



1. Name of the project:

climate chart puzzle

2. Subjects covered from STEAM areas:

Technology,
Arts,
Mathematics

3. Target group (age range and size of the group):

Depending on learning requirements and prior instruction, can be implemented and expanded upon starting in third grade.

4. Duration of activity:

4 individual lessons, i.e., 4 x 45 minutes

5. Key words:

Climate,
graphs,
read data,
display data,
use software.

6. Key phrase describing the context of the activity followed by a short description:

This task is designed to encourage students to think about typical weather situations in specific locations. Students should communicate and think about the effects of location differences (differences such as proximity to the coast, different climates, or high elevations of the city). By comparing these diagrams, students use math and geography skills.

7. Description of the activity environment, including the list of materials and tools needed:

The activity could be done in the PC room. Tools needed:
Digital terminal e.g., laptop, PC.
Software to record the weather
Jupyter notebook for environmental analysis.
Software for documenting and plotting the data (TinkerPlots)

8. Step-by-step, detailed description of the activity, including teaching and learning strategies:

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- Students select sites they would like to look at in more detail
- They open the Jupyter notebook on "environmental analysis" on their digital terminal
- They think about how they want to document the data and prepare to do so
- They search for the locations in the Jupyter Notebook and document the data in diagrams
- You evaluate the data and compare them (in groups with different locations) with each other.
- The program TinkerPlots can also be used to display the data.
- The students learn the principle of reading and interpreting data:
 - Reading the data
 - Reading between the data
 - Reading beyond the data

9. Learning objectives/competencies:

Students will learn to make sense of data they have collected on weather in a graph, both analog and digital, by learning about the different types of graphs and digital software used to create graphs.

Students will learn about different graphs and build knowledge to read and interpret the data.

Students will learn how to use various software to create and display data.

Competencies according to the 2021 curriculum:

Mathematics:

Domain: data, frequencies, and probabilities Focus: data and frequencies.

Students "identify data from the immediate realities of life"

Students "represent data and frequencies in graphs and tables, including using digital mathematics tools."

Students "extract data from calendars, graphs, and tables and interpret them to answer mathematics-related as well as consumer-relevant questions"

Source: https://www.schulentwicklung.nrw.de/lehrplaene/upload/klp_PS/ps_lp_sammelband_2021_08_02.pdf

10. Assessment/evaluation guidelines:

Students are expected to present their products in a presentation and justify their approach. The presentation as well as the learning path can be used for assessment.

11. Lessons learned:

What I have taken away from the development of this STEAM lesson plan is that the lesson can also go beyond the perspectives of the subject lessons and that other perspectives and disciplines can be integrated into the lesson, or that interdisciplinary lessons are possible and meaningful through STEAM.

12. Additional Information/Links:

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<https://www.tinkerplots.com/>

<https://notebooks.gesis.org/binder/v2/gh/svenhuesing/Fruhlingsuni22.git/HEAD?urlpath=tree>

<https://pikas-kompakt.dzlm.de/themenh%C3%A4user/daten-und-diagramme>

https://www.schulentwicklung.nrw.de/lehrplaene/upload/klp_PS/ps_lp_sammel-band_2021_08_02.pdf

13. Contact person:

Prof. Dr. Claudia Tenberge