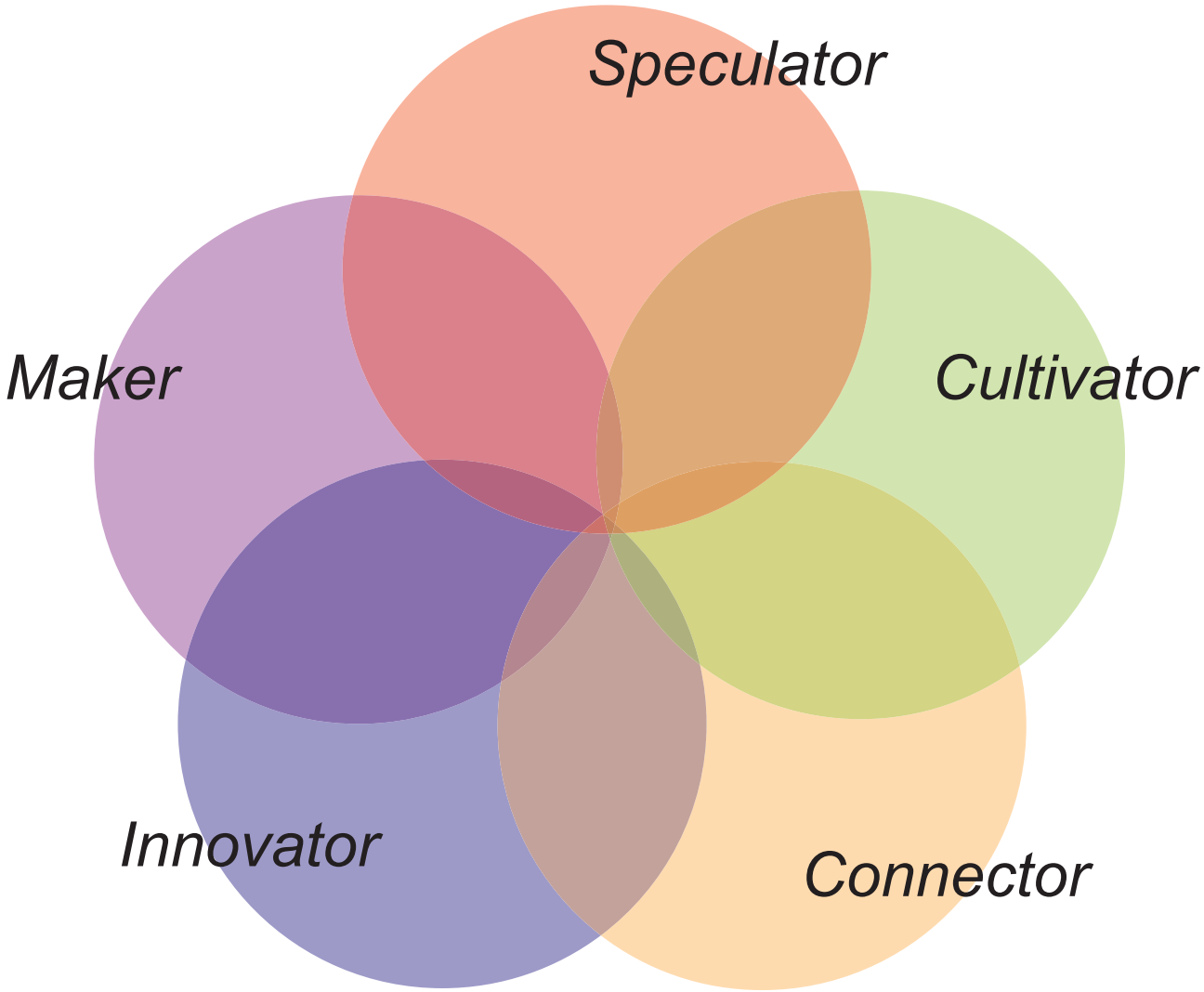
# Biodesigner Roles




# Cards

KOLDING SCHOOL OF DESIGN

Developed during the PhD project
*Co-Cultivating Colours*
by Monica Hartvigsen

# *The Cards*

## Introduction to the Biodesigner Roles Cards

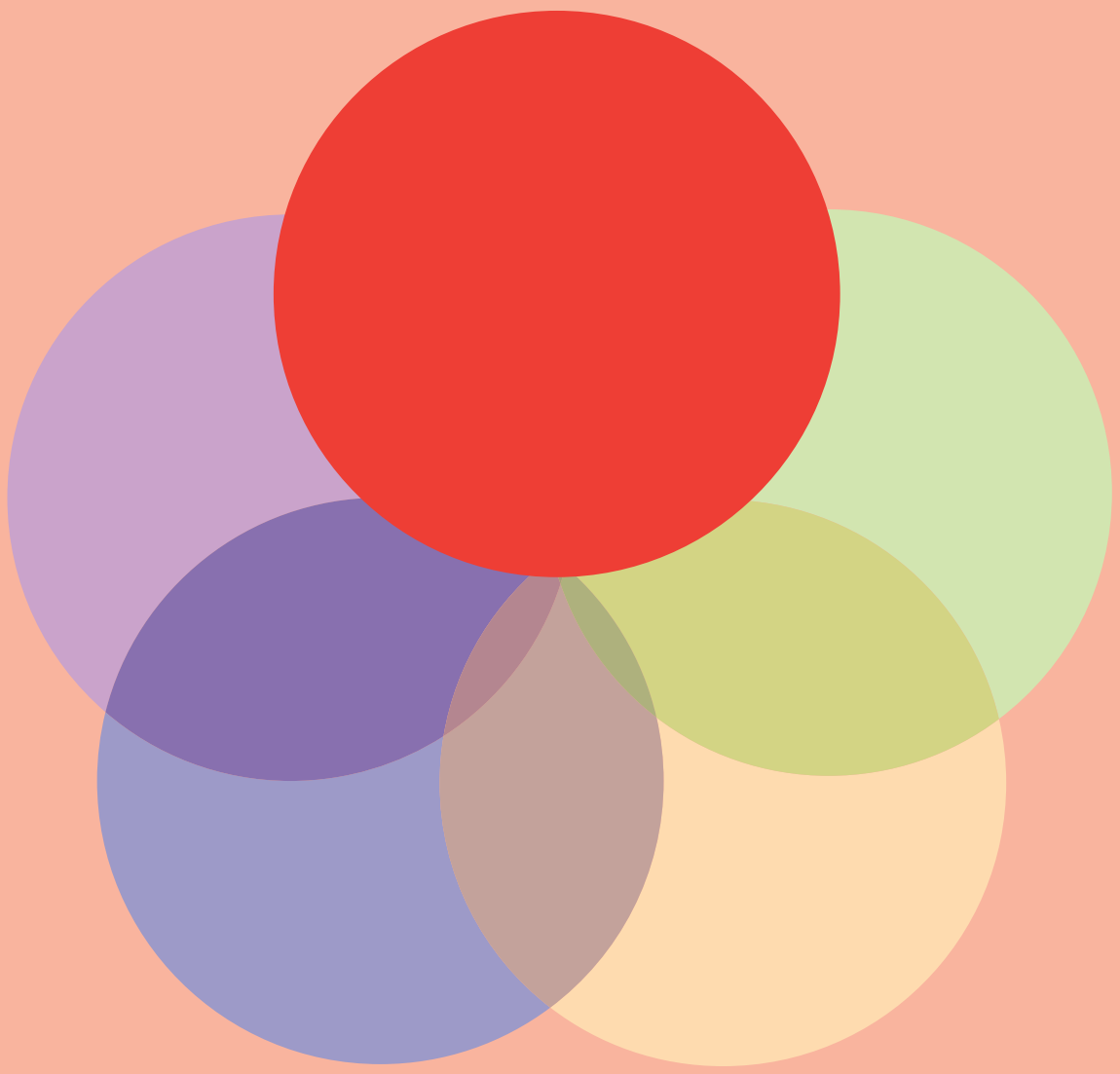
The five cards serve as a tool to reflect on selected aspects of biodesigner roles identified during the PhD project “Co-cultivating Colours” and inspired by Serena Camere and Elvin Karana’s 2018 article “Fabricating Materials from Living Organisms: An Emerging Design Practice.”

