



## Worksheet 2: Sustainability

### Task 1

Look at the product label below for a pair of shoes. List all of the factors that contribute to the manufacturing footprint of this product and state how they affect the environment.

<h1>8</h1> <p>(US SIZE)</p>	<b>Style #7653-DC</b>				<b>Style #7653-DC</b> Leather upper: made in China Rubber sole made in USA Manufactured in Canada Steel lace eyelets Patent finish
	<b>USA</b>	<b>UK</b>	<b>EU</b>	<b>JAPAN</b>	
	<b>8</b>	<b>6.5</b>	<b>39</b>	<b>25.0</b>	

The size of the shoe means that more materials are needed compared to a smaller shoe. The leather comes from China and the rubber sole (which is made from oil - finite resource) is made in the US. These then have to be shipped to Canada to be manufactured and shipping releases carbon dioxide due to the burning of fossil fuels. The steel for the lace eyelets will have had to be mined which damages landscapes and often involves cutting down areas of forest to make space for the mine. It doesn't have a natural finish on the shoe which means that it may involve the use of chemicals. There are sizes for different continents/countries which implies that they are sold all over the world which involves even more shipping to get the shoes to the shops.

Leather involves animal skins, industry processes to produce rubber, they will go to landfill and can't be recycled.

What finite resources may be used in the production of a pair of training shoes?

They may use oil which is finite and is a fossil fuel. It also wouldn't be recycled if they use oil.

Powering the factory using coal/gas

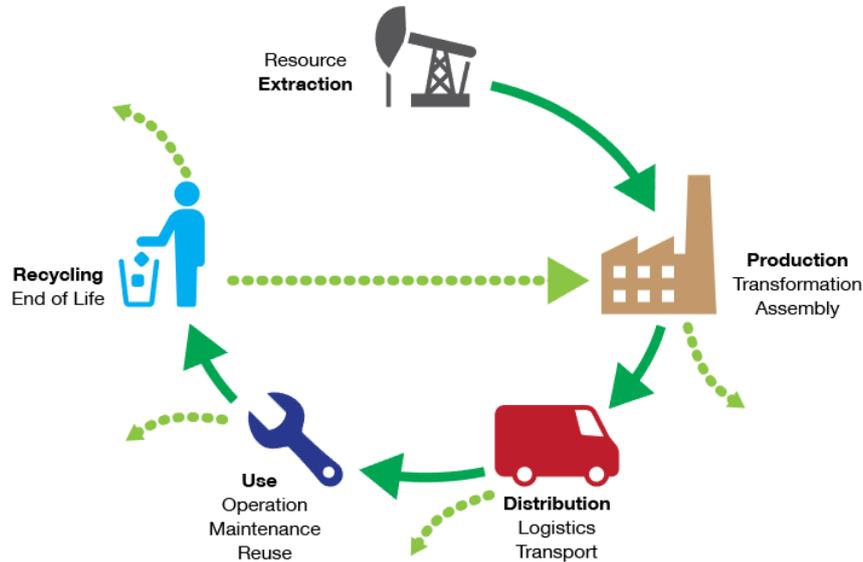
How could these be replaced by non-finite resources to make production 'greener'?

By using natural and local materials they would reduce the miles it has travelled and the resources would be more sustainable.

Use more sustainable power to power factory

### Task 2 Life Cycle Assessment

Use the labelled diagram below to help you conduct a Life Cycle Assessment on a plastic supermarket shopping bag.



The plastic in the bag comes from crude oil which is a finite resource that is extracted from the ground. The oil is then processed to turn it into plastic which takes a lot of energy and also produces toxic chemicals as a result. The plastic bags will then be transported to the shop where they will be used which involves burning fuels. Once someone buys the plastic bag it will be used once or at most twice before it is thrown away. They also cannot be repaired once they are broken. It might be recycled but may end up polluting the oceans or air or it will end up in landfill where it won't decompose for a very long time.

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What could you do to improve the environmental impact of a shopping bag?

You could make it from a natural local material and make sure that it will last for years so that they only have to buy one.

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How might plastic bags contribute to pollution in the air and water?

If they blow away they would pollute the air and then probably end up in the water where they will stay and might be eaten by sea life

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How does this impact global warming?

The production of the bags releases lots of carbon dioxide

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What new material is being used to provide an alternative solution?

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How is the consumption of plastic bags being reduced in the UK?

A 5p charge was introduced for buying a plastic bag to encourage people not to buy them