



Why does Biobarcode Australia exist?

Biobarcode Australia and The Australian Barcode for Life Project have come about in response to two of today's most pressing global challenges.

The first of these is the **rapidly changing world of work**, which will demand today's children and young people to be constantly learning and adapting, and to be working across disciplinary boundaries, with a particular importance on science, technology, engineering and mathematics (STEM) disciplines.

The second challenge is **global biodiversity loss**, in which our planet is facing an ongoing loss of species with associated impacts on our human population health and wellbeing, exacerbated by the impacts of **global climate change**.

Biobarcode, a Perth-based biotechnology education focused social enterprise responds to these two challenges by providing STEM learning experiences for schools and community. Biobarcode's flagship project 'The Australian Barcode for Life' offers Australian schools an innovative, authentic and interdisciplinary project-based learning experience.

About BioBarcode Australia

Led by biotechnology guru and innovator educator Pauline Charman, the Biobarcode team brings together extensive education experience with young STEM mentors and partnerships with scientific researchers to deliver projects that inspire interest and build capability in STEM.

In addition to the flagship project 'The Australian Barcode for Life', the Biobarcode team offer Professional Development for educators, and community-based STEM engagement.

The Australian Barcode for Life: The Australian Barcode for Life is a school-based project involving all age groups in real-world projects using the latest technology to barcode DNA, while learning about ecosystems and biodiversity. The project has been designed to address a curriculum and to enable development of ‘future ready’ mindsets and skills, while also fostering environmental awareness and stewardship.

Educator Professional Development: The Biobarcode team can develop a tailored program for teachers to enable them to deliver curriculum aligned biotechnology education in schools using the latest scientific equipment, including through project-based learning.

Community-based STEM engagement: The Biobarcode team have developed a range of fun and engaging STEM learning experiences suitable for learners of all ages. These offerings make great school holiday experiences.



About the Australian BarCode for Life Project

Australian schools who partner with the Biobarcode team will have access to cutting edge technology and the expertise of a trans-disciplinary team of scientists and innovators. Through project-based learning students will contribute to real-world scientific projects, while meeting the objectives of a wide-ranging curriculum areas for school students of all ages.

The Code for Life Project has been designed to integrate across curriculum areas, tailored to particular year levels of both Primary and High school, with the objective that through a school’s ongoing involvement students can contribute to and learn from the project over many years.

Key aspects that involvement in the project involves for students include:

- Learning about the living species within their school environment, and collecting specimens
- Learning about DNA, and its relationship with biodiversity
- Learning about the process of DNA barcoding, its role in species identification and biodiversity conservation

- Using the latest portable, research grade technology to extract, amplify and sequence DNA from specimens of living species collected from their school grounds
- Learning with real scientists using project-based learning approaches
- Developing key future-ready attributes and skills including teamwork, problem solving, critical thinking, data and technology literacy
- Over time, building a school's own 'living atlas' of species, contributing data as citizen scientists to national biodiversity databases used by scientists;
- Becoming stewards and advocates for biodiversity in their school and broader community.

Benefits of The Australian Barcode for Life Project

The positive outcomes will include:

- Students achieve an enhanced understanding of conservation technology and biotechnology as some of the crucial areas that will demand a STEM skilled workforce in the future
- Students increase their knowledge of relevant topics including biodiversity loss, climate change, DNA barcoding, biotechnology, data science, and citizen science
- Students actively engage in a learning experience and feel valued as they contribute to tangible project that directly impacts them and their communities
- Engaging students in the real-life science of biodiversity monitoring in the crucial years ahead as the country experiences more impacts of climate change
- Contribution of data to scientific research via citizen science
- Students increase their confidence and skills in the use of digital and data science practices in addition to applicable mathematical and critical thinking skills
- Fostering greater local and global environmental awareness in all members of the school community (students, teachers, parents, non-academic support staff eg. gardeners)
- Demonstrating the economic benefits of choosing a sustainable living environment to surround and complement the buildings of a school; and
- Students becoming 'environmental consultants' to the adult decision makers at the school (ie planting water wise species, or companion planting to reduce use of pesticides, create more habitats and food sources for birds, insects and bees.