

SDG8 Future of Fashion

MM3 My Fashion Everyone's Fashion



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Phase: Research and Development

Lesson 3. Circular Design and Life Cycle Analysis of Clothing

Subjects: Climate Action and Sustainable Development, Design, Enterprise, Home Economics, Science

9 INDUSTRY, INNOVATION AND INFRASTRUCTURE



10 REDUCED INEQUALITIES



12 RESPONSIBLE CONSUMPTION AND PRODUCTION



17 PARTNERSHIPS FOR THE GOALS



Lesson Title and Summary: Life Cycle Analysis of Clothing

In this lesson, learners will consider the question of how our fashion choices can make a difference comes up in relation to cherishability and end of life. We look at how the fashion industry is tackling the problem of waste through circularity and how a deeper understanding of the problems can empower us to affect change through our own practices around clothing.

Vocabulary: Circular systems, Life Cycle Analysis, Production; open loop and closed loop systems,

In this lesson, the learner will:

- gain an understanding of the life cycle of a garment
- work in pairs to map a sustainable versus a non sustainable garment.
- work in pairs to discover and discuss companies / case studies that illustrate circular design processes
- discover how companies are addressing the problem of waste.
- look at personal responsibility and how our choices can make a difference.

Materials

- Worksheet: Life Cycle Analysis
- Worksheet: Effective Systems
- Post-its
- Internet access
- Whiteboard
- A4 Paper
- Pens, pencils, or markers

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Lesson 3. Circular Design and Life Cycle Analysis



ACTIVITY INSTRUCTIONS

Activity 1: Life Cycle Analysis (25 mins)

1. Ensure understanding of the activity on the Worksheet: Life Cycle Analysis
2. Working in pairs, have learners complete the Life Cycle Analysis worksheet.
3. Each pair will present their analysis map to the group,
4. Using the following words as guides, support the learners to present their maps:
 - o Design
 - o Materials
 - o manufacture and labour
 - o Transport
 - o Use phase (potential for customisation)
 - o Durability
 - o End of lifecycle landfill
 - o End of lifecycle – new life (Circular system)

Activity 2: Effective Systems (25 mins)

1. As a class, listen to eight mins of the following podcast in two parts using the activity to answer the questions in the Effective Systems Worksheet:
 - o Embracing a circular way of life <https://podcasts.apple.com/gb/podcast/ep-3-embracing-a-circular-way-of-life/id1677003072?i=1000608769830>
 - o Start the podcast and listen from [0:00 mins - 2:05 mins] then forward to [17.05 mins -23.10 mins]
2. Group the learners into groups of 3 or 4 people to work together to answer the questions on the Effective Systems Worksheet after listening to the podcast, allowing a maximum of 10 mins.
3. End the session with a class hivemind harvest [collecting information from everyone] using the question:
 - o 'What might a fully circular fashion future look like?'
4. Using the guide words from activity 1 ask learners to write their thoughts on the whiteboard and photograph when they completed and have add them to the module drive.

REFLECTIVE EXERCISE: 3-2-1

- Three things they feel they have learnt from the exercise
- Two things they found most interesting and would like to explore more
- One – their opinion they have about the site / exercises

Use Post-its or a mentimeter www.mentimeter.com to gather learners reflections

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EXTENSION / REDUCTION ACTIVITIES:

Reduction: For a shorter lesson, undertake the first activity only.

Extension: For a longer lesson, extend the video activity in activity 2. Watch the video in pairs and ask learners for one word on relating to the video THEIR clothing habits. Discuss within the separate groups and feedback to the class.

Option B: Continue growing the Sustainable Fashion glossary. Ask the learners to pick 1 or 2 words that they are interested in. Write a one sentence definition of each and add to the glossary

Circular production, Virgin material, Materials - 'good' and 'bad, Resource usage - water and energy, Transparency, Design, Manufacture and labour, Transport, Use phase (potential for customisation, Durability, End of lifecycle landfill , End of lifecycle – new life (Circular system)

MEDIA BOX: (materials, online video links, extra resources, case studies etc)

VIDEO: Financial Times Creating a circular economy for fashion [5:00 min]

<https://youtu.be/y78UVWd5PHE>

Waste free fashion closed loop production [1:43min] [Closed loop production process \[3:11 min\]](#)

https://www.youtube.com/watch?v=flbdhT_fezE

Closed Loop Fashion production [2:34 min] [https://www.youtube.com/watch?v=fEv_Q2pQEjw]

Article Closing the Clothing Loop: a Cradle to Cradle Platform for Fashion

<https://en.reset.org/closing-clothes-loop-cradle-cradle-circular-platform-fashion-12112017/>

Local Trip / Expertise / Additional Work and Assessments

Ongoing Sustainable Fashion Glossary: Learners can continue to pick 1 or 2 words that they are interested in as the module progresses and write a one sentence definition of each and add to the glossary.