Each card outlines a role through three key dimensions: Knowledge, Skills, and Competences.

The purpose of these cards is to introduce designers to the various roles of a biodesigner, provide insight into their practices, and explore how these roles can collaborate and interact in project work. Ultimately, the cards encourage designers to reflect on their own individual design practices.

I hope you enjoy exploring the cards and find them both inspiring and useful.

# *The Speculator*



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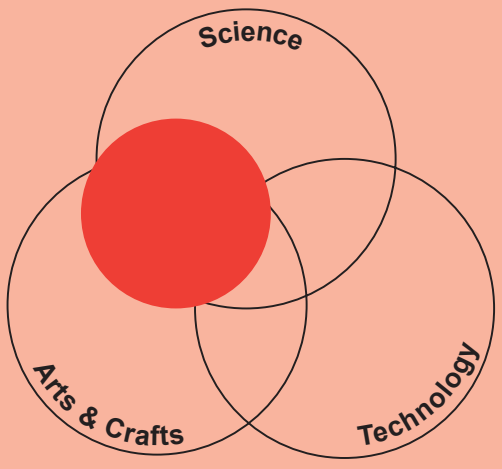
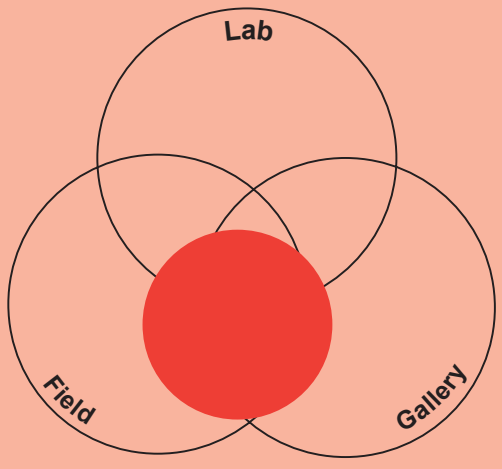
# *The Speculator*

