

A TO Z OF ENGINEERING

WORKSHOP 5: Going Green

Welcome to Engineer Academy where we're exploring an A to Z of Engineering – everything from acoustics to zoos!

So what does engineering actually mean? Well, anything that is built – whether a bridge, building, washing machine and even your smartphone, must first be engineered.

An engineer is a person who designs and builds complex products, machines, systems or structures. They want to know how and why things work, and have scientific training that they use to make practical things. Engineers often specialise in a specific branch of engineering, such as civil, electrical, mechanical and chemical engineering. You can think of engineers as problem solvers – so if you like solving puzzles you might make a great engineer!

Some of the different types of engineers you will come across are...

Software engineers use programming languages such as C++, Javascript and Python to design and create programmes that help computers carry out a wide range of tasks – from production in factories to online shopping and of course gaming.

Textile engineers are creating new fabrics and materials with exciting new properties, from being super waterproof to being able to repel bacteria and pests like mosquitos and to even automatically react to our bodies temperature.



Royal Academy
of Engineering

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Find out more at www.funkidslive.com/engineer

Engineering through the Ages

From mud huts to machinery, tunnels to telephones, engineering has been a big part of human history for thousands of years.

Today's engineers use the most advanced technologies, alongside established scientific principles, to apply cutting edge solutions and innovation to real world challenges.

Sustainability – looking after the Earth's resources and protecting our environment, has never been so important and engineering is helping meet these challenges. Let's explore some ways in which engineers are helping us go green!

E is for Environment

Monitoring is an important part of environmental engineering. Take plastics – experts are creating roadmaps which identify where different types of plastics come from. By identifying which types are on the increase, we can put plans into place to reduce their use and improve ways these plastics can be recycled. It's forecast that if we don't do anything, the flow of plastics into the oceans could triple by 2040, but if we invest in technologies to reduce and recycle the worst offenders, there could actually be an 80% reduction!

Getting rid of the yucky stuff

Public health experts help prevent disease and prolong life. Clean water is at the heart of this global issue – nearly one billion people don't have clean water close to home, and diarrhoea caused by dirty water and poor toilets kills a child every two minutes. In 2016, an engineer called Adrian Lievano visited Kenya to help improve access to clean water. He created a coconut-based carbon and earth-based ceramic container that purifies water. It can sit perfectly on the back of a bike, store 12 litres of water and filtering a litre an hour.

Generating power in wild places

Windfarms have become a common sight – there's over 11 thousand turbines across the UK generating enough electricity to power 8.4 trillion LED bulbs. Having windfarms where there's more wind... like the North Sea, is a great idea but the challenge has been how to build these massive structures in these wild areas. Floating windfarms use cables and anchors to tether platforms to the seabed.

Academy Challenge

Recycling is a really important way we can all help to conserve resources and reduce waste – to help protect our planet.

But recycling isn't just for paper and packets! Did you know that anything with a cable, plug or batteries can be recycled! It's important that electrical devices are not placed in domestic recycling but in special bins.

It's all as easy as 1 2 3!

- Make a list of all the electrical devices and appliances that your family has around your home. Score them whether they are used every day, every week or less often.
- With an adult's permission, check drawers and cupboards for old batteries and unwanted electrical devices – from mobile phones and tablets to charging cables and even old toasters.
- Go online to www.recycleyourelectricals.org.uk to find a recycling point near you.

How many gadgets did you find and were able to recycle? Challenge your friends to beat your score!



Wordsearch

P P S M W P U B L I C H E A L T H R
U O C E N V I R O N M E N T A L E E
M X W N D M E Y U K G T K V E P M C
U B P E V L Q D O I D B G S Y W I Y
W R Z A R J N M D M B O T L N H S C
A J P Y Q G K E X Z U V J O H U S L
T P O L L U T A N T S R M Y Y T I I
E A S U S T A I N A B I L I T Y O N
R L Q W I N D F A R M S M J D Y N G
O W P X W A R N K H W M P K T U S X
H V Y R I W M O N I T O R I N G A J
J L N I M J G A D G E T S J A Y O J

**Can you find
these words?**

Environmental
Pollutants
Monitoring
Public Health
Water

Windfarms
Power
Sustainability
Recycling
Gadgets
Emissions

