtained. The aim is to give children a sound understanding of the causes and effects of carbon dioxide (CO₂) emissions. Through interactive and practical methods, children learn how human behaviour and different environments influence the CO₂ content in the air. The project not only promotes awareness of environmental issues, but also critical thinking and the ability to work together to develop sustainable solutions. CO₂ concentrations in the atmosphere vary greatly depending on location and environmental influences. In urban areas or on busy roads, levels are often higher than in rural or forested regions. These differences illustrate how human activities influence air quality both locally and globally. By measuring CO₂ in different environments, children learn that CO₂ levels are not constant, but are influenced by specific environmental conditions and behaviour. This understanding is crucial to grasping the complex interrelationships of climate change and developing targeted measures to reduce emissions.

Development goals:

Selbstkompetenz: Die Kinder erleben eine Verbindung zu ihrer Umwelt und entwickeln ein Verantwortungsgefühl für das Wohlbefinden unseres Planeten. Außerdem analysieren sie die gesammelten Daten zum CO₂-Gehalt und interpretieren die Ergebnisse; dies hilft ihnen, kritisches Denken.

Sachkompetenz: Die Kinder lernen, dass CO₂ in der Luft natürlich vorkommt und dass man es weder sehen noch riechen kann. Außerdem lernen sie, dass die Klimaerwärmung die negative Folge davon ist, dass der Mensch zu viel CO₂ produziert.

Soziale Kompetenz: Im Team dokumentieren die Kinder die verschiedenen CO₂-Werte, die während der Exkursion gemessen wurden. Zusätzlich findet eine gemeinsame Reflexion über die Messungen statt.

Methodenkompetenz: Die Kinder lernen den Umgang mit wissenschaftlichen Werkzeugen und Methoden zur Messung von CO₂-Werten.

Planning:

Beginning: The text and picture cards (see appendix) are read and looked at together with the children. Then, to repeat and deepen their understanding, the educational video is watched together.

Action: A mobile CO₂ measuring device is taken on an excursion. The measurements are examined together with the children in different traffic situations (e.g. on a main road, in the park/forest).

Conclusion: Joint reflection on the measured values and the environmental factors that influence them.

Outlook: The following project units deal with the causes of high CO₂ emissions and our options for reducing CO₂ consumption.

Resources:

Learning story and picture cards (see appendix)
CO₂ educational video for children (~1:28 min)
<https://www.youtube.com/watch?v=aLG8nOME9Mk>
Mobile CO₂ measuring devices (Aranet)

Explanation of the learning material:
The child in the learning story is not assigned to a specific gender (Ezra is a unisex name and gender-neutral pronouns were used).
This allows all children to identify with the character and avoids the stereotypes of either boy or girl stories.

Feedback:

- Evaluation to follow

Learning story (english version):

This is Esra [1]. Esra loves playing outside and exploring nature. Esra is currently climbing the coolest climbing tree [2] when an exhausted breathing is heard.

Esra can't see anyone and bravely asks, "Hello, is anyone there?" Then a short-winded voice replies, "Hello Esra, it's me, the climbing tree." Esra almost falls off the branch in shock, but a small twig suddenly gently supports Esra's back from behind. Esra had never spoken to a tree before!

Esra: "Hello tree, but why do you sound so exhausted?"

Tree: "I am exhausted because I have to convert soo much CO₂ into oxygen."

Esra: "CO₂? Oxygen? What is that?"

Tree: "Oh, well, that's actually a bit difficult to explain. You can't see CO₂, you can't smell it, and you can't touch it because it is colorless and odorless – practically invisible. But I'll give it a try [3]: CO₂ is naturally present in the air. Humans and animals, for example, exhale it. Every time you breathe out, you produce a tiny amount of CO₂; it's in your breath. Trees and plants, on the other hand, need this CO₂ to live. We convert CO₂ into oxygen, and this oxygen is what you humans and animals need to breathe – so there is a cycle. Without CO₂, no life on our planet [4] would be possible.

But humans are producing more and more CO₂ – for example, in factories, when driving cars, or flying in airplanes. This disrupts the natural cycle [5]."

Esra: "Oh, but can't you just convert even more of this CO₂ into oxygen?"

Tree: "Unfortunately not. I already produce as much oxygen as I possibly can. And that's the problem: if there's too much CO₂ in the air, we plants can't convert enough of it into oxygen, and the rest stays in the air. This not only makes the air we breathe worse, but it can also cause the Earth to warm up unnaturally. This leads to global warming [6]."

Esra: "Oh, that sounds terrible!"

Tree: "To protect the environment and the climate, it's important for people to finally understand that they need to produce less CO₂. But because CO₂ is invisible to people, many don't realize that the air is getting worse, and they ignore the problem."

Esra: "Can I help you somehow explain to people the problem of too much CO₂?"

Tree: "Oh, thank you! You actually can! This here is a CO₂ measurement device – this device shows you whether the amount of CO₂ in the air is just right or too much." – the twig that just prevented Esra from falling now hands over a small square box with confusing numbers on it.

Esra: "But I can't read such big numbers yet," Esra says, a little unsure.

The tree laughs and says, "Neither can I! But do you see that under the numbers there is a kind of traffic light? When the light shows green, there is a healthy amount of CO₂ in the air. As soon as the light turns yellow or red, there is too much CO₂ in the air."

Esra: "Oh, now I understand the tool! When people see that, they can't ignore the problem anymore!"

Bildkarten für den Einstieg:

