

Woodside Primary

Engineers for the Day!

February 2023



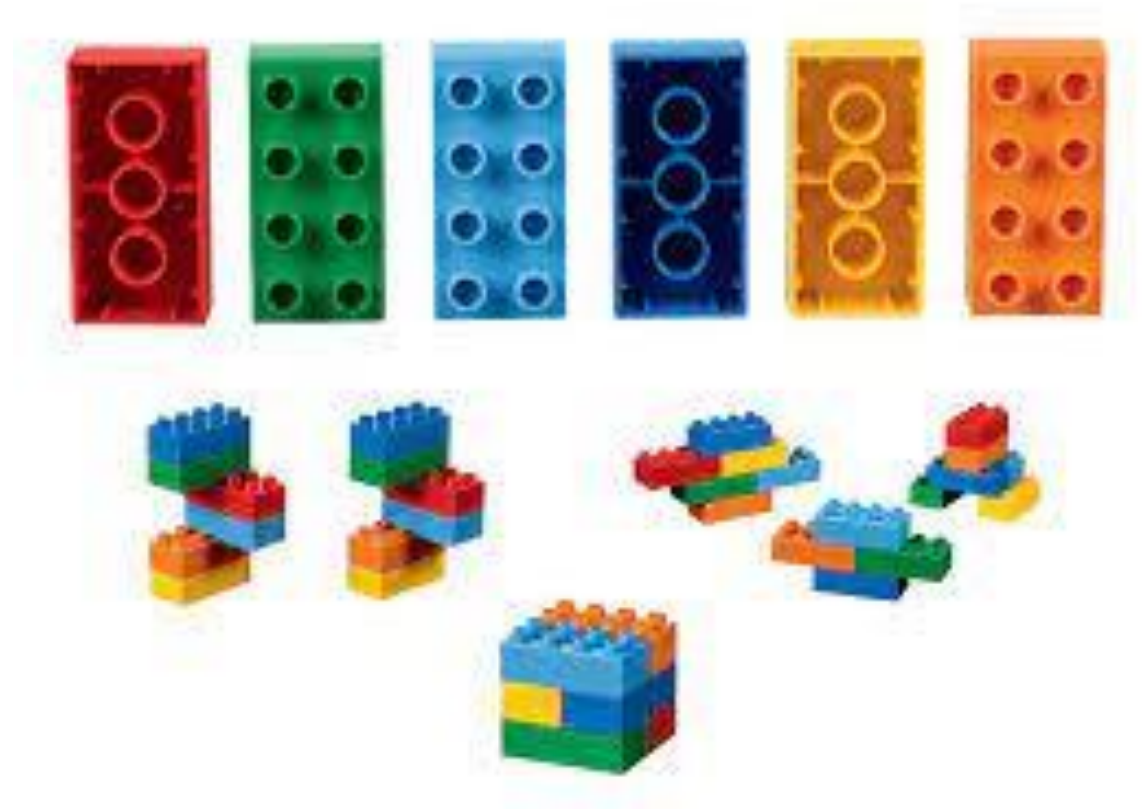
IF YOU WERE an
ENGINEER
WHAT WOULD YOU DO?



Warm up- 6 Bricks Challenge

Using just 6 Duplo bricks is a learning tool that can develop:

- memory
- creativity
- movement
- hand eye coordination
- language skills
- communication
- problem solving
- team work



Activity One

Learning Outcome: To identify different types of engineers and how they work

- Task 1- on a whiteboard, draw a picture of an engineer and give the engineer a name
- Task 2- around your image of the engineer, write the names of as many different types of engineers you can think of
- Let's share our work





“They make things that work . . . and then they make them work better”

Aerospace Engineer

I design and test aircraft, spacecraft, satellites, and missiles.



Agricultural Engineer

I design, construct, and improve farming equipment and machinery.



Architectural Engineer

I work in the planning and design phase of building projects. In conjunction with civil and structural engineers, I focus on designing the building itself, and interior design.



Automotive Engineer

As a specialized mechanical engineer, I create and improve mechanisms and designs for cars, motorcycles, trucks, etc.



Biomechanical Engineer

I combine knowledge and principles of organisms with mechanics to solve problems in new ways.



