

Exercise walk-through

1.4

Carbohydrates

AP Biology

Carbohydrates and lipids

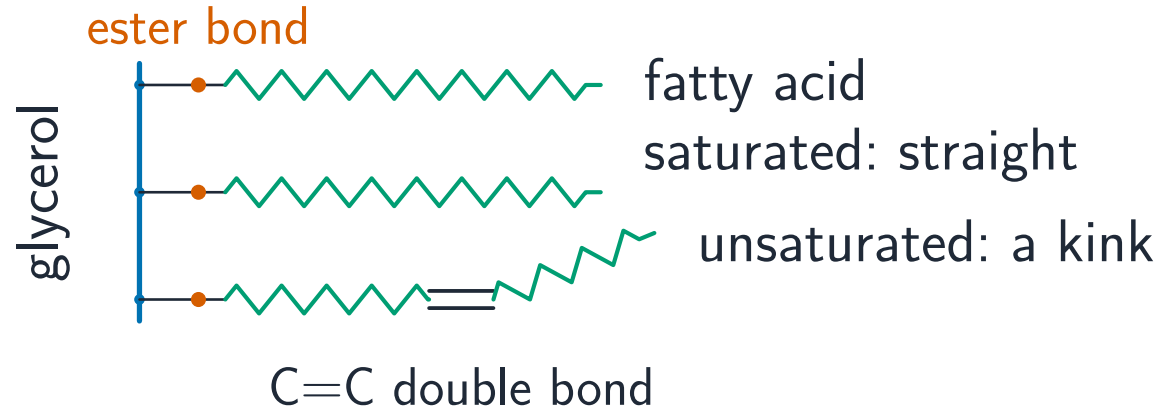
Carbohydrates : sugars,
(CH_2O)_n. **Glucose** monomers join
by a **glycosidic bond**.

- **starch** – plant store
- **glycogen** – animal store
- **cellulose** – rigid fibre

Lipids are **nonpolar** (not true polymers). A **triglyceride** =
glycerol + 3 fatty acids.

Phospholipids have a hydrophilic head + hydrophobic tails
⇒ the **bilayer** of every
membrane.

A triglyceride



3 ester bonds form $\rightarrow$ 3 H_2O removed (condensation)

A triglyceride: glycerol joined to three fatty acids

Exercises 2.1-2.3

2.1 Name the monomer of carbohydrates.

[1]

2.2 State one storage polysaccharide and one structural polysaccharide.

[2]

2.3 Which polysaccharide makes up plant cell walls?

[1]

Exercises 2.1-2.3

2.1 Name the monomer of carbohydrates. [1]

2.1

- Monosaccharide (e.g. glucose)
-

2.2 State one storage polysaccharide and one structural polysaccharide. [2]

2.2

- Storage: starch or glycogen; structural: cellulose
-

2.3 Which polysaccharide makes up plant cell walls? [1]

2.3

- Cellulose

Exercise 3.1

3.1 The monomer that makes up starch, glycogen, and cellulose is

[1]

☐

A glucose

B an amino acid

C a nucleotide

D glycerol

Exercise 3.1

3.1 The monomer that makes up starch, glycogen, and cellulose is

[1]

☐

A glucose

B an amino acid

C a nucleotide

D glycerol

3.1 A

- glucose

Exercise 3.2 (a)

3.2 Starch and cellulose are both polymers of glucose but have different functions.

(a) State the function of each.

[2]

Exercise 3.2 (a)

3.2 Starch and cellulose are both polymers of glucose but have different functions.

(a) State the function of each.

[2]

(a)

- Starch stores energy (in plants); cellulose provides structure/support (cell walls)

Exercise 3.2 (b)

3.2 Starch and cellulose are both polymers of glucose but have different functions.

(b) Explain how they can differ if they share the same monomer.

[2]

Exercise 3.2 (b)

3.2 Starch and cellulose are both polymers of glucose but have different functions.

(b) Explain how they can differ if they share the same monomer. [2]

(b)

- The glucose units are joined by **different bonds**, giving different shapes and therefore different functions

Exercise 3.3

3.3 Explain why glycogen's branched structure suits its role in animals.

[2]

Exercise 3.3

3.3 Explain why glycogen's branched structure suits its role in animals. [2]

3.3

- Its many branches provide many ends where glucose can be quickly added or removed, allowing fast energy storage and release to meet an animal's needs