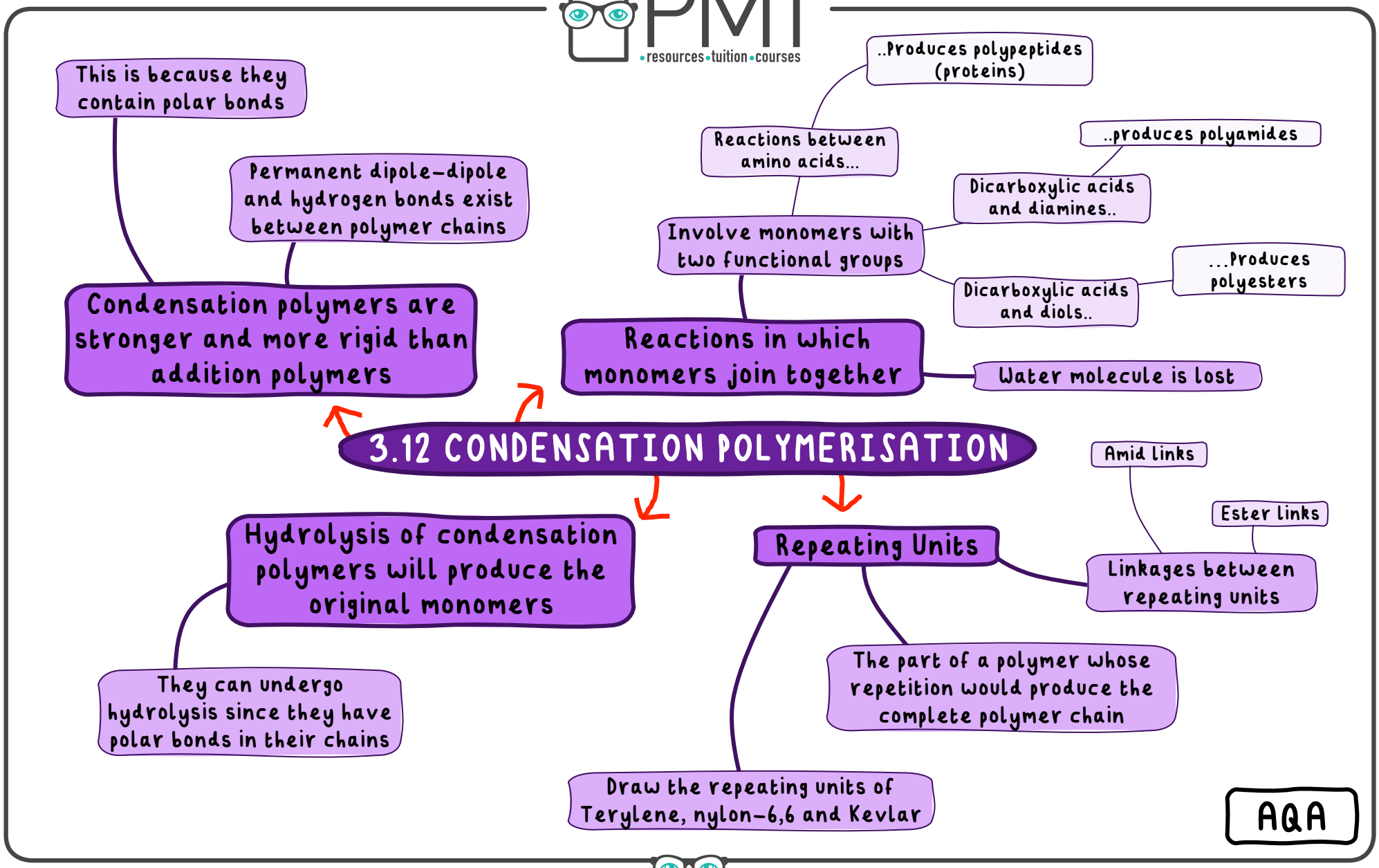
PMT
resources tuition courses
3.12 CONDENSATION POLYMERISATION
Reactions in which monomers join together
Water molecule is lost
Involve monomers with two functional groups
Dicarboxylic acids and diols..
...Produces polyesters
Dicarboxylic acids and diamines..
..produces polyamides
Reactions between amino acids...
..Produces polypeptides (proteins)
Condensation polymers are stronger and more rigid than addition polymers
This is because they contain polar bonds
Permanent dipole-dipole and hydrogen bonds exist between polymer chains
Repeating Units
Linkages between repeating units
Amid links
Ester links
The part of a polymer whose repetition would produce the complete polymer chain
Draw the repeating units of Terylene, nylon-6,6 and Kevlar
Hydrolysis of condensation polymers will produce the original monomers
They can undergo hydrolysis since they have polar bonds in their chains
AQA

3.12 POLYMERS

Disposal of Waste Plastics

Landfill

- Leaks contaminate water supplies
- Requires large areas of land
- Methane (greenhouse gas) released during decomposition
- Cheap and easy

Recycling

- Contamination of the plastic can occur during recycling
- Involves collecting, sorting and processing the plastic
- Saves raw materials
- Cheaper than making new plastics

Incineration

- Heat produced can be used to generate electricity
- Toxic gases released
  - Scrubbers must be used to remove HCl

Disposal of Polymers

Addition polymers are chemically inert

- Non-biodegradable so they are difficult to dispose of
- This is because they have non-polar chains

Condensation polymers are biodegradable

- Can be broken down by hydrolysis
  - Slow process

AQA