Textile Recycling Centers or Facilities: Visiting textile recycling centers or facilities can help learners understand how discarded textiles are processed and repurposed, offering ideas for sustainable fashion projects.

Local Textile Investigation: Contact the local authority to investigate where old textiles end up, what are the local processes, task learners with developing strategies to repurpose them.

MM3 L3WS: LIFE CYCLE ANALYSIS CASE STUDY

8 DECENT WORK AND ECONOMIC GROWTH



Consider the complete lifecycle of two nylon jackets and plot their life cycle on the Life cycle analysis chart.

Jacket A Tesco jacket
Cost 69.99



This jacket is made from a number of different materials including virgin nylon, virgin polyester and PET polyester thinsulate filling.

Nylon/Polyester: Lining is virgin polyester shell is raw virgin nylon. Filling is PET polyester thinsulate.

Fibre made in China. Jacket made in Bangladesh.

Transported by land and sea to a warehouse in Manchester, UK.

Purchased in Manchester at a Tesco store.

Machine Washed at home at 30 degrees.

Discarded after 1 year of wear because seams are unravelling. Jacket is sent to landfill.

Jacket B. Infinity Jacket Napapij
Cost 250



The material in this jacket is a mono-material: its filling and trims are made from Nylon 6, while its fabric is made from ECONYL® Regenerated Nylon, a high-performance nylon 6 yarn recycled from discarded fishing nets and other waste materials.

Fibre Made in Slovenia. Jacket made in Slovenia.

Transported by land and sea to a warehouse in Italy. Purchased online.

Spot Washed at home.

Jacket is worn for 2 years and returned to manufacturer. Through a digital take-back programme the jacket can be returned and recycled into a new garment. ECONYL® Regenerated Nylon can be recycled again and again.



Each phase of the lifecycle should be carefully considered when scoring the jackets on the chart on p3.



- Concept design: Overall need for the product.
 - Materials: How important are the processes and considerations of the materials used?
 - Reducing waste: What will happen at the end of life? And how can this consideration be anticipated at the beginning of the lifecycle?
 - Manufacturing: New technologies for increasing productivity, increasing sustainable impact, factory conditions. Where is this garment made?
 - Transport: How far does this garment travel? Where is the fabric produced? Where is the garment manufactured, etc.?
 - Use phase: Laundry: What levels of Behavioral change might prolong the life of this garment?
- Customisation and personalization: Does this garment have scope for personalization? Adding or taking away elements that might give it added value?
- Durability/ Longevity: How long will this garment last? How can you prolong its life? End of Life/ Start of new life, what about new tech for recycling garments and sorting garments? What is the best case scenario and what is worse?
 - End of Use/ Disposal: Reducing waste: Build this into the design. What will happen at the end of life? And how can this consideration be anticipated at the beginning of the lifecycle?

