



# Women in Wellies

Impact report on the 'Women in Wellies' project hosted by East Ayrshire Council Learning Outdoors Support Team in collaboration with RHET, Dumfries House and Education Scotland

March 2019

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## Introduction

In 2017, the Scottish Government released the STEM (Science, Technology, Engineering and Mathematics) Education and Training Strategy for Scotland. This document detailed an aspiration for Scotland to be at the forefront of the scientific and technological advancements of the future. However, it also highlighted a need to address gender balance across STEM subjects in Scotland. It explained that there were significant differences in the participation of women across STEM education, training and work sectors and emphasised that this imbalance and segregation meant a loss of economic potential for Scotland.

The Women in Wellies event, therefore aimed to inspire and encourage S3 girls to pursue careers in STEM and rural sectors. It was funded and supported by *Education Scotland's Enhancing Professional Learning in STEM Grants Programme* through the Scottish Government STEM Education and Training Strategy.

SCIENCE  
TECHNOLOGY  
ENGINEERING  
MATHEMATICS

Education and Training  
Strategy for Scotland



Scottish Government  
Riaghaidtas na h-Alba  
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## Summary



Women in Wellies was hosted by East Ayrshire Councils Learning Outdoors Support Team in collaboration with Dumfries House and Royal Highland Educational Trust (RHET). The event took place at Dumfries House, Cumnock, on Tuesday 19<sup>th</sup> February 2019. Approximately 150 female pupils from S3 at Doon, Cumnock and Auchinleck Academies attended, along with teaching staff from STEM subjects and careers advisors from the schools.

In addition the event was also attended by pupils and staff from Loudoun Academy Young Reporters Club, who followed and filmed the events of the day and interviewed speakers. This culminated in a final written report and video documenting the event.

## Methodology

The event began with inspiring key note speeches from female STEM professionals. Dr Liz Barron-Majerik, Director of LANTRA Scotland and Helen Lightbody, Head of Fleet Technical Services for Babcock International spoke about their career journeys and shared insightful information; encouraging girls 'to find what they want to do, are good at and go after it'. Both speakers emphasised to the audience that hard work, perseverance and ambition were the key to succeeding, not only in STEM careers but in the wider world.



Following the keynote speeches, the larger group of girls split into smaller groups of approximately 8. Half of the groups attended workshops at locations around Dumfries Estate, while the rest remained in the pavilion to participate in 'speed speaking' sessions with a diverse range of women. The speed speaking sessions were categorised into five different sectors:



- Education
- Engineering
- Environmental
- Tourism
- Rural and farming

Lasting 15 minutes, girls had the chance to meet and talk to women working in a wide range of positions including;

- Construction workers
- Company managers
- Lecturers
- Ecologists
- Horticulturalists
- Farmers
- Countryside Rangers



These sessions allowed the women to describe their career pathway informally and to share artefacts, photographs and stories from their profession. It also offered the girls opportunities to ask questions and to find out more about the particular job or vocation.

81 girls responded to the initial survey.

The outdoor workshops, led by East Ayrshire Council Learning Outdoors Support Team and Dumfries Estate staff, were based around the same five



sectors and provided the young people with the opportunity to gain hands on experience in engineering, textiles, outdoor education, horticulture and farming. Additionally, the professionals leading the sessions were able to share their own experiences and knowledge in order to give the girls further information about their particular role and career.

