

ENGINEERING

TAKE A CLOSER LOOK

**STEM ACTIVITY
EVALUATION GUIDE**

INTRODUCTION

During the Year of Engineering 2018, hundreds of different organisations are offering young people engineering experiences to meet our common goal of inspiring the next generation of problem solvers.

But how can we measure the positive impact of our work, demonstrate its value to others and discover what's worked best?

In partnership with the Institution of Mechanical Engineers, we've developed a simple, but robust tool to help measure the impact of events and activities.

You just need to get the young people who've taken part in your activities to respond to six quick questions then upload the results. If we all use the same tool, we can more easily learn from each other and build a national picture of the impact we're making during the Year of Engineering.

WHAT TO DO

Get your group together after your activity and explore the six themes below using the tools in this guide.

1. How **enjoyable** or inspiring was the activity?
2. How much **knowledge** did they gain?
3. Did they acquire new **skills**?
4. Did they gain a greater **understanding** of engineering?
5. Have they gained an **appreciation** of the value of engineering?
6. Has their **interest**/disposition towards engineering increased?

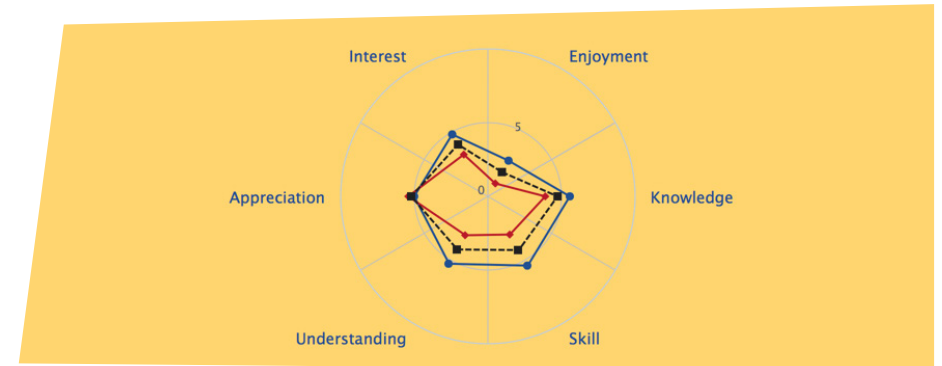
The questions have been designed by The Institution of Mechanical Engineers. They are frequently used by museums to measure the effectiveness of their educational programmes, so we are adapting a tried and tested approach.

*Responses are scaled up using a logarithmic scale. You'll get an accurate and understandable picture of how well your event or activity has gone and will be able to easily compare it against previous ones.

All you need to do is:

- Collate and capture the responses in the table on page 7 for every event you run.
- Enter it into the tool at evaluationtool.yearofengineering.gov.uk

You'll get your own radar diagram, like the below example, giving you a quick visual snapshot of how effective your event was against the six measures above*.



Your data will be used to build a collective picture of the effectiveness of events and activities that have taken place during the Year of Engineering. It will be treated confidentially and anonymously by HM Government and will not be published.

We'll share our findings at the end of the year, along with hints and tips for future events.

How to collect your group's feedback:

Two sets of questions have been developed - one tailored for younger children and one for older children. Those for younger children are phrased as questions and those for older children are posed as statements. You will find the questions/statements in the tables on pages 4 and 5. Choose the most appropriate set for your group.

Scoring

Whether you use the questions or the statements, you will need to translate the responses using the 1-4 scale, with 1 being the lowest score and 4 being the highest.