MM3 L3WS: LIFE CYCLE ANALYSIS CASE STUDY

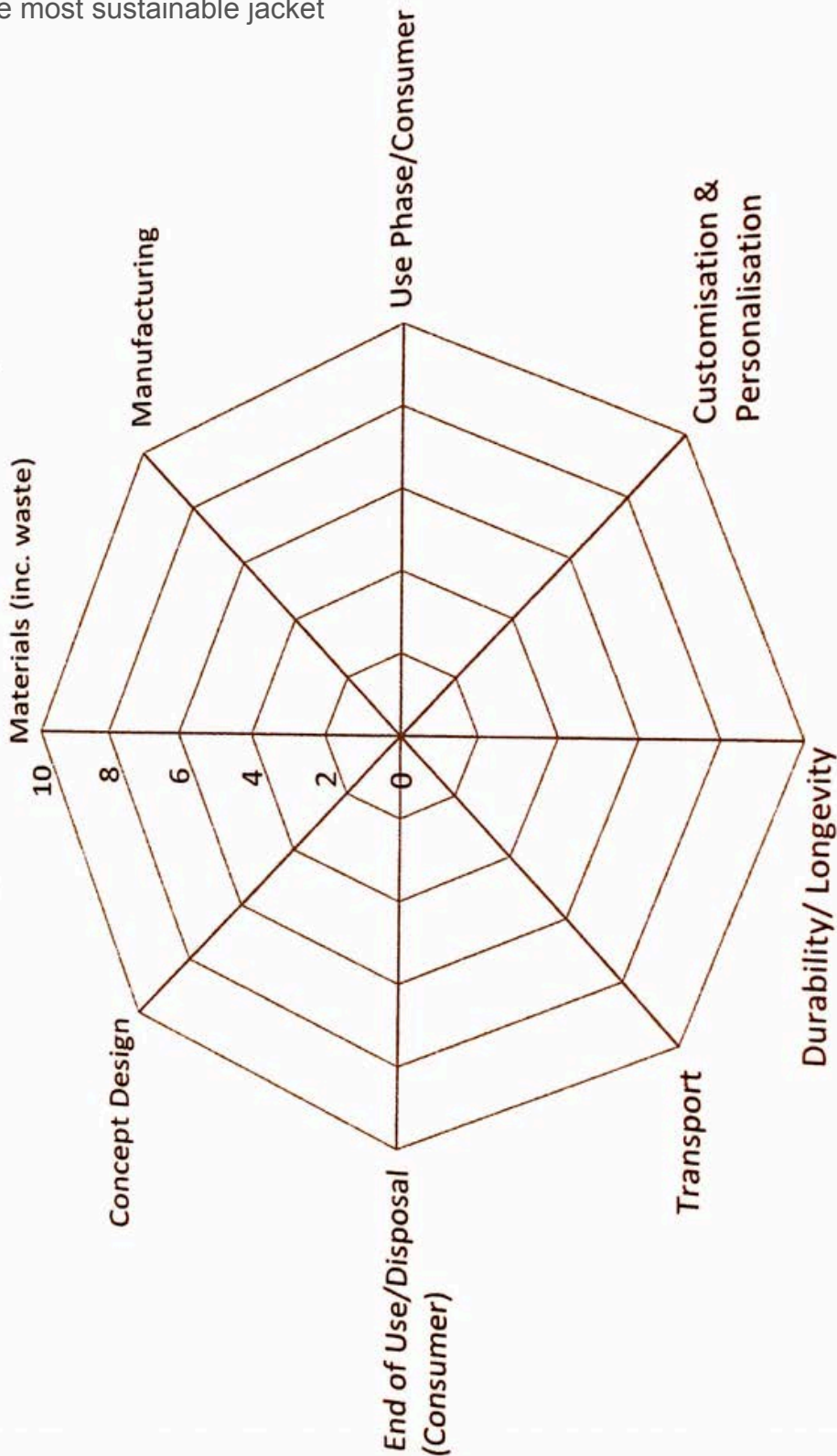


Each phase of the lifecycle should be carefully considered:

Please score out of 10 for each category using the details on the first page and placing a mark on the 'web'. High marks are the worst- case scenario and low marks are the best- case scenario e.g. a 10 on Transport would mean the transport of the Jacket would be the least sustainable. Use a different colour pen for each jacket and join the dots for each Jacket to see the jacket's 'spider' diagram - see example on the next page. Add up the scores for each jacket to see the most sustainable jacket