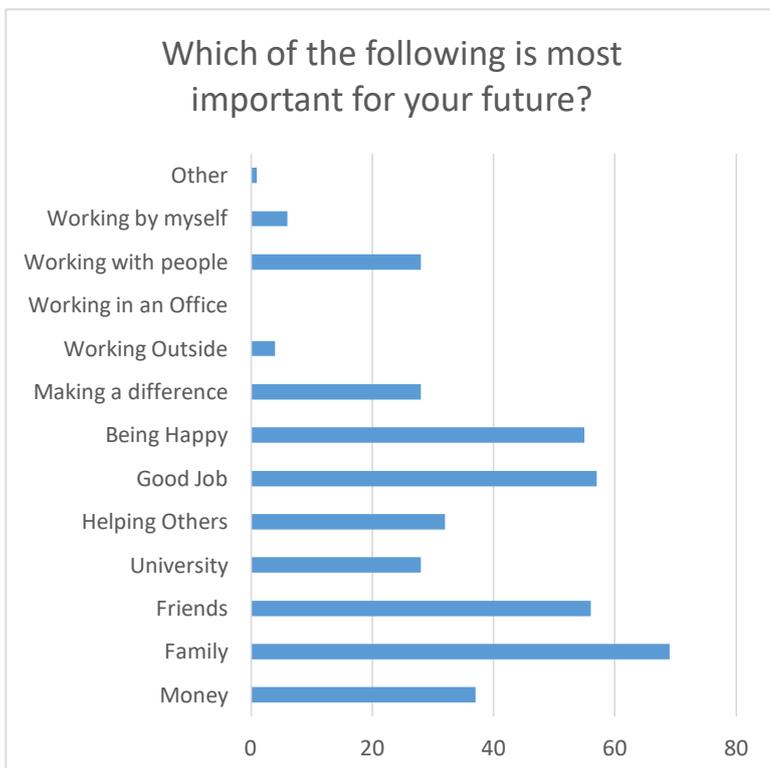
## Research

Prior to the event, both the students and teachers intending to attend were issued with an online survey. Both surveys were ten questions long and were hosted on Survey Monkey. The pupil survey aimed to find out the initial views and attitudes of the girls regarding STEM and rural subjects at school and in the wider world, their intentions and plans for the future and their opinions on what was important to them in their lives. The teacher survey intended to discover existing views and opinions regarding the uptake of STEM subjects by

female pupils, potential barriers faced by female pupils in school and teacher confidence in sharing information about a variety of STEM and rural careers and the pathways that can be taken into these sectors.

The initial pupil responses showed an overall positive attitude towards STEM. Over half of the pupils reported that they like STEM subjects at school and that they find these subjects hard. 76% stated that they knew how STEM applied in the real world and how to use it.

