

The Scottish Daffodil Project:

“Growing people, growing places: an enquiry into decoding Scottish daffodils”

Developed from a Royal Society Partnership Grant project in 2019, led by teacher Jon Hale on the Island of Jersey, this new collaborative school-based research project is brought together by The University of Dundee Education and Social Work, The University of Dundee Botanic Garden, The University of Dundee School of Life Sciences, The Royal Society, The James Hutton Institute, schools across Scotland supported by Jon Hale and using living collections from the [National Trust for Scotland Brodie Castle](#) and [Croft 16](#)

Overview

The 9 schools involved in this project are working in parallel to obtain genetic data on a very understudied, yet valuable genus. The significance of this research lies in the context of educating and training the next generation of plant scientists and botanical horticulturalists. With the impacts of climate change becoming increasingly apparent students need to understand the role they play in conserving nature, be it at habitat, species or genetic level. As such, inspiring a generation of knowledgeable scientists can only improve the UK's response to climate change.

The students will be working with STEM professionals and academics over the 2021-22 academic year to sample various daffodils, extracting DNA from their leaves and using high throughput DNA sequencing in the classroom before assembling the chloroplast's genome.

The assembled team of STEM partners, one for each school, from the world-leading James Hutton Institute and University of Dundee demonstrates the ambitions of this project, with the entire cross-section of careers represented; as a result, the support for schools will be unparalleled. By having such a diverse team, which includes PhD students, postdoctoral researchers, and senior researchers and academics, every student engaged in the project will have a much greater opportunity to see the potential of a career in science.

Outcomes

- By undertaking this study into the genetic and trait diversity of daffodils students will be gaining experience of 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.
- As a teacher, the project provides concrete examples for many theory lessons, helping scaffold learning and application skills of the students. Through working in a 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. Access to a thermocycler was identified as a key opportunity missing in practical work by the Royal Society of Biology's Education Research Group.