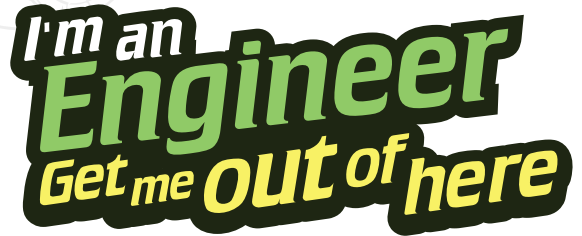


# Lesson 1: You're the Judges!



## What this pack contains:

- Pg 1. Lesson 1 - You're the Judges!
- Pg 2. Lesson 2 - Meet the Engineers
- Pg 3. Lesson 2 - Meet the Engineers (alternative version)
- Pg 4. Lesson 3 - Live chat

## Lesson Plans

### Lesson

#### Lesson 1 – You're the Judges!

Introduce *I'm an Engineer*.

Choose and rank criteria by which to judge the engineers.

#### Lesson objectives:

- Consider a range of criteria and understand that different (important) values may need to be weighed against each other.
- Develop a sense of democracy and how to decide how to cast a vote.
- Discuss different viewpoints and understand that different values will be important to different people in the class.

#### Curriculum links:

- Working scientifically – consider ethical, social and practical aspects of engineering.
- Promotes democracy and SMSC development.

#### Resources:

- Access to the *I'm an Engineer* website ([imanengineer.org.uk](http://imanengineer.org.uk))
- 'Interactive drag and drop criteria list' or 'criteria cards for printing' from [imanengineer.org.uk/resources-for-teachers](http://imanengineer.org.uk/resources-for-teachers)
- Student login cards (for homework)

#### Starter: 5 minutes

Explain the *I'm an Engineer* activity briefly (use the first page of this booklet and show the website on a projector or interactive whiteboard if possible).

The students have the power to decide who wins. What ideas do they have about engineering at the moment? Will they change?

#### Activity: 30 minutes

- 1) Display the criteria list. Use the interactive drag and drop list, or print the criteria cards for students to use in groups – available at [imanengineer.org.uk/resources-for-teachers](http://imanengineer.org.uk/resources-for-teachers)
- 2) Get the class to whittle down the most important criteria and write these on the board.
- 3) Get the class to rank the five most important criteria – save this list for next lesson.

#### Plenary: 15 minutes

- Mindmap any other criteria not on the list, but that students might consider important when judging engineers.
- Overall message: this will help you judge the engineers as engineers.

#### Suggested Homework:

- 1) Staple your login card somewhere safe or take a photo of your login details.
- 2) Log in to [imanengineer.org.uk](http://imanengineer.org.uk) and set up your profile.
- 3) Read some engineers' profiles – how does each person perform based on your criteria from today's lesson?

Extension: If you have questions for the engineers already, post these in ASK.

### Suggested adaptations

#### Support:

Less justification necessary. Lead students into the rationale behind their decisions.

#### Extend:

Ensure full justifications and explanations are given by students whenever they express an opinion.



## Lesson 2: Meet the Engineers

### Lesson

#### Lesson 2 – Meet the Engineers

Engineered Speed Dating, a fun, exciting way to 'meet' the engineers.

#### Lesson objectives:

- Get to know engineers and realise they are normal people!
- Consider some questions students may want to ask the engineers.
- Broaden the students' perceptions of engineers and contribute to students' science capital (see more at [imascientist.org.uk/science-capital](http://imascientist.org.uk/science-capital)).

#### Curriculum points covered:

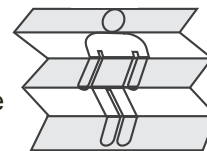
- Select, organise and present information.
- Evaluate information and make informed judgements from it.
- Learn about real world applications and use of science, technology, engineering and maths.

#### Resources:

- List of the top five criteria chosen in Lesson 1: You're the Judges!
- Printed Suggested Questions sheets found at the bottom of page 5 or online at [imanengineer.org.uk/resources-for-teachers](http://imanengineer.org.uk/resources-for-teachers). Have enough copies for one per engineer in your zone.
- Printed copies of each of the engineers' profiles in your zone.
- Paper and pens for drawing an engineer.

#### Starter: 10 minutes

- 1) Split students into groups – one group for each engineer in your zone.
- 2) Ask them to think about what they imagine engineers are like. Draw an engineer as a group. Starting at the top of the piece of paper, each person in the group draws a different part of the engineer (head, shoulders, etc) without others seeing, folds over what they have done and passes it on (like a game of consequences).
- 3) Unfold and look at the pictures – are there any common themes? Do they think engineers are really like that?



#### Activity: 30 minutes

- 1) Assign each group an engineer from your zone and hand them a print out of the engineer's profile. Get each group to read out their engineer's name and job role.
- 2) Remind the students of the five most important criteria they chose in Lesson 1: You're the Judges! for rating engineers.
- 3) Get the students to read through their engineer's profile as a group.
- 4) Split each group in half, into A's and B's, for engineering speed-dating. Those in Group A are students who will go around and question Group B, who are the engineers. Group B will use the printed engineer profile pages on which to base their answers.
- 5) Hand the Group A students the list of Suggested Questions to ask the Group B engineers. They can also ask questions of their own. If the answer is not available on the engineer profile the group can speculate as to what their answers could be.
- 6) The Group B engineers will stay seated and the Group A students will rotate between each engineer, asking questions. Move students on to a new engineer every few minutes.

