Biomaterials toolkit

A toolkit for critical creative research on new material futures and collaboratively exploring material craftmanship

Side 1 accompanying booklet (8 sections, 2 rows)

|  |  |
| --- | --- |
| Header:  Name toolkit  Logo HvA  Logo Waag | Body: [max 50 words explaining how the toolkit helps users and in what it supports users]  www. samplemanagementtool.org  Funded by NWO/ Comenius fellowship |
| Header:  Criticial creative research on new material futures | Body [max 50 words: frame in what kind of situations this toolkit can support people, e.g. the design method kit supports a design process, what does this toolkit support?] Understanding biomaterials, fostering critical creative research, *what is the scope of this toolkit?*  ...short detailed task-based descriptions help learners quickly undersantd the premises of DIY material fabrication. This makes [name toolkit] perfect for schools, institutions, etc, ?? To dive further into new materials and build new eco-systems to ??. Use [name toolkit] in combination with the materials archive [link] to collaboratively build an open-source archive.” |
| Header: Select (what kind of elements are found on the front side of the card that help you how select the activity) | Image   * Example of card with icons for category, estimated duration and nature of activity   Category   * DIY Microbiology/Biofabrication/Materials/Critical Making) + ±40 words explantion about why there are these categories   Estimated Duration   * *This is an estimate of how long it wil take to execute the method, this range depends on the complexity of the project and your experience with the method.*   Nature of activity   * The design method kit has ‘research’ and ‘create’ but I am not sure if we need this distincation as well? |
| Header: Execute  (what kind of elements are found on the back side of the card that tell you how to execute the activity) | Title + short description   * Name or title of the activity/term that the card is about + short intro about the method/tool/activity on the card and how its helps in this process   Tasks   * Stepwise description of what one needs to do   ‘Context’ > when/why/note/output/next   * This is based on a design process, not sure if we can keep this category as it is   Image   * The same image/icon as on the front of the card but then smaller in the corner |
| Header title:DIY Microbiology | body:  [±40words explanation about DIY microbiology and lab protocols] |
| Header title:  Biofabrication | body:  [ ±40words explanation about biofabrication] |
| Header title:  Materials (Science + Experience) | body:  [±40words explanation about materials science + experience] |
| Header title:  Critical Making | body:  [±40words explanation about critical making] |

**!! Nature of activity!!**

The Design method kit makes a distinction between ‘research/create’ but I think we need to find something else. For instance a distincation between ‘introduction’/‘deep dive’ thus making clear what cards are good to start with regarding the subject and which cards build on earlier acquired knowledge? We can explain this under ‘select’ and ‘execute’ or changes those headers as well.

DIY Microbiology (and lab protocols)

Introduction:

* Microbes/fungis/yeasts and other organisms (yeast vs fermentation?)
* (safety) levels of clean and dirty (read Butler’s Dirt)
* Lab protocols
* Kitchen Lab (filmpje/rondleiding)

Deep dive:

* Morphology of tools
* DIY biofilms
* DIY myco

|  |  |
| --- | --- |
| title | Microbes, fungis, yeast and other organisms |
| Short description | [±30 words, may be extended with an example] |
| tasks |  |
| when/why/note/output/next |  |
| Ideas for image |  |

|  |  |
| --- | --- |
| title | (Safety) levels of clean and dirty |
| Short description | [±30 words, may be extended with an example] |
| tasks |  |
| when/why/note/output/next |  |
| Ideas for image |  |

|  |  |
| --- | --- |
| title | Lab protocols |
| Short description | [±30 words, may be extended with an example] |
| tasks |  |
| when/why/note/output/next |  |
| Ideas for image |  |

|  |  |
| --- | --- |
| title | Morphology of tools |
| Short description | [±30 words, may be extended with an example] |
| tasks |  |
| when/why/note/output/next |  |
| Ideas for image |  |

|  |  |
| --- | --- |
| title | DIY Biofilms |
| Short description | [±30 words, may be extended with an example] |
| tasks |  |
| when/why/note/output/next |  |
| Ideas for image |  |

|  |  |
| --- | --- |
| title | DIY Myco |
| Short description | [±30 words, may be extended with an example] |
| tasks |  |
| when/why/note/output/next |  |
| Ideas for image |  |

Biofabrication

Introduction:

* Glossary “bio-everything”
* Glossary Fabrication vs manufacturing vs production
* Morphology/functions of ingredients in biofabrication
* 24 basis recepten
* @HOME Materials kitchen

Deep dive:

* Be a 3Dprinter/ print paste
* DIY mallen maken
* Mono-material connections
* “Semi” fabrication (zelf kijken naar manieren van verwerking, dus manieren om vouwen/persen/rollen etc na de bootsen)

|  |  |
| --- | --- |
| title | Glossary “bio-everything” (waarschijnlijk wel meer kaarten) |
| Short description | [±30 words, may be extended with an example]  Wij cureren± 30 woorden, opdracht is om voor alle woorden definities te zoeken om samen tot een glossary te komen  Biodesign  Bioart  Biology  Biofabrication  Biodegredable  Biorenewable  Biocompostable  Biomimicry  Biobased  Biomass  Biosynthesis  Bioremediation  Biohacking  Bioethics  Biotechnology  Bionics  Biomechanics  Biodesctructible |
| tasks |  |
| when/why/note/output/next |  |
| Ideas for image |  |