**Knowledge:**
- Has a basic understanding of microorganisms.

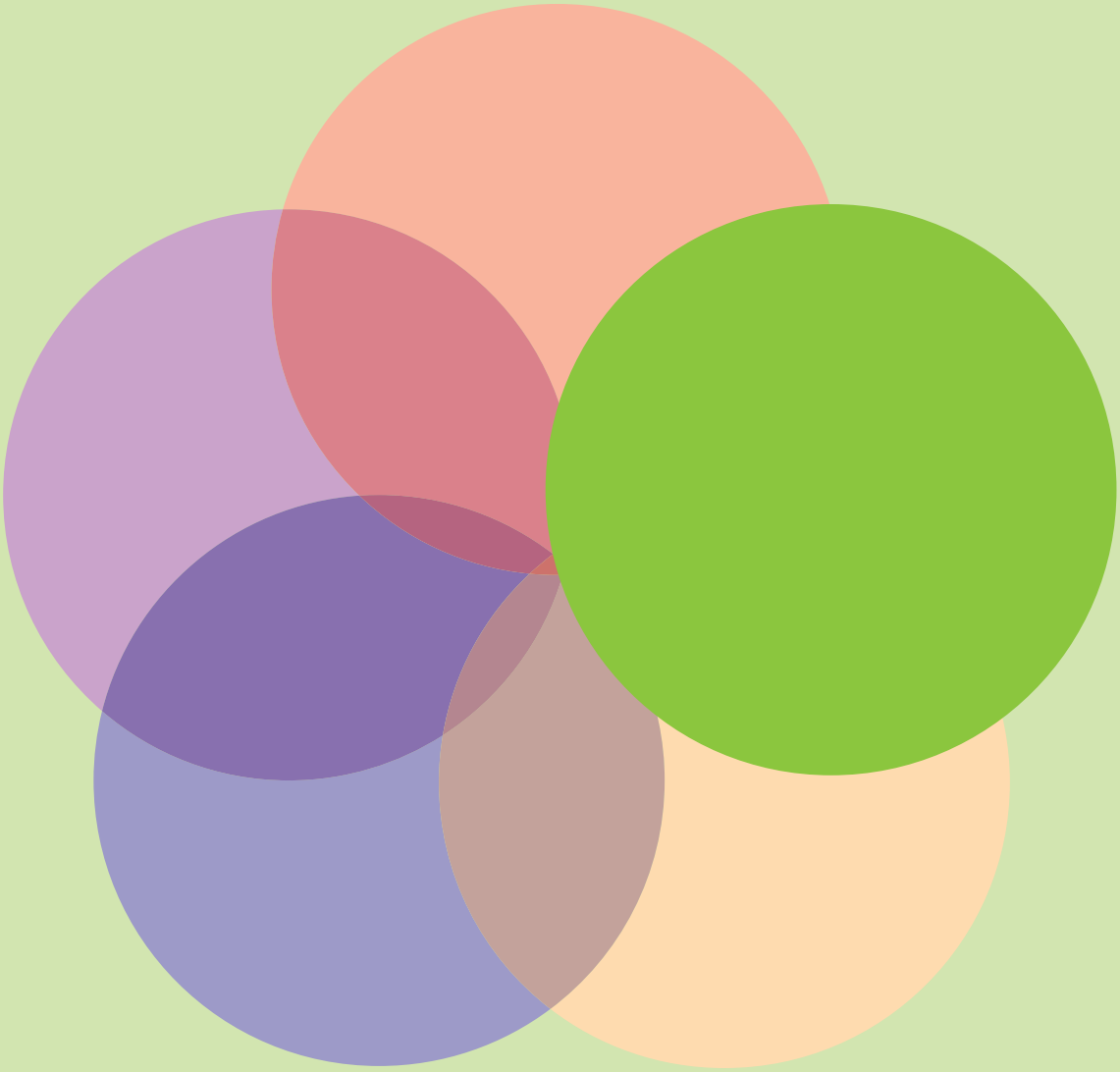
**Skills:**
- Be able to reflect on elements of future scenarios and imaging “what could be”, while comparing it to relevant sources.
- Be able to observe and do notations of reflective conversations on experiences e.g. exhibition experiences or workshop activity experiences.
- Be able to apply a sensuous approach to workshop activities and develop tools which use our senses.

**Competences:**
- Be able to facilitate workshop activities focused on speculation and creating future scenarios based on biocolours including microbial colourants.
- Be able to create tools for speculative and sensuous reflection.
- Be able to curate an exhibition on bacterial colouring, where semi-structured interviews is conducted with the visitors, initiating reflection on their experience.



# *The Cultivator*



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# *The Cultivator*

**Knowledge:**

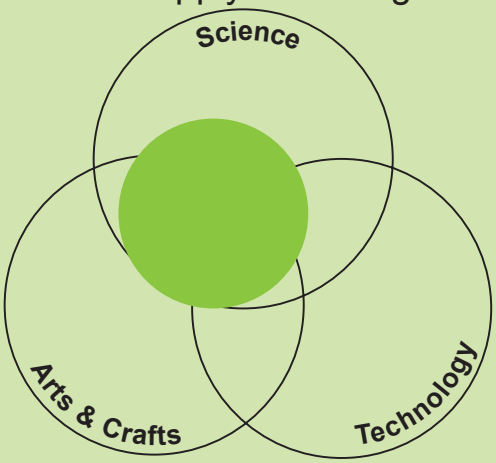
- Has an in depth understanding of microorganisms, how they grow and divide, what they produce, and how they die.
- Has an understanding of the safety guidelines and cleaning required in a laboratory.
- Has an understanding of the requirements and functionality of a DIY biolab.

