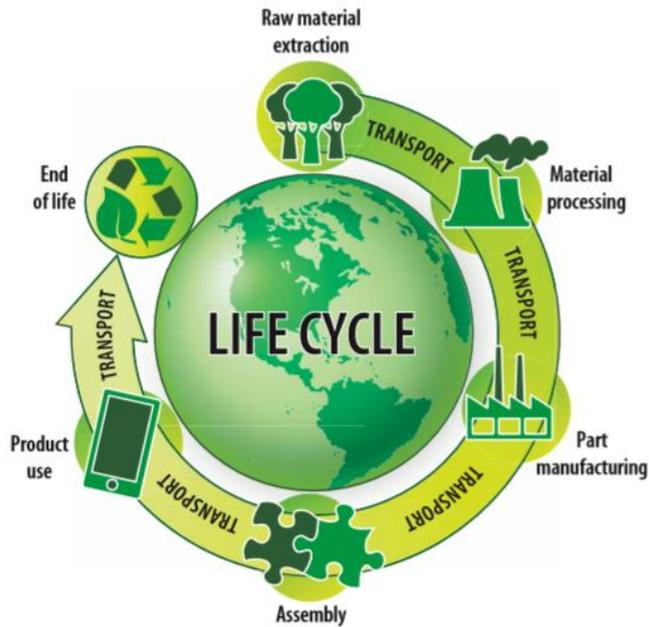


Understanding Life Cycle Assessment

Use the Draft text book in the Files section in Teams. Read Pages 14 and 61.



1. What is a Life Cycle Assessment? (LCA) Answer below:

2. Why might it be important for companies to conduct an LCA on the products they manufacture? Answer Below:

3. In general terms, what might be improved at each of the key stages to reduce a products impact on the environment?

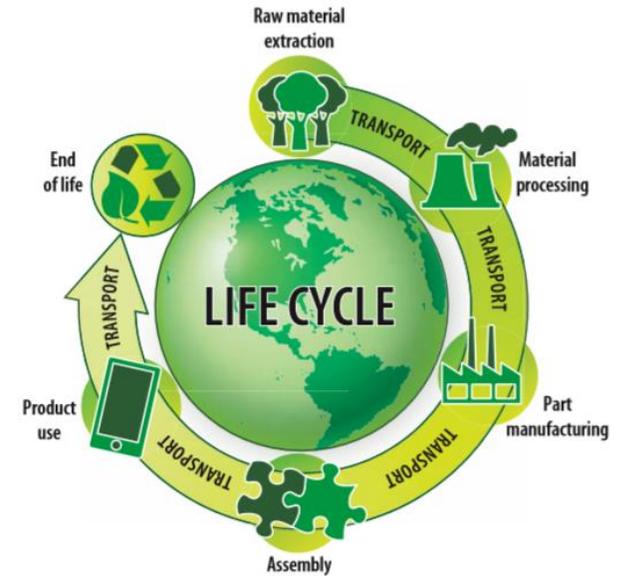
Stage	State one Potential improvement
Raw material extraction	
Material processing	
Part manufacturing	
Assembly	
Product use	
End of life	

4. Compare and Contrast these products using the LCA stages. Describe what might happen at each of the key stages from researching each product online. For example. How might the main body of each sharpener be manufactured?

Research any general similar wood, metal and plastic sharpener.



Raw material extraction	Add your text here...	Add your text here...	Add your text here...
Material processing			
Part manufacturing			
Assembly			
Product use			
End of life			



[Link to the Electric sharpener product on Amazon](#)

5. Describe 3-5 areas for improvement for this electric sharpener based on your understanding of the LCA. Try and suggest an improvement for at least three different areas featured in the LCA. See diagram in top corner for areas reminder.

- 1.
- 2.
- 3.
- 4.
- 5.

6. Sketch out the sharpener with the improvements made. Draw at least two viewpoints and annotate the improvements in detail. See the next page for faded images which you can print on A4 and sketch over the top with your improvements.

Use principles of SCAMPER (see next slide) to help you make the product better in reducing its impact on the environment and reducing the carbon footprint. If you want to improve your freehand sketching look at the tips in this YouTube link: <https://www.youtube.com/watch?v=JkpDCUk17K4>

Challenge: Can you model your idea in 3D software such as Solidworks (download available from D+T homepage on VLE)

Use SCAMPER to help you make improvements to the sharpener.

SCAMPER



Re-arrange / reverse

A two-way opening bottle, for easy cleaning



Adapt

A square bottle, that won't roll away.



Combine

A bottle, a drinking straw and a handle



Put to other purpose

Solar light made of plastic water bottle filled with water & bleach



Modify

Minimise - Collapsible and foldable bottles



Substitute

Stainless steel instead of plastic



Combine

A bottle and a fashion icon



Eliminate

a bottle without the bottle

Sketch over the top if you wish and/or add your own viewpoints of the sharpener. You can start a design from scratch if you prefer.

Improvements