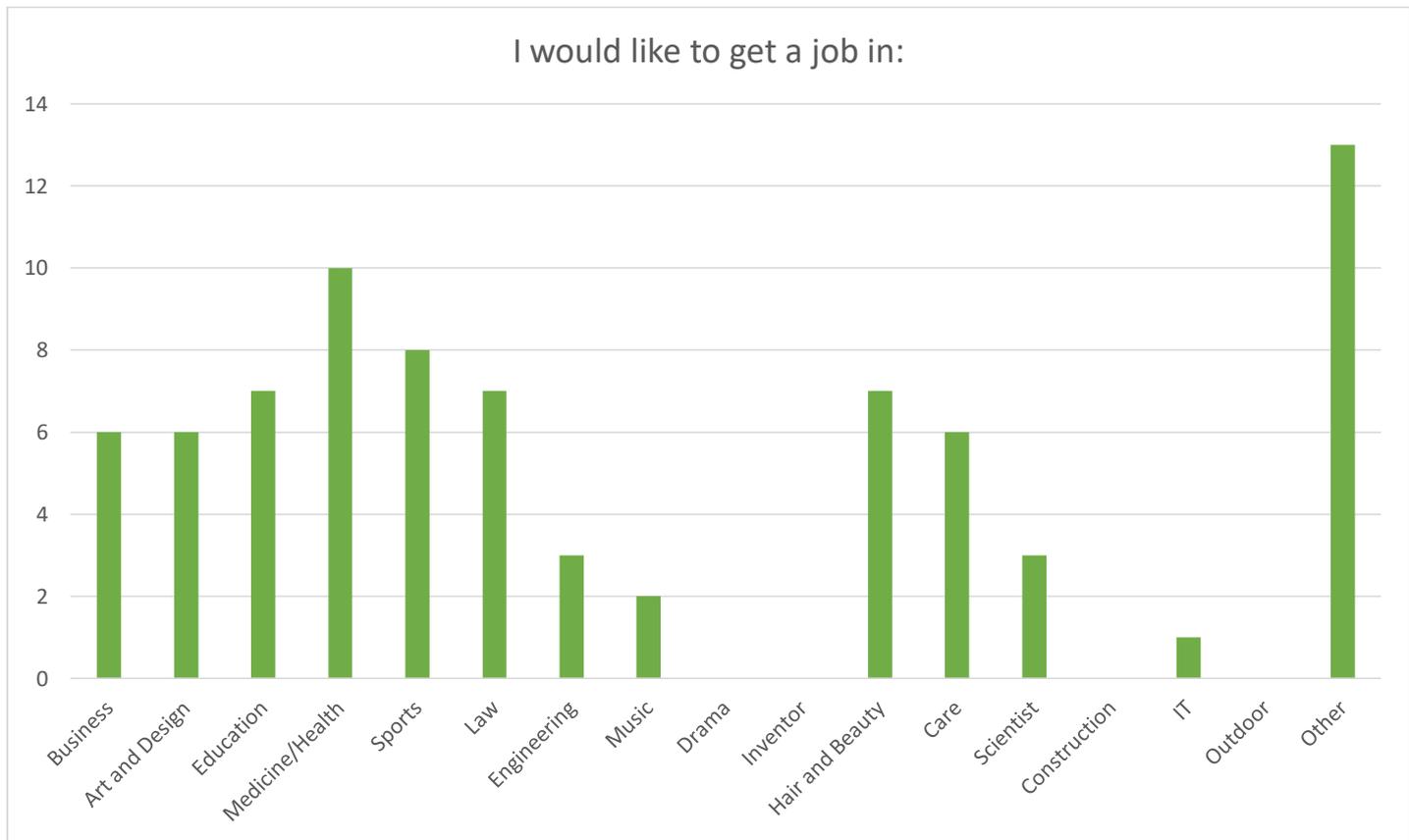
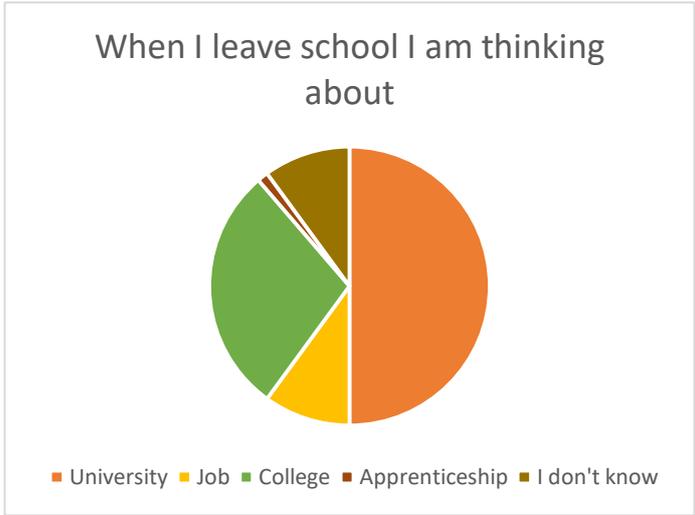
This table demonstrates what those



surveyed value as being important for their futures. Girls were asked to tick all that they felt applied to them. As seen, respondents valued getting a good job, being happy, family and friends highly, while working in an office, working outside and working alone were rated as being less important.

The following graph shows what those surveyed were thinking about doing after their school career, prior to the Women in Wellies event.

Half of the girls stated that they would like to go to university after school, however there was a wide variation in the types of career paths that the girls could see themselves following, with the vast majority of STEM related careers aspired to being more biological, such as vets, optometrist and health care roles for example doctor and surgeon (see graph, specifications featured in 'other'). 3 respondents reported a desire to follow engineering and science as careers respectively, while only one respondent was interested in IT. 0 respondents reported that they would like a job outdoors or in construction.



