

MATERIAL MAPPING & SCOUTING

OER: REDUCED ENVIRONMENTAL IMPACT FIBRES

Objective & Scope

In order to reduce the textile industry's environmental impact, a variety of aspects has to be carefully considered and efforts should be aimed at implementing or increasing recycled contents and/or biobased contents from easily and sustainably renewable resources, implementing or improving sorting and recycling technologies and processes. The objective is to select some commercially available textile materials as a sustainable alternative to current (unsustainable) fibres. After the selection there will be a collective discussion on the choices made where students conceptualise and contextualise the materials. Students should explore the meaning of sustainable textiles and, into their normal design process, include the choice of sustainable fibres.

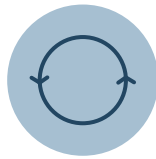
Activity Question

How could you use sustainable textiles in your design process?

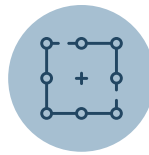
Learning Goals

- Materials mapping: commercially available textile materials, unsustainable
- Material scouting
- Material analysis (physical and performance properties, sustainability, processing)
- Potential application

Categories



Sustainability



Advanced Textile Technology

References

- Material Connexion. (n.d.). Material Connexion. Retrieved 2021, from <https://materialconnexion.com/>
- Textile Label. (n.d.). Your Europe. Retrieved 2021, from https://europa.eu/youreurope/business/product-requirements/labels-markings/textile-label/index_en.htm
- Circle Economy. (2018). Clothing Labels: Accurate or Not? THE SUSTAINABLE FASHION TOOLKIT. Retrieved 2021, from <https://sustainablefashiontoolkit.com/resource/clothing-labels-accurate-or-not/>

Support material

- Miro (prepared previously) and Jamboard
- [OER](#)
- [Summary presentation](#)

Equipment

Computer or tablet

A.

Materials mapping

1. Know what fibers your clothes are made of:

Composition claims on labels

This phase aims to show what fibers our clothes are made of. The discussion is collective starting from a board of Miro (prepared previously). Times: 15 minutes

Today, the textile industry is one of the most polluting industries globally and there is increasing awareness of its negative impacts on the environment. Besides generating air pollution throughout the whole value chain, the textile industry is known to be a water intensive sector producing high amounts of polluted wastewater. The volume and composition of the wastewater depend mainly on the used raw material and the textile production process. A way to minimise the environmental footprint of the current textile production, is to reconsider the raw materials used in the first place.

2. Fibres mapping

This phase aims to map the fibres currently applied in textiles products.

The main fibres currently applied in textiles are fossil-based synthetic fibres, followed by cotton fibres. The third largest share of fibres used in the textile industry are the so called man-made cellulosic fibres, which include wood-based textile fibres. Students will be divided into groups (3/4 people) and will use Miro to collect the information.

3. Collective discussion

Several drawbacks of using fossil-based synthetic fibres are nowadays well-known and pushed researchers to look for more sustainable alternatives. This phase aims to introduce the urgency of replacing current unsustainable materials with more sustainable alternative.



Less than or around an hour



Individual Discussion



Define

B.

Material Scouting

1. Scouting of materials (physical or virtual samples)

Research of material (individual activity):

Online research:

Websites

- <https://www.itmc2021.com/>
- https://asknature.org/?s=&p=0&hFR%5Bpost_type_label%5D%5B0%5D=innovations&dFR%5Btaxonomies_sector%5D%5B0%5D=Materials%20
- <https://web.mit.edu/>
- <https://www.designboom.com/>

Material libraries

- <https://www.materialconnexion.online/database/customer/account/login>
- <https://materialdistrict.com/>

Physical research at the Materially Library

2. Analysis and selection of searched materials

1.) Collective discussion on selected materials (entire class, tool: e.g. Miro)

2.) Select the most interesting materials. Selection criteria: sustainability and

3.) Cluster of selected materials into sustainability areas:

- biobased
- biodegradable
- recycled content
- pre or post consumer
- compostable
- waste material content

3. Discussion and potential application

This phase aims to describe one or two applications and prepare a short presentation.

(small groups, tool: e.g. Jamboard, outcome: short presentation)



Less than or around an hour



Individual Small Group Discussion



Develop