



## **Development of a geoscience education book with schoolchildren from low STEM engagement areas**

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Crucial career-related concepts and attitudes are first formed in childhood through different phases: Fantasy (age 4–10 years), Interest (age 11–12 years) and Capacity (age 13–14 years). Parents are major influencers in high school subject choice and ultimately career choice. Despite being aware of the importance of STEM, 68% of Irish parents feel uninformed with regards to advising on career choices for their children. In response to this, the Science Apprentice is a series of children's books, showcasing the importance of STEM in today's society. Developed by University College Dublin, and circulated with an Irish national newspaper, this series was directed at children in elementary school (7-12 year olds) and was written to inform the first conceptions of STEM career pathways through dynamic visuals, intriguing stories and creative expressions of knowledge that relates to STEM literacy. Furthermore, the Science Apprentice series was created to offer parents a level of confidence and understanding in STEM and STEM career opportunities.

Despite outreach efforts by many geoscience academics and institutions, applied geoscience remains somewhat invisible in society, with most members of the public lacking any firm familiarity with the bedrock on which they live or the resources that it holds. Here we present an overview of the Science Apprentice book series, with particular emphasis on the Energy and Resources book edition. This edition was developed in conjunction with geoscientists from the Irish Centre for Research in Applied Geoscience (iCRAG), and covered a wide range of applied geoscience topics, such as renewable and non-renewable energy sources, raw materials, engineering and the career paths of young researchers working in the geosciences.

A key target audience for this book was families in low STEM engagement areas and low internet broadband connectivity areas. In this presentation we will outline how the book was developed by working with schools from low STEM engagement and rural areas, and how the primary audience of the book (7-12 year olds) was directly involved in the content development, character design and "try at home" activities that feature in the book. This was done in two steps: first through a series of workshops led by elementary STEM teaching researchers and trainers, and facilitated by science communicators; and second through a field trip to a local mine where a tour and community debate by the schoolchildren on windfarm development took place.

In total, 75,000 books were circulated with the national newspaper, which saw a 6% increase in circulation at the distribution point of sale due to the books. We will also present the evaluation findings, which included focus groups with parents, in-depth interviews with teachers, and national surveys with adults. For example, 93% of parents felt that the Science Apprentice books made their children more interested in science than they were before. The presence of Irish research examples was found to shift the assumption that major scientific discoveries only take place abroad. In this presentation we will also share some critical reflections on the successes and challenges of the programme.