University of Dundee, School of Life Sciences, Annual Report 2022
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Forward

2022 was a transitional year – we were not out of the coronavirus pandemic entirely, but restrictions did begin to lift, allowing us to shift back into more familiar ways of working. We were keen not to lose the learning and good practice of previous years, however and tried to continue working flexibly with our different audiences.

Reflecting on the conversations about equity and inclusivity in the wider public engagement sphere, we spent time focusing on what that meant for our practice and creating resources that will be used to support our staff and students in the future. We also began conversations about working sustainably, both financially and environmentally, and how to best prepare for changes in priorities driven by internal and external factors ahead.

The Life Sciences Public Engagement team

What did we do?

Life Sciences Community

One of our strategic goals is to support a culture of active participation in public engagement within the SLS community. We do this by providing training, opportunities to take part in activities, and support for funding. In 2022, we:

- had 203 staff and students from Life Sciences taking part in public engagement activities
- shared our expertise with 129 staff and students from all 8 Schools and 2 directorates across the university through OPD training courses
- filmed 437 GB of footage to create 19 accessibility videos involving 124 people
- started the review of our PE Strategy and consulted staff and students for input
- took part in Dundee Women’s Festival, Stobfest, and Festival of the Future
- painted an 18-metre-tall science art mural, in collaboration with our communities

Illustration by James Gemmill
This year, our staff and students:

- Participated in Festival of the Future with a drop-in session in the Overgate Centre and workshops across Dundee.
- Brought Soapbox Science to Dundee for the first time during Dundee Women’s Festival with colleagues in the School of Medicine and Leverhulme Research Centre for Forensic Science.
- Created a popup art exhibition during Stobfest.
- Took the work created with Dundee Print Collective on tour to our local community in Stobswell.
- Took part in University Culture Day talking all things Science Art.
- Helped plant two new gardens and foster new collaborations within the local community for the WeeCAIR Medicinal Garden project.
- Created a series of resources and games based on his research (Thomas Williams, MRC PPU).
- Reached 5 classes of P6-7 pupils with microbe activities for Magnificent Microbes 2022.
- Created a 7-stanza sensory science poem with the help of a professional poet.
- Mentored senior phase secondary school pupils through the Career Ready programme and supported their work experience at Dundee Science Centre.
- Participated in a series of ‘Laboratory Art Binge’ workshops with artist Emily Fong, creating six new sculptures.
- Hosted five ‘In Conversation With’ events on a variety of different Drug Discovery topics with over 180 views live and on YouTube.

Highlights

- Ran our ‘Heal the World’ game with S4 pupils from Morgan Academy who were not taking any Scottish Qualifications Authority exams.
- Hosted 12 students funded by the Juniper Trust to visit WCAIR and find out all about the Drug Discovery Industry in Academia.
- Participated in the Gala Day at the Boomerang Centre and made molecules out of fruit for visitors.
- Helped at the Family Food and Fun Day at The Wee Forest making molecules and playing drug discovery snakes and ladders.
- Participated in community events in Lochee, Maryfield, and Coldside.
- Created Dundee’s Wee Green Wander walking trail in collaboration with different garden spaces across the city.
- Ran a hybrid work experience week for 12 pupils which brought them into the building once again to experience hands-on lab work with our scientists.
- Ran a 3-minute thesis competition.
- Competed in the 3 Minute Thesis competition.
- Shared our research at visits to local primary schools and youth groups.
- Engaged with secondary school pupils with Gatsby Plant lectures.
- Spoke at the University of Dundee Discovery Days.
- Worked with secondary schools across Scotland to sequence the genome of daffodil chloroplasts as part of the Daffodil Project.
- Staged a week-long occupation of LifeSpace Gallery and the Wellcome Trust Building atrium featuring WCAIR artist-in-residence Emily Fong.
- Shared our public engagement work during visits from senior members of UKRI and Wellcome Trust.

