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## TeaTime4App – Raising awareness about the role of soils with the educational “Tea Bag Index App”

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With the Tea Bag Index (TBI) App, we aim to foster awareness of the importance of soils and their ecosystem services to students above the age of 10. The TBI app consists of three categories of hands-on activities: Basic soil attributes, Soil observations, and Tea Bag Index. Basic soil attributes include land use, soil colour and soil life, whereas soil observations go further to Texture by Feel, Spade Test and observation of soil pollution. The Tea Bag Index (Keuskamp et al., 2013) provides an easy and scientifically recognized way to measure decomposition rates and stabilisation of organic matter in soils. The method consists of burying tea bags and measuring the degradation of organic material after three months' time. Each of the methods includes clear instructions and extra information in the app. Data gathered are interactively shown on a map in the App as well as online. Hence, students are encouraged to gain hands-on science experience and to witness how science connects across regions, countries and cultures. By using playful tools such as rewards, badges and a point system, we attract and maintain the interest of students. Social media channels are used to exchange and share their results as well as to reach teachers and citizen scientists in order to inspire them to use the educational App.

Having this awareness on soil and its functions, citizen scientists can make valuable contributions to the sustainable use of soils. They also have the opportunity to participate in a global scientific initiative, acquire skills in conducting a scientific experiment and gain knowledge on soil functions. The science community, on the other hand, increases its understanding of factors influencing decomposition (and associated soil functions) at different times and in different places globally.

Moreover, the TBI App can be used for „Content Language Integrated Lessons“ (CLIL), which is the use of a foreign language for the integrative teaching of content and language competence outside of language teaching in agricultural schools in Austria. Individual learning outcomes (ILOs) of an agricultural school class testing the TBI App were evaluated in an online questionnaire. Results showed high appreciation of activities offered by the TBI App and high motivation of students to contribute to science.

Keuskamp, J.A., Dingemans, B.J.J., Lehtinen, T., Sarneel, J.M. and Hefting, M.M. (2013), Tea Bag Index: a novel approach to collect uniform decomposition data across ecosystems. *Methods Ecol Evol*, 4: 1070-1075. doi:10.1111/2041-210X.12097