HOW TO GET PARTICIPANT FEEDBACK

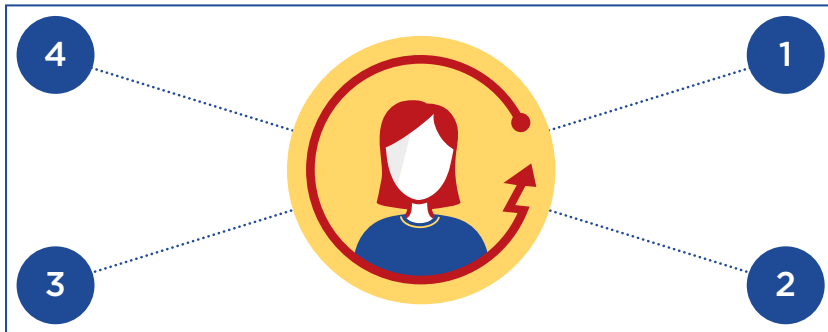
Here are some simple ways to gather feedback.

For younger participants you may wish to try the 'Hands up' or 'Find a corner' exercises, which are interactive and involve a physical response.

1. Hands up

- Ask everyone to put their hands up for each of the six questions or statements. You can either get them to give a numeric response for each question by holding up 1 to 4 fingers, or, if easier give them the four possible responses to each question in the table on page 2: e.g. 'how many of you had a lot of fun' (score 4); how many of you had some fun (score 3) etc. Record the answers in the template on page 7 using the numeric scale.

2. Find a corner



- Ask all the participants to stand in the middle of the room.
- Now number the corners of the room - 1,2,3 or 4.
- Next ask one of the questions or make one of the statements.
- Ask everyone to go to the (numbered) corner that matches their score. Again you may need give both the potential responses and the scores, so respondents are clear how they relate.

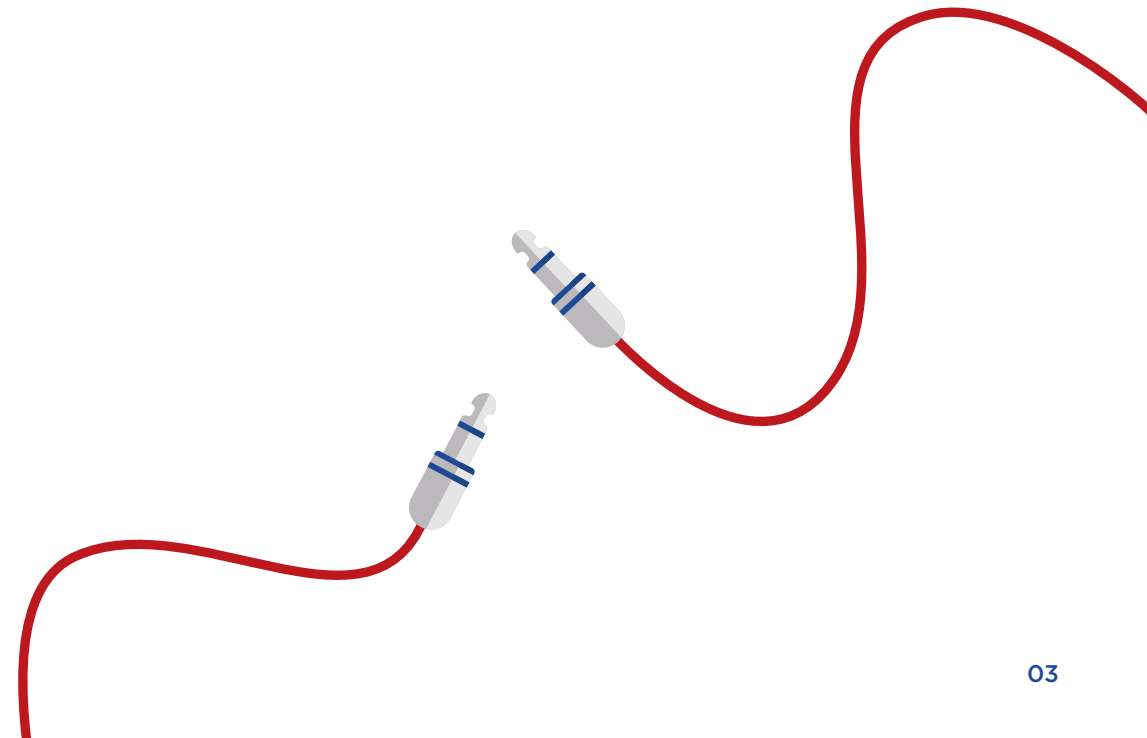
For older children gathering written responses might be easier, either by asking them to complete the questionnaire from 'Fill in a table', or getting them to place stickers on the 'Stick it to them' diagram.

