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Public Education and Communication

USING KILLER ASTEROIDS TO ENGAGE CHILDREN IN ASTRONOMY AND SCIENCE

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ABSTRACT

Astronomy and space are accepted as very effective points of engagement for students of all ages, inspiring curiosity and providing a stimulus to learn (Salimpour et al 2021), and providing exciting context for developing skills.

Comet Chasers is a UK-based education and outreach project using the 'Wow' factor of space (and comets in particular) to engage children in activities related to STEM and the development of wider curriculum-related skills. In the last year the project has, with the aid of a Royal Astronomical Society grant, used the excitement of the DART Mission to engage schools and the wider community. With the strapline of 'Help NASA save the planet from asteroid strikes' we have successfully reached new schools and audiences. We have worked with over 250 students from 50 different schools. We have also attended events and engaged the wider public and media.

The activities have included:

- learning about the issue – what are asteroids and comets? Including why we need to study and monitor them as they can be killers (with the obligatory reference to dinosaurs and mass extinctions); learning about and handling

meteorites and fossils; exploring impact craters through demonstrations and the Down2Earth interactive simulator;

- exploring how we make observations of asteroids and comets – learning about reflected light; how reflection changes with physical properties; what are light curves and what can we learn from them; using hands-on demonstrations using 'The Rotato' - a simulator for generating real-time light curves of various objects (so called as it started with **rot**ating a pot**ato** as an asteroid analogue);
- learning about the DART Mission - the aims and objectives, methodologies, spacecraft, organisations involved, metrics for success, and how these will be measured;
- simulating the orbital mechanics of the binary asteroid - using the 'Rotato' with models of Didymos and Dimorphos; and measuring the resultant dips in the light curve to calculate orbital times;
- making real science observations - using the research-grade telescopes from the Las Cumbres Observatory (LCO) Global Telescope (LCOGT) Network through the Faulkes Telescope Project. These observations are now part of the LCO data set and part of the official DART Mission archive (see Lister et al. at this meeting);
- analysing images – making animations of the asteroid's movement, comparing their own 'before' and 'after' images and seeing and measuring the new tail. (This generated a lot of excitement!)
- showing that even young children in small schools in rural or deprived areas can play a part in large important missions, helping to raise aspirations.

We present details of our activities, showcase the work the children have done, and present an assessment of outcomes and impact.

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Comments:

Poster