

## Open Schools Journal for Open Science

Vol 3, No 4 (2020)

Special Issue - 2nd Encontro de Ciência Cidadã



### UV: Friend or Foe?

*A. Santos, C. Pontes, E. Chaves, F. Oliveira, M. Ribeiro,  
R. Abreu, T. Visinho*

doi: [10.12681/osj.23417](https://doi.org/10.12681/osj.23417)

Copyright © 2020, A. Santos, C. Pontes, E. Chaves, F. Oliveira, M. Ribeiro, R. Abreu, T. Visinho



This work is licensed under a [Creative Commons Attribution-NonCommercial-ShareAlike 4.0](https://creativecommons.org/licenses/by-nc-sa/4.0/).

### To cite this article:

Santos, A., Pontes, C., Chaves, E., Oliveira, F., Ribeiro, M., Abreu, R., & Visinho, T. (2020). UV: Friend or Foe?. *Open Schools Journal for Open Science*, 3(4). <https://doi.org/10.12681/osj.23417>

# UV: Friend or Foe?

A. Santos<sup>1</sup>, C. Pontes<sup>1</sup>, E. Chaves<sup>1</sup>, F. Oliveira<sup>1</sup>, M. Ribeiro<sup>1</sup>, R. Abreu<sup>1</sup>, T. Visinho<sup>1</sup>, students from 10.º10, 10.º14, 10.º16, 11.º5 and 11.º14 (Experimental Physics and Chemistry Club)<sup>1</sup>

<sup>1</sup>Escola Secundária Jaime Moniz, Funchal, Portugal

## Abstract

For about four months, in the 2018-2019 school year, students from Escola Secundária Jaime Moniz were involved in the project “UV-friendly or enemy?”. The project went through various activities that promoted interdisciplinarity between the disciplines of Physics, Chemistry, Biology and Geology, and established contacts with their community. They also had the chance to conduct surveys and share the responses obtained on the Goballab platform, gaining awareness of the relevance of the problems associated with sun exposure at local and global levels. In the end, each group of students from each of the classes, created a product to present to the educational community, raising awareness of the problem studied. The products created were: posters, leaflets, games and a song (original lyrics and music) warning about the dangers and benefits of ultraviolet radiation for human health and the use of sunscreens.

## Keywords

Cancer; D vitamin; electromagnetic spectrum; O<sub>3</sub>; photochemical reactions; ultraviolet (UV-A, UV-B, UV-C).



## UV – FRIEND OR FOE?

Escola Secundária Jaime Moniz – Funchal • Arlindo Santos, Carlos Pontes, Elisabete Chaves, Fátima Oliveira, Marco Ribeiro, Ricardo Abreu e Teresa Visinho • Classes: 10º10, 10º14, 10º16, 11º5 e 11º14; Disciplines: FQA e BG

### Abstract

For about four months in the 2018-2019 school year, ESJM students involved in the “UV-friendly or enemy?” Project went through various activities that promoted interdisciplinarity between the FQA and BG disciplines and established contacts with their community. They also had the chance to conduct surveys and share the responses obtained on the Goballab platform, gaining awareness of the relevance of the problems associated with sun exposure at local and global levels. In the end, each group of students from each of the classes involved created a product to present to the educational community, raising awareness of the problem studied. The products created were: posters, leaflets, games and a song (original lyrics and music) warning about the dangers and benefits of ultraviolet radiation for human health and the use of sunscreens.

Key words: Electromagnetic spectrum; Ultraviolet (UV-A, UV-B, UV-C); Photochemical reactions; O3; D vitamin; Cancer.

### Sentir Feel



Personal geography

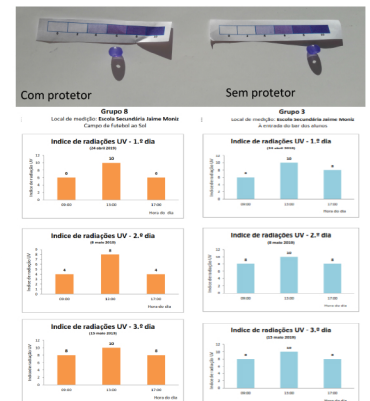


- How to determine the levels of ultraviolet radiation that are widely reported in the media.
- Investigate the health effects of UV radiation.
- Distinguish the various types of electromagnetic radiation.



### Imaginar Imagine

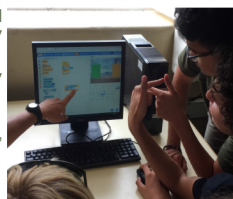
- Evolution of UV radiation levels during the day.
- Comparison of radiation levels in different locations at the same time.
- Effectiveness of using sunscreens and the meaning of the different values of Sun Protection Factors.
- The students did Goballab surveys trying to reach individuals: of both sexes, of different age groups, of different nationalities and different professions. So they were:
  - Farmers' market: Tourists and local traders.
  - Pharmacy of Santa Maria: Pharmacists.
  - Bom Jesus Health Center: Nurses and family doctors.
  - Escola Secundária Jaime Moniz: Teachers, students and staff.
  - Home / residence: Family and friends.
- Finally, surveys were registered and processed on the Goballab platform.



### Criar Create



- interactive posters on the advantages and disadvantages of human exposure to UV radiation;
- dice game with different activities on UV radiation;
- game “hit the objects” to use on the beach;
- game adapted from “how much do you want?” with useful information about UV;
- game using QR code and mobile phone;
- flyers on UV radiation;
- interactive cardboard about advantages and disadvantages of UV radiation;
- song (original lyrics/music) about the FPS.



### Partilhar Share



The products made by the students were presented to the community, in a session that took place on June 6, 2019 in the afternoon in the school garden.