3. Fill in a table

- Print or photocopy the template questionnaires on pages 4 and 5 (depending on the age group you are working with). Circulate these and ask participants to fill it in with their responses.

4. Stick it to them

Print out copies of the radar diagram on page 6 and ask participants to place a sticker in the appropriate zone to show their responses.



We want to know what you thought of this activity.

Circle one of the answers to show your response to each question.

(4 is the highest score, 1 is the lowest)

Younger				
Enjoyment	How much fun did you have?			
	A lot 4	Some 3	Not much 2	None 1
Knowledge	Did you learn anything new?			
	A lot 4	Something 3	Not much 2	Nothing 1
New skills	Can you do things now you couldn't before?			
	A lot 4	Some things 3	Not much 2	Nothing 1
Understanding	Do you understand what you did today?			
	Yes all of it 4	Most of it 3	Some of it 2	None of it 1
Increased appreciation (of engineering)	How much do you know about what an engineer does?			
	A lot 4	A bit 3	Not much 2	Nothing 1
Changed interest (in engineering)	Would you like to be an engineer when you are older?			
	Yes 4	A little 3	Not really 2	No 1

We want to know what you thought of this activity.

Circle one of the answers to show your response to each statement.

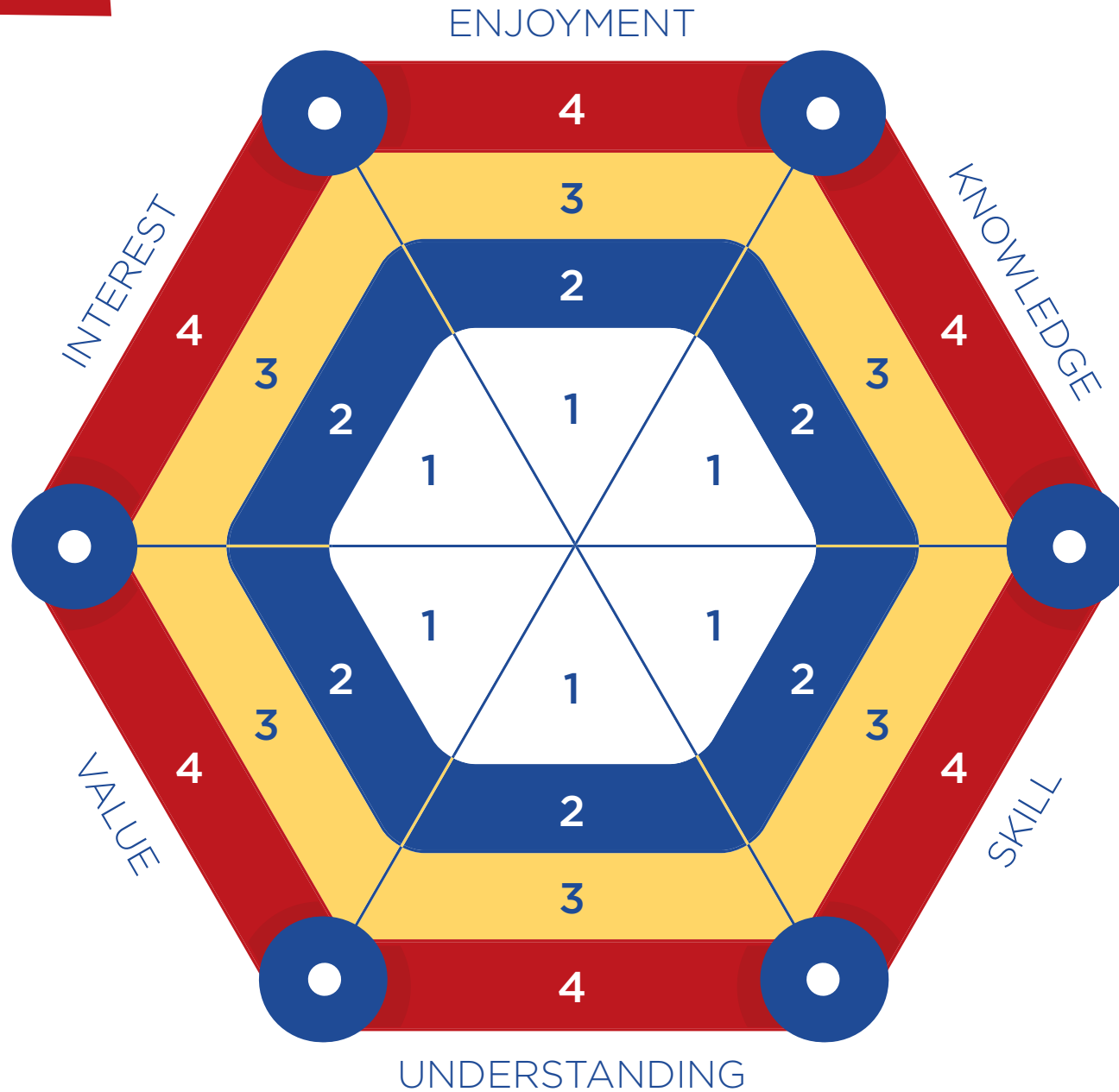
(4 is the highest score, 1 is the lowest)