Biomedical Engineer

I apply design skills to biological and medical sciences to advance healthcare, treatment, and



Think

- Think about the types of objects that involve engineering





All of this involves

ENGINEERING

Cars • Mobile Phones • Chairs • Staplers • Bridges • Paper • MP3 Players • Cardboard Boxes • Submarines • Hosepipes • Carpets • Crisps • Motorbikes • Schools • Dyes • Waste Paper Bins • Aeroplanes • Air Conditioning • Laptops • Tables • Bottles • Roads • Flood Barriers • Lamp-Posts • Clothes • Windows • Garage Doors • Office Blocks • Cinematic SFX • Bread • Space Stations • Cameras • Sticky Tape • Nuclear Energy • Doughnuts • Spectacles • Newspapers • Wind Farms • Ovens • Clean Water • Hair Dryers • Houses • Space Rockets • Desks • Helicopters • Microscopes • Toys • PCs • Televisions • Internet • Lorries • Cruise Liners • Pens • Kitchen Tiles • Electricity Pylons • Farming • Weather Forecasting • Espresso Coffee • Satellites • Tinned Food • Sat-Navs • Libraries • 3D Printers • Universities • Central Heating • Footballs • Mars Landers • Envelopes • Microwave Ovens • CAT Scanners • Telescopes • Incubators • Tunnels • Computer Programmes • Books • Yachts • Park Benches • Oil Wells • Pyramids • eMail • CERN • Vacuum Cleaners • Mechanical Diggers • Pencils • Gravestones • Beer • Chainsaws • Radio Stations • Linoleum • Printer/Scanner/Copiers • Shoes • Town Halls • Key-Hole Surgery • Fracking • Trains • Cosmetics • Racing Cars • CCTV • Solar Power • Cable-Cars • Piers • Cinema • Refrigerators • Tractors • Escalators • Settees • Fire Engines • Flying Scotsman • Grand Union Canal • Eiffel Tower • Bicycles • Perfumes • Crash Helmets • Traffic Lights • Daleks • Headphones • Paper Clips • PowerPoint Presentations • Thameslink • London Eye

What is on your list?

“So what skills do engineers need?”

- ✓ Do you like asking questions?
- ✓ Do you like being creative?
- ✓ Do you like helping people?
- ✓ Do you like solving problems?
- ✓ Do you like having fun?
- ✓ Do you like making things?
- ✓ Do you like travelling to far away places?
- ✓ Do you want to make a difference?

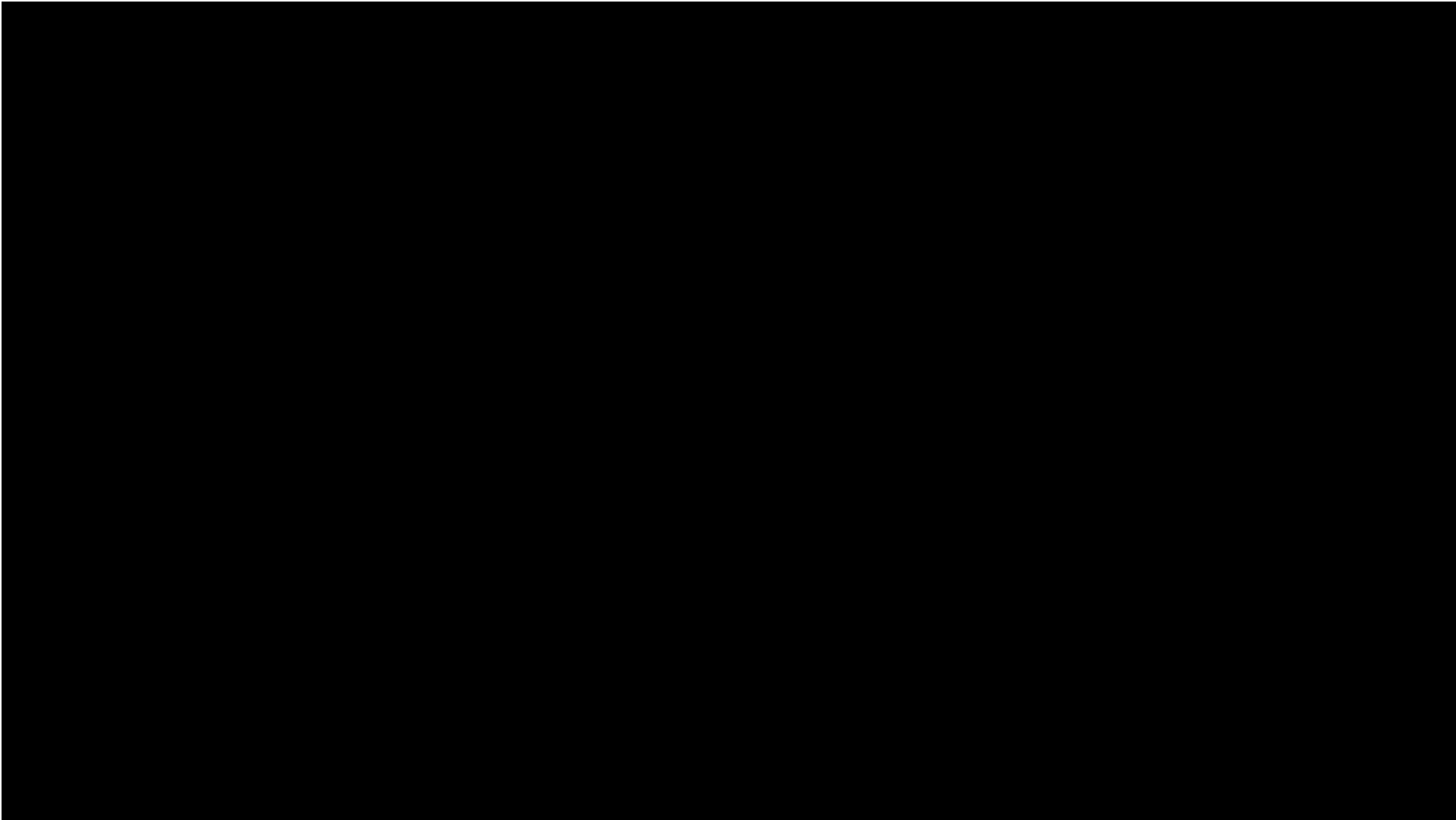
Did you answer ‘yes’ to any of these questions?

