## LIPIDS (FATS AND OILS)

**ELEMENTS / STRUCTURE:**

**carbon, hydrogen, and oxygen**.

- **glycerol attached to 3 fatty acids**

**FUNCTIONS:**

to **provide energy** to the body, **insulation**, **organ protection**.

**EXAMPLES:**

**butter**, **fatty meats**

**FOOD TEST: EMULSION TEST**

- **ethanol**
- if a **milky-white precipitate** forms, **lipid** is present in the substance.

**EXPERIMENT: TESTING FOOD ENERGY**

1. pour cold water into a boiling tube.
2. record the starting temperature of the water.
3. record the mass of the food sample.
4. heat the food until it catches fire.
5. heat the water using the flame from the burning food.
6. record the final temperature of the water.

***Energy per gram of food:***

$$\frac{\textit{Change in temperature} \times \textit{(water volume)} \times 4.2}{\textit{Mass of food (g)}}$$

## VITAMINS, MINERALS, IONS

- **Vitamin A**: good vision, healthy skin, growth (e.g. **spinach**, **dairy products**)

- **Vitamin B**: release of energy from foods, skin (e.g. **bread**, **milk**, **eggs**)

- **Vitamin B12**: red blood cells (e.g. **meat**, **milk**, **eggs**)

- **Vitamin C**: healthy skin (e.g. **spinach**, **dairy products**)

- **Vitamin D**: helps absorb calcium, strong teeth & bones (e.g. **margarine**, **oily fish**)

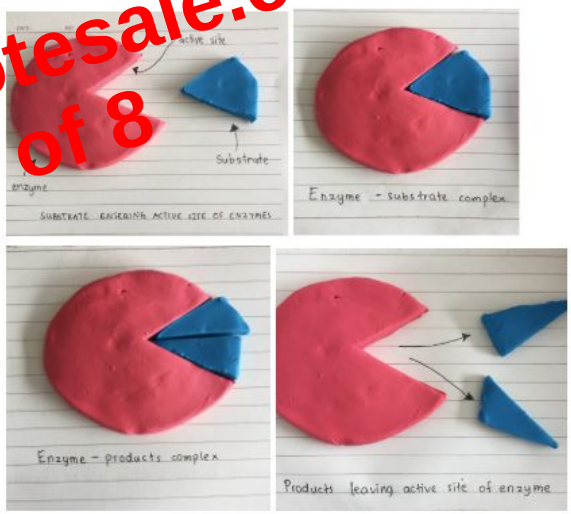
- **Calcium**: strengthens bones and teeth (e.g. **cheese**, **eggs**, **milk**, **broccolli**)

- **Iron**: to produce **haemoglobin** in red blood cells / prevent anaemia (e.g. **red meat**, **beans and nuts**, **dried fruit**)

- **Fibre**: to maintain health of **digestive system** / prevent **constipation** (e.g. **cereal**, fruit, vegetables)



## ENZYMES




- **biological catalysts**
- **speed up the rate of chemical reactions** in the body.
- enzymes are **not used up** and **can be used again**.
- **substrate** molecules are **complementary** to the **active site**; this means that the **enzyme is specific to the substrate**.