General

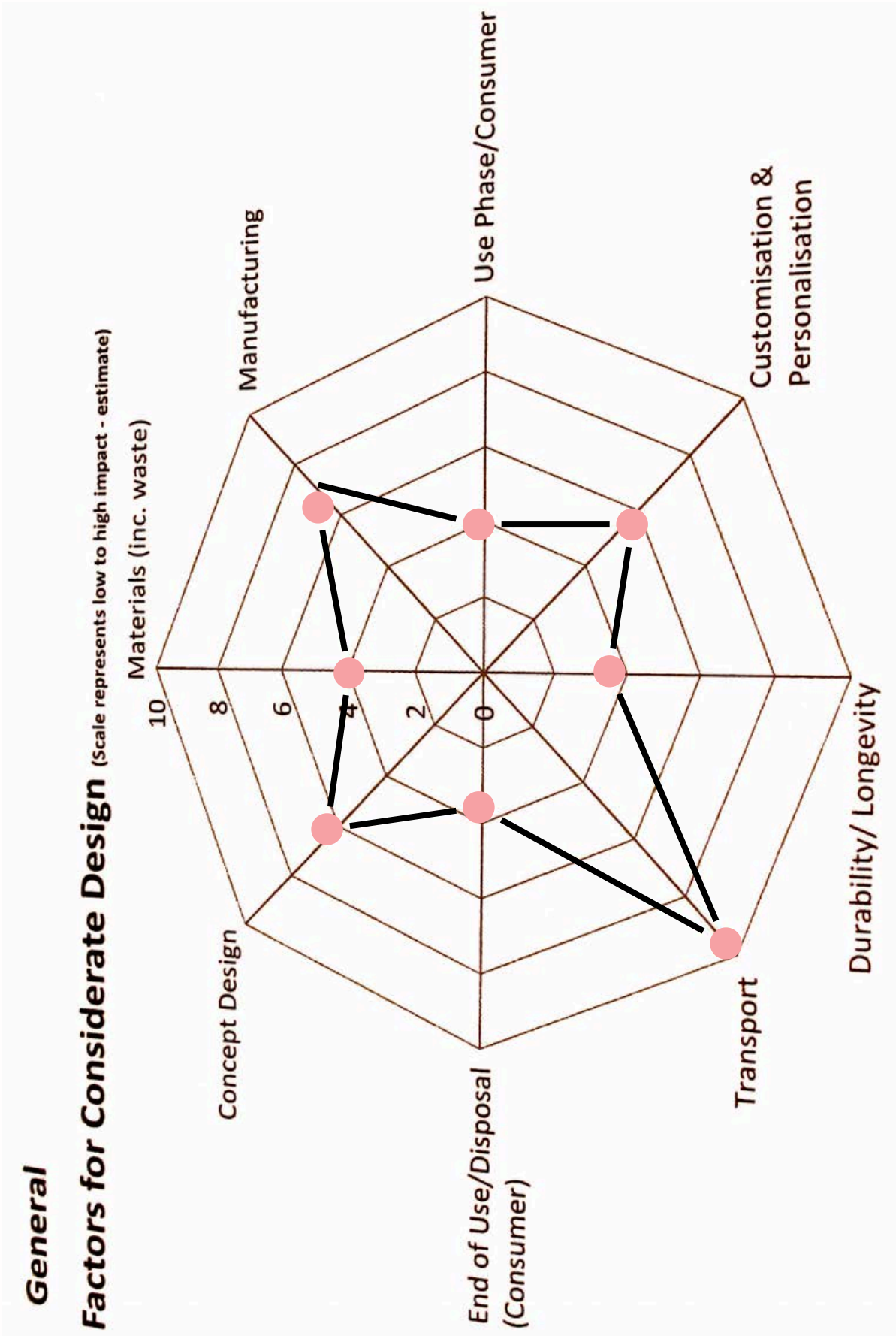
Factors for Considerate Design (Scale represents low to high impact - estimate)



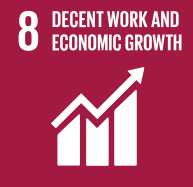
MM3 L3WS: LIFE CYCLE ANALYSIS CASE STUDY



Example of a completed spider diagram showing the product's least sustainable aspects e.g. transport and manufacturing



MM3 L3WS: EFFECTIVE SYSTEMS



AS YOU ARE LISTENING TO THE PODCAST, GATHER THE INFORMATION TO ANSWER THE QUESTIONS BELOW.

YOU MAY WANT TO DIVIDE THEM UP AMONG THE GROUP TO MAKE SURE YOU GET ALL THE ANSWERS.

1. What is the difference between a regular system and a circular system?
2. Discuss the four R's that consumers or companies can optimise to prolong the life of the garment.
 - reduce - reduction of consumption
 - reuse - reuse the fabric in another way new textile from old textile
 - repair - keep using the fabric by repairing it so it continues to be wearable
 - recycle - regeneration.
3. How can we help to make better livelihoods for the people who rely on the fashion industry?
4. How can we improve all the elements in the system so that the least impact is made while still making it economically viable? (i.e. on people, time, environment, materials, design, etc in an ecosystem of stakeholders including, you, the consumer – all in collaboration)