A TEACHING TOOLKIT FOR CRITICAL MATERIALS RESEARCH

This toolkit comprises design methods that take new natural design materials and their unique properties as a point of departure and offers hands-on activities to critically engage in sustainable material research and (re)discover new and ancient techniques of material making.

Our aim is to inspire students, researchers, and educators to say goodbye to petrol-based plastics and toxic materials in favor of more sustainable ones. Building on ancient and contemporary knowledge, we label these materials 'new naturals' as they don't fit in the traditional material families of metals, plastics, ceramics and glass, composites, or natural materials such as leather or wood. These 'new naturals' can for instance be composites- hybrid materials made from abundant resources such as food waste or plant fibers – or made with microbes, fungi, yeasts, and other organisms that create fascinating substances that we can use in design.

The toolkit exists out of [X] cards that support users in developing teaching activities, classes, and courses about critical materials research, and offers directions and resources on setting up your own small DIY lab. The cards contain four themes that each contribute to understanding and making sustainable materials and sustainable modes of production. Depending on your aim you can combine cards about materials science, biofabrication, DIY microbiology and critical making, and depending on the level of expertise and time available you can choose between various levels of difficulty (explain, explore, or expand cards).

Use the [name toolkit] in combination with the materials archive [link] to collaboratively build an open-source material archive.

www. samplemanagementtool.org

BIOMATERIALS TEACHING TOOLKIT

CRITICAL CREATIVE RESEARCH ON NEW MATERIAL FUTURES

Recipes and samples of the biomaterials can be found at:
www.samplemanagementtool.com

project by Loes Bogers, funded with an NWO Comenius Teaching Fellowship

SET UP YOUR OWN BIOMATERIALS -FABRICATION SITE AND DIY MCIROBIOLOGY LAB

TOOLS, INGREDIENTS, AND RESOURCES

www.amsterdamuas.com

waag technology & society
www.waag.org

MATERIOLOGY

These activities explore the intersection between material science and material experience. How can we know materials? How can we share this knowledge and experiences? In addition, cards about industrial processing and conversion techniques help to explore the possibilities of a give material more extensively.

DIY MICROBIOLOGY

The cards with this tag explain basic techniques, protocols and etiquette for working in a microbiological lab setting safely. It also provides resources to get informed about lab safety, lab design and suitable organisms for use in schools and community labs.

CRITICAL MAKING

This section provides activities – sometimes accompanied with readings – that help to rethink existing norms and values around matter, materials and human-made objects. The cards suggest exploring the history and changing use of core concepts across different fields, and provides practical defamiliarization exercises that help us see things anew.

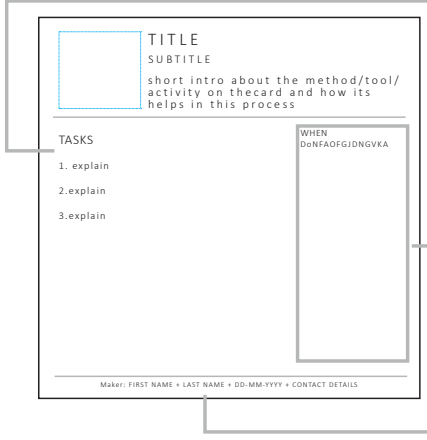
BIOBASED MATERIALS

This category contains recipes and protocols to create various kinds of bio-based materials. Ranging from cooking bioplastics and growing fungal biocomposites to ancient techniques such as fish leather tanning and natural dyes.

SELECT AND EXPLORE

INTRODUCTION
The short description allows you to quickly assess whether the activity or method on the cards suits your needs.

CATEGORY
Depending on what learners already know and depending on what topic you want to center your activities, the toolkit is divided in four categories. Cards can be about materials science, biofabrication, diy microbiology, or critical making.



TASKS
The steps that need to be taken in order to execute the activity or method

RECOMMENDATIONS
The recommendations section can list ingredients, tools, tips, notes and references about the activity or method mentioned on the card.

ATTRIBUTION
The maker or source on which the card is based.

EXPLAIN - EXPLORE - EXTEND

Explain cards are knowledge cards that support your understanding of (working with) biomaterials.

Explore cards contain activities and methods for learning and critically engaging with biomaterials.

Extend cards build on the previous cards and help to deepen your pratical knowledge of biomaterials.