Digital carbon footprint

Modules:	Protecting the environment
Topic:	*Digital carbon footprint*
Title:	*Calculation of our daily digital carbon footprint and application of alternative methods to minimize it*
Target group:	*Middle and high school students*
Starting Point:	*It comes as no surprise that every digital activity that we implement not only as individuals, but also as societies has a remarkable environmental impact (Sharma & Dash, 2022), leading to higher levels of digital pollution. Nevertheless, the majority of the people has the tendency to underestimate this kind of pollution, as it is quite invisible.*
Aim:	*The goal of this teaching resource is to educate students on how to calculate their carbon footprint that stems from digitalization and then, apply alternative methods, which lead to lower emissions, thus contributing to the protection of the ecosystems.*
Implementation:	*This activity is designed to be implemented inside one classroom.*
Estimated Duration:	*Homework: 1 week* *Presentation in class: 60 minutes*

More detailed content and instructions:

- During the whole week, students are encouraged to document their digital activities, e.g., sending 5 e-mails, streaming for 3 hours etc.
- Subsequently, they attempt to calculate their total carbon footprint, which could be quite challenging, since we cannot define the exact number of emissions that is created by the usage of digital devices.
- Even so, the most important stage of this teaching resource is that students suggest different methods that could be applied during their daily life to minimize their CO_2 emissions. For instance, one student could decrease his/her passive use of social media from 5 to 4 hours per week, hence leading to a lower carbon footprint.

To be taken into account:

- Sending a standard e-mail => 4g CO_2 eq
- Sending a longer email with attachments => 50g CO_2 eq
- Watching a half-hour show => 1.6kg CO_2 eq
- A one-minute mobile-to-mobile call => 0.1g CO_2 eq
- Sending a text message => 0.014g CO_2 eq
- Using 1GB of data => 0.3kg CO_2 eq

Sources

- Sharma, P., & Dash, B. (2022). The digital carbon footprint: Threat to an environmentally sustainable future. International Journal of Computer Science & Information Technology (IJCSIT) Vol, 14.