|  |  |
| --- | --- |
| title | @HOME Materials kitchen |
| Short description | Give a small videotour in your kitchen: show us how you have converted your kitchen into a Biomaterials-fabrication site. |
| tasks |  |
| when/why/note/output/next |  |
| Ideas for image |  |

|  |  |
| --- | --- |
| title | Fabrication vs manufacturing vs production |
| Short description | Fabrication, manufacturing and production are terms that are often used as though they are synonyms. Although the processes show similarities, there are some differences to keep in mind.  Source: <https://www.pacific-research.com/manufacturing-vs-fabrication-what-is-the-difference-prl/#:~:text=Fabrication%20is%20about%20the%20creation,process%20of%20assembling%20those%20parts>. |
| “Tasks" | Fabrication is about processing raw materials and making parts from these raw materials that are suitable for assembly. Common fabrication methods are welding, cutting, folding, machining, and extruding.  Manufacturing is when those parts are assembled into products intented for consumers. Semi-manufacturing is the making of components for products (think of companies specialised in making pcb’s for computers). A typical manufacturing process uses machines, assembly lines and skilled labor to assemble products.  Production is a term that simply denotes utility. As such, it can cover both fabrication and manufacturing and it is also applicable to the creation of intangible goods. |
| When/why/note/  output/  next | When making biomaterials, we talk about biofabrication. We fabricate materials that can be made into parts, or we directly make parts by casting biomaterials into molds.  Working with biomaterials may ask for |
| Ideas for image |  |

|  |  |
| --- | --- |
| title | Morphology/functions of ingredients in biofabrication |
| Short description | [±30 words, may be extended with an example] |
| tasks |  |
| when/why/note/output/next |  |
| Ideas for image |  |

|  |  |
| --- | --- |
| title | 24 basisrecepten (doen we alle 24 recepten? Dan 24 kaarten) |
| Short description | [±30 words, may be extended with an example] |
| tasks |  |
| when/why/note/output/next |  |
| Ideas for image |  |

|  |  |
| --- | --- |
| title | Be a 3D printer/ print paste |
| Short description | [±30 words, may be extended with an example] |
| tasks |  |
| when/why/note/output/next |  |
| Ideas for image |  |

|  |  |
| --- | --- |
| title | DIY Mallen maken |
| Short description | [±30 words, may be extended with an example] |
| tasks |  |
| when/why/note/output/next |  |
| Ideas for image |  |

|  |  |
| --- | --- |
| title | Mono-material connections |
| Short description | [±30 words, may be extended with an example]  Opdracht van de minor: maak uit je biomateriaal een monoverbinding zonder gebruik te maken van extra verbindingsmaterialen |
| tasks |  |
| when/why/note/output/next |  |
| Ideas for image |  |

|  |  |
| --- | --- |
| title | “Semi” fabrication (zelf kijken naar manieren van verwerking, dus manieren om vouwen/persen/rollen etc na de bootsen) |
| Short description | [±30 words, may be extended with an example] |
| tasks |  |
| when/why/note/output/next |  |
| Ideas for image |  |

Materials science and experience

Introduction:

* What is a raw material? (Shit/Dust/Poo articles, materials and resources, waste streams)
* What is a material property? (develop a shared vocabulary)
* What is a material experience> (MDD)
* How do you test a material property? (DIY protocol material testing)

Deep dive:

* Material Objects (Zoe Laughkin)
* Better Together (combining polymers)

|  |  |
| --- | --- |
| title | What is a raw material? |
| Short description | [±30 words, may be extended with an example] |
| tasks |  |
| when/why/note/output/next |  |
| Ideas for image |  |

|  |  |
| --- | --- |
| title | What is a material property? |
| Short description | [±30 words, may be extended with an example]  Develop a shared vocabulary (wij cureren woorden, opdracht is om hier voorbeelden bij te noemen zoeken, (noem een minimale en maximale > kijk in database die bij eindrapport minor staat) |
| tasks |  |
| when/why/note/output/next |  |
| Ideas for image |  |

|  |  |
| --- | --- |
| title | What is a material experience? |
| Short description | [±30 words, may be extended with an example]  Source: material driven design method |
| tasks |  |
| when/why/note/output/next |  |
| Ideas for image |  |

|  |  |
| --- | --- |
| title | Material Objects |
| Short description |  |
| tasks |  |
| when/why/note/output/next |  |
| Ideas for image |  |

|  |  |
| --- | --- |
| title | Mono-material connections |
| Short description | [±30 words, may be extended with an example] |
| tasks |  |
| when/why/note/output/next |  |
| Ideas for image |  |

|  |  |
| --- | --- |
| title | Mono-material connections |
| Short description | [±30 words, may be extended with an example] |
| tasks |  |
| when/why/note/output/next |  |
| Ideas for image |  |

|  |  |
| --- | --- |
| title | Mono-material connections |
| Short description | [±30 words, may be extended with an example] |
| tasks |  |
| when/why/note/output/next |  |
| Ideas for image |  |

Critical Making

Introduction:

* Reframing perfect/imperfection > (kintsugi etc)
* Reframijng expectations > good enough/good for whom/good for what
* Waste walk
* More than human collaboration

Deep dive:

* Define your eco-competitive principles
* Simultaan readings: 1 topic, 2-4 papers, 2-4 disciplines
* Bioremediation
* Open source – collaborative archiving