DIALOGUE MAT 1: IT'S GOOD TO TALK

In your group, work through the exercises below and write your answers in the space provided.

Exercise 1

The following quiz is provided by WISE (www.wisecampaign.org.uk). See how much your group knows about the current picture for women in STEM. Don't spend too long trying to work out the right answer: go with what you think is right. Check your answers at the bottom of the page once you have finished.

1 True or false?

Of those who sit GCSE biology, chemistry and physics, girls are more likely than boys to get an A*– C grade.

◯ True ◯ False

2 What proportion of those who do A-level physics are girls?

◯ about 1 in 5 ◯ about a third ◯ about half ◯ about two thirds

3 What proportion of those getting a degree in computer science are women?

◯ 3% ◯ 20% ◯ 30% ◯ 50%

4 What proportion of those getting a degree in veterinary science are women?

◯ 10% ◯ 40% ◯ 60% ◯ 70%

5 How many more engineers does the UK economy need by 2020?

◯ we only need two thirds the number we have now ◯ we need to maintain the same number we have now ◯ we need to double the number we have now

6 How many of the current engineering workforce in the UK are women?

◯ 6% ◯ 25% ◯ 30% ◯ 50%

Exercise 2 – Discussion questions

How did your group do in the quiz? Did you have a realistic idea of the picture for women and girls in STEM? The answers to the quiz questions provide some interesting statistics. In your group, consider the discussion questions below. Bulletpoint your answers in the space provided.

1 Look at the answer to question 1. This tells us that girls do just as well as boys when taking STEM-related subjects at GCSE – and, in lots of cases, actually outperform boys. Now look at the answer to question 2. This tells us that the percentage of boys doing physics, a core STEM subject, is much higher than the percentage of girls taking the same subject. Why do you think fewer girls choose to take STEM-related subjects at GCSE?

2 What could schools do to encourage girls to take STEM subjects?

Exercise 1 (Answers) 1. In 2013, girls achieved better or equal A*–C GCSE grades compared with boys in virtually every STEM subject except mathematics (1 percentage point difference). 2. In 2012, nearly 4 out of 5 (79%) of those who took A-level physics were boys. 3. This proportion has remained unchanged for more than 20 years. (Nearly half (46%) of all computer-science degrees, 6. In the same year, 71% of medicine, dentistry and veterinary science degrees went to women. 5. The UK needs to double the number of recruits into engineering to meet demand. 6. Only 6% of the engineering workforce in the UK are women. educational secondary schools sent no girls on to do physics at A-level in 2011 3. In 2012, men were awarded 83% of engineering and technology degrees and 81% of computer-science

3 Look at the answers to questions 2 and 3. The majority of engineering, technology and computer-science degrees are awarded to men. However, the majority of medicine, dentistry and veterinary science degrees go to women. Why do you think women opt for medical degrees rather than engineering or technology degrees?

4 What are the effects of having more female doctors, dentists and vets? Try to think of positive and negative effects.

5 What are the effects of having fewer female engineers, computer scientists, and workers in the technology field? Try to think of positive and negative effects.

Exercise 3

As you can see, there are many challenges and obstacles that lie in the way of women building their careers in STEM. However, our speakers are living proof that success is possible, and that women are doing pioneering work every day in this industry, breaking new ground for female leadership and achievement.

It's your job to take the role of an engineer. In your group, you need to make a plan to build a girl who is fully equipped to achieve success in the field of STEM. Use what you've heard and learned today to think about the qualities a girl needs to be successful in STEM: does she need to be confident? Wise? Ambitious? Then think about physical materials you might use to represent those qualities: does she need an iron heart? A brain made out of quick-moving, flexible mercury?

Sketch your girl in the box provided below, and don't forget to annotate her with the materials you've used, and the qualities they represent.

Exercise 4

Lots of our Panel One speakers are female leaders from the technology industry. They have spoken about their own work, and the role that they believe women can and should play in the digital and technology industry. In your groups, draw on what you've heard today and your own opinions to think about the following question. Jot down your ideas in the space provided.

Imagine if the majority of people working in the technology and digital industry, from manual labourers to the CEOs of companies, were women. Would the world be different? How?

Exercise 5

Technology can play a crucial part in women's lives by providing advice, support and assistance with issues that tend to affect women more often.

There are now a range of apps for iPhone and Android which focus on issues ranging from sexual harassment to the stigma about menstruation.