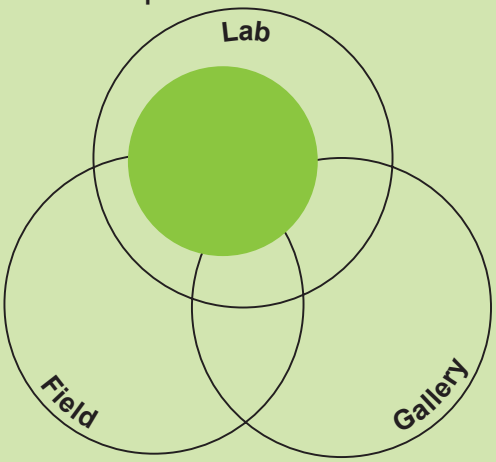
**Skills:**

- Be able to locate, isolate and cultivate various microorganism producing colourants by following biological protocols and associated laboratory practices.
- Be able to follow experiment protocols, observe and document the results.
- Be able to use a range of different laboratory equipment, including: bioreactor, flow-bench, centrifuge and precision scale.
- Be able to source equipment for and setup a DIY biolab.
- Be able to collaborate with experts from the natural science field.

**Competences:**

- Be able to cultivate pigment from microorganisms, and potentially extract and refine that pigment for future applications.
- Be able to work safely with GMO practices and laboratories.
- Be able to use a bioreactor to cultivate a larger number of microorganisms
- Be able to collaborate with natural science experts, to plan and execute experiments to produce a large amount of microbial pigment.
- Be able to apply knowledge from interviewed experts and source



# *The Connector*

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# *The Connector*

**Knowledge:**

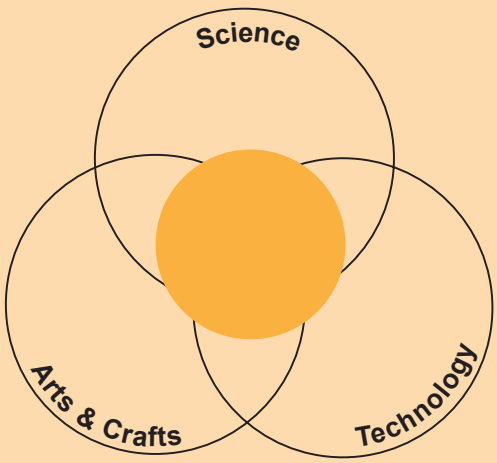
- Has a basic understanding of natural science methods and approaches.
- Has an understanding of the similarities and differences between design and natural science.

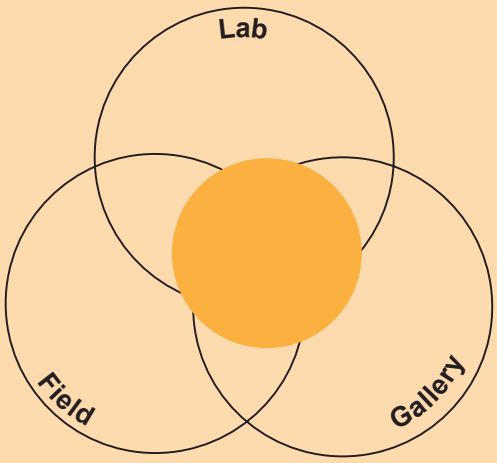
**Skills:**

- Be able to present samples and knowledge, with a ‘high degree’ of finish and clear direction, assisting as a link between scientific discoveries and commercial applications.
- Be able to apply different design approaches to topics outside of design, using them to apply new insight to e.g. a scientific topic.
- Be able to initiate and maintain connections with people and organisations within different domains, e.g. scientists, students, curators, institutions.
- Be able to explain, guide and inspire others, creating opportunities for mutual learning.

