Summary
8.1

Section 8 Summary

8.1 Uses of Plastics

a) All plastics are **synthetic** materials
- they made by the chemical industry
- synthetic means they are man-made materials and do not exist naturally

b) Most plastics are made from **oil**.

c) **Examples** of plastics include
- polythene
- polystyrene
- perspex
- PVC
- nylon
- kevlar
- bakelite
- formica
- silicone

d) The everyday **uses** of plastics are related to their properties.

Plastic	Use
polythene	plastic carrier bags
polystyrene	corner packaging and drinks cups
Perspex	plastic lenses in spectacles
PVC	window frames
nylon	clothing
Kevlar	bullet proof vests
bakelite	plugs and sockets
formica	table surfaces
silicone	sealant for builders & plumbers

Summary
8.2

Section 8 Summary

8.2 Advantages and Disadvantages

a) For some uses, plastics have **advantages** over natural materials and vice versa:
   - plastic buckets last longer than steel buckets
   - plastic drain pipes don't rust like iron drain pipes.

b) **Biodegradable** materials are broken down by bacteria in the soil and rot away.

c) Most plastics are **non–biodegradable**:
   - they are durable so they last a long time
   - this can cause environmental problems
   - they are very light and can be blown around by the wind

d) Some **degradable** plastics have been developed by chemists to alleviate the problems of plastic waste disposal.

e) Some plastics **burn** or smoulder to give off **toxic fumes**
   - carbon monoxide
   - hydrogen chloride } poisonous gases
   - hydrogen cyanide

f) Options for **disposal** of plastics
   - incineration (burning)
   - recycling
   - burying in the ground

g) With **incineration** the heat generated can be used as a source of energy but there are problems with gas emissions.

h) Since oil is a **finite** resource, recycling is to be encouraged
   - difficult due to many different types of plastic used
   - chemists are looking for renewable sources of plastics.

Section 8 Summary

8.3 Thermoplastic/Thermosetting Plastics

a) Plastics can be either *thermoplastic* or *thermosetting*.

b) **Thermoplastic** plastics can be reshaped on heating.

c) **Thermosetting** plastic cannot be reshaped by heating.

d) Thermosetting plastics are used in sockets and plugs:
- heat does not melt thermosetting plastic
- electricity does not conduct through plastic.

8.4 Making Plastics

a) Plastics are made up of **polymers**.

b) **Polymer** molecules are:
- made from many small molecules joined together
- small molecules are called **monomers**.

c) The process of making a polymer by joining many monomers together is called **polymerisation**.

d) The **name** of a **polymer** is worked out from the monomer:

Monomer	Polymer
ethene	poly(ethene) aka polythene
styrene	poly(styrene)
propene	poly(propene)