Then you could be an engineer



Engineers do some really cool stuff!

This video shows Angelo, an aerospace engineer who combines his love of wingsuit BASE jumping with his engineering knowledge to develop the world's most scientifically engineered wingsuit.

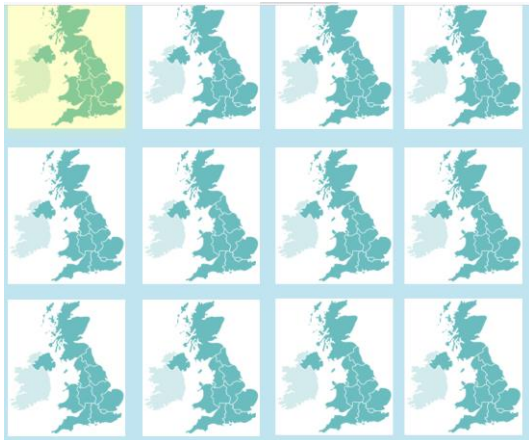


Why do we need more engineers?

Because there are so many unsolved problems in the world...



840 million people don't have clean drinking water



That equates to twelve times the amount of people that live in the UK

Engineering is problem finding

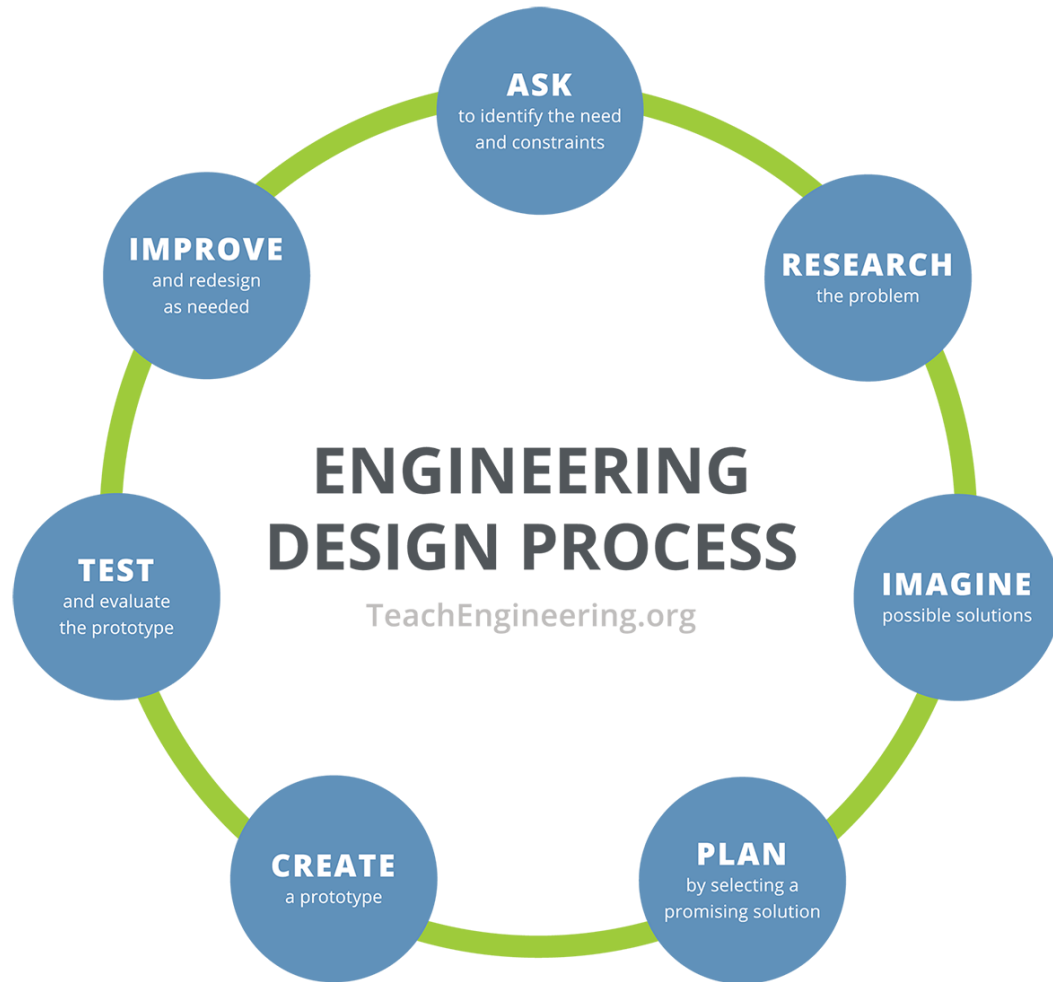


So what problem can you find to solve?

**IF YOU WERE an
ENGINEER
WHAT WOULD YOU DO?**

Activity Two

Learning Outcome: to understand the Engineering Design Process



The engineering design process is a series of steps that engineers follow to find a solution to a problem





https://www.google.co.uk/search?q=the+engineering+process&source=lnms&tbn=vid&sa=X&ved=2ahUKewjHof6apd38AhXOhFwKHe_xBuAQ_AUoAnoECAEQBA&biw=1034&bih=588&dpr=1#fpstate=ive&vld=cid:11215909,vid:fxJWin195kU

Top 10 Employability Skills

How you work

How you work with others

How you think



Let's try out an engineering challenge!

Paper cup challenge rules:

- You must build the same structure shown by the teacher
- You must use all your cups and use the elastic band and 4 pieces of string
- DO NOT touch any cup with your hands



Activity Three

Learning Outcome: To construct a list of questions to ask the engineer at the live interview

Built Environment — Smarter Transformation

“Our £2.5million, 35,000 sq ft. Innovation Factory is like Willy Wonka's chocolate factory for the built environment.”





Activity Four

Learning Outcome: to examine existing solutions and identify problems



IF YOU WERE AN
ENGINEER
WHAT WOULD YOU DO?

