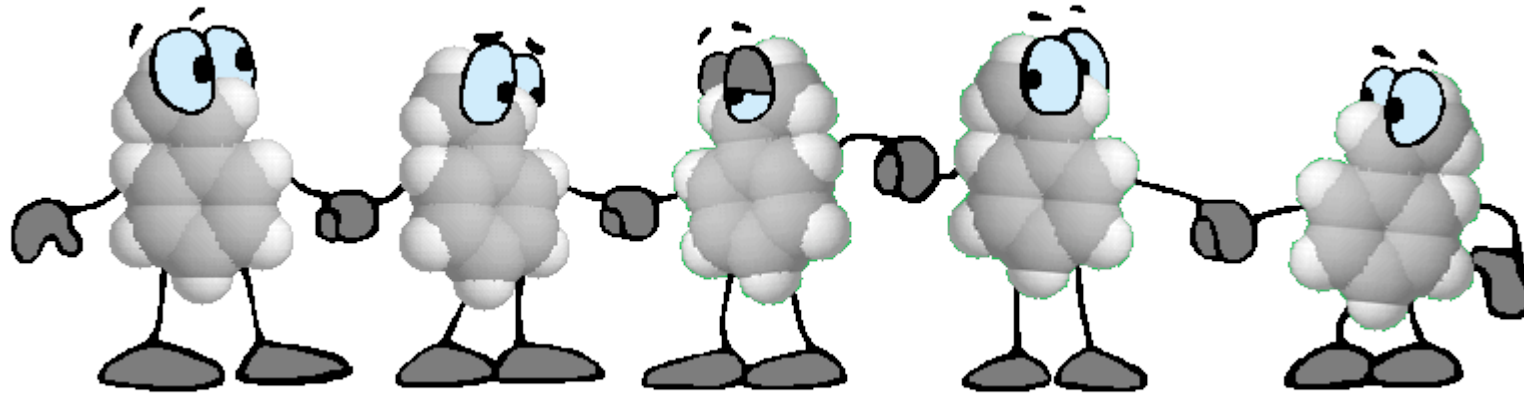
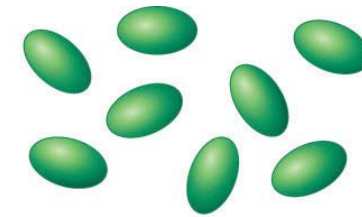


What is a Polymer?



A chemical compound that is made of small molecules that are arranged in a simple repeating structure to form a large molecule



Monomers



Polymerization



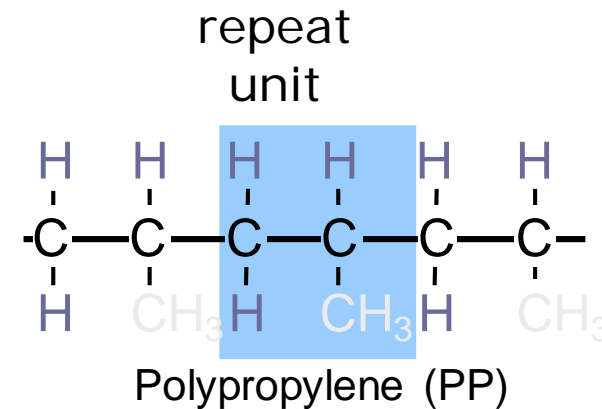
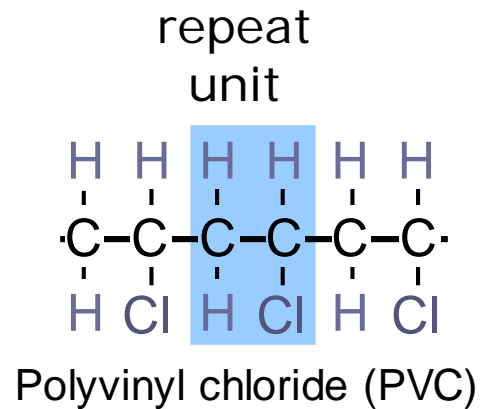
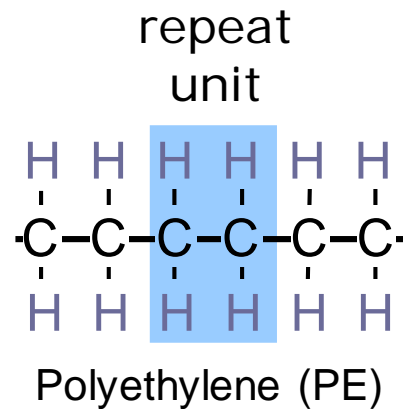
Polymer

What is a polymer?

Very Large molecules structures chain-like in nature.

Poly
many

mer
repeat unit



- Originally natural polymers were used
 - Wood
 - Cotton
 - Leather
 - Rubber
 - Wool
 - Silk

Synthetic and Biological Polymers

Polymers: Macromolecules formed by the covalent attachment of a set of small molecules termed monomers.

