



New Scots Connect

March 2022

Overview

Science Ceilidh delivered four weekly engineering themed sessions with the Multicultural Family Base safe haven youth group. The first session was with the older half of the group (ages here) and the last three with the younger group (ages here).

The first two sessions were developed and delivered with a chemical engineer who had been involved with the summer club in 2021. The final two took place in the Royal Botanic Garden Edinburgh in collaboration with their education team, one of which had studied engineering at undergraduate level.

The group explored structural engineering through construction of spaghetti towers, creating structures using kapla blocks, and making bamboo bridges. They also looked at aerospace engineering through paper planes and pinecone parachute designs. Being in the Botanic Gardens allowed the group to discover examples of when nature has influenced the engineering field with a "Nature did it first" tour.

Engineer/Practitioner Highlights

"Spaghetti and Marshmallow towers, how it provided a much better connection between the kids involved. They started to help each other and not just build the towers themselves, giving each other some tips." - C, Engineer



*"The group communicating and working together to create a fully stable bridge with raw materials. Extremely impressive!"
- L, Royal Botanic Garden Education Officer*

Impact on the young people

During the final session we asked the young people to summarise this block in one word:

"Epic"

"Awesome"

"Nice"

"Beautiful"

"Interesting"

The activities allowed the young people to develop their problem solving skills as well as their resilience. The spaghetti towers in particular proved challenging to make a stable tower structure and took many of the young people several attempts at getting their towers to stand on their own. One young person in particular was getting frustrated with this task and wanted to move on to something else, but with the encouragement and help from the rest of the group, they succeeded in making their structure stand on its own with much excitement.

Many of the activities required the group to work collaboratively testing their communication and teamwork skills. These were seen to improve throughout the weeks, especially through a group bamboo bridge building activity. The young people initially split off into three smaller groups trying to build separate bridges and quickly realised this would not be possible with the amount of materials that were available. They then came together establishing different roles for the task with some people holding the bamboo in place while others tied the sticks together and others highlighted where supports needed to be added to stabilise the bridge.

Impact on the engineers/practitioners

"This has opened my eyes more to how to lay out learning experiences for young people with English as a second language"

Practitioners reported feeling much more confident in engaging with diverse and, in some cases, vulnerable young people compared with when they first started the sessions. All the practitioners also reported feeling much more motivated to do youth work based public engagement with ethnically diverse, vulnerable young people after the sessions. Development of the practitioners' leadership skills was evident throughout the sessions, likely due to working with the same group over more than one session. This in turn meant the group were more engaged with the content and activities, and the practitioners confidence was positively impacted.



A recurring highlight for the practitioners was the development of the groups' teamwork skills and their enthusiasm for not just themselves but their peers to succeed and do well with the activities.

With there being multiple sessions each block working with the same group of young people and the same practitioners over several weeks it has allowed us to foster strong relationships and bonds between the group.

Challenges

- Lack of outdoor learning in the first two weeks due to weather and time constraints.
- Misjudging the timing of a few activities meaning a few things had to be skipped or moved into later weeks.
- Feedback from the practitioners highlighted while not essential it would have been nice to have learned common phrases in Arabic, the group's first language.

Future Plans

We'll be working with the same two groups together for another four week block in partnership with the Royal Observatory Edinburgh. The same engineer from this block will also be involved in development and delivery of the sessions as well some new engineers joining us from the Royal Observatory. These sessions will be focusing on astronomy engineering and mechanical engineering which have been selected based on the interests expressed by the young people.

We aim to continue to improve the group's knowledge and understanding of engineering as well as developing their technical skills and confidence through more specialised engineering topics. We also aim to continue supporting the engineers and practitioners working with us on the next block with their communication and leadership skills.

