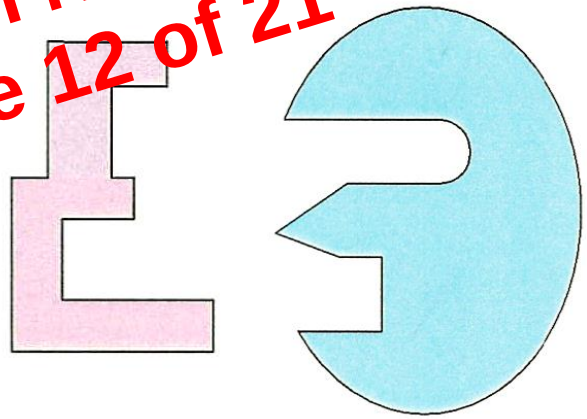
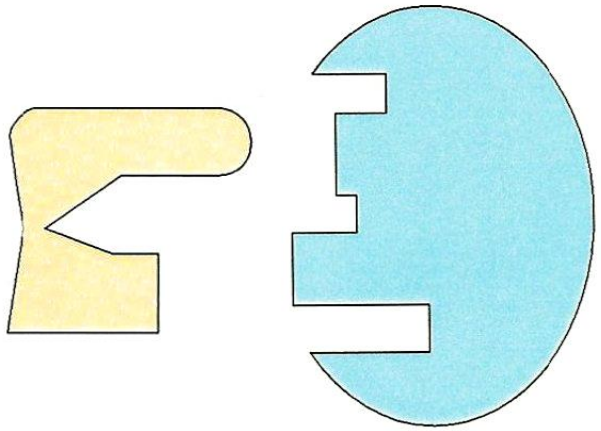
Proteins

- Proteins are made up of **carbon**, **hydrogen** and **oxygen** molecules but with the addition of **nitrogen**
- Carbohydrates are made up of glucose units and Proteins are made up of units called **amino acids**
- There are about 20 different amino acids. Examples are glycine (Gly), alanine (Ala), valine (Val) and cysteine (Cyst)
- The amino acids, Gly-Val-Val-Cyst-Ala-Gly-Ala-Val joined together would make a small protein
- Proteins make up the structure of cells; cytoplasm, nucleus cell membranes and enzymes

Enzymes can act on only one type of substrate

this substrate cannot combine with this enzyme





this substrate cannot combine with this enzyme

Important Minerals

- **Nitrogen**: Required by proteins. Essential to enzymes required for plant function.

- **Calcium**: The mineral that strengthens bone and teeth uses calcium. Also important in nerve synaptic transmission of nerve impulses and muscle contraction. Regulates the cell wall construction in plants.

Phosphorus: Part of the phosphate groups in ATP and DNA molecules. In plants it is needed for cell reproduction and division. It is part of the cell membrane.