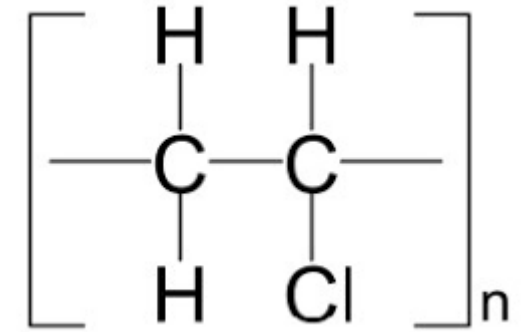
Polymers are classified as:

- (1) Man-made or synthetic polymers that are synthesized in the laboratory;
- (2) Biological polymer that are found in nature.

Synthetic polymers: nylon, poly-ethylene, poly-styrene

Biological polymers: DNA, proteins, carbohydrates

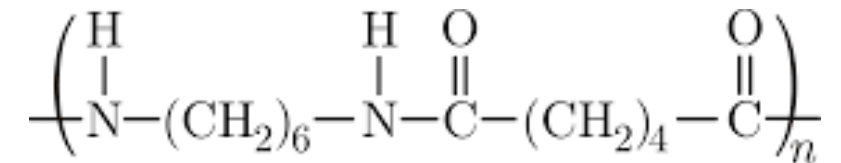
Pipe/ Credit Cards



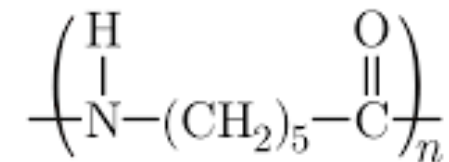
- Poly(vinyl chloride) (**PVC**) is used to make **credit cards and pipes**.
- PVC sheets are thin, so to make a credit card, **two or three** layers are glued together.
- This includes a layer with the printed information on it plus one or two clear ones.



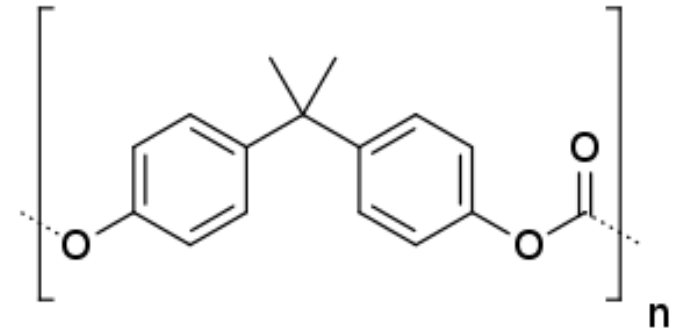
- Polyamide, trade name nylon
- PA is specially useful because it is not only strong and durable, but it is also moisture resistant
- PA has an ample temperature resistance too, making it ideal for use in engineering components



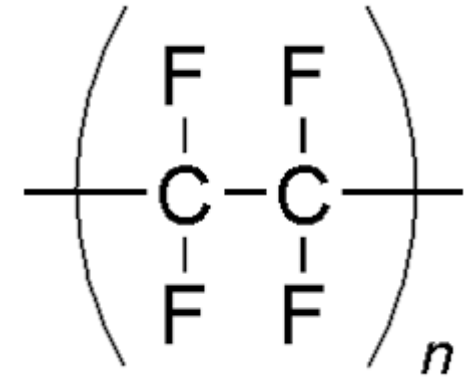
Nylon 66



Nylon 6

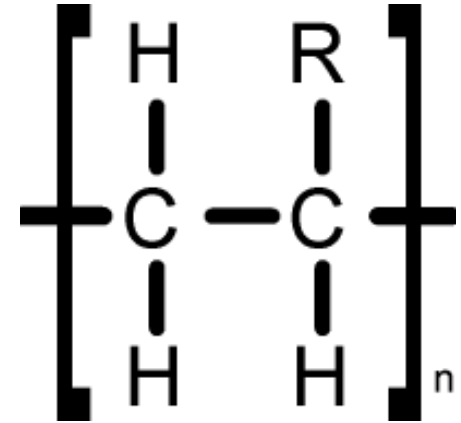


- **Polycarbonate** is one of the most versatile polymers
- It has been used to make high quality **eyeglass lenses**. These lenses offer advantages over glass because they are **lighter and thinner**, and they offer **UV protection**.
- They are also impact resistant, so you don't have to worry about cracking or scratching them.
- In fact the material is so strong that it is basically **bullet proof**.



- Polytetrafluoroethylene, PTFE is used in making Teflon® and other nonstick cookwares
- It is a waxy, thermally stable, tough, corrosion resistant and non-flammable
- It can resist temperatures of up to 260 degree C.
- PTFE generates no smoke when exposed to high temperatures, a great asset in the kitchen

Construction and Remodelling



- Polyolefin (polyalkene) is widely used in the construction industry
- It is often used in the car to make it lighter
- This material is much more malleable than metal, designers can use plastic to come up with more aerodynamic and better-looking cars