UKRI visit.
Signs of Success: Integrating Inclusive Practices

Case Study: The Last Mill of Dundee

**PEOPLE INVOLVED:** 14 scientists from across the School of Life Sciences, poet Dan Simmons, and members of the public.

**WHAT WAS IT?** An organic and collaborative project stemming from the creation of ‘sensory boxes’ – collections of items intended to catalogue the smells, sensations, and sounds of being in the SLS complex for those who are unable to visit. From the evocative and lyrical suggestions from our scientists, a poem began to appear. Poet Dan Simpson joined us and facilitated several workshops, and from these suggestions crafted a poem entitled ‘The Last Mill of Dundee’. Scientists were recruited to read this poem over a short video with a voiceover reading of the poem by our scientists and staff. Workshops for the public encouraging them to create their own science-inspired sensory poems.

**KEY OUTCOMES:** Several workshops in which scientists were encouraged to tap into their creativity and create poems around their identities, work, and feelings about science. A seven-stanza poem using phrases and wording contributed by our staff. A short video with a voiceover reading of the poem by our scientists and staff. Workshops for the public encouraging them to create their own science-inspired sensory poems.

**FUTURE PLANS:** The PE team and interested staff will be offering more workshops in future festivals, inspiring others to create their own science poetry. We will also be creating sensory packs and postcards to accompany the poem as we send it to schools and groups across the country.

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Case Study: Parkinson’s Exchanges

**PEOPLE INVOLVED:** 7 MRC PPU researchers, freelance artist Daksha Patel, science communication and public engagement consultant Sarah Patrick, 9 people with lived experience of Parkinson’s (including 2 carers) and a researcher from the School of Humanities, Social Sciences and Law. Funded by the Medical Research Council Public Engagement Seed Fund.

**WHAT WAS IT?** We have developed, tested and co-produced ‘Exchanges’, an interpretive art card resource with drawings that depict Parkinson’s research and symptoms alongside question prompts such as “What does Parkinson’s mean to you?” to support deeper conversations between people with lived experience of Parkinson’s and researchers.

**KEY OUTCOMES:** 1000 packs of ‘Exchanges’ have been produced. Initial experiences of the art card resource being used between a person with lived experience of Parkinson’s and a researcher generated striking levels of engagement, breaking down barriers and prompting profound conversations about Parkinson’s. We captured these powerful exchanges on film.

We discovered that the resource has a wider impact than originally anticipated – it is successful at prompting discussions about the emotional and physical challenges of Parkinson’s amongst people with lived experience of Parkinson’s without the presence of researchers too.

Unexpectedly, the resource also supports deep conversations about Parkinson’s in a group setting as well as in pairs, with participants advocating future use at conferences, in support groups and clinical settings.

**FUTURE PLANS:** We are planning to produce a film to accompany the art card resource. Researchers and people with lived experience of Parkinson’s plan to present their experiences of ‘Exchanges’ and why this is a valuable resource at the World Parkinson’s Congress 2023 in Barcelona – not only to support patient involvement in Parkinson’s research, but to highlight the benefits to the wider Parkinson’s community and stimulate discussion about future use.
Case Study: Soapbox Science Dundee

PEOPLE INVOLVED: 7 undergraduate & postgraduate students acting as event assistants, 9 scientists from across the University of Dundee (Schools of Medicine, Life Sciences, Science & Engineering, Dentistry) and University of Strathclyde who were speakers, 3 event organisers and trainers, 118 public

WHAT WAS IT? Soapbox Science took place for the first time in Dundee in March 2022 as part of Dundee Women’s Festival. Soapbox Science introduces the public to remarkable women and non-binary scientists from local universities. The scientists spoke about their research, performed live demos and answered science questions. The event was supported by students who acted as event assistants and collected evaluation data. Bespoke training was provided to all speakers and assistants.