'Fairshare' is an app which aims to tackle the unfair distribution of domestic labour by allowing members of a household to log household tasks that need to be completed, allocate tasks amongst themselves, and record and compare how much domestic work each household member has carried out.

'Hollaback!' is an app which allows users to record their experience of street harassment (such as cat-calling or unwanted sexual comments from strangers). Users can log the locations where they have experienced harassment, seek help and support from other users, and view maps which indicate areas where street harassment is frequent.

For those who have periods, **'Clue'** is an app which seeks to minimise the distress and stigma surrounding menstruation. The app has a range of features to allow the user to manage menstruation: by inputting the dates of your most recent period, Clue can calculate the length of your cycle and remind you when your next period is due. It can also track the physical symptoms of your period (such as mood swings and pain) and provide you with charts and summaries to share with your doctor if you are ever concerned about your period. Its graphics and colour scheme avoid the 'pink and flowery' look of other period trackers, leaving behind the outdated idea that periods are a secretive, 'girly' affliction that have to be prettified in order to be talked about.

In your group, design your own app to deal with an issue that affects women. The following discussion questions might help you:

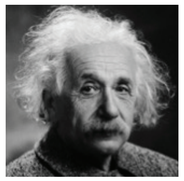
- **What issue does your app focus on?**
- **Who is the target audience?**
- **What is your app called?**
- **What features does it have?**
- **What are the colour scheme and graphics like?**

Write your ideas in the box below. You can use words and/or sketches.

DIALOGUE MAT 2: IT'S GOOD TO TALK

1 Exercise 1

In your group, identify the following male scientists as quickly as you can. Write their names beneath their pictures.



Now identify the following female scientists and write down their names.

In your group, discuss the following:

- Which scientists were easier to identify?
- Are there any you couldn't identify?
- Which scientists do you know most about?
- Is there a pattern to the scientists you recognised first and knew most about?

2 Exercise 2

The following is a screengrab from a popular image search engine. We searched the word 'scientist'.

How many women can you see? _____

How many men can you see? _____

How many ethnic minority women can you see? _____

In your group, discuss the following: what impression does this image give of female scientists? Jot your ideas in the box below.

Exercise 1 (answers) Male scientists: Albert Einstein, physicist / Stephen Hawking, theoretical physicist and cosmologist / Brian Cox, particle physicist Female scientists: Rosalind Franklin, chemist / Baroness Susan Greenfield, brain physiologist with research focus on groundbreaking Alzheimer's treatments / Mae Jemison, doctor and NASA astronaut (first African-American woman in space)

3 Exercise 3

Recently Sir Tim Hunt, a Nobel Prize-winning scientist who taught at UCL (University College London) was in the news – but not for his contribution to science. Hunt was at the centre of controversy because, speaking at the 2015 World Conference of Science Journalists in South Korea, he claimed that he is in favour of single-sex labs because 'Three things happen when they [women] are in the lab: You fall in love with them, they fall in love with you, and when you criticise them they cry'.

Think about Sir Tim Hunt's comment. In your group, discuss the following:

- What does Hunt's comment suggest about the quality of work female scientists produce?
- How do you think sexist attitudes like this affect the careers of female scientists?
- As a young woman interested in a career in STEM, how does it make you feel to read a comment like this from a modern-day scientist?

You may be interested to know that Sir Tim Hunt received so much criticism for this comment that he was forced to resign.

4 Exercise 4

You may have realised by now that succeeding as a female scientist is tough going. Women have to fight against poor representation, restrictive stereotypes and entrenched sexism. But we are pleased to report that, time and again, women are proving themselves equal to the challenge.

A range of brilliant female scientists took to Twitter to respond to Tim Hunt's tired sexism. They posted pictures of themselves in lab coats and protective clothing, handling specialised equipment or out in the field, and attached the hashtag '#distractinglysexy'. The idea was to show that their work is not frivolous and glamourised, as Hunt portrayed it, but every bit as tough, rigorous and genuine as the work of male scientists. Here are some of the best:

Working in your group, come up with your own protest Tweet to respond to Tim Hunt's words. You know the Twitter drill: only 140 characters! Write your Tweet in the box below.

twitter 140

5 Exercise 5

In the box below, draw a quick sketch of a banker. Label your sketch with the typical qualities you think a successful banker has. Don't spend too long thinking – capture the first thoughts and ideas that come into your mind!

Now look at your sketch, and the qualities of a successful banker you picked out. Do you think women have these qualities? Why/why not?

