In context

Subject area: Organic chemistry | **Level: 14–16 years (Foundation)**

Topic: Natural polymers | **Source: rsc.li/3iF4Lvm**

1. **Salmon, french beans, basil, eggs and some nuts are some examples of superfoods.**

Source: Envato Elements

These types of food contain many important nutrients.

a) What is a 'nutrient'?

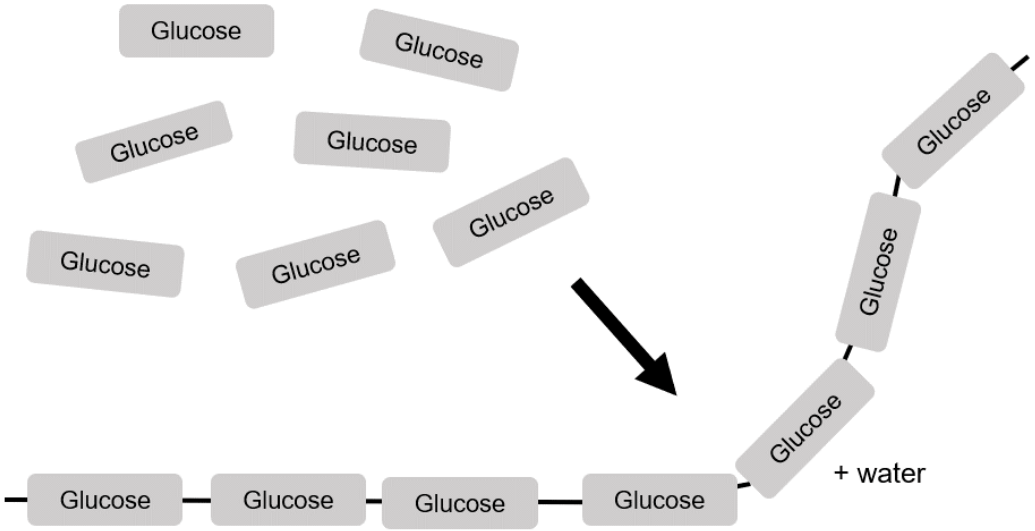
b) Give two examples of important nutrients needed in our diet.

Many important nutrients are polymers made from many smaller molecules.

c) Describe a polymer.

d) Give the term to describe the small molecules that make a polymer.

The diagram shows a natural polymer being made from many glucose molecules.



e) State the name of the polymer being formed.

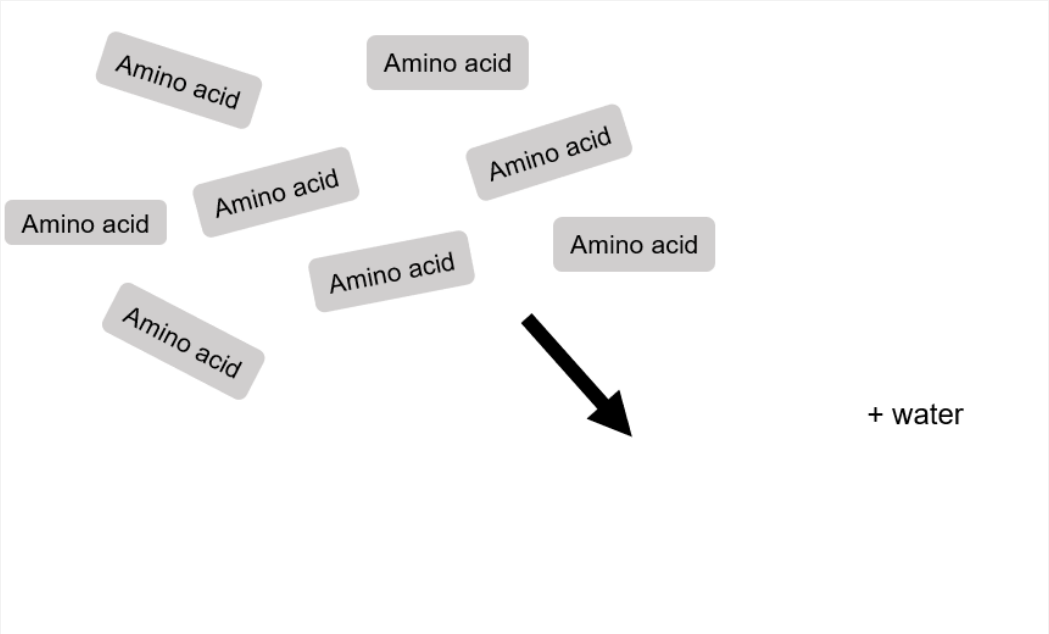
f) What type of polymerisation takes place when glucose forms the polymer in part e)?

Why does it have this name?

Another important type of polymer is made from amino acids.

g) Complete this diagram to show a polymerisation taking place.