From the teacher respondents, only 1 had attended any previous CLPL on gender equality in their subject. 66% of those who responded reported that they found that there were

more boys than girls choosing to do STEM subjects in school and provided some insight into reasons why they believed this might be the case. These included:

15 teachers from a variety of STEM subjects responded

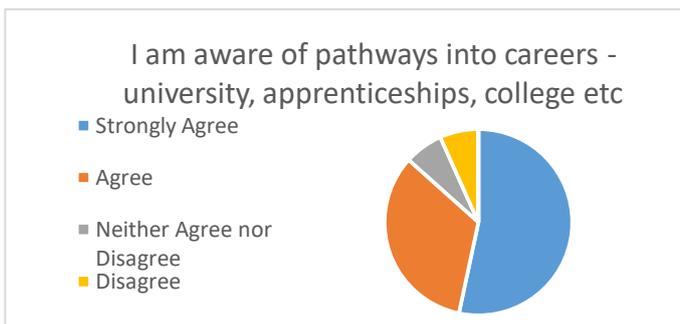
*“Male only stigma attached”*  
*“Don’t see the relevance to their lives”*  
*“Lack of knowledge/breaking of gender stereotypes”*  
*“I think it needs much more focus in the BGE (Broad General Education) and parental engagement”*

Teachers were also asked to reflect on their own knowledge and awareness of STEM and rural careers. The responses (see graph) showed that STEM teachers feel that they are more confident in their awareness of the variety of STEM careers available, but that they feel they are less aware of rural careers.

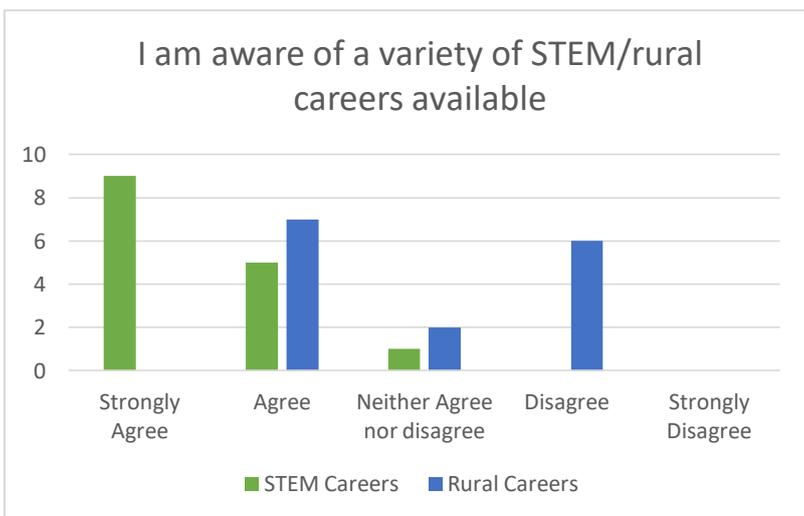
Teachers were asked to reflect on their awareness of the different pathways into these careers, and whether they feel confident in directing pupils to find information on them.



The



responses showed that most teachers felt that they were aware of the different pathways, however,



*Teacher views on increasing female engagement in STEM.*

*“Industry professionals coming into schools to speak to the female pupils and also increased opportunities to get out into industry to see first-hand the work going on and the benefits of a STEM career”*

*“Real life context relevant to their lives”*

*“Change of attitude in society towards female and male jobs”*

*“More encouragement, more ideas of careers available”*

they were unsure of where to signpost pupils to access information about these (see graphs).

## Main Findings

After the event, follow up online surveys were distributed to teachers and pupils who attended. These surveys aimed to gather the pupil's views and opinions of the event, but also their attitudes towards STEM and rural careers after having met with professionals in these roles. The teacher survey aimed to discover similar views, but also looked to discover the impact of the event in terms of their professional development.

89% of pupil respondents reported that they enjoyed the workshops while 69% stated that they enjoyed listening to the speakers, with the majority of girls reporting that the



*72% of girls were inspired to think about jobs that they hadn't heard about before*

speakers inspired them to think about different jobs for their future. 57% of respondents heard about a job which interested them including: air traffic controller, farmer and a career in wildlife.



