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Short communication

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## First steps in composite materials for schoolchildren: a STEM educational project

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### Abstract

Composite materials are inseparable from today's life, yet many schoolchildren (and adults) are not familiar with them. In the framework of *InnovationLab*, an initiative of KU Leuven, a new Science-Technology-Engineering-and-Mathematics (STEM) project was launched, intended to introduce composite materials to schoolchildren. A toolbox was developed which enables teachers to perform composite-related experiments together with their pupils, actualising the pupils' knowledge in chemistry, physics and mathematics. The students learn about polymer matrices and fibres, produce a composite themselves, investigate its mechanical properties and finally test a composite catapult. This way the scientific awareness of the students is raised and they gain insight into today's challenges in composite materials and how engineers respond to them.

### 1 Introduction

Composites nowadays are the material of choice for a wide range of applications, from household appliances to air- and space-crafts. They have high structural capabilities, especially where weight and design freedom matter. Moreover, composites answer society's sustainability challenges because of their lower density and higher durability, causing less energy consumption and less production of greenhouse gases.

Teenagers and young people are not an exception in their exposure to composite materials. They directly benefit from composites, playing with their carbon fibre-reinforced tennis rackets, bathing in glass fibre-reinforced bathtubs, and paddling composite kayaks. They also use composites indirectly, travelling on an aeroplane or a car with composite components and using electricity produced by wind turbines. Despite the considerable level of confrontation with composite materials, a large number of schoolchildren (12-17 years old) do not know about the "composites" concept and its significance to the modern society, economy, science and technology.

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