



The Engineering Message

What Is Engineering? Who Are Engineers?



A Dictionary Definition Of An Engineer Is...

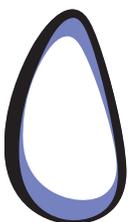
"One who contrives, designs, or invents; an author, designer" and engineering is "the art and science of the engineer's profession"

Does your audience agree with this definition?

By working through this resource you will be able to help students understand The Engineering Message and develop their own modern and relevant definitions.

Remember this is not a definitive answer.

This is a starting point for discussion and activity; a chance to use your own enthusiasm and experience.



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What Is Engineering?

What does the audience think represents engineering? What can they think of that has been engineered?

Draw up a list of their answers on a board or flipchart.

What examples have they given? Why do they think this way?

Many students will think that engineering is just about fixing cars or constructing bridges, ships or buildings, but in fact, **engineering shapes the world.**

Developing new, and improving existing products is key to the success of many businesses.

There are excellent opportunities for students from all backgrounds in terms of careers.

There are many routes into the engineering profession.

See the **Routes Into Engineering** resource for more information and of course draw upon your own experiences.



Getting The Message Across

Students can often feel that engineering has 'nothing to do with me' without realising that engineering is a very broad area.

Much of what we buy, own, wear, eat and do has been influenced by engineers. Engineering is essential to our health, happiness and safety.

The best way to get this message across is to get the students to do it!

Engineering...

...is a vast and complex industry, so it is easy to see why many people don't really know what engineering is or what an engineer does. To combat this, you can do several things when working with young people through your presentation, scenarios for tasks or general conversation:

 illustrate what type of engineer you are and where your work fits into the bigger picture

 illustrate the impact of the work you do as an engineer and what your company does

 illustrate the types of people you work with, where you work and what you do on a day to day basis - what are the best bits (and the not so good bits) about your job



More Information

Perhaps you could develop these ideas further by joining a school STEM Club? www.stemclubs.net

Contact your local contract holder: www.stemnet.org.uk/regions

There are more useful ideas at STEMNetworking: <http://networking.stemnet.org.uk>

For more information on the Engineering Engagement Project visit The Royal Academy of Engineering website at www.raeng.org.uk



In small teams, encourage your audience to create a short (maximum 3 min) audio podcast or video for their school website showing the influence of engineering on their own lives.

You may wish to give them a particular topic e.g. 'Engineering in my School'.

This could be a one off session, or you may choose to give your audience time to do extended research and surveys of their schools before returning to view the results at a later date.



Engineering Is Relevant

Engineering is essential for our future health, happiness and safety and we need people with good communication, creativity, dynamism, and those that enjoy a challenge to become engineers.

Whether it is the pens your audience use to write up their homework or a large scale project such as a high speed rail link between cities (such as Birmingham to London), we do not have to look far to see how engineering affects our lives.

There are many examples of engineering we just couldn't live without in the 21st century.

Discuss these brief examples with your group.