The event helped girls to think outside the box about their future, with 85% learning about different pathways into careers and 55% of girls reporting that they didn't think that going to university would necessarily get you a good job. This is up 5% from the results of the pre event survey.

**Girls identified next steps following the event:**

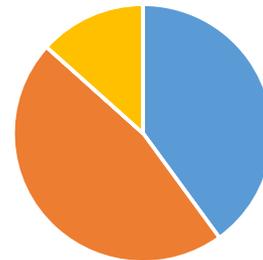
*“Look into the jobs that we spoke about”*

*“Have a more open minded opinion on STEM jobs and careers”*

*“Take STEM subjects”*

*“Figure out what jobs I can do with STEM”*

I know where to signpost pupils for information on STEM and rural careers and courses



■ Strongly Agree  
 ■ Agree  
 ■ Neither Agree nor Disagree  
 ■ Disagree  
 ■ Strongly Disagree

During a debrief discussion, one of the teachers who attended the event asked her pupils to describe the event in one word. Example of responses included:



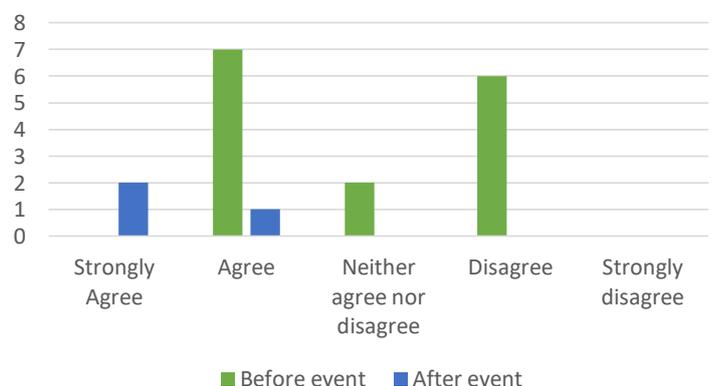
*89% of respondents heard about jobs and careers that they didn't know about before.*



In terms

of teacher's own professional development, they commented that they were now more aware of a variety of STEM careers than before, however the most marked difference came in their awareness of rural careers, with some teachers now strongly agreeing that they had an improved knowledge.

I am aware of a variety of rural careers



All teachers surveyed reported that they found it beneficial to meet people working in a variety of STEM and rural sectors and that this helped them to become more aware of where to signpost pupils for information on these types of jobs and that they developed knowledge of pathways into STEM and rural careers. Furthermore, all teachers agreed that they got new ideas of how to link their subject to real life contexts. Thinking ahead to the future, teachers commented that they would like to get more information on pathways and different careers.

## Conclusion

Given the feedback and evaluations Women in Wellies event was successful. It was well attended and well received by the



**Why 100% of teachers believe that Women in Wellies would break down barriers for girls:**

*“Detailed information was given on possible routes”*

*“Provided them with many different example of careers in the sector”*

teachers and pupils who were speakers who attended. This was

highlighted through the online survey data and through enthusiastic verbal feedback received on the day and following the event. The evidence suggests that the event had a positive impact on both pupils and teachers. It has encouraged most pupils to think outside of the box about what they can do both in school and in their future, beginning to address any stereotypes and barriers that they may have encountered. For teachers it has started a conversation and has created links with industry partners to support them to signpost pupils to a variety of pathways and careers. Responses show that the event has allowed them to see the diverse ways in which their subject can be used in the real world and appears to have motivated teachers to learn more about gender balance to enhance the learning experience of their pupils.



*"What do you think of when someone says environment?" - Responses from girls at the SEPA table*

The Learning Outdoors Support Team aim to build on the success of this inaugural event by supporting teachers to host similar events within their own schools and clusters and by helping teachers to engage with industry partners to create further links and engaging, inspiring contexts for STEM and rural learning.