#### Plenary: 10 minutes

Go over the questions for each engineer and discuss the engineers as a class. Did students feel they got to know the engineers? What are their opinions of each person? What would they like to ask the engineers? Now may be a good opportunity to draft some questions for ASK and CHAT.

#### Suggested Homework:

Log in to [imanengineer.org.uk](http://imanengineer.org.uk) and post at least one question in ASK.

Extension: Read some of the other questions and answers on the site. Who do you think should win? Cast your vote (you can change it later if you change your mind).

### Suggested adaptations

#### Support:

Do the activity as a class with the 'engineers' at the front. Two or three students play each engineer.

#### Extend:

Students ask their own questions rather than Suggested Questions to the 'engineers'. Go onto the site and submit some questions in ASK for the real engineers.

# Lesson 2: Meet the Engineers (alternative version)

## Lesson Plans

### Lesson

#### Lesson 2 – Meet the Engineers (alternative version)

This alternative version of Lesson 2 allows for more independent learning if students have access to computers.

#### Lesson objectives

- Get to know engineers and realise they are normal people!
- Explore the site and interact with real engineers using ASK.
- Broaden the students' perceptions of engineers and contribute to students' science capital.

#### Curriculum links:

- Select, organise and present information.
- Evaluate information and make informed judgements from it.

#### Resources:

- ICT suite or a computer and projector in the classroom so students can work together with the teacher leading

#### Starter: 10 minutes

Recap the *I'm an Engineer* activity, and what can be done on the site – reading profiles, ASK, CHAT and VOTE (see front page of booklet). Or use 'fold game' starter from the engineering speed-dating version of Lesson 2 on page 4.

#### Activity: 35 minutes

- 1) In pairs, mindmap suitable questions students want to ask the engineers, then discuss as a class.
- 2) Send students to [imanengineer.org.uk](http://imanengineer.org.uk) to log in using their login cards (independently or in pairs). Read the profiles of each engineer in your zone.
- 3) Write down three interesting things from the site.
- 4) Post a question in ASK.
- 5) Read some of the other questions and answers on the site. Who do students think should win? Cast votes (students can change their vote later if they change their mind).

#### Plenary: 5 minutes

Students present their three interesting things to the class, and which engineer they want to win or who they would not vote for and why. Are the engineers as the students expected? If not, how are they different?

#### Suggested Homework:

Pick one of the engineers. Find out about their area of engineering and write about it, including:

- What they study
- Where they do their research
- A famous engineer from the area they study

Extension: Continue reading the questions and answers already on the site. Comment or post more of your questions in ASK. If you've changed your mind about who you want to win, change your vote.

### Suggested adaptations

#### Support:

Give more assistance in thinking up questions. Use the criteria from Lesson 1: You're the Judges! and Suggested Questions from Lesson 2: Meet the Engineers as a basis.

#### Extend:

Allow more freedom when looking at the site. Write a short paragraph about what they find on the site to present back to the class. Justify more clearly which engineer they like best.

These Suggested Questions are also available to download and print at [imanengineer.org.uk/resources-for-teachers](http://imanengineer.org.uk/resources-for-teachers)



## Lesson

### Lesson 3 – Live chat

Chat to real engineers in our online chatroom.  
See page 7 for more information on preparing for this lesson.

#### Lesson objectives:

- Interact with engineers using CHAT.
- Increase the relevance of STEM to everyday life.
- Broaden the students' perceptions of engineers and STEM and contribute to students' science capital.

#### Curriculum links:

- Apply principles and concepts to unfamiliar situations.
- Make informed judgements about engineering.

#### Resources:

- Live chat booking (important: book in advance at [imanengineer.org.uk/live-chat](http://imanengineer.org.uk/live-chat)).
- Access to the website for individuals or pairs
- List of the top five criteria chosen in Lesson 1: You're the Judges!

#### Starter: 5 minutes

Go over the important criteria from Lesson 1: You're the Judges!, Suggested Questions from Lesson 2: Meet the Engineers and/or questions students have prepared.

In this live chat lesson the students can get to know the engineers better, in real time. Remind them that they have a big responsibility, because each student gets a vote to decide which engineer wins £500.

**Note – Engineers are busy and working full time. There are usually around three engineers online for each chat so try to manage the class's expectations. The important thing is that they get to connect with engineers and find out they are human too. If students were hoping to chat with a specific engineer, encourage them to post their question(s) to that engineer in ASK instead.**

#### Activity: 35 minutes

- 1) Log on to the website ([imanengineer.org.uk](http://imanengineer.org.uk)) using the details on the students' log in cards.
- 2) Live chat with the engineers, as individuals, pairs or small groups. Students should be encouraged to tag their messages by clicking on an engineer's name before sending a question.

#### Plenary: 10 minutes

- Students cast their vote for who they think should win.
- Are there any other questions they didn't get to ask? Post these in ASK.
- Sum up what students have learnt about the engineers. Did students learn anything that surprised them?
- Remind students that they can use the site to ask questions at home if they have access to the internet.

#### Suggested Homework:

Pick one of the engineers' areas of work. Find out more about an issue facing that area – either research an issue that came up in the live chat, or write about the biggest issue facing that area of work. Post a question about this issue in ASK.

## Suggested adaptations

#### Support:

Suggest questions or ask engineers the mindmapped questions from Lesson 2: Meet the Engineers.

#### Extend:

Read engineers' profiles to ask questions about their specific areas of study — what can students learn about the different projects engineers are working on?