Bring engineering to life.

Year 9 pupils rapidly grasp design skills via an engaging, hands-on design project.

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Archbishop Holgate’s School is a Church of England Academy. Described by Ofsted as an ‘outstanding school’ with an ‘excellent quality of education of care’, the school is committed to respecting Christian values, treating every pupil as an individual, and ensuring that all pupils are given the opportunity to reach their full potential. In order to boost the skills and knowledge of its design pupils, the school introduced Autodesk® software over a period of 18 months. Pupils of all ages are now using the software with ease to create sophisticated 3D designs.

The challenge
All pupils at Archbishop Holgate’s School, including Year 9 pupils, are introduced to Autodesk® Inventor® software using the ‘Scooter’ project resources as a platform to build fundamental skills. Teacher Steve Parkinson was keen for Year 9 pupils to build on these skills, and he gave them a specific product design task that would put their knowledge to the test. He asked them to design a snap-together case for a USB flash drive. This task was devised to give students an opportunity to practise high-quality product design methods and engineering thinking.

The solution
The USB flash drive project offered a straightforward way for Year 9 pupils to learn sophisticated CAD techniques. Having sourced the flash drive internals from a well-known U.K. education supplier, the pupils created CAD files to match the exact dimensions. Then, using the ‘create’ function, they produced separate part files within an assembly without affecting any existing parts. The parts could then be opened individually and exported to STL ready for model manufacture.

Following Autodesk’s comprehensive sustainable design guidelines, the pupils were able to incorporate materials that could be easily reclaimed, remanufactured, or recycled, respecting circular economy principles.

The results
Designing the snap-together case proved to be a highly inspirational project, enabling pupils to produce accurate, high-quality designs. After just one hour, the class was able to create basic geometric 3D shapes in Autodesk Inventor. Parkinson was impressed by his pupils’ rapid learning curve, commenting that the project encouraged them to explore the connections between product design, basic engineering principles, and shape. It also helped to improve their mathematical understanding.

Using Autodesk Inventor has inspired Year 9 pupils to continue learning about engineering and product design. Additionally, it has accelerated the quality of their design thinking and their communication of ideas, Parkinson believes. Students are quickly able to articulate a high level of CAD terminology and learn design skills relevant to design and engineering workplaces.

‘As a teacher, it is key to see pupils enjoying and benefitting from a design project. Autodesk software provides a way in which design, simulations, and communication can be brought to life. This software will seriously enhance the quality of design and engineering in education and create designers and engineers more prepared for work in industry.’
Steve Parkinson
Archbishop Holgate’s School
North Yorkshire, United Kingdom

The following Autodesk product was used in this project:
Autodesk Inventor

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