Two general types of polymerization

- Addition polymerization
- Condensation polymerization

Condensation polymers

- Formed through condensation polymerisation reaction
- Where molecules join together while losing small molecules as by products
- In addition polymerization, monomers react to form a polymer without formation of by products

Synthetic polymers

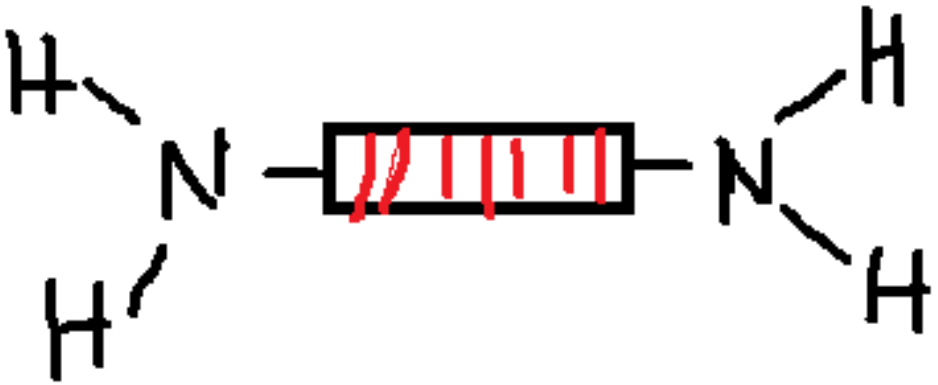
- Nylon (polyamide)
- Terylene (polyester)

Nylon formation

- Made when monomers are combined to form long chain polymer
- Formed by condensation polymerization
- Typified by amide group
- There can be more than one monomer unlike in addition polymerization

