

LIFE CYCLE, RECYCLING, 6Rs

This mobile revision pdf is based on detailed work found in the 'PRODUCT DESIGN' section.

Tap on the green link button below to go to the complete website section



Tap the blue button to view RECYCLING covered by this Revision PDF



LIFE CYCLE, RECYCLING, 6Rs

Tap on the title for information / revision.

1. THE LIFE CYCLE OF A PRODUCT

2. LIFE CYCLE OF NATURAL WOOD

3. LIFE CYCLE ENERGY ANALYSIS

4. CLOSED LOOP RECYCLING

5. RECYCLING - UPCYCLING

6. RECYCLING - DOWNCYCLING

7. THE 6 Rs

8. LINKS TO REVISION CARDS REGARDING LIFE CYCLE AND RECYCLING

THE LIFE CYCLE OF A PRODUCT

When designing and manufacturing a product, it is important to consider its life cycle. Life cycle covers the time from its manufacture to its recycling or disposal. A typical product that has a relatively short life cycle is a newspaper / magazine. Everyone reads newspapers / magazines at some point in their lives and many read a newspaper everyday. As the recycling of products becomes more popular it is important that we consider all the products we use, even the humble newspaper, as a valuable resource even after its 'useful life time'.

Tap the image for more information on newspaper lifecycle



V.Ryan © www.technologystudent.com 2019

Tap the blue button for the next page recycling.



Tap the red button to return to the Contents page

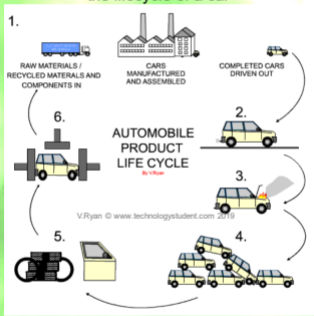


LIFE CYCLE OF A CAR

V.Ryan © www.technologystudent.com 2019

At the end of a products working life, recycling materials such as steel, copper, brass and other metals reduces pollution caused by the processing of new metals and it saves energy.

Tap the image for more information on the lifecycle of a car



Tap the red button to return to the Contents page

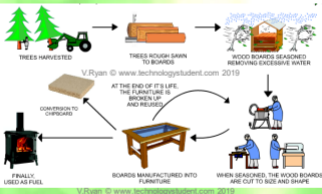


LIFE CYCLE OF NATURAL WOOD

Natural wood is harvested from a sustainable forest. It is cut to rough sections at a saw mill.

It is seasoned (allowed to dry out) before being cut accurately to size. The wood is used to manufacture a product, such as a piece of furniture. Decades later, when it reaches the end of its working life, the furniture may be disassembled and used to construct another product.

Tap the image for more detail.



Tap the red button to return to the
Contents page



LIFE CYCLE ENERGY ANALYSIS

'Life Cycle Energy Analysis', is a method of analysing the way energy is used in the manufacture of a product and throughout it's useful lifetime. This includes the pollution / environmental damage caused through the use of energy and the product's carbon footprint.

V.Ryan © www.technologystudent.com 2019

Tap the image for more detail / an example of LCA



V.Ryan © www.technologystudent.com 2019

Tap the red button to return to the Contents page



CLOSED LOOP RECYCLING

Closed Loop Recycling, normally means, that a company manufactures a product, customers buy the product and then return it at the end of its useful life. The company then recycles all the materials back into the same product, ready for resale. No new raw materials are used in this process. This is a closed system.

The 'environment' is a major issue, for designers, politicians and consumers.

Today, every house has a range of recycling bins. Everyone plays a part in sorting and recycling aluminium and steel tins, card, paper and plastics.

V.Ryan © www.technologystudent.com 2019

Tap the image for more detail.



V.Ryan © www.technologystudent.com 2019

Tap the blue button for the next page recycling.



Tap the red button to return to the Contents page



CLOSED LOOP RECYCLING

AN EXAMPLE

Stages for the 'Closed Loop Recycling' of a PET / PETE soft drinks bottle.

V.Ryan © www.technologystudent.com 2019

1. Recycled PET / PETE (polyethylene terephthalate) is used in an injection moulding machine, to form a drinks bottle.
2. 'Drink' is added and a top applied.
3. The bottle is placed for sale.
4. The customer buys the drinks bottle and consumes the contents.
5. The bottle is placed in a recycle bin and the bin is collected by the drinks company.
6. The bottles are washed and cleaned and either refilled with drink OR prepared for use in an injection moulding machine to produce a new product.
7. The recycling of the bottle begins again.

Tap the image for more detail.



V.Ryan © www.technologystudent.com 2019

Tap the red button to return to the Contents page



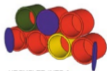
RECYCLING - UPCYCLING

V.Ryan © www.technologystudent.com 2019

Upcycling is a type of recycling. When a product comes to the end of its life cycle, it is dismantled and its components / parts are reused to produce high quality products, often a higher quality than the original product. For example, reclaimed plastic drainage tubing can be reworked to produce 'funky' storage units (see below). Upcycling a component, means that it is upgraded into a higher quality product, adding value.

Tap the image for more detail and further examples.

OLD POLYBUTENE DRAINAGE PIPE



UPCYCLED INTO A
MULTICOLOURED 'FUNKY' STORAGE UNIT

V.Ryan © www.technologystudent.com 2019

Tap the red button to return to the
Contents page



RECYCLING - DOWNCYCLING

Recycling often leads to 'downcycling'.

This means that the materials and components that are reclaimed from discarded products, are recycled into lower quality products.

Downcycling applies to most plastics. When 'plastic' bottles and other 'plastic' products are collected for recycling, they are frequently recycled into lower quality products such as doormats.

Tap the image for more detail and further examples.



V.Ryan © www.technologystudent.com 2019

Tap the red button to return to the Contents page



THE SIX Rs

SIX Rs

REDUCE - reduce the materials we use in manufacturing and at home.

REUSE - reuse materials rather than throwing them away.

REFUSE - do not buy or use a product, if it is not environmentally sustainable or it is not necessary.

RETHINK - consider how products are made, so that they are sustainable. Rethink your lifestyle i.e. walk instead of driving a car, for a short journey.

REPAIR - design products so that they are repairable.

RECYCLE - design products so that they can be disassembled/recycled

V.Ryan © www.technologystudent.com 2019

Tap the red button to return to the Contents page



LINKS TO REVISION CARDS



V.Ryan © www.technologystudent.com 2019

Tap the red button to return to the
Contents page

