

Engaging students through DART (Danum Aeronautics and Rocketry Team) - Danum School Technology College

Leading space education programme

Key actions

DART (Danum Aeronautics and Rocketry Team) is an umbrella organisation within the school intended to serve as a platform for a range of space based activities, including Rocketry and Astronomical activities.

The cornerstone continues to be a weekly lunchtime "rocket club" at KS3 in which students are designing, building and test flying their own rocket designs along with a weekly KS3 Astronomy club, where students have studied the basics of astronomical observation with the naked eye and constructed their basic refracting telescopes to assist their observations.

All Y7 were invited to join with DART and participate in an inter-house rocket competition, with the rockets being built after school and tested during a lunchtime on the school field with an enormous crowd!

During the autumn term, three visits were arranged to secondary schools. Rocket afternoons were delivered to 30 Y7 pupils in each one, with the students designing, making and testing air powered rockets. The afternoons were described as During Science Week (15-19 Mar 10). The schools sent their Y7 teams to our interschool competition where the brief was 'Return to Earth Challenge'. The teams designed, built and tested modules to launch and return an egg to earth safely. In addition to these activities there was a whole school 'Everybody Writes' literacy day for Y7 with Space as the theme. All students experienced the Star Dome and wrote wonderful poetry about the magic of Space.

The DART lunchtime Rocket club attracts between 20 and 30 students at KS3, with a solid core of 15 who never miss a meeting. Amongst these students several Y9s have opted to study engineering as a GCSE subject. The Astronomy club is smaller, having grown from a single member in September 2009 to a regular cohort of ten.

The Inter-House rocket contest, held amongst Y7 pupils in the first half term reached a great many more pupils and led to increased numbers attending DART.

The visits to other schools involved 90 students and secondary staff who witnessed the Rocket afternoons suggested they would run a similar event in their own school. All the evaluation forms were tremendously positive from staff and students. The interschool competition involved 24 students, who all fed back that they had an increased understanding of space travel and enjoyed the event.

The essence of DART has always been to inspire students to explore aspects of space science and engineering by offering practical and fun activities to students and allowing them to develop their own ideas. We have found that this approach has reached students of all academic backgrounds from students regarded as "more able and talented" to level two learners.

Impact on lead and partners schools

Reg Rigby has led DART and continues to inspire students in our school and the schools he has visited. Staff from other schools have also been enthused about Space and running their own events.

The Head of Physics, Dean Morgan has become involved and has set up a link with Sheffield University for visiting speakers to come and lecture to his Y12/13 students. Professor Elizabeth Winstanley from the Department of Applied Maths, Sheffield University came to speak on 22 February. She got the students to work out how big black holes could be and also how many teachers it would take to make a black hole if they were all squashed into a family sized car (about 6,000,000,000,000!). She then spoke about exactly

what black holes are, where they come from and how they could be made at the Large Hadron Collider at CERN in Switzerland. The lecture was very well attended. On the 24 June Dr Lee Thompson spoke about astronomy performed 2km under the surface of the sea!

Such enrichment of the curriculum is a definite positive change to school practice.

Impact on specialism

The DART Rocket afternoons have strengthened school partnerships with 3 secondary schools and will lead to future interschool competitions and events. This has helped the community dimension of our specialism.

Top tips

Getting in touch with the right people in schools is difficult as we are all busy people. The only advice would be use all means possible (visit, phone, email, post...) and don't give up. Early morning calls before lessons start work best!

Producing a standard flyer for events in other schools with requirements for the afternoon and risk assessments saved time for each visit.

The future

DART will continue and there are plans to expand the programme to KS4. There is now an outlined programme to run similar autumn rocket events in our partner schools and repeat the National Science and Engineering Week Interschool competition. Participation in the Big Bang Science Fair has also led to more contacts with schools in the wider South Yorkshire Area which we will also work to develop, in conjunction with plans to enter national rocketry competitions.

The number of visiting speakers to Sixth Form students will increase.

Contact at school

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Images from the programme