You've heard from lots of women who are achieving great success in the financial world. Think about the qualities they have demonstrated which have helped them to be successful. Now think about yourselves, and each other. What qualities do the different members of your group have which could help you to be successful in the financial world? Jot them down in the box below:

6 Exercise 6

Your group leader should ask the following question to the whole group:

Do you feel that you have a good understanding of finance?

Record how many people said yes, and how many said no.

YES: **NO:**

(If you're not quite sure how to answer the question, think about the following: do you understand what the different types of bank accounts are, and how they work? Do you know how interest rates work? Do you know how to invest money? Would you be confident taking out a loan or opening a credit card or store account without getting into financial difficulty? Do you understand most of the financial jargon you hear on the news – for example, in recent news reports about the Chinese stock market crash? If the answer to most of these questions is 'yes', you probably have a good understanding of finance!)

Look at the results of your poll. What proportion of your group feels they have a good understanding of finance?

Generally, women across the globe report lower levels of financial understanding than men. Fewer than half of women across the globe have a bank account or another type of account with a formal financial institution where they can save and/or withdraw money.

How do you think this affects women? Jot down your thoughts in the box below.

7 Exercise 7

Research has proven that countries where women are economic participants (contributing to the economy by earning and spending money) experience the fastest and most sustainable economic growth. The UN has carried out studies which show that women earners tend to spend money in ways which benefit children and families, ensuring that new generations are more likely to be healthier, better educated and have a range of employable skills. Over half of the economic growth experienced by OECD countries in the last 50 years can be attributed to women having experienced higher levels of education and then gone on to get higher-paid, more secure jobs. There is no doubt that women's economic contribution is a powerful force for development across the globe… yet women continue to have lower rates of economic participation than men.

In 2013, around 71% of the global male population was employed, compared with around 41% of the global female population. Women continue to experience higher rates of unemployment than men, and are more vulnerable to low-paid or under-valued jobs where they are not protected by workers' rights legislation. Women across the globe earn less than men: in most countries, women are calculated to earn 65 – 75% of what men earn. Women from black and ethnic minority backgrounds earn less than their male peers of the same ethnicity, and less than white men in the same job. Even in secure, relatively high-paying jobs in competitive industries, women find it difficult to climb the career ladder at the same pace as men: fewer than a quarter of the prestigious FTSE 100 companies have a female CEO.

The economic gap between women and men persists across most countries at all levels of development.

Look at the case studies below. In your group, think about the discussion questions and jot your answers in the box provided.

Naema works for a successful City company in London's financial district. She is 38, and has a 4 year old son and a 2 year old daughter. She has been working for the company for a number of years, and she believes she is a good employee: she works hard, she earns the company money, and she gets on well with her colleagues. Naema is ambitious: she would like a higher-ranking job within the company, and she would like to earn more money. However, Naema earns less than John, who does the same job as her. John has just been offered a promotion, but Naema was not, even though she is just as successful as John and works just as hard. Naema's boss tells her that he didn't offer her the promotion because it would involve working longer hours, and he didn't think Naema would be able to do that because of her children. He tells her that he really values the work that she does, but she has to realise there are limits to how far she can go within the company.

- **Do you think this is fair treatment?**
- **What advice would you give to Naema to help her to achieve her ambitions and secure a higher-ranking, better-paid job?**
- **What could be done, and by whom, to help Naema?**

Amira is 10, and she lives in the countryside in Morocco. In Amira's community, it is tradition for women to marry early and to spend their lives looking after the home and raising children – this is what Amira's mother did, and her mother before her, and all of Amira's aunties. Women can sometimes do paid work, but this is usually agricultural labour such as sowing and picking crops, tending animals, or making things from local produce to be sold at markets. Any money they earn must be given to their husbands and used to help pay for household expenses. However, a charity has opened a school not far from Amira's village, and there is a bus which collects local children and drives them to and from the school each day. Amira really wants to go to school: she would like to learn to read, write and do maths, and eventually she would like to train to become a nurse and move to a city where she can work in a hospital. Amira's family love her very much, but they are unsure about sending her to school: they don't think girls need to be educated, and they rely on Amira's help with chores and babysitting. Also, they are worried that Amira will not find a husband and have a family if she is too busy studying.

- **Do you think this is fair treatment?**
- **What could be done, and by whom, to help Amira?**
- **What advice would you give to Amira to help her to achieve her ambitions?**
- **What would you say to reassure Amira's parents?**