KEY OUTCOMES: Soapbox Science provided a comprehensive evaluation plan that involved observation and questionnaires. Visitors remained on average for around 5 mins 30 seconds and listened to at least two scientists. 100% of visitors rated their experience of the event as ‘enjoyable’ or ‘extremely enjoyable’ and said the event was ‘effective’ or ‘very effective’ at promoting women in science. 50% of visitors ‘rarely’ or ‘never’ attend science events, which meant we had reached new audiences. The poor weather impacted attendance.

FUTURE PLANS: We plan to hold Soapbox Science Dundee in summer 2023, to capitalise on the chance for good weather. We are in discussion with Dundee City Council about participating in their Summer Street Festival.

Case Study: Daffodil DNA Project

PEOPLE INVOLVED: 8 bioinformaticians from the School of Life Sciences; 8 STEM leads from the University of Dundee and James Hutton Institute; 6 members of the Daffodil DNA Project Executive committee (the University of Dundee Education and Social Work, Botanic Garden and School of Life Sciences); 17 school teachers and technicians; 97 school pupils from 9 secondary schools in Scotland and one from Jersey.

WHAT WAS IT? In 2019, Jon Hale, an innovative secondary school biology teacher from Jersey, secured a Royal Society Partnership Grant to develop a daffodil DNA sequencing classroom project. In 2021 this expanded and became the Daffodil DNA project: a school-based research collaboration between the University of Dundee, the James Hutton Institute, National Trust for Scotland Brodie Castle, Croft 16 and 9 secondary schools with the principal aim of bringing state-of-the-art genomic technology into the classroom. Over the year, the school pupils grew the daffodil cultivars, extracted the chloroplast DNA from the leaves, and used the Oxford Nanopore kit to sequence the DNA, after which they assembled the chloroplast genome.

Bioinformaticians in the School of Life Sciences developed the sequence assembly pipeline and supported schools in using it. They also provided help with IT, delivered training, and designed and implemented websites. Jalview was used to trim, align, and analyse the results, allowing the diversity and evolutional relationships within the tree of life to be investigated. Scientists at the University of Dundee and James Hutton Institute volunteered as STEM partners and visited the schools to help pupils run the experiments.

KEY OUTCOMES: By undertaking this study into the genetic and trait diversity of daffodils students will be gaining experience in using DNA sequencing in their classroom and contributing data points to the tree of life. The project has exceptional curriculum links throughout the National 5 curriculum, Highers and Advanced Highers, but it is the potential for students to engage with cutting-edge technology that will hopefully inspire them to continue with a career in science. For teachers, the project provides concrete examples for many theory lessons, helping scaffold learning and application skills of the students. Through working in collaboration with each other and their STEM partners they will have an excellent opportunity for CPD. Schools will be able to develop long-lasting relationships with scientists. Through the Royal Society Partnership Grant schools will have ownership of equipment such as a thermocycler to allow other practical work beyond and in addition to this project.

FUTURE PLANS: The team is currently talking with other secondary schools around the UK with the aim that they will join this unique school-based research collaboration.
Case Study: Training

I thought every part of the webinar was really good. I thought the interactive nature was great and definitely helped me remember more.

Know Your Audience course attendee

PEOPLE INVOLVED: 127 staff and postgraduate students, 5 trainers from the School of Life Sciences (including WCAIR)

WHAT WAS IT? Based on training that has been developed and delivered within the School of Life Sciences over the past five years, the PE team identified 6 areas where they could contribute to the Organisational and Professional Development (OPD) suite of training courses. After some modifications to make the content more relevant for non-science audiences, they submitted six courses to the OPD catalogue. These courses are:

Know Your Audience
Successful public engagement requires successful interaction with the public. Knowing your audience greatly helps in delivering meaningful engagement. Participants in this course learn about audience demographics, common touchstones, and building trust in interactive and practical ways.

Gamify your Research
From board games to escape rooms to video games, research can often provide great inspiration for topics. Likewise, the informal and fun-filled world of games can be a perfect vehicle for a deeper and more meaningful exploration of these areas. In this session, participants learn about different games and mechanics, and prototyping a research-based game from scratch.

