

Lesson Plan 1: Understanding Current Situation and Risks in the Textile Industry

Target Audience

Vet Trainers

Goal (50-60 words)

Equip VET trainers with a comprehensive understanding of how the textile industry currently lacks sustainability, focusing on prevalent issues such as pollution, fast fashion, inefficient waste management, and excessive resource consumption. This lesson plan benefits trainees by providing insights into the unsustainable practices of the industry and the urgent need for improved waste management solutions.

Objectives

Upon completing this lesson plan, your trainees should be able to:

- **Identify Key Issues:** Identify environmental, health, and economic risks associated with the textile industry and VET centres.
- **Comparing Waste Management Practices:** Compare current waste management practices with sustainable alternatives. Presentation of alternatives by trainer and then trainees creating pros and cons list and/or debate sessions.

Optional Theoretical Background (200-400 words)

Before you start implementing this lesson plan, it's important to have a solid understanding of the current sustainability issues within the textile industry. Here's what you need to know.

Key Environmental Risks:

- **Water Pollution:** Textile production involves the use of dyes and chemicals that often end up in water bodies, causing severe water pollution.
- **High Water Consumption:** The textile industry is one of the largest consumers of water, particularly in the production of cotton and during dyeing processes.
- **Chemical Usage:** The use of toxic chemicals in textile processing poses significant risks to both the environment and human health.
- **Air Pollution:** Emissions from textile factories contribute to air pollution, affecting air quality and contributing to climate change.
- **Solid Waste Generation:** The industry generates a substantial amount of solid waste, including fabric scraps and unsold products that often end up in landfills.
- **Microplastic Pollution:** Synthetic textiles release microplastics into water bodies during washing, contributing to ocean pollution.
- **Energy Consumption:** Textile production is energy-intensive, leading to significant greenhouse gas emissions.
- **Land Degradation:** The cultivation of cotton, a key raw material, often leads to soil depletion and degradation due to intensive farming practices. (European Parliament, 2024)

Health Risks

- **Chemical Exposure:** If someone is exposed to chemicals like dyes, solvents, and pesticides, they may develop respiratory issues, skin problems, and cancer.
- **Dust Exposure:** Inhalation of dust from cotton, wool, and other fibres can lead to respiratory conditions such as asthma and bronchitis.
- **Noise Exposure:** Loud textile machinery can cause hearing loss and other noise-related health issues.
- **Physical Hazards:** Risks from moving machinery and heavy lifting can result in serious injuries and musculoskeletal problems.
- **Ergonomic Risks:** Prolonged work in awkward positions can lead to musculoskeletal injuries. (ASK-EHS, 2019)

Current Waste Management Practices

Today, most textile waste (85%) is disposed of as solid waste and must be disposed of through municipal or local waste management systems that either landfill or incinerate the waste. To increase reuse and recycling efficiency, textile waste should be collected and sorted according to the relevant input requirements (Zaborowska, Wojnowska-Baryła, Bernat, & Kulikowska, 2024).

Conclusion By understanding these key issues and sustainable alternatives, you can guide your trainees to critically evaluate and improve the sustainability of textile industry practices. This foundational knowledge will help them become more responsible and innovative professionals in their field.

Lesson Plan Details

Lesson Plan title	Lesson Plan 1: Understanding Current Situation and Risks in the Textile Industry: Sustainability Challenges in the Textile Industry
21st Century Skills	<ul style="list-style-type: none"> ● Critical Thinking ● Creativity ● Communication ● Collaboration ● Problem-solving ● Decision making
Duration	<p>Total Duration: 120 minutes</p> <p>Activity Breakdown:</p> <ul style="list-style-type: none"> ● Introduction and Objectives Setting: 10 minutes Briefly introduce the lesson's goals and objectives. ● Activity 1: Identifying Key Issues: 30 minutes Discussion and brainstorming on environmental, health, and economic risks associated with the textile industry and VET centres. Provide trainees with sample data related to textile waste, water pollution, and chemical use. <u>Useful links:</u> <ol style="list-style-type: none"> 1. https://www.europarl.europa.eu/topics/en/article/20201208/STO93327/the-impact-of-textile-production-and-waste-on-the-environment-infographics 2. https://www.intechopen.com/chapters/88770 ● Activity 2: Comparing Waste Management Practices: 30-45 minutes Compare current waste management practices with sustainable alternatives. Presentation of alternatives by trainer and then trainees creating pros and cons list and/or debate sessions. ● Activity 3: Interactive Case Studies and Group Discussion: 20-30 minutes Organise trainees into small groups and assign each group a case study focused on a textile waste issue (e.g. fast fashion) . These case studies will be drawn from the participants' personal experiences in vocational education and training (VET) centres.

	<p>Groups discuss their case study, identify key problems, and brainstorm potential solutions. Each group presents their findings and proposed solutions to the class.</p> <ul style="list-style-type: none"> ● Conclusion/Q&A/Evaluation: 10-15 minutes Summarise key points, answer any remaining questions and evaluate participants' knowledge on what was presented, discussed in the lesson plan.
Classroom setting	Work either in groups or individually, to ensure all participants feel comfortable.
Required material/resources	<p>Introduction and Objectives Setting:</p> <ul style="list-style-type: none"> - Whiteboard and markers - Projector or screen for presentation slides <p>Activity 1: Identifying Key Issues:</p> <ul style="list-style-type: none"> - Paper and pens for note-taking <p>Activity 2: Comparing Waste Management Practices:</p> <ul style="list-style-type: none"> - Whiteboard and markers for presenting alternatives - Projector or screen for presentation slides - Paper/flip-chart and pens for creating pros and cons lists - Debate setup (optional): timers <p>Activity 3: Interactive Case Studies and Group Discussion:</p> <ul style="list-style-type: none"> - Case study handouts (one per group) - Flip charts or large paper sheets for group brainstorming - Markers and pens for group work <p>Conclusion/Q&A/Evaluation:</p> <ul style="list-style-type: none"> - Whiteboard and markers for summarising key points or projector/screen - Notepads and pens for trainees to jot down questions and key takeaways
Prerequisites	None
Final Assessment	<p>Quiz Questions: (through Kahoot/Menti) At the end of the session, trainees will take a multiple-choice quiz to assess their understanding of the key concepts discussed. Give feedback if necessary.</p> <ol style="list-style-type: none"> 1. Which of the following is a significant contributor to water pollution in the textile industry?

