

Sustainable Development Goals in Education

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Tree Trails

How to map the CO2 captured from a city park

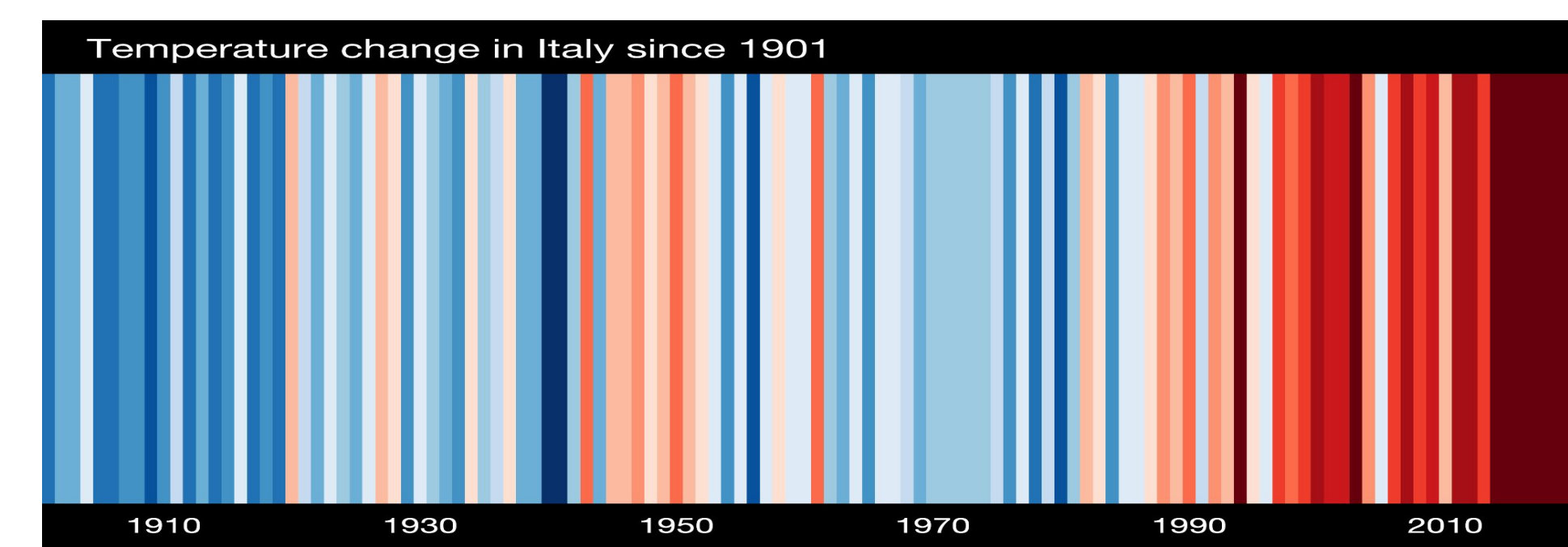
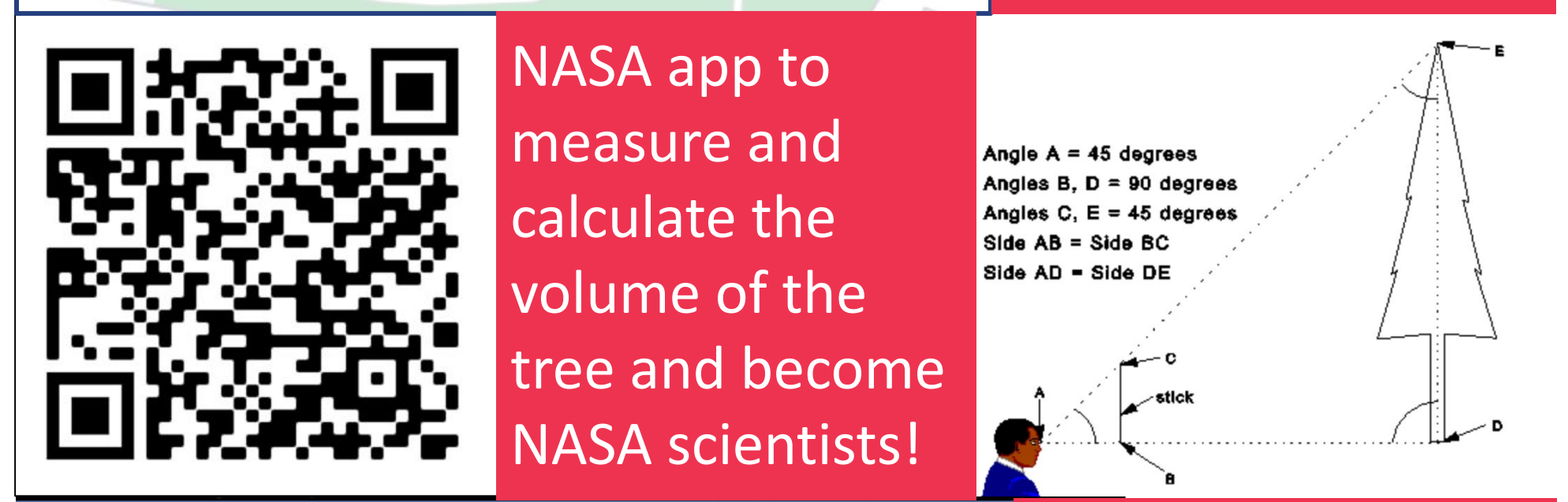
An inquiry based project where students investigate the link between **carbon dioxide**, **greenhouse effect** and **global warming**:

- **to what extent is it possible to capture CO2 which is already in the atmosphere?**
- **how much do trees contribute to CO2 sequestration?**

A **Fermi problem** applied to the playground area near the school which we relate to the calculation of **the volume of the trees**.

Kids measure the diameter and the height of trees using different methods, such as a **NASA app** which enables them to be part of a **worldwide citizen science project**.

The activity is proposed for grade 7 but could be extended to a high school Math curriculum.



Source: <https://showyourstripes.info/l/europe/italy>

- 1. The investigation**
global warming
greenhouse effect
CO2 emissions
- 2. Practical Activity**
measuring the dimensions of trees to calculate the volume of the trees in the nearby park
- 3. Applying Math and Chemistry concepts**
from the volume of the tree to the CO2 stored in each tree
- 4. Final Discussion**
the importance of the green areas in the global warming issue

Key Points:

- **interdisciplinary:** **Biology** (photosynthesis), **Chemistry** (stoichiometric calculations), **Math** (geometric modelling of trees and their volume)
- **hands on:** students build their measuring instruments and carry out a field activity in small groups.
- **technology based:** Students use the smartphone with a NASA app, then they send their data to NASA.

CO2 emissions and their reduction are hot topics now: we are looking at the problem from a novel perspective. Moreover, the outdoor lab engages the students and creates a sense of belonging with the trees which is, ultimately, a sense of respect for the Earth.