

# Hands-on activities for high schoolers effectively teach about antibiotics

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A hands-on project to educate high schoolers about appropriate antibiotic use was highly effective, promoting more sophisticated understandings of bacteria and antibiotics and increasing understanding of the dangers of antibiotic resistance, and was even enjoyable, as reported Sep. 12 in the open access journal *PLOS ONE*.

42 Portuguese high school students participated in the program, which involved wet lab activities like culturing bacteria from various sources, including keyboards, cell phones, and their own hands, in addition to analysis of scientific papers. To determine the effectiveness of the program, the authors of the current report, led by Maria Fonseca and Fernando Tavares of the University of Porto, surveyed the participants.

The researchers found that the students had a much clearer and deeper understanding of the material after going through the program, and that they also found the experience to be both enjoyable and useful. These findings demonstrate the benefits of incorporating hands-on activities to [science education programs](#) more generally, the authors write.

**More information:** Fonseca MJ, Santos CL, Costa P, Lencastre L, Tavares F (2012) Increasing Awareness about Antibiotic Use and Resistance: A Hands-On Project for High School Students. PLoS ONE 7(9): e44699. [doi:10.1371/journal.pone.0044699](https://doi.org/10.1371/journal.pone.0044699)

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