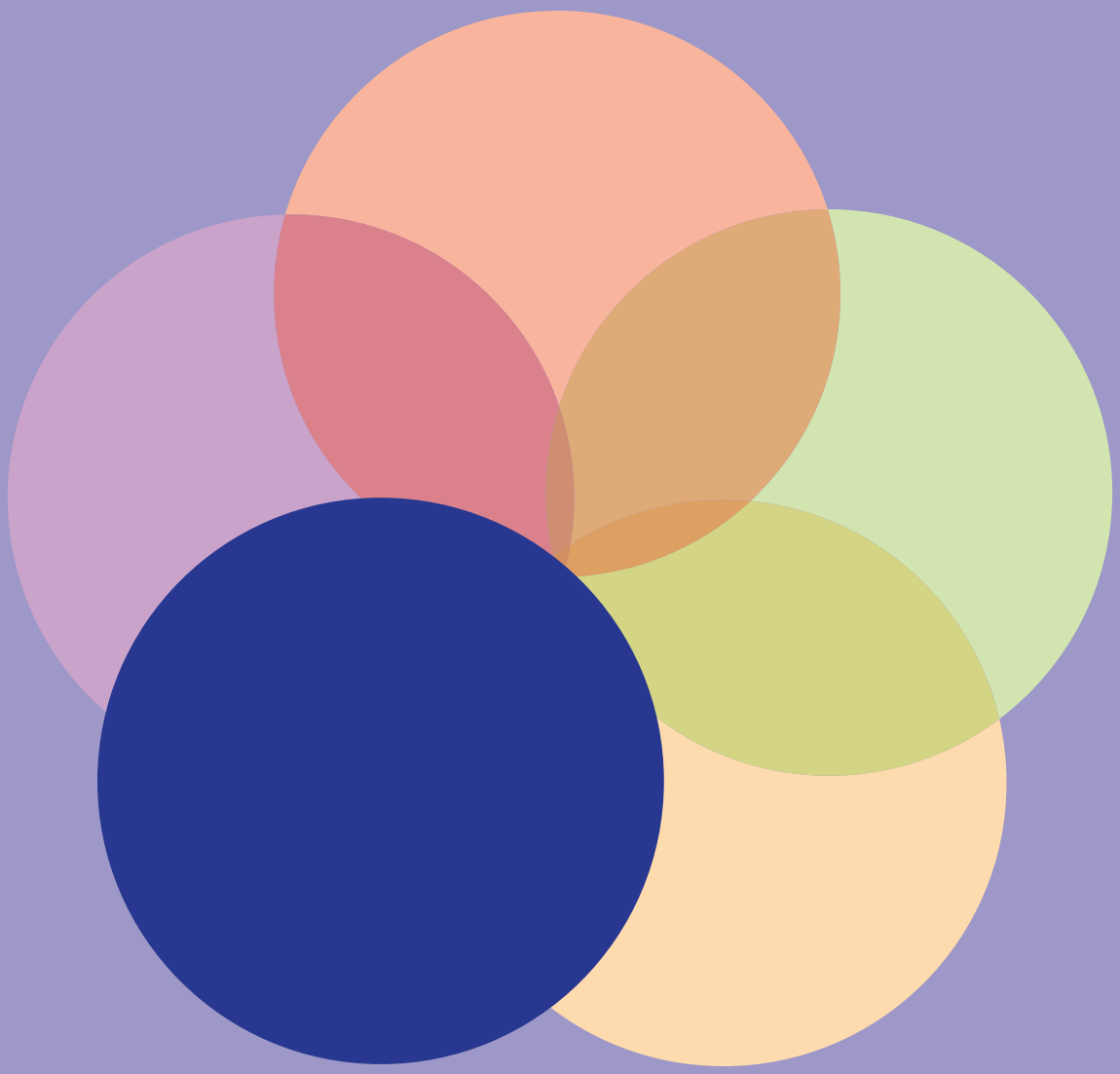
**Competences:**

- Be able to form relations with industrial partners, gaining knowledge on challenges of scaling and commercialisation.
- Be able to facilitate meetings between different domains.
- Be able to connect design students to relevant biological methods for cultivating microbial colourants and associated natural science laboratory practices.