	<p>a) Use of organic cotton b) Use of natural dyes c) Use of synthetic dyes and chemicals d) Use of recycled fibres</p> <p>2. Which of the following health issues can be caused by chemical exposure in textile production?</p> <p>a) Hearing loss b) Skin problems c) Musculoskeletal injuries d) Asthma</p> <p>3. How is the majority of textile waste currently managed?</p> <p>a) Recycled into new textiles b) Donated to charity c) Disposed of as solid waste in landfills or incinerated d) Upcycled into new products</p>
Additional resources	<ul style="list-style-type: none"> • https://www.europarl.europa.eu/topics/en/article/20201208STO93327/the-impact-of-textile-production-and-waste-on-the-environment-infographics • https://www.intechopen.com/chapters/88770 <p>Readings for Activity 1: Imtiazuddin, S. M., Tiki, S., & Chemicals, A. V. M. (2018). Impact of textile wastewater pollution on the environment. Pakistan Textile J, 68(8), 38-39., and https://www.europarl.europa.eu/topics/en/article/20201208STO93327/the-impact-of-textile-production-and-waste-on-the-environment-infographics</p> <p>Material for Activity 2: BBC News. (2021, November 8). <i>The fast fashion graveyard in Chile's Atacama Desert</i>. YouTube. https://www.youtube.com/watch?v=uyHgY2O_fY</p> <p>For more check Annex OERs.</p>
References	<h2>References</h2> <p>ASK-EHS. (2019, March 28). <i>Occupational Health and Safety – Textile Industry</i>. Retrieved from ASK Environment Health Safety: https://ask-ehs.com/blog/occupational-health-safety-in-textile/#:~:text=Chemical%20Exposure%20%3A%20Textile%20employees%20may,and%20skin%20troubles%2C%20and%20cancer.</p> <p>European Parliament. (2024, 03 21). <i>The impact of textile production and waste on the environment (infographics)</i>. Retrieved from European</p>

	<p>Parliament: https://www.europarl.europa.eu/topics/en/article/20201208STO93327/the-impact-of-textile-production-and-waste-on-the-environment-infographics</p> <p>Zaborowska, M., Wojnowska-Baryła, I., Bernat, K., & Kulikowska, D. (2024, March). <i>The Growing Problem of Textile Waste Generation—The Current State of Textile Waste Management</i>. Retrieved from Research Gate: https://www.researchgate.net/publication/379196292_The_Growing_Problem_of_Textile_Waste_Generation-The_Current_State_of_Textile_Waste_Management#:~:text=Today%2C%20most%20textile%20waste%20(85,to%20the%20relevant%20input%20requirements.</p>
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Lesson Plan for Activities & Scenarios #1 (include 1-3 activities & 1-2 scenarios)

Activity Breakdown:

Introduction and Objectives Setting: 10 minutes

Briefly introduce the lesson's goals and objectives. Provide trainees with 2 readings related to textile waste, water pollution, and chemical use. (you can find the to the additional resources above)

Activity 1: Identifying Key Issues: 30 minutes

Discussion and brainstorming on environmental, health, and economic risks associated with the textile industry and VET centres.

Step 1: Brainstorming

Step 2: Write down ideas, opinions, points, or notable data on a board or flip chart

Step 3: Keep these visible throughout the training, allowing participants to revisit or add to them as needed

Step 4: At the end of the session, the trainer will present and summarise the key issues discussed, ensuring that the main insights are highlighted and reviewed.

Activity 2: Comparing Waste Management Practices: 30-45 minutes

Compare current waste management practices with sustainable alternatives. Presentation of alternatives by trainer and then trainees creating pros and cons list and/or debate sessions.

- **Step 1: Presentation by Trainer:** Explain the current waste management practices in the textile industry and their associated issues. Then, discuss sustainable practices such as

recycling, upcycling, and waste-to-energy, highlighting their benefits with real-world examples.

- **Step 2: Group Work - Creating Pros and Cons List:** Form small groups (3-5 members) and assign each group a specific sustainable practice to evaluate. Each group will then discuss and document the pros and cons of their assigned practice.
- **Step 3: Group Presentations and Debate Session:** Each group presents their pros and cons list, followed by a class-wide debate to compare and contrast the different practices.
- **Step 4: Conclusion and Reflection:** Recap key discussion points.

Activity 3: Interactive Case Studies and Group Discussion: 20-30 minutes

The objectives of this activity are to enhance trainees' problem-solving and critical thinking skills, promote collaborative learning, and develop their ability to identify key issues and propose practical solutions in sustainable waste management within the textile industry.

- **Step 1: Assign each group a case study** involving a well-known fast fashion brand (such as Shein, H&M), focusing on textile waste problems. Trainers can use actual examples to make the activity more relevant.
- **Step 2:** Groups **discuss** their case study, identify **key problems**, and **brainstorm** potential **solutions**.
- **Step 3:** Each group **presents** their findings and proposed solutions to the class.

Conclusion/Q&A/Evaluation: 10-15 minutes

Summarise key points, answer any remaining questions and evaluate participants' knowledge on what was presented, discussed in the lesson plan.