Primary Engineer Programmes
...the first step®

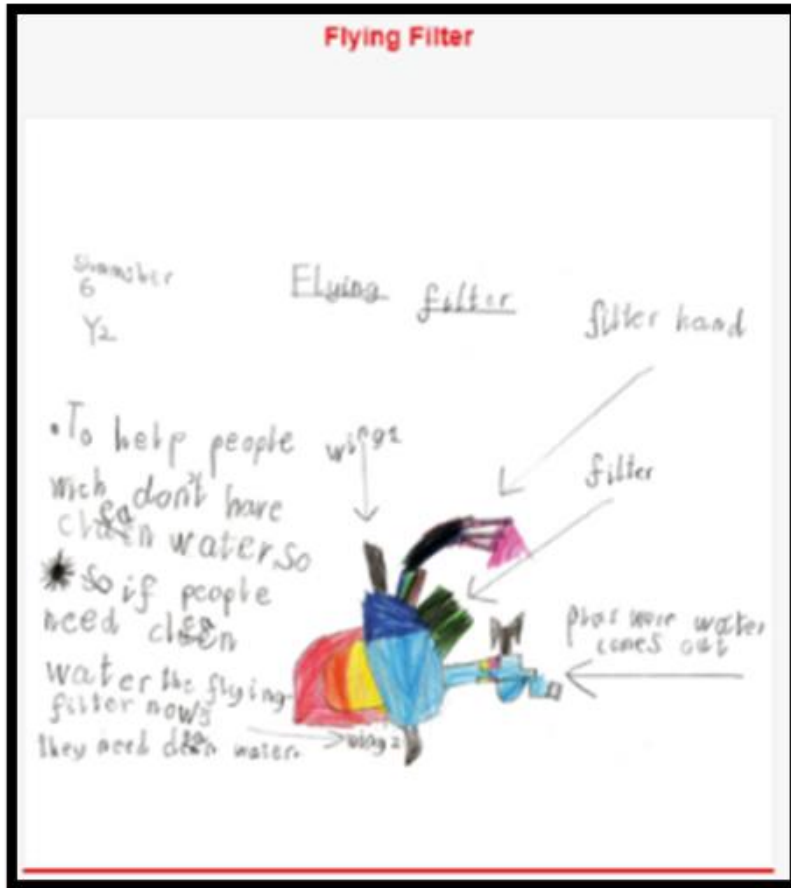


WINNER'S

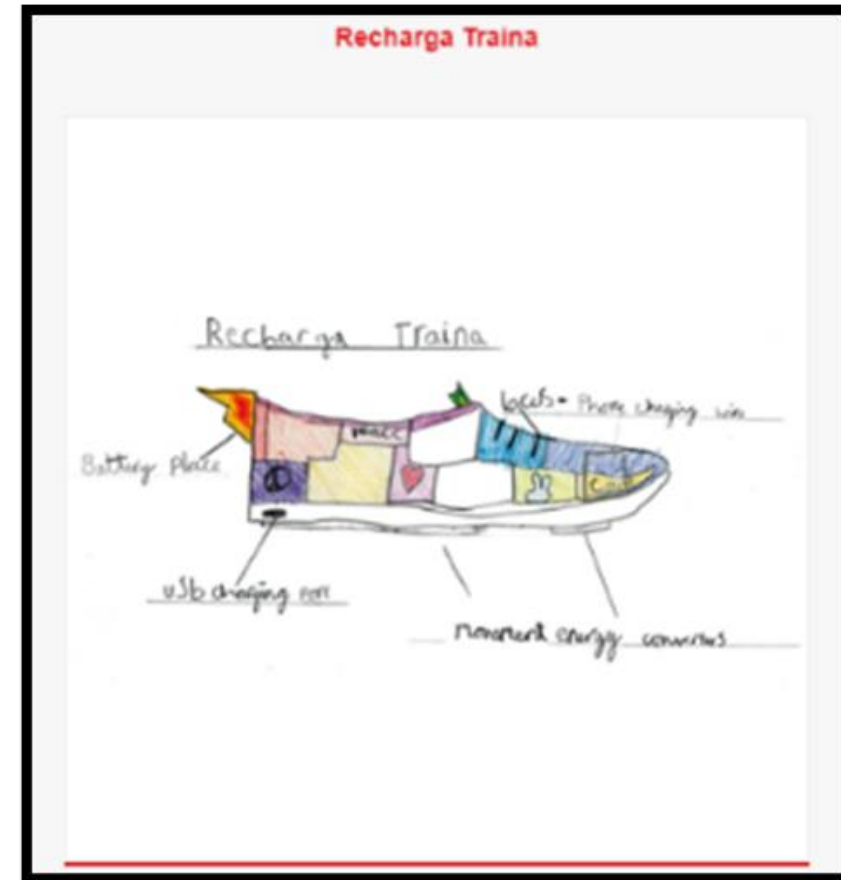


The Trolley for the Elderly, designed to enable Aidan's 'wee grannie' to lift the shopping out of the shopping trolley and into the boot of her car. Constructed by the University of Strathclyde Faculty of Engineering undergraduates.

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7 year old pupil's design **'The Flying Filter'** to help people who do not have clean water. It flies to places that are in need of clean water and contains a filtration system



8 year of pupil's design **'The Recharge Traina'** which allows people to make their own electricity to recharge devices – the more you run the more electricity you make!