How to Develop a Table-top Activity
In this interactive session participants explore what makes a fun tabletop activity, including ways of structuring engagements, how to get to grips with jargon, and the various approaches to making their activity engaging and safe to carry out.

Introduction to Digital Storytelling
Digital stories tell a short, snappy story in a format that’s easily digestible to a broad audience. They can be easily made with a phone and laptop and a little creativity. Participants in this workshop learn the basics of scripting, filming, and editing research-based stories of their own.

Public Engagement using Stop Motion Animation
Popularised by films like Wallace and Gromit’s A Grand Day Out, The Nightmare Before Christmas and Kubo and the Two Strings, stop-motion animation is an accessible way for researchers and students to communicate their research to a wide and varied audience. This workshop introduces participants to a variety of applications and techniques for making animations (including paper cut-out, Claymation, and digital) as well as looking at how to turn their research topics into personable, engaging narratives.

Introduction to Public Engagement (specifically for the School of Life Sciences and the School of Medicine)

KEY OUTCOMES: The popularity of some courses resulted in additional sessions being added. After the pilot year, our courses have been included in the OPD training calendar for another year. We welcome becoming more integrated with the central university’s staff development opportunities and will be developing new courses based on demand in the future.

FUTURE PLANS: We will update our courses in response to attendee feedback and ensure that accessibility is included where appropriate. We will also look at opportunities to bring more courses to the OPD catalogue, either based on sessions developed initially for the SLS audience or feedback from the wider university community.

All six courses were delivered across the 2022 calendar to attendees from all 8 schools and 2 directorates of the university.

I would be interested in any further courses by the 2 lead speakers.

Know Your Audience course attendee

One of the best OPD courses I have attended.

Know Your Audience course attendee

Introduction to Digital Storytelling

One of the best OPD courses I have attended.

Know Your Audience course attendee
### Signs of Success: Sustainable Engagement

**Case Study: WCAIR Mural**

Joyful and brilliant! Stobswell resident about the WCAIR mural

**WHAT WAS IT?** Working with a huge range of partners, we set out to create a 7-storey piece of art on a very prominent wall in Stobswell. We ran an open call for artists with Open Close Dundee, which had around 50 responses from artists across the UK and beyond. Following this, we carried out a series of consultations with different stakeholder groups. Initially, we chose to work with artist Florence Blanchard, but only a few days before the work was due to commence there was an artistic uncoupling with Open Close. Thankfully, we were able to recruit artist Lewi Quinn in short order. He met with WCAIR researchers to further refine his ideas and painted the piece in late June and early July. The piece has been incredibly warmly received and is visible from the Tay Road Bridge.

**KEY OUTCOMES:** Stobswell area gained a new piece of art, improving the local environment. WCAIR gained new friends and partners locally. The mural is now part of local map tours, bringing new audiences to find our work. Connection with Stobswell Forum enhanced. The piece also features prominently in Dundee City Council’s 2022-32 plan document.

**FUTURE PLANS:** We are keen to develop a complementary mural beside our medicinal garden on campus, cementing links between University and Stobswell. We have also proposed to the care home that we support them with medicinal plants for their green spaces, completing the circle of plants and art.

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**Illustrations by Dionne Turnbull**

**Case Study: Magnificent Microbes 2022**

**PEOPLE INVOLVED:** The Divisions of Molecular Microbiology, Plant Sciences, Biological Chemistry and Drug Discovery in the School of Life Sciences, St Andrews University, alongside teachers and students from Forthill Primary and Dens Road Primary, and illustrator Dionne Turnbull.

**WHAT WAS IT?** Final year (P7) primary school pupils from Forthill Primary and Dens Road Primary participated in Magnificent Microbes. Participating classes received a full week’s worth of fun and hands-on science activities centred around the world of microbes, complete with a box full of materials and lots of chances to interact with our scientists through video and text chats.

