

<b>Careers Related Learning</b>	<b>Lesson Focus: KS2 STEM Careers in Construction, Manufacturing and Engineering</b>	<b>Key Stage Two</b>
<b>National Curriculum / subject Links:</b> Science, Design and Technology, Maths Discussion-lead learning - being able to link skills and the use of specialist tools to jobs.		
<b>Learning Objectives</b> <ul style="list-style-type: none"> <li>• To learn what an industry or sector is.</li> <li>• To learn about a number of different job roles in Construction, Manufacturing and Engineering</li> <li>• To link specialist tools to job roles.</li> </ul>	<b>Success Criteria</b> <p>Children will be able to link things they enjoy doing and skills they have to jobs in Construction, Manufacturing and Engineering.</p> <p>Children will be able to explain what an Engineer is and how engineering links to so many aspects of their lives from the toys they play with to the classroom they are sitting in.</p> <p>Children will be able to explain how the skills and subjects they learn link to jobs.</p> <p>Children will be able to identify and the purpose of specialist tools.</p>	<b>Resources</b> <ul style="list-style-type: none"> <li>• Teachers Session plan</li> <li>• Teacher PowerPoint:</li> <li>• KS2 STEM Careers in Construction, Manufacturing and Engineering</li> <li>• Scissors</li> <li>• Glue</li> <li>• Pencils</li> <li>• Pupil Worksheets</li> <li>• What Tools Do Engineers Use?</li> <li>• Engineering Tools Wordsearch</li> <li>• Safety at Work</li> </ul>

### Teaching Input

Run through the PowerPoint (PPT) and discuss what STEM means and how this links to most careers.

Discuss in further detail slide 3 with the definition of what a sector or industry is. Can they think of any other industries? E.g. agriculture - the very first industry we had.

Run through Slide 4 and 5 to show pupils they may already have these skills  
Emphasise how the job sectors are linked because they use problem solving to create new products  
Explain why STEM subjects are very important in these job sectors as the future is becoming more automated with the use of technology in all job industries. Careers in the future will be different to the current job market.

**If pupils are unsure of any vocabulary, stop and check understanding then go through these together.**

### Starter:

**Slides 6 to 13:** This a challenge where pupils name three skills and school subjects required for each job then rate them in order of importance. Pupils can choose from the 8 skills on each slide or other skills they think would be needed in that job role. Ask each pupil to work out which skill or subject they wrote down the most and then do a tally for the class to find out the top 3 skills.

**Children need whiteboards or paper and pens for the Quick-Fire Round: Name the Skills Game.** Talk about the skills, school subject links and any other skills the pupils think are important (15 mins).

**Slide 14:** make links to the UTC and what it can offer to pupils.

**Slide 16:** Ask children to look around the room and come up with 3 things that engineers might have made or might be responsible for.

The answer is that everything apart from the living things in the room will most likely have needed an engineer to help create them. They design and/or build everything around us.

**Slide 17 & 18:** Discuss how classroom objects such as toys, tools, laptops, the SMART board all link to Engineering with the objects being designed to overcome a problem. Link this with Maths, Science and Design and Tech where pupils often problem solve.

**Slides 19-29:** As a whole class assess pupil's pre-learning, as some pupils may know what some of the tools are already. Play the videos when prompted.

### Main Activity:

There is a carousel of three activities to complete. You can either complete each activity in turn, set these up at different stations or pick an activity to focus on.

Give children the option to work through tasks below using slides 30 -33 as prompts (Pupil worksheets are provided for each of these):

**What Tools Do Engineers Use?:** Engineers, Construction Workers and Manufacturers use special equipment called tools to help them get jobs done.

Task: Cut out the tools and match them to the correct descriptions.

**Engineering Tools Wordsearch:** features the 9 tools from the PowerPoint and 'What Tools Do Engineers Use?' worksheet.

**Safety at Work:** Children complete the pupil activity worksheet.

In lots of jobs, it is important that you wear the correct Personal Protective Equipment to keep yourself safe from harm. Discuss why protective equipment is worn and what job roles require safety equipment.

*Differentiation in level of support given - give support as required and walk around the classroom to ensure children can work through the task either independently or in pairs or groups depending on ability.*

### Wow Factor / Did you know?

- Did you know that the word engineer comes from a Latin word meaning 'cleverness'
- Designed and built by engineers - the Great Pyramid of Giza was the tallest structure in the world for over 3800 years.
- Windscreen wipers were invented by a female engineer called Mary Anderson in 1903.

### Assessment Questions – gather ideas from children and discuss as a whole class

- What is an Engineer?
- Why is it important to wear safety equipment?
- Why are there different tools?
- How do you problem solve?

### Plenary / Memorable finish

Use the final two slides plus the 'Tomorrow's Engineer's' PDF to share how pupils can enter these career paths: <https://www.tes.com/teaching-resource/engineering-careers-poster-6197687>

#### Useful Websites

- Primary Engineering | STEM
- What is engineering? | STEM

Play this video of Rosie Revere, Engineer and discuss how both boys and girls can work as Engineers, Construction workers or Manufacturers making new products.

Rosie Revere, Engineer (Read Aloud) by Andrea Beaty | Storytime Science-Technology - YouTube