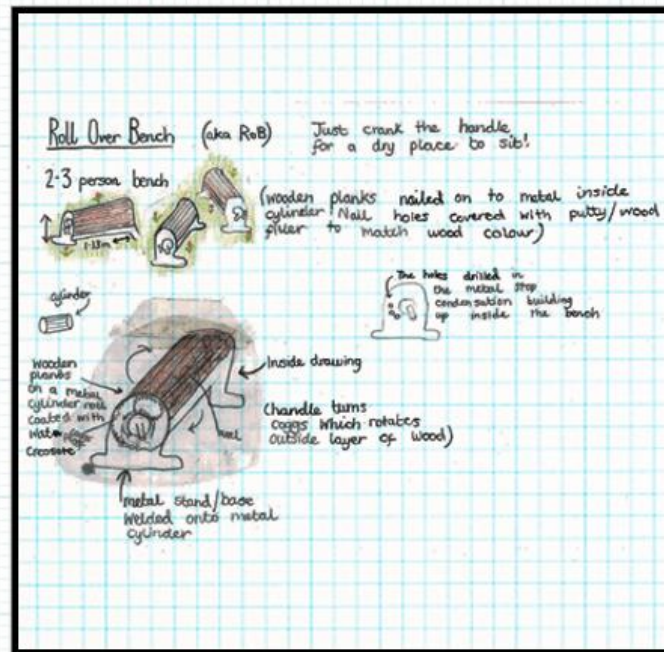
The Rotating Bench

IF YOU WERE AN
ENGINEER
WHAT WOULD YOU DO?®

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WINNER'S



Let me share with you my inspiration for my invention. One day I was in a park and I was going to sit on a bench when I noticed it was covered in water. Every bench was. That made me think. What if there was a way to have a dry seat when it has been raining? That's when it hit me.

Introducing to you, the 360° rotating bench, (Roll over Bench) The 'RoB'. The 'RoB' is a bench with a handle on one end. Just crank the handle for a dry place to sit. The bench will rotate around until wet patches are no more. My invention solves the problem of having damp or wet trousers when you sit down. Nearly

everyone will benefit from my invention but in particular it will help the elderly, schools and the homeless.

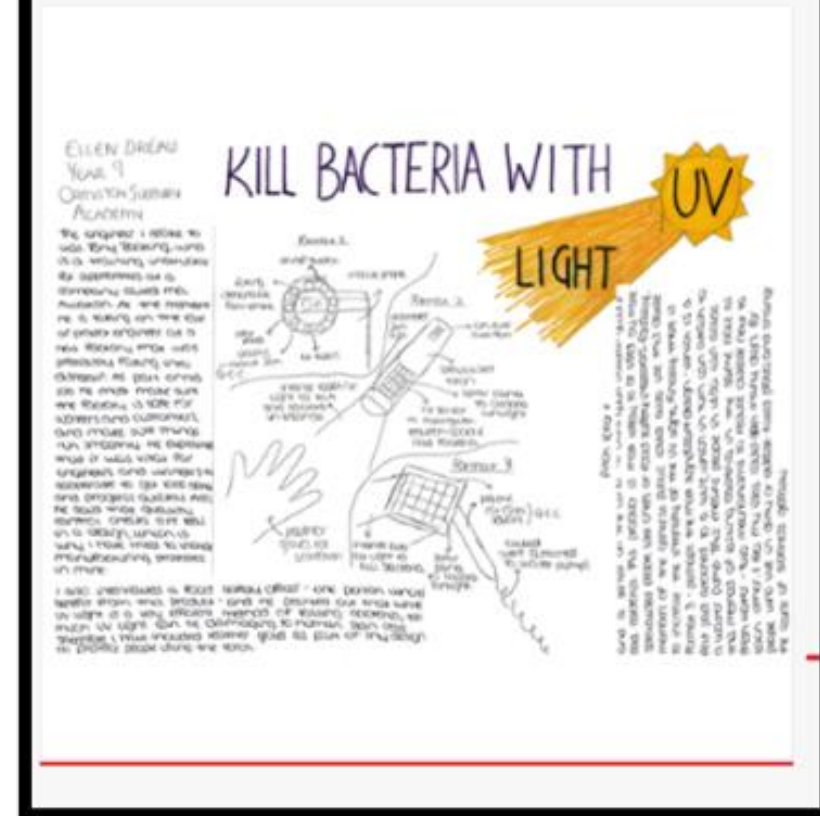
So please, please develop my invention as I think it will be a huge help to society.

Under Water Mapping Device



12 year old designed the **'Underwater Mapping Device'** will map underwater caves and trenches problematic for humans who like to explore the sea.

UV Torch



14 year old designed the **'The UV Torch'** uses UV light to kill bacteria. It uses solar energy and can tell the difference between 'good' and 'bad' bacteria

Activity Five

Now it's your turn!