**"Very worthwhile and motivating"**

*Teacher comment on the event*

**67% of teachers surveyed reported that they would be keen to attend further CLPI**

I really enjoyed the event. Right from the start there was a buzz in the room at Women in Wellies event. You could see that the keynote speakers held the attention of, and inspired the girls (and inspired the rest of us in the room too!) All day the atmosphere was supportive and inclusive. The day moved quickly and I think the mix of indoor and outdoor stations worked well. For a lot of the girls, I think that the variety of careers available was something new to them, they found out about jobs in areas they didn't know existed. Promoting rural and STEM career opportunities in a way that speaks to girls is something I hope continues. I would have loved to have had something like Women in Wellies when I was at school. Taking part in the event was a real privilege, thank you for the invite.

*Lucy Filby – Specialist in the Rural Land Unit – SEPA*

*Women in Wellies Speed Speaker*

Article written by Loudoun Academy Young Reports Club.

Through the emerald green corridors of Dumfries House we go to the first ever Women in Wellies event in Ayrshire!

Starting with a speedy introduction, the event commenced in a spacious conservatory. Linda McAulay-Griffiths, Head Of Education, appeared in a pair of stylish wellies instead of her signature high heels. According to the statistics she provided, 74% of STEM workers are male and Only 16% of all females enter STEM courses at college. These statistics fuel the desire to bring more women into STEM careers. East Ayrshire's main goal is to encourage young girls to take an interest in STEM related subjects to



Director of LANTRA, a company that look after a number of STEM sectors, Dr Liz Barron-Majerik started her keynote speech with a short introduction and a question - Why do what you're doing? She explained that to decide on a career, it's essential to know what you enjoy and are good at. Shortly after, she began to recall all the events that led up to her getting to where she is today, from gaining an interest in science at school to doing a PhD in Chemical networks. However, after stating these events in a factual manner, Dr Liz said that there's always a story behind facts and shared some stories from during her time doing her PhD. "Most people have a story that links with the job they want" she added. She then offered a tip for exams - to look at the story behind the science, or facts, as stories tend to stick in a person's head better than simple facts. Her final advice was that the only limits to what a person can achieve are ambition and how hard they work.

The second keynote speaker of the day was Head of Fleet Technical Services, Helen Lightbody. Her company support projects on submarines. Watching her dad fix his secondhand cars sparked her interest in engineering. He would teach her about the problems they encountered and how to fix them. By the age of 10, she was able to perform many repairs on cars that most other 10 year olds could not. Lightbody believes that getting summer placements relevant to a person's chosen university course is essential as it provides a whole other kind of understanding of the subject that proves useful in exams and class work. Her lecturer helped her get her first job, however she felt discriminated against for being a woman in the work place. Eventually, after a few other jobs, she ended up as the Head of Fleet Technical Services. Lightbody states that "engineering projects are 80% about people and 20% about engineering." Her words of wisdom for all the budding girls in STEM out there are "You're going to have to push yourself out of your comfort zone because it's the only way to get more experience and knowledge." and "Everything is down to perseverance and hard work."

Each table in the conservatory transformed into an informative station as the speed speakers set up. All the girls distributed themselves amongst the tables. Every speed speaker shared their unique story of how they wined up where they are today. In an interview with us, Jennifer Higgins explained what inspired her to start her company 'The Wee House Company', who build model houses. Higgins previously wanted to be an actress, however she quickly realised that she just wanted to do acting as a hobby rather than as a career. She worked with her dad and uncle in their model house company and realised she enjoyed it. When asked what her favourite part of her job is, Higgins answered that she enjoys engaging with customers and transforming their vision into a reality. Her advice for girls considering going into STEM careers is to really think about whether they'd find working at a desk or doing a more manual job best.

Outside of the house itself lay the muddy setting of nature in which the workshops took place. The workshops were spread out far across the acres of the land. Within these workshops the girls participating learnt about a specific sector of STEM. Some of these workshops included outdoor learning, farming and gardening.

Overall, Ayrshire's first Women In Wellies was a huge success!