EINSTEIN FIRST: MODERNISING SCHOOL SCIENCE

David Blair[a] and Jyoti Kaur[a]

Presenting Authors: David Blair (david.blair@uwa.edu.au) and Jyoti Kaur (tejinder.kaur@uwa.edu.au)
[a]The Einstein-First Project, The University of Western Australia, Perth WA 6009, Australia

ABSTRACT

Einstein-First aims to revise science education from Primary school to Middle school by early introduction of modern "Einsteinian" concepts of space, time, gravity, light and matter. In many trials with more than 20 schools we have shown that children respond to the modern concepts with ease and enthusiasm, and that middle school students, especially girls, show marked improvements in their attitude to science. Because it covers modern science content that most students have heard of through media, students perceive the content to be relevant, while the activity-based learning that includes toys and models ensures engagement of all students. We have introduced short specific activity-based training programs and UWA micro-credential courses for teachers that have enabled them to quickly upskill on the content required for teaching the primary or secondary components our 8-year syllabus. Even teachers with minimal science background are able to achieve confidence to teach our content because the activity-based program avoids jargon, and concepts are revealed by simple activities.

This workshop will give an overview of the program, involve participants in examples of activities and present learning outcomes.

Intended Audience: School Teachers

PRESENTERS

Prof. David Blair is a gravitational wave physicist who has spent more than 4 decades developing methods for the detection of gravitational waves. Blair is a Fellow of the Australian Academy of Science and the American Physical Society. He shared the Breakthrough Prize with all members of the LIGO Scientific Collaboration in 2016 and in 2020 he was a recipient of the Prime Minister's Prize for Science.

Dr Jyoti Kaur is a Postdoctoral Fellow in the Einstein-First project. The aim of this project is to modernise the current school science curriculum by introducing Einsteinian physics concepts. Along with her research colleagues, she is working on developing and testing the Einsteinian curriculum for primary and high school levels.

Proceedings of the IUPAP International Conference on Physics Education, ICPE 2022 5-9 December 2022, page 33, ISBN: 978-1-74210-532-1.