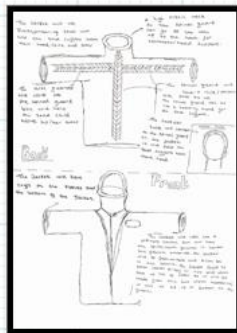
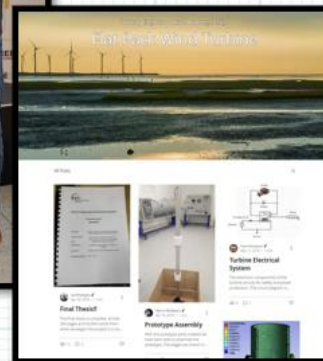
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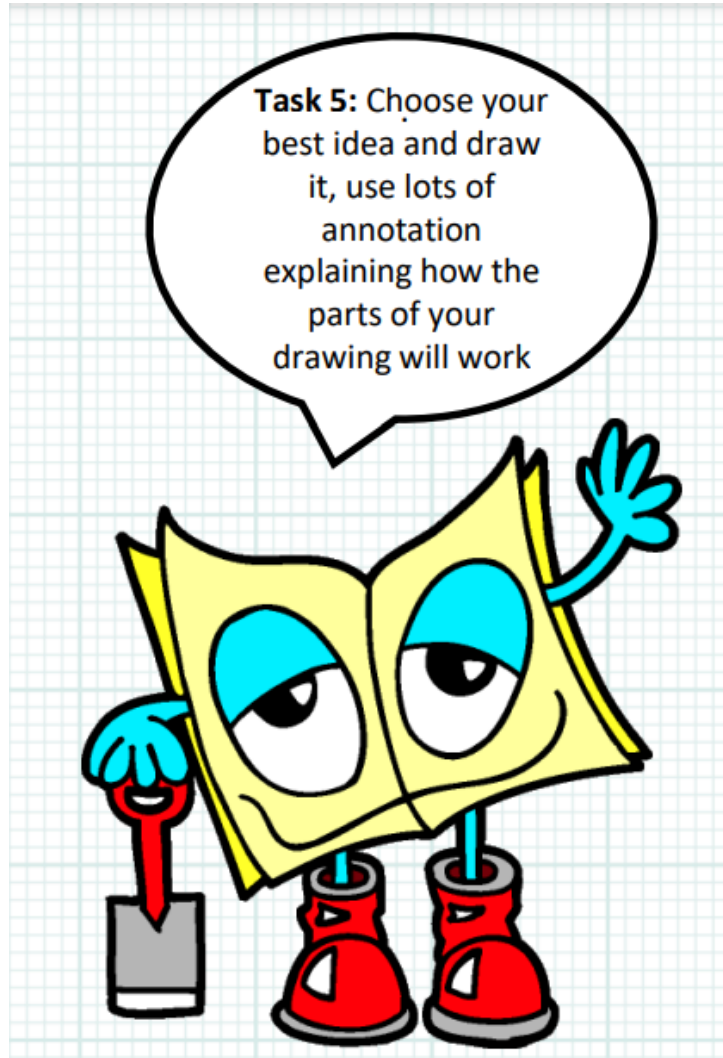
What do you need to do to take part in the 'If you were an engineer what would you do?' competition?

- ▶ Research engineering
- ▶ Interview an engineer
- ▶ Identify a problem
- ▶ Invent a solution to that problem, illustrate and annotate it
- ▶ Write a letter to an engineer explaining your idea and why it should be chosen to be Prototyped
- ▶ Send it to us! For more information www.leadersaward.com



IF YOU WERE an
ENGINEER
WHAT WOULD YOU DO?®

Create a drawing of your final design



The following must be considered:

- ✓ Is it clear and easy to understand?
- ✓ Have you labelled key parts?
- ✓ Have you annotated/explained their design?
- ✓ Have you considered different angles/viewpoints/nets/inside and outside etc?
- ✓ Have you listed supplies needed?

Writing your supporting letter tips!

Answer all the questions in this image:

- ✓ What is your invention?
- ✓ How did you come up with the idea?
- ✓ Who does it help?
- ✓ Why should it be made?
- ✓ Who inspired you?



Your address

Date:

Primary Engineer
Floor 2
AMS Office Tower,
AMS Technology Park
Burnley Lancashire
BB11 5UB

Dear Primary Engineer,

What is your invention?

How did you come up with the idea?

Who does it help?

