

4 Molecules of life – Part 1

Name: _____ Class: _____ Date: _____

Vocabulary 词汇

Write each word three times. 把每个单词抄写三遍。

English	中文	Write it 3 times (English)		
molecule	分子	_____	_____	_____
carbohydrates	碳水化合物	_____	_____	_____
fats	脂肪	_____	_____	_____
proteins	蛋白质	_____	_____	_____
elements	元素	_____	_____	_____
carbon	碳	_____	_____	_____
hydrogen	氢	_____	_____	_____
nitrogen	氮	_____	_____	_____
starch	淀粉	_____	_____	_____
cellulose	纤维素	_____	_____	_____
glucose	葡萄糖	_____	_____	_____
amino acids	氨基酸	_____	_____	_____
fatty acids	脂肪酸	_____	_____	_____
glycerol	甘油	_____	_____	_____

Recall

Living things are built from three main kinds of **molecule** 分子: **carbohydrates** 碳水化合物, **fats** 脂肪 and **proteins** 蛋白质. Each is made from a few chemical **elements** 元素.

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** 碳, **hydrogen** 氢 and oxygen.
- proteins: the same three, plus **nitrogen** 氮.

■ 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 淀粉 (and cellulose 纤维素)	many glucose 葡萄糖 units
proteins	amino acids 氨基酸
fats	fatty acids 脂肪酸 and glycerol 甘油

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]