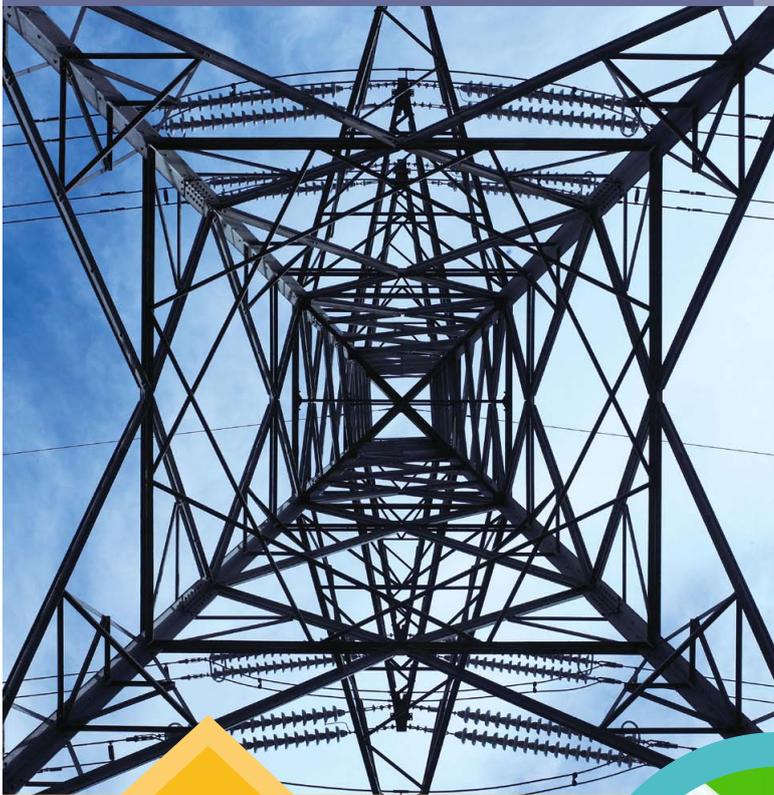
Food

It may seem strange to say that our food has been engineered. However, many people purchase their food from supermarkets, meaning that:

- ✔ The food has been mass produced
- ✔ The products have been packaged
- ✔ The food has been transported

These are just three examples of how engineering can affect our food. Can your audience think of more?

Does engineering affect food produce in other countries?



Energy And Electricity

How we live our lives in the 21st century relies on the sufficient supply of electricity and energy. When these are removed we often find it difficult to cope. Think back to any power cuts you may have experienced.

Discuss how engineering relates to the generation and transfer of electricity.

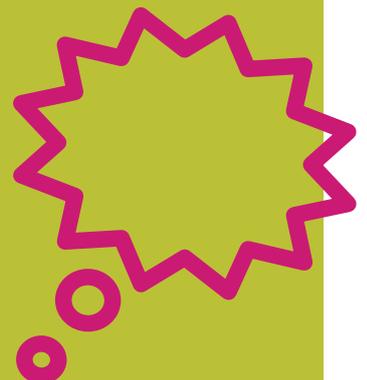
How would your audience cope if we were unable to generate and transmit electricity? Remember, they would not be able to buy processed foods or mass produced objects. What other problems can they think of?

Picture Credit: E.ON



There are many more everyday examples of great engineering. Here are just a few:

- the escalator...
- the ball point pen...
- the blu-ray and high definition DVDs and TVs...
- iris recognition passports...
- (low energy) light bulbs...
- hybrid vehicles...





Role Models

Students often believe engineers fit into stereotypes. Use these role model profiles during your sessions to challenge your audience's impression of engineers.

There are lots of profiles throughout the resources to use.

Don't forget to include yourself!

Yvonne Amanchukwu

Project Risk Engineer

I studied electrical electronic engineering at the 'Federal University of Technology Owerri (FUTO)' Nigeria where I obtained a B.Eng and went on to the University of Leeds to study engineering project management in the School of Civil Engineering and obtained a distinction and a MSc(Eng).

I love working in engineering because all projects are unique so you always have different challenges. There is always an opportunity to travel if it is something you are interested in too. You also get to work with people of different nationalities and cultures and with varying skills and expertise. You really get to learn a lot.

Engineering makes a dream/idea into a reality. The tallest skyscrapers in the world and the fastest motor cars were once just an idea; a dream on a piece of paper that was brought to life.



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Angela Crowther

Structural Engineer/Built Environment Designer

I spent a year working for a charity in Indonesia where I got to design and build a school for 200 pupils. It was actually part of the rebuilding after the 2004 Boxing Day Tsunami.

I love this part of my job because I get to see first-hand all the great things that engineers can do to help people.

I dislike being told something is impossible!

There's always a solution – an engineer can probably help you find the answer!

To engineer means to make things happen. I believe engineers have the skills to make the future a better place for all of us.



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