

# ENGAGING STUDENTS TO LEARN CURRICULA CONTENTS WITH STEM EDUCATION

Maria de Fátima Filipe<sup>1</sup>, Maria Cristina Costa<sup>2</sup>, and António Domingos<sup>3</sup>

<sup>1</sup>Agrupamento de Escolas José Cardoso Pires, CICS.NOVA, <sup>2</sup>Instituto Politécnico de Tomar, Ci2, CICS.NOVA, <sup>3</sup>NOVA.SST, CICS.NOVA

Nowadays, school must provide knowledge through diversified pedagogies to prepare its students for an increasingly demanding society (Gadotti, 2020). In this regard, STEM education enables the development of cognitive and socio-affective skills, necessary to face the challenges of the labor market (Stracker et al., 2019).

This Poster presents STEM tasks implemented in two 6th grade classes of Mathematics and Natural Science, lectured by the same teacher (10 to 11 years old). In one of the classes (B class), it was used hands-on STEM tasks based on the school plant, which is a real scenario to solve real problems, as recommended in STEM education. In the second class (A class), mathematical contents were lectured the traditional way by reviewing contents related to areas and perimeters of the square, rectangle and triangle, and the area and perimeter of the circle. In class B, the same contents were worked with Google Earth to compute the areas and perimeters of the sports field (rectangle), the pavilion where they normally have classes (square), outdoor space (triangle) and the warehouse (circle). In addition, they were asked to build a model of their ideal school including outdoor plants and trees, among others. With a mixed methodology (Creswell, 2012), qualitative and quantitative, based on participant observation and questionnaires applied to students, before and after implementing the tasks, it was verified that class B revealed a greater enthusiasm and motivation in carrying out the tasks. It is concluded that the hands-on STEM approach was more effective to engage students to learn school curricula.

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## References

- Creswell, J. (2012). *Educational Research*. Pearson.
- Gadotti, M. (2000). Perspectivas atuais da educação. *São Paulo em Perspectiva*, 14(2).
- Stracke, C. M., Van Dijk, G., Daneniene, J., Kelmelyte, V., Lisdat, F., Wesolowski, A., ... & Spatafora, A. (2019). *Learn STEM: The pedagogical model for innovative STEM learning and teaching*. Open Universiteit.