Why should it be made?

Who inspired you?

Yours sincerely,


Good luck
to
everyone!

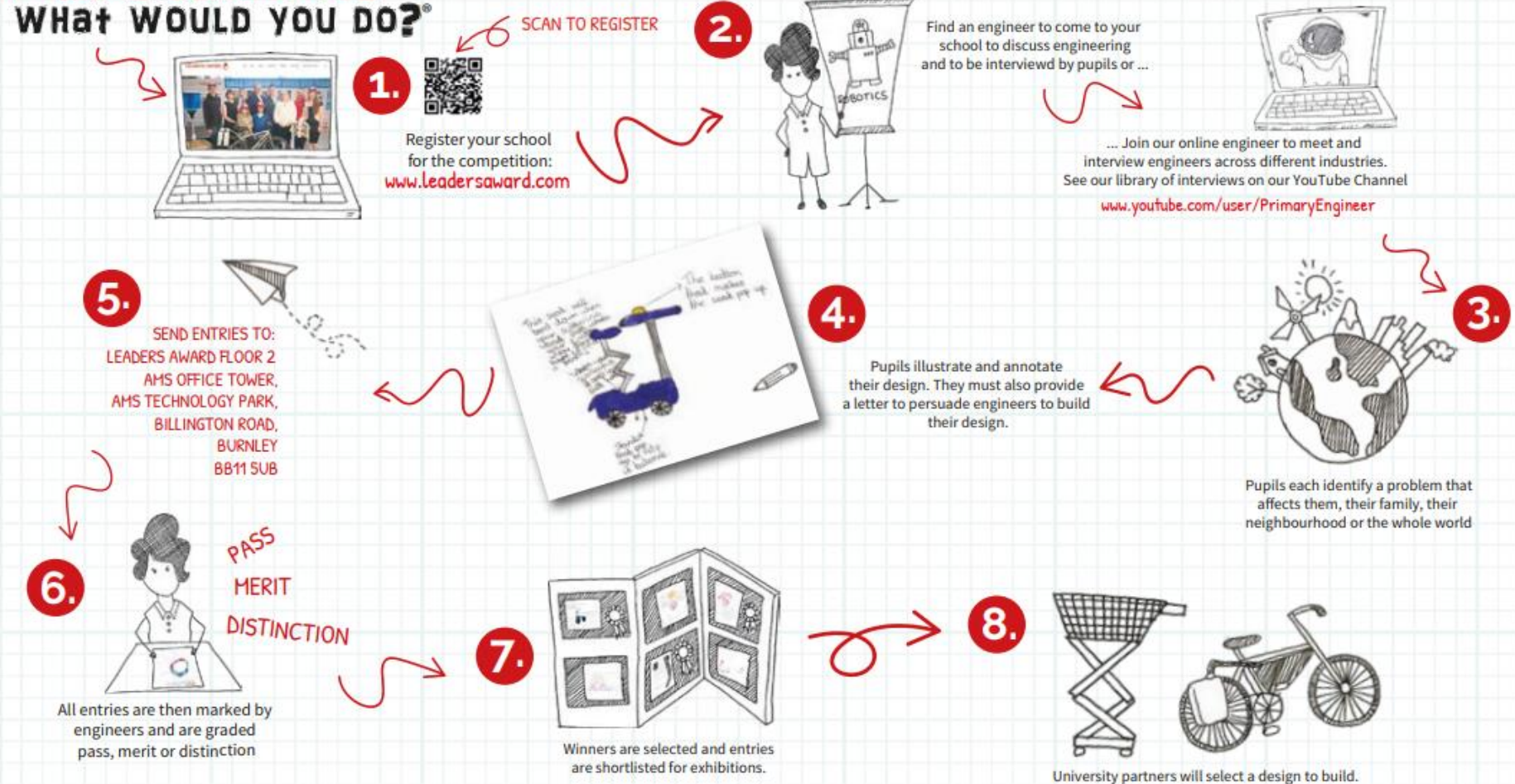
IF YOU WERE AN ENGINEER WHAT WOULD YOU DO?



STEM
OPPORTUNITIES IN AVIATION



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#IfYouWereAnEngineerWhatWouldYouDo?

IF YOUR SCHOOL WOULD LIKE TO TAKE PART IN THIS
EXTRAORDINARY COMPETITION PLEASE CONTACT: INFO@LEADERSAWARD.COM
FOR MORE INFORMATION VISIT WWW.LEADERSAWARD.COM