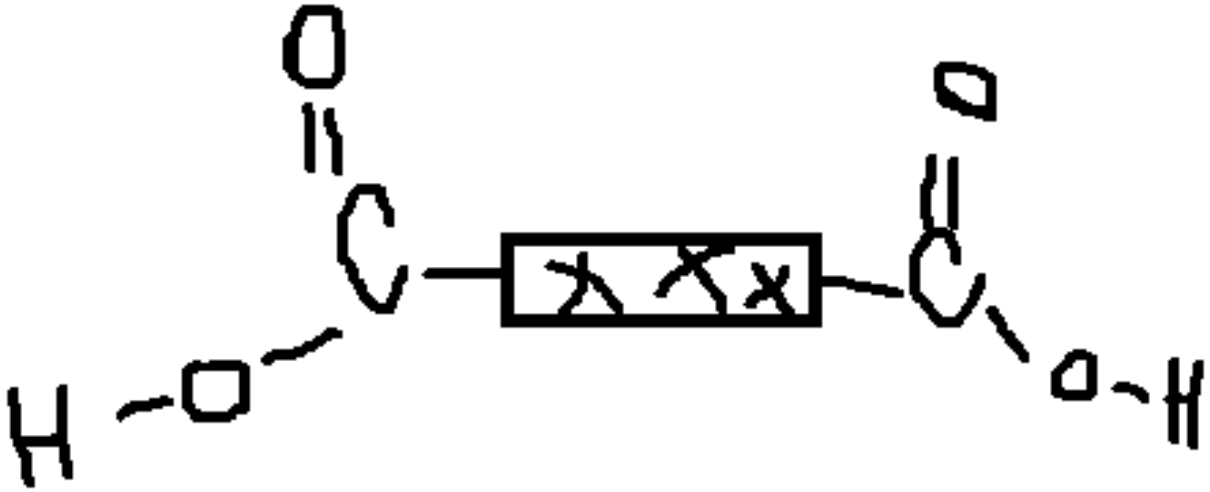
Nylon monomers

- Hexamethylene diamine — monomer



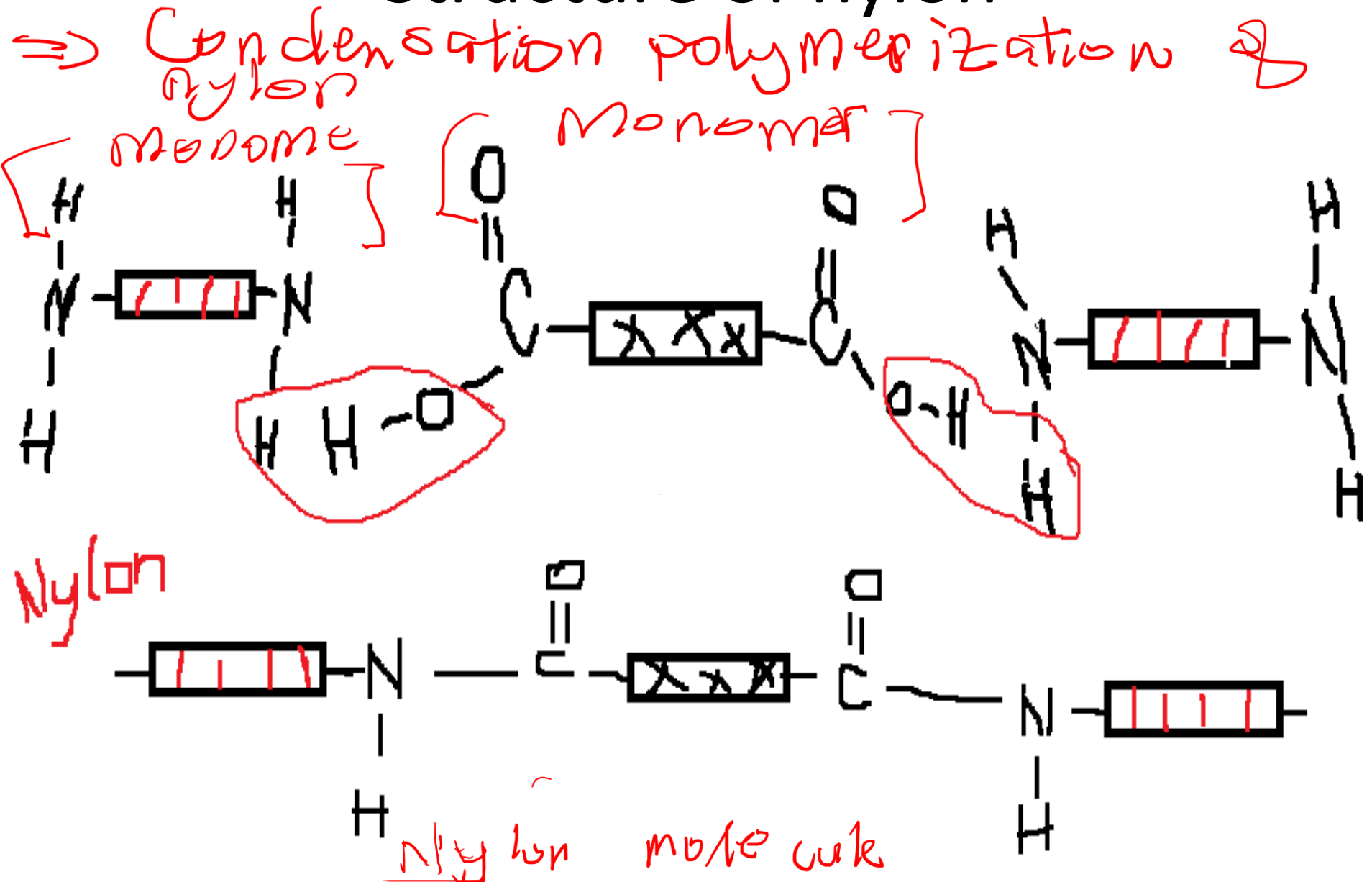
Nylon monomers

- Adipic acid ⇒ monomer

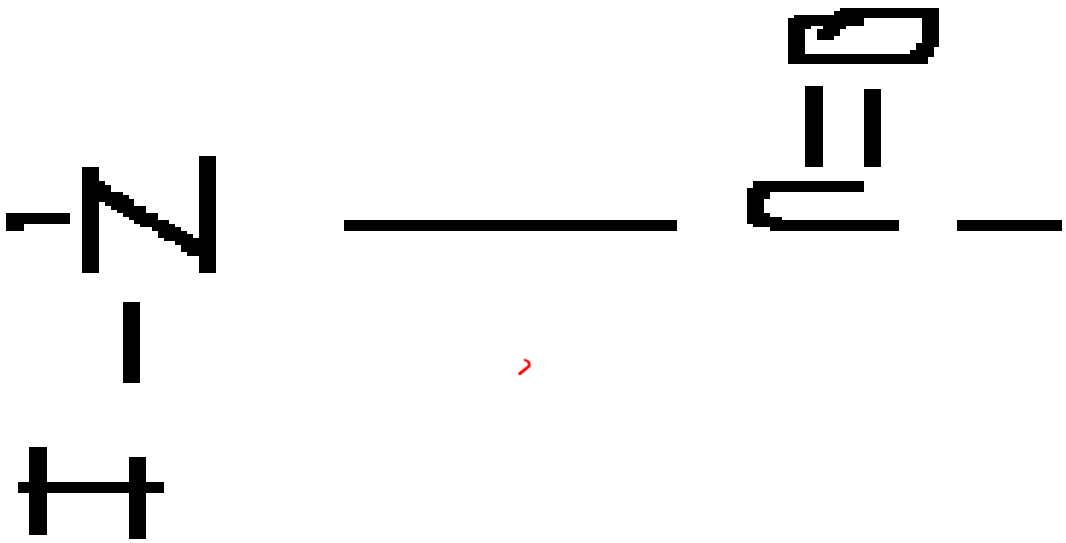


Structure of nylon

⇒ Condensation polymerization of



Amide linkage in nylon



properties of nylon

- Toughness
- Abrasion resistance
- Easy to wash
- Easy to dye in wide range
- High resilience
- Lustrous

Properties of nylon

- Most organic solvents have no effect to nylon
- Little discoloration due to light
- Elastic
- Dries quickly
- Resistance to corrosion and it has high insulation

Types of nylon

- Nylon 6- formed by ring-openning polymerization
- Nylon 510- formed from sebacic and pentamethlyene diamine acid
- Nylon 1,6
- Nylon 66

Uses of nylon

- Clothing
- Industries- ropes, tents, seat belts, tents
- Fish net
- Machine plastic parts