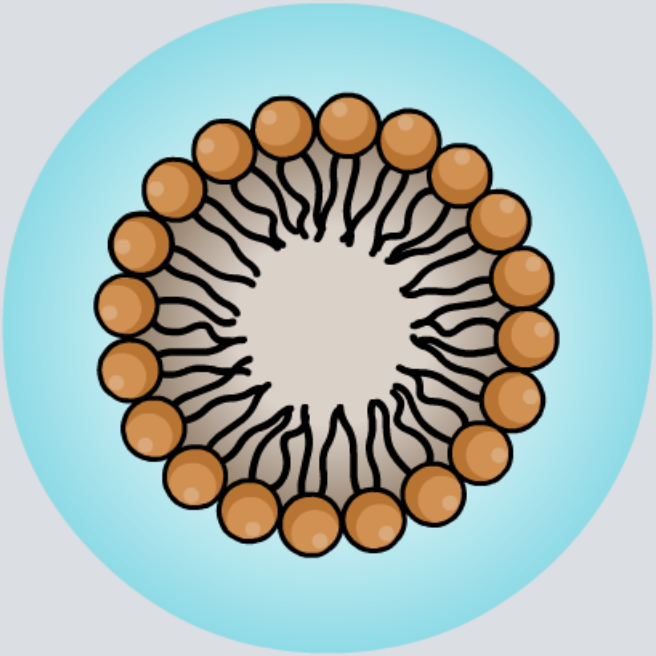
Lipids



Introduction to lipids

Lipids are a diverse group of compounds that are insoluble in water but soluble in organic solvents such as ethanol.

The most common types of lipid are **triglycerides** (sometimes known as true fats or neutral fats), but other important lipids include waxes, steroids and cholesterol.

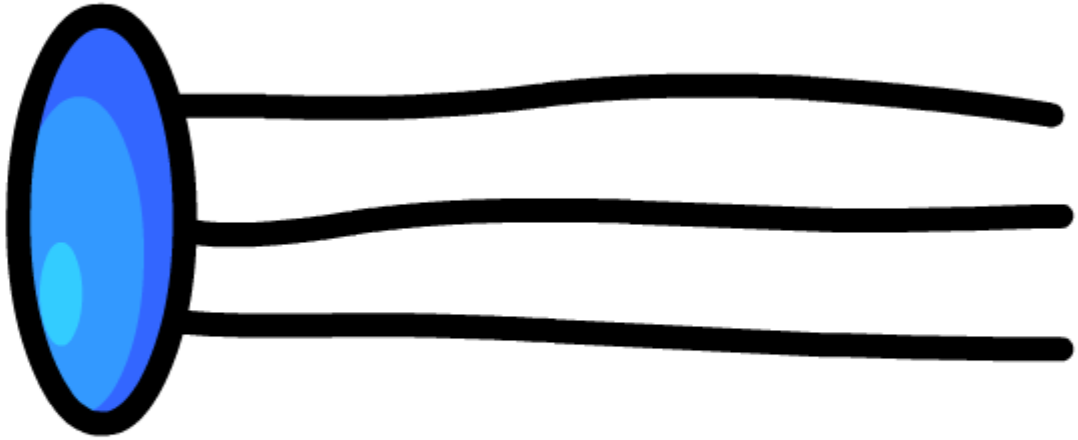
Like carbohydrates, lipids contain carbon, hydrogen and oxygen, but they have a higher proportion of hydrogen and a lower proportion of oxygen.

The structure of triglycerides

What is the structure of triglycerides?

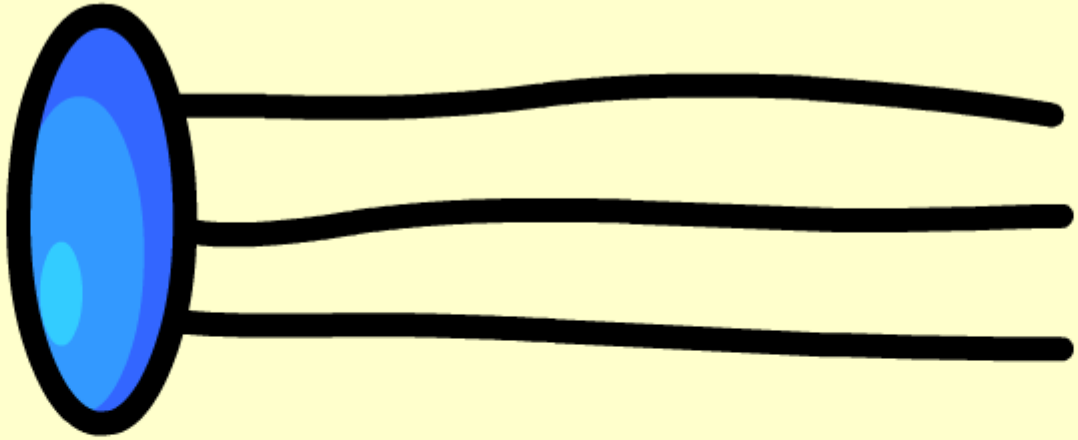
Triglycerides are made from a **glycerol** backbone joined to three **fatty acid chains**.

Click "**play**" to find out more about each of these parts.



Saturated and unsaturated

Saturated and unsaturated fatty acids



Fatty acids are either **saturated** or **unsaturated**.

Click a button to find out more.

saturated | **unsaturated** | ***cis / trans***

Role of lipids

The major biological role of lipids is as an energy source. Lipids provide more than twice the amount of energy as carbohydrates – about 38 kJ/g.

Lipids are stored in **adipose tissue**, which has several important roles, including:

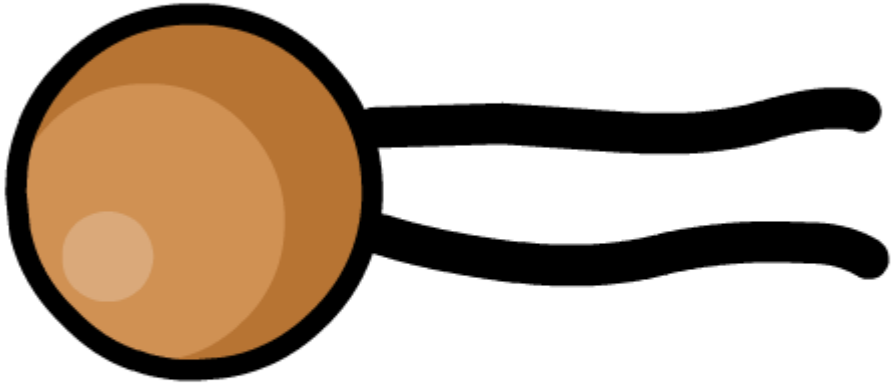
- **heat insulation** – in mammals, adipose tissue underneath the skin helps reduce heat loss.
- **protection** – adipose tissue around delicate organs such as the kidneys acts as a cushion against impacts.

The structure of phospholipids

What are phospholipids?

Phospholipids are a major component of cell membranes.

Click "**play**" or the phospholipid to find out more about their structure and properties.



Emulsion test for lipids

Components of lipids

What are the features of these lipids?

Lipid 1/2 This is a molecule of **A**