



TEACHERS

Description

Design & Manufacture helps students find out more about product design and the role of the people involved in creating and making 'stuff'. Many of Kent & Medway STEM Ambassadors work designing, improving and producing a wide range of products for many areas of life. Aircraft, medical devices, pharmaceuticals, apps, food, energy, cars, furniture, music, 3D printing, entertainment equipment, engines and environmental products are just some of the products made on our doorsteps.

Suggested Itinerary

1-2 hours, 1-3 STEM Ambassadors

1. **What is Design & Manufacture?** Brainstorming- what do the students think 'manufacturing' and 'products' mean, what do students think is made in Kent and Medway?
2. **STEM Ambassador's Employment in Design/ Manufacturing/ Fabricating/ Other STEM** Ambassadors illustrate to students what they do for a job. PowerPoint presentation/talk/video
3. **Design, Build & Improve Mini-Challenge** Improve the functionality of everyday objects with help from a designer. Teacher organised hands-on activity for students. Look at an existing product- students build prototypes and try to improve on designs e.g. bridges, shelters, cars. Available for use: STIXX Machines, Incredible Machine, K'NEX, or see 'Useful Links'

AMBASSADORS

Description

With Design & Manufacture STEM Ambassadors can help students find out more about product design and the role of the people involved in creating and making 'stuff'. Help students brainstorm what we manufacture in Kent & Medway; tell them about where you work and what you do, and support an interactive design and improvement activity.

1-2 hours, 1-3 STEM Ambassadors

STEM Ambassador Role

1. **What is Design & Manufacture?** - Help students to brainstorm what 'manufacturing' and 'products' mean, what do students think is made in Kent and Medway?
2. **My job in Design/ Manufacturing/ Fabricating/ Other** STEM Ambassadors illustrate to students what they do for an occupation. PowerPoint presentation/ talk/video
3. **Design, Build & Improve Mini-Challenge** - Support a Teacher organised hands-on activity for students. Look at an existing product- students build prototypes and try to improve designs e.g. bridges, shelters, cars.

"Students were engaged and developing a different way to see physics. They had the opportunity to create something new from scratch; this gave them a sense of belonging."

- Teacher

Useful Links

- Practical Action- Squashed Tomato Challenge
<http://practicalaction.org/squashed-tomato-challenge-5>
- British Science Association- Resources
www.britishecienceassociation.org/free-activity-resources
- Science Museum London- Resources
www.sciencemuseum.org.uk/educators/teaching_resources.aspx
- I'm a Scientist Electricity Debate Kit
<http://debate.imascientist.org.uk/electricity>
- The Institution of Engineering and Technology - Resources
<http://faraday.theiet.org/resources/index.cfm>
- GradCracker- Careers
www.gradcracker.com

"This challenge gave students the opportunity to enhance their learning and have fun along the way. The presence of the STEM Ambassadors as judges brought an extra dimension to the event." - Teacher

"I thought I knew what career I wanted to do, but now, I know there are such a lot of other careers, I am going to rethink my plans!" - Student