

4 Molecules of life – Part 1

Name: _____ Class: _____ Date: _____

Vocabulary

Write each word three times.

English	Write it 3 times (English)		
molecule	_____	_____	_____
carbohydrates	_____	_____	_____
fats	_____	_____	_____
proteins	_____	_____	_____
elements	_____	_____	_____
carbon	_____	_____	_____
hydrogen	_____	_____	_____
nitrogen	_____	_____	_____
starch	_____	_____	_____
cellulose	_____	_____	_____
glucose	_____	_____	_____
amino acids	_____	_____	_____
fatty acids	_____	_____	_____
glycerol	_____	_____	_____

Recall

Living things are built from three main kinds of **molecule** : **carbohydrates** , **fats** and **proteins** . Each is made from a few chemical **elements** .

New ideas

Read these first, then do the Practice.

■ 1 The elements in food

carbohydrates
and fats
C H O

proteins
C H O N

- carbohydrates and fats: **carbon** , **hydrogen** and oxygen.
- proteins: the same three, plus **nitrogen** .

■ 2 Big molecules from small units

Large molecules are built by joining many small units, like beads on a string:



many glucose → starch



amino acids → protein



glycerol + fatty acids → fat

Large molecule		Built from	
starch	(and cellulose)	many glucose	units
proteins		amino acids	
fats		fatty acids	and glycerol

Watch out: carbohydrates and fats contain carbon, hydrogen and oxygen; **proteins** contain those three **plus nitrogen** – nitrogen is the giveaway for protein. Starch is made of **glucose**, but a fat is made of *two* kinds of unit (fatty acids **and** glycerol).

Practice

Try these in order.

4.1 Which three elements are found in carbohydrates? [1]

4.2 Which extra element do proteins contain? [1]

4.3 What small units join together to make starch? [1]

4.4 What two kinds of molecule join together to make a fat? [2]

4.5 Name the small units that make up a protein. [1]

4.6 Challenge. A food molecule contains nitrogen as well as carbon, hydrogen and oxygen. What type of molecule is it, and what small units is it built from? [2]