Older				
Enjoyment	How much do you agree with the statement: "I enjoyed the activity"			
	A lot 4	A bit 3	Not much 2	Not at all 1
Knowledge	How much do you agree with the statement: "I've learned something new"			
	A lot 4	A bit 3	Not much 2	Not at all 1
New skills	How much do you agree with the statement: "I've gained new skills"			
	A lot 4	A bit 3	Not much 2	Not at all 1
Understanding	How much do you agree with the statement: "I now understand engineering better"			
	A lot 4	A bit 3	Not much 2	Not at all 1
Increased appreciation (of engineering)	How much do you agree with the statement: "I now have a greater appreciation of engineering"			
	A lot 4	A bit 3	Not much 2	Not at all 1
Changed interest (in engineering)	How much do you agree with the statement: "I would now consider a career in engineering"			
	A lot 4	A bit 3	Not much 2	Not at all 1

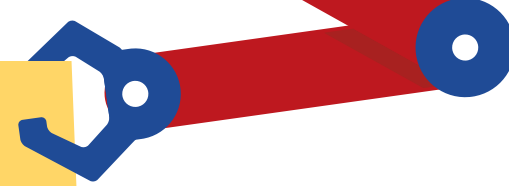
We want to know what you thought of this activity.

Place one sticker in each zone of the diagram below to show how much you agree with the statements about the activity.

(4 is the highest score, 1 is the lowest)



HOW TO RECORD THE RESULTS



Recording your results

Use the template below to note down all the responses.

1. Write down the number of people which gave each response to each question in the relevant box (e.g. if six people answered one for enjoyment, capture that in the relevant box.)
2. Remember to record the responses of boys and girls separately before you put the data into the online tool.
3. Once you have completed the template, upload the scores at evaluationtool.yearofengineering.gov.uk
4. You'll then receive your radar diagram, helping you to assess the effectiveness of your event and plan any changes for the future.

Girls				
Measure/Question	1	2	3	4
Enjoyment				
Knowledge				
Skills				
Understanding				
Appreciation				
Interest				

Boys				
Measure/Question	1	2	3	4
Enjoyment				
Knowledge				
Skills				
Understanding				
Appreciation				
Interest				

If you have any questions, or would like to get in touch please email us at yearofengineering@dft.gov.uk