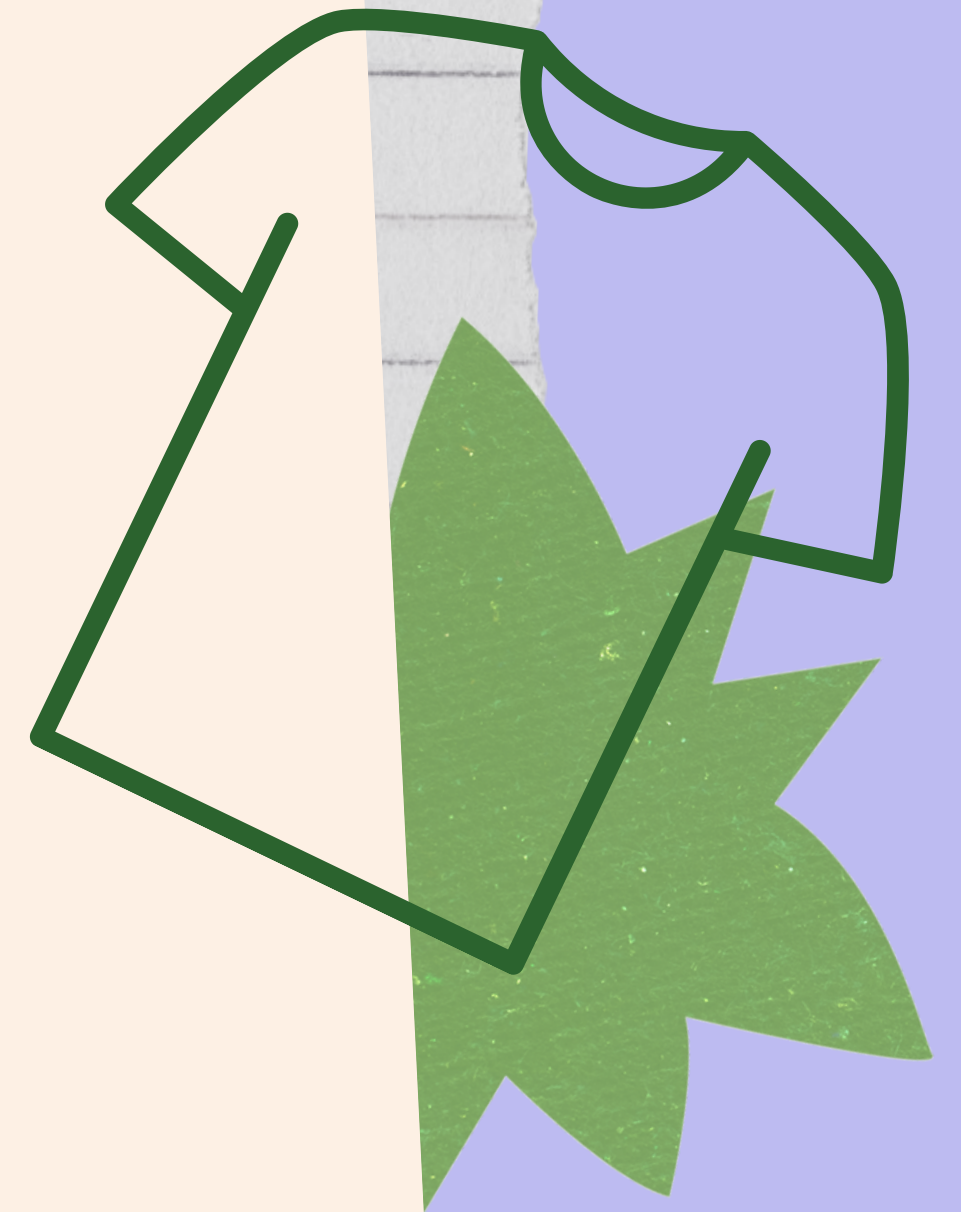




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THE LIFE CYCLE ASSESSMENT OF PRODUCTS



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THINK ABOUT THIS!

Every T-shirt has an
environmental story – from
cotton field to landfill.
Understanding the lifecycle
helps us make better choices.





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LIFE CYCLE ASSESSMENT

Life Cycle Assessment (LCA)

analyses a product's environmental impact from extraction to disposal.

Focusing on four **key stages**:

- 1.raw material extraction
- 2.manufacturing
- 3.product use
- 4.disposal





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Raw Material Extraction

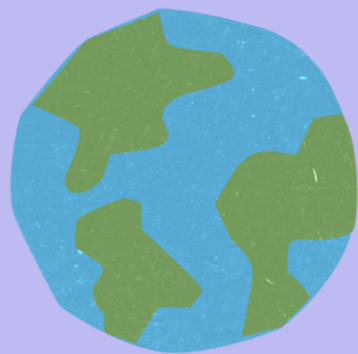
- 2,700 liters of water to make one cotton shirt
- Use of pesticides and fertilizers
- Land and biodiversity impact



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Manufacturing & Production

- High energy and water usage
- Toxic dyes can pollute rivers
- Often done in countries with lax environmental laws





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Transportation

- Global supply chain = high carbon footprint
- Air, sea, and land transportation
- Fossil fuel consumption



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Consumer Use

- Frequent washing = water + energy use
- Microfiber pollution from synthetic blends
- Ironing and drying = more emissions



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End of Life

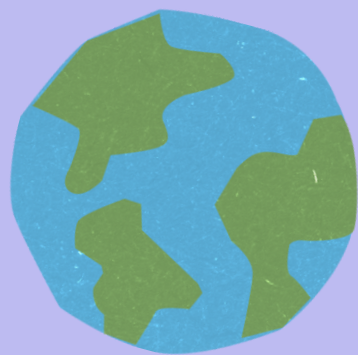
- Most T-shirts end up in landfills or incinerators
- Only 15% of clothes are recycled
- Natural fibers take years to decompose; synthetics longer



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Environmental Impact Summary

- Water use
- Chemical pollution
- CO₂ emissions
- Waste generation
- Social impact on workers





LEARNING OUTCOMES

At the end of this lesson, you should be able to:

explain
life cycle
assessment

discuss the
stages of
life cycle
assessment

assess the
viability of
recycling
certain material



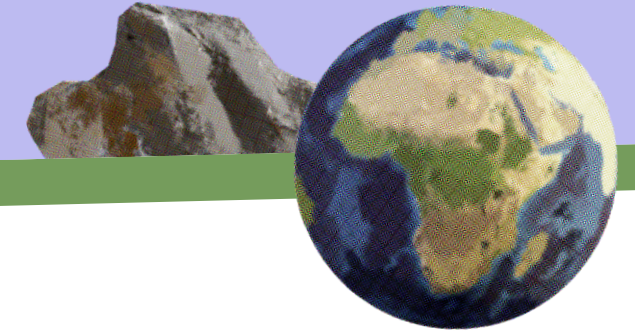
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RECYCLING

Most materials and components we use daily are made from metals, glass, and plastics which are sourced from limited natural resources.

Recycling is the solution to reuse these materials and reduce the negative impacts on the environment.





SUMMARY

- * **Life cycle assessment (LCA)** is a comprehensive method for evaluating the environmental impacts of a product from raw material extraction to disposal.
- * **Recycling** is the solution to reuse these materials and reduce the negative impacts on the environment.