# *The Innovator*



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# The Innovator

**Knowledge:**

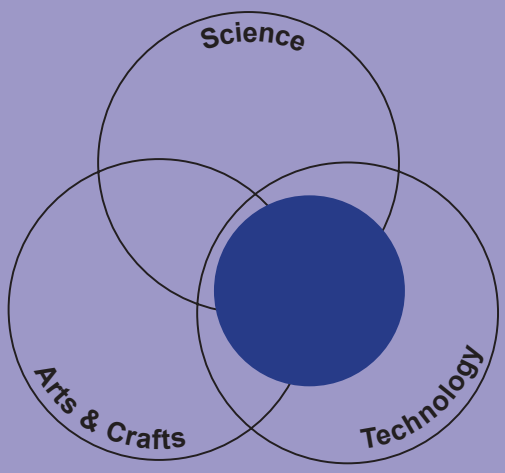
- Has a basic understanding of textile engineering.
- Has an understanding of dying technologies.

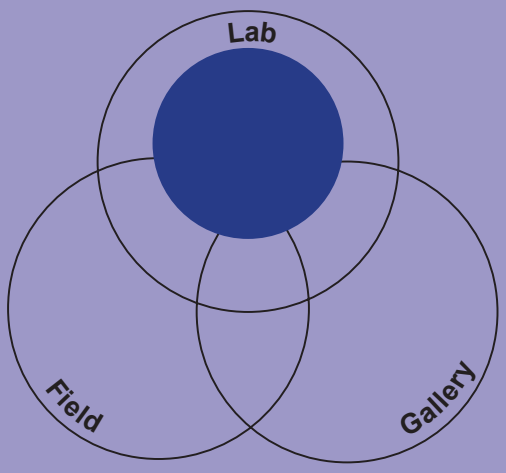
**Skills:**

- Be able to work with natural science methods and use laboratory protocols to write down processes and findings.
- Be able to apply current textile fibre technologies, such as melt spinning and wet spinning.
- Be able to apply an optimisation approach, inspired from engineering, where one parameter is tested at a time.
- Be able to collect knowledge from industrial application experts within biocolour or textiles.

