

Describe how structures of different polymers are related to their function

AO1 = "structure"

- (Define polymer)
 - Polypeptides - describe structure 1°, 2°, 3°, 4°; bonding, main component elements, 3D nature
 - Lipids - general structure + the fact they are not true polymers because the fatty acids aren't joined to each other.
 - Polynucleotides - structure of DNA / RNA including elements + bonding
 - Carbohydrates - starch
glycogen
cellulose } structure including elements + bonding, size, shape
- (Allow 2 carbohydrates as different 'topics' if full description)

AO2 = "function"

- polypeptides - overall shape < globular eg enzymes for transport
how bonding creates unique shape necessary for complementary action - antibodies / antigens
enzymes
receptors in cells
- Lipids function - energy storage - (C-H bonds energy-rich)
(space-efficient)
(osmotically inactive + insoluble).
- DNA structure - stable (→ needs to be conserved from cell → cell over generations of cell lines)
double helix linked by H bonds (→ easy to unzip for replication, transcription)
- Carbohydrates ^{eg} Starch (energy storage): amylose tightly coiled → compact + insoluble (see lipids).
amylopectin more branched → more ends for hydrolysis by enzymes for use in respiration
- eg cellulose - straight, unbranched, alternate β glucose molecules inverted \equiv so they sit parallel. chains joined by H bonds (many → strength)
→ structural → many microfibrils together give structural strength to plant cells → turgidity
→ support to hold leaves up to absorb max light