**KEY OUTCOMES:** Over 100 pupils engaged with a comprehensive suite of activities, including crafts, games, and agar handprints incubated in our labs. The Q&A session at the end of the week was a particular highlight, with questions including “do microbes have a soul?”

**FUTURE PLANS:** We hope to secure funding to create more Microbe Boxes that can be loaned to schools for a similar week-long exploration on the topic of microbes.
For the first portion of 2022, we were still heavily restricted on what we could do directly with the public. This provided us with challenges as online fatigue was significant by this point. We held events outside (Soapbox Science) and interacted remotely, either through providing materials (Magnificent Microbes) and funding (STEM Club). Having to work in different ways has allowed us to build new relationships and made us consider how we can make the most of our scientists’ time.

2022 saw new strategies for the University of Dundee and two of our key funders: UKRI and Wellcome. Alongside this, our significant funding from Wellcome through the Institutional Strategic Support Fund (ISSF) was ending. As our own School Public Engagement Strategy ran from 2017 – 2022, we needed to ensure that when updating this document, we reflected these changes.

In preparing for the end of ISSF we ensured that the remaining funds were used to provide as much longevity as possible. We have already introduced documentation and support for our researchers to cost public engagement activity into their grants. Going forward this will not include Wellcome grants, apart from when it directly impacts the research activity (e.g., patient participation and involvement).

The new University and funder strategies reflected measures we were already integrating into our training and practice – accessibility and sustainability. We will continue to drive forward these key areas and share our learning widely.
Despite these challenges, we had several significant achievements:

- Over 150 Science for All badges were given to partners and staff and students across the University.
- Nicola Stanley-Wall was awarded the Royal Society of Edinburgh Senior Prize for Public Engagement. The RSE is Scotland's National Academy and the highly prestigious medals it awards recognise exceptional achievement in science, academia, and public engagement. Nicola has been awarded the prize for her long-standing and sustained track record of outstanding contribution to public engagement in the field of microbiology.
- Thomas Williams (pictured) from the MRC-PPU won the British Society for Cell Biology Postdoctoral Researcher Medal for 2023. This award was in recognition of his research and outreach work. Tom has designed several activities and games based on his research.
- The WeeCAIR Medicinal Garden and partner gardens were recognised in the Dundee City Council Gardens and allotments competition. The WeeCAIR Medicinal Garden was awarded a Silver Community Garden Certificate. Dundee Science Centre’s sensory community garden was awarded first place while Dundee Museum of Transport was awarded a bronze certificate for their community garden. WCAIR was instrumental in setting up the Science Centre community garden and provided university and WCAIR branded signage for the space. WCAIR assisted with the medicinal plant aspect of the Museum of Transport garden.

Members of the School were recognised for their excellence in public engagement through University and School Awards. In the School’s Brian Cox Prize for Excellence in Public Engagement with Research Engaged Researcher of Year was Thomas Williams in recognition of the suite of games he developed related to his research on cell survival and cell life cycle. Project of the Year was won by the Daffodil DNA Team with the WeeCAIR Medicinal Garden and the Parkinson’s Patient Public Involvement partnership between the MRC-PPU and Dundee Research Interest Group were also recognised and awarded Highly Commended.

In the University’s Stephen Fry Public Engagement Awards two members of the school were awarded Commendations: Thomas Williams for Early Career Researcher and Suzanne Duce for Engaged Researcher for her work with the Daffodil DNA project.

Funding awards for specific projects were made in 2022. Miratul Muqit received funding from the Medical Research Council for a project, Exchanges, with artist Daksha Patel (details on P5).