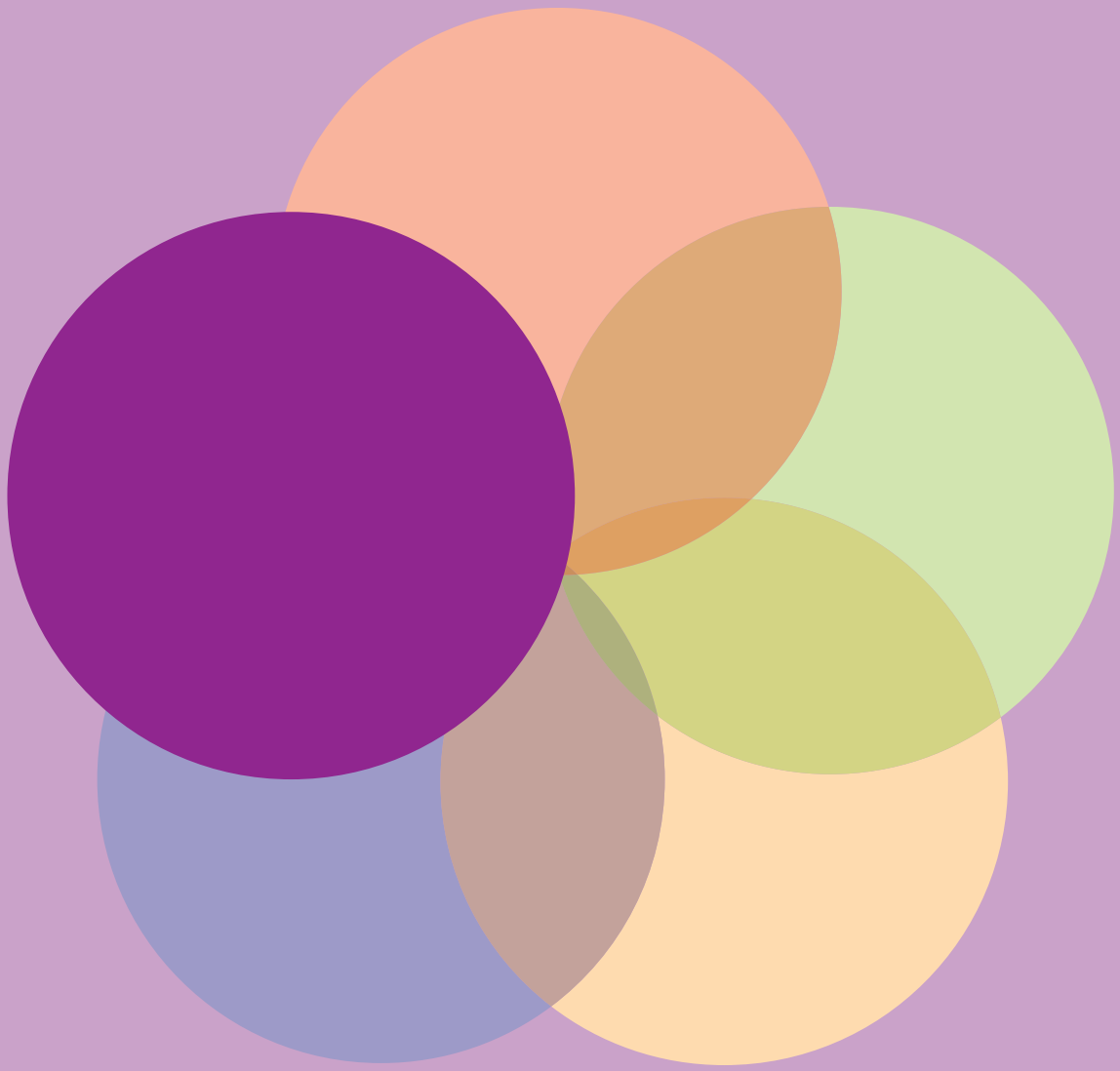
**Competences:**

- Be able to conduct experiments to improve the technical performance of textiles and pigment.
- Be able to measure reproducible results of experiments with colour light fastness, exploring if colourants could meet commercial performance criteria.
- Be able to use knowledge on microbial colourants and the newest technologies to develop innovative colour applications.
- Be able to be a part of an innovation team, discussing experimental findings with research employees from other fields.



# *The Maker*



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# *The Maker*

**Knowledge:**

- Has an understanding of testing and making prototypes through a hands-on experiential process, where learning-by-doing is central.
- Has an understanding of textile disciplinary knowledge and the making of textile products.

**Skills:**

- Be able to explore new concepts through sensuous, hands-on approaches combining creative thinking and structured experimentation.
- Be able to apply traditional textiles skills in a creative practice, working with the material properties and experiential qualities of the materials e.g. printing and dyeing techniques.

**Competences:**

- Be able to use hands-on approach to explore new technologies.
- Be able to iterate on different visual expressions of materials, and get inspired during the experiments.
- Be able to explore acceptance of coloured textiles.
- Be able use the hands-on approach to introduce other designers to biodesign.
- Be able to produce visual results of experiments, to make them more concrete and assist in communicating them.