

USING KILLER ASTEROIDS TO ENGAGE CHILDREN IN ASTRONOMY AND SCIENCE

'Helping NASA Save the Planet'



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The Comet Chasers Project has: Worked with over 250 children, aged 7-18, in their school classes and delivered outreach engagement with over 750 people at public events
Made over 920 observations for DART Mission, with 1m and 2m telescopes, linked with the LCOGT DART science team

Who are we?



Comet Chasers is a UK education/outreach project, led by researchers from the Open University and Cardiff University.

It works directly with schools, and links them with amateur astronomers and small body researchers worldwide (including the DART Mission team).

Through the Faulkes Telescope Project, it gives access for schools to the Las Cumbres Observatory (LCO) worldwide network of research telescopes, allowing them to make scientifically useful observations.



What and why?

The project seeks to use astronomy to engage, enthuse, educate and inspire.

It delivers in-class activities, educational resources including hands-on experiments, and support for schools to use astronomy as a vehicle for delivering curriculum knowledge and skills.

Space missions are exciting, and being part of one is even more exciting! It raises aspirations.

Linking with LCO DART Mission team members, and having access to the same telescopes they were using for NASA, we were able to offer the chance for schools to 'help NASA save the planet'. They undertook observations of Didymos before and after DART impact and provided the data to Mission scientists.

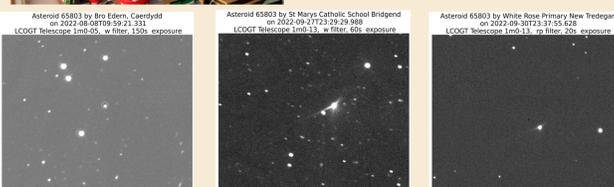
Examples of Activities

Studying asteroid and comet properties, and handling meteorites

Investigating impacts, including simulations of how varying size, speed, and angle of impactor affects crater sizes and the destructive effects which would result. What makes a 'Killer asteroid'?



Learning about the DART Mission, its aims and importance (avoiding 'Killer' impacts). Watching the spacecraft impact.



Sharing the observations with the DART team, and celebrating being Planetary Defenders



Learning about light, graphs, and investigating light curves using the 'Rotato' experiment. Simulating how the DART Mission could calculate the orbital period for Dimorphos.



Setting up telescopes to make observations of Didymos before and after DART impact - and spotting the differences



Observations

Over 920 observations made - all observations are freely available.

Data have been incorporated into long-term monitoring analysis for the DART Mission (see Lister et al this meeting).

The longer exposure observations have allowed monitoring of the debris trail over many months.

Images have been used online, in press articles, and on television.

Success? We think so!

Teachers said:

The class were delighted and it's nice to see children excited by things like real meteors that can be handled and for them all to see the images they have taken being used.

This is raising the aspirations of our children - they see they can be part of something big and important.

We've been impressed with the quality of the resources and the impact on our children.

The children are loving it - they are so engaged.

Children said:

It has been so exciting being part of the Comet Chasers Project. We made observations from our classroom of an asteroid before it was hit by a spacecraft! (check the [audio here](#))

I love astronomy, its amazing! Its so cool. Setting up the telescopes, I don't believe we are doing this for DART

Wooohoo look at that tail!

When I saw the DART Mission on the news I told my family I was part of it!

The pressure is on... this observation is for NASA!
I want to learn more!!

It's nice doing the observations (but the quizzes are boring) (Editor note: you can't please everyone all the time!)

DART researchers said:

The data from schools is useful for studying the results of the spacecraft's impact, and particularly how the tail changed and evolved over time. This will help us understand the properties of the ejecta material

The addition of the observations from the 2m Faulkes North Telescope MuSCAT3 4 channel imager to the combined LCO dataset will allow further colour analysis to be undertaken.

We will undertake a proper evaluation at the end of the project.

Observations made by:

St Marys Primary Bridgend, White Rose Primary (New Tredegar), Radnor Primary (Cardiff), Montgomery Primary, Ysgol Gyfun Gymraeg Bro Edern, (Caerdydd), Rhiwbina Primary (Cardiff), Poole Grammar School, Abbey Grange Academy (Leeds). Students from various schools also scheduled observations at the National Eisteddfod. Individual observers include Helen Usher, Cai Stoddard-Jones, Sion Emllyn, Sarah Roberts, Richard Morgan, Arushi Nath, and Rytis Babianskas.

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Further information and examples of schools' activities:

<https://www.cometchasers.org>

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