Use the previous diagram to help you.



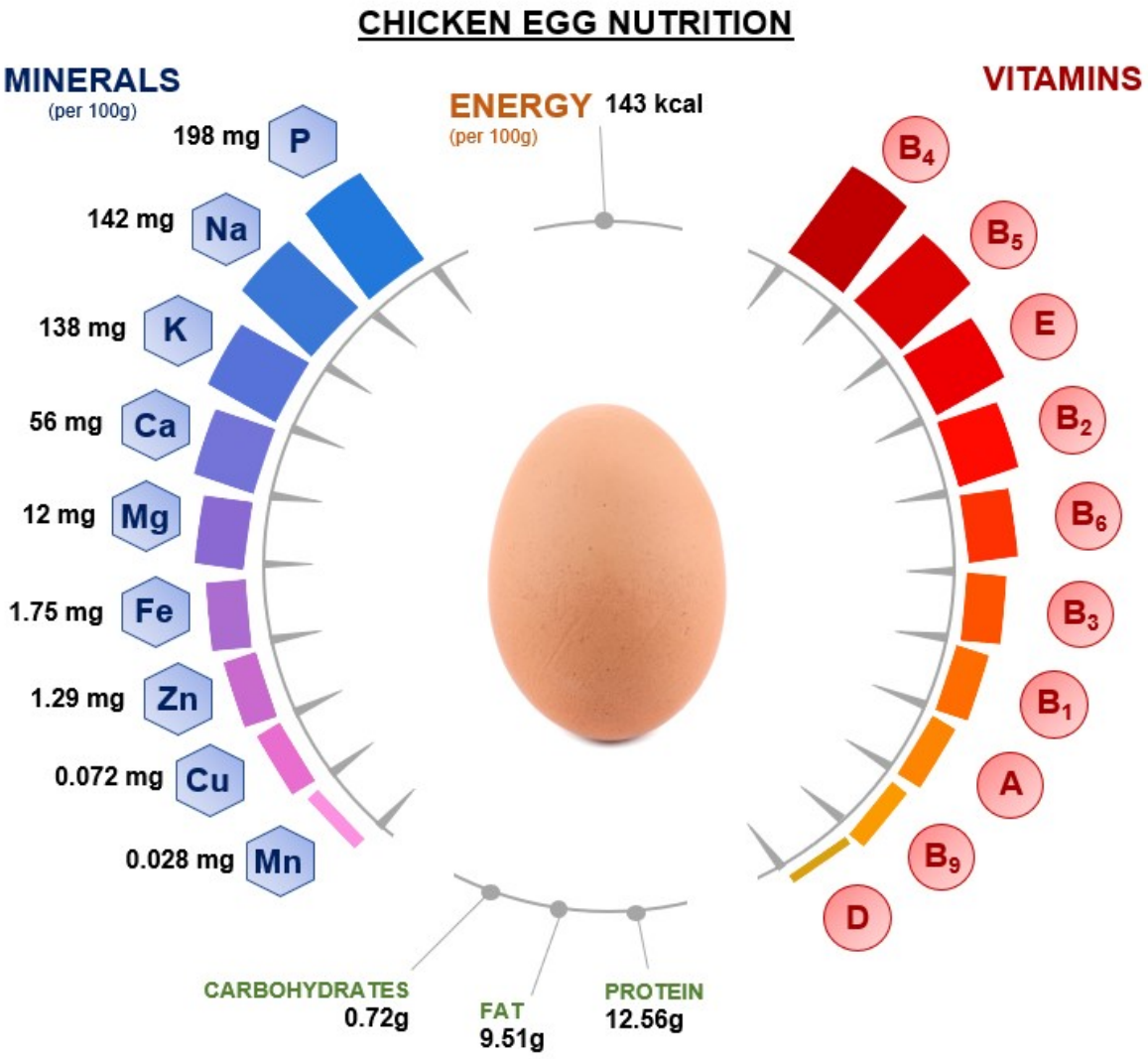
h) What is the name of this type of polymer?

i) Give one similarity between the polymer in part g) and the one in part e).

2. This question is about chicken eggs.

The diagram shows the mass of different nutrients in 100 g of chicken eggs.

Use the diagram to answer the questions.



Source: International bunch / adapted from Shutterstock

a) What is the mass of fat in 100 g of chicken eggs?

b) What percentage of chicken eggs, by mass, is due to protein?

c) Write the mass of iron in grams.

d) Write the mass of vitamin A in grams.

e) Write the mass of manganese in grams and in standard form.

f) State the name of a nutrient in chicken eggs that is a polymer.

g) Which of the nutrients in the diagram has the:

i) largest mass?

ii) smallest mass?

h) Why is the total mass of all of the nutrients in the diagram not equal to 100 g?