Goals for 2023

Continue:
- Running events that reach varied audiences
- Supporting our staff and students through training, advice and resources
- Sharing knowledge and resources widely

Build on:
- The range of ways we work with local communities to reflect their current needs
- Reporting, evaluating and assessing impact in all we do
- Our digital presence, particularly with our new website

Focus on:
- Integrating inclusive practices in our work
- Sharing expertise across the University
- Sustainable finances and resources
- Revisiting our PE Strategy and evaluation framework in line with new university strategy
Our Aims

We believe public engagement is a vitally important part of what we do:

1. It increases the impact and value of our research
2. It contributes to a scientifically literate culture
3. It helps science remain relevant to society
4. It builds trust between communities within and beyond academia
5. It diversifies the skills and opportunities available to our staff and students at all stages of their careers

Our work in 2022 was led by our five-year public engagement strategy, which was developed in consultation with our staff and students in 2017. In it, we state four main aims that underpin all our public engagement planning, development and delivery. These are:

1. Build on our creative partnerships to deliver a high quality, innovative engagement programme
2. Engage a diverse range of people with our research
3. Consult with our local communities to widen our reach and meet their needs
4. Promote and support a culture of active participation in public engagement within our life sciences community

In 2022 we began revising our strategy and consulted with staff and students to update and reflect on new goals, audiences and approaches.

As the Public Engagement team, we have committed to do the following each year:

1. Provide a school-wide support structure for public engagement
2. Provide professional support and guidance, including training
3. Provide opportunities to get involved with public engagement
4. Provide funding and resources for public engagement activities
5. Build and maintain relationships with external partners

Our team produces a comprehensive calendar in advance of each year, with events, training, drop-in sessions, and other key dates outlined. There is also the capacity for flexible, bespoke support for staff and students looking to get involved with the School of Life Sciences’ public engagement programme.

Our Team

Our team brings a wealth of expertise to the table. With experience in the world of research, museums, science centres and theatre, the School of Life Sciences’ public engagement team brings a wealth of expertise to the table.

Prof. Nicola Stanley-Wall
Academic Lead for Public Engagement
Nicola is the Head of the Division of Molecular Microbiology and has been a leading voice in the School’s public engagement for over ten years. She represents the School at the University-wide Public Engagement Forum and was heavily involved in the University’s Watermark application to the National Coordinating Centre for Public Engagement.

Dr Amy Cameron
Public Engagement and Communications Officer
Amy has a background in academic research prior to joining the School of Life Sciences in September 2016. In the public engagement part of her role, Amy works closely with public engagement colleagues within the School and across the University as well as external organisations to deliver a programme of activity. This includes events for Dundee Women’s Festival for which she is a trustee and member. In parallel, Amy works on the process that underpins this work such as training, strategy, evaluation and reporting. She also supports academics with grant applications and ensures communication of public engagement matters across the School and at the University Culture and Arts Committee.

Erin Hardee
Schools Outreach Organiser
Erin has worked in informal science education for nearly two decades, coming from a background in biology and environmental science. She supports outreach to local schools, builds partnerships and contributes to strategic development of public engagement both within the School of Life Sciences as well as the wider University. She is also the main liaison for the PE team with the DARCY Thompson Unit, providing science communication input and teaching for both undergraduate and postgraduate students. She has recently taken on the role of co-lead for the new Science and Health Communication Masters programme, which will welcome its first students in September 2023.

Public Engagement Divisional Champions:

- Biological Chemistry and Drug Discovery
-Computational Biology
-Cell and Developmental Biology/Molecular, Cellular and Developmental Biology
-Cell Signalling and Immunology
-Gene Regulation and Expression
-Molecular Microbiology
-MRC Protein Phosphorylation and Ubiquitylation Unit
-Plant Sciences

*stood down from role in 2022

With experience in the world of research, museums, science centres and theatre, the School of Life Sciences’ public engagement team brings a wealth of expertise to the table.
If you would like to discuss our public engagement strategy or forthcoming programme please do get in touch.

Email: SLS-PublicEngagement@dundee.ac.uk

Come to our drop-in sessions the third Tuesday of every month

#whyengage

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