LC Home Economics – Nutrition

Protein: elemental composition	Carbon, hydrogen, oxygen, nitrogen, sulphur, iron and phosphorous.
Protein: chemical structure	Amino acid and the joining of two amino acids forms a peptide link.
Protein: classification	Classified according to structure and biological value.

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Protein: essential amino acids	Cannot be produced by the body, e.g. valine, lysine.
Protein: non-essential amino acids	Can be produced by the body, e.g. alanine, serine.
Protein: biological value (BV)	Protein foods can be high biological value or low biological value depending on the amount of essential amino acids present.

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Protein: supplementary role	How foods can supplement or complement each other in relation to essential amino acids, e.g. beans on toast.
Sources of protein	Animal and vegetable sources.
Protein: properties	Solubility, elasticity, denaturation, Maillard reaction, moist heat, gel formation, foam formation.

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Protein: biological functions	Growth and repair, production of cells, muscles and skin, production of enzymes, hormones and antibodies, blood and nucleoproteins, energy an essential amino acids.
Protein: digestion	Enzymes used: rennin, pepsin and peptidase.
Protein: absorption	Villi of the small intestines.

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Protein: utilisation	Used to maintain and replace liver cells, to form new cells, hormones, enzymes and antibodies, deaminated → NH_2 → excreted COOH → stored.
Carbohydrates: elemental composition	Carbon, hydrogen and oxygen in the ratio 1:2:1.
Carbohydrates: chemical structure	Monosaccharide, disaccharide and polysaccharide.

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Carbohydrates: classification	Monosaccharide, disaccharide and polysaccharide, non-starch polysaccharides (NSP).
Carbohydrates: culinary uses	Sweetener, preservative, fermentation, gel formation, thickener and dextrinisation.
Carbohydrates: biological functions	Heat and energy, stored as an energy reserve, insulates the body, prevents bowel disorders, gives a feeling of fullness.

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Carbohydrates: RDA	No precise RDA as deficiency is rare, but overconsumption, e.g. sugar, can lead to health concerns.
Carbohydrates: digestion	Mouth – salivary glands, in the intestine enzymes are released to break down maltase, sucrose and lactase.
Carbohydrates: absorption	Into the bloodstream and transported to the liver via the portal vein.

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Carbohydrates: utilisation	Heat and energy, provide insulation.
Lipids: elemental composition	Carbon, hydrogen and oxygen.
Lipids: chemical structure	Triglyceride = glycerol plus three fatty acids.

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Lipids: cis – and trans-fatty acids	The body cannot manufacture these fatty acids.
Lipids: properties	Insoluble in water, effects of heat, rancidity – oxidative and hydrolytic, hydrogenation, plasticity, emulsions.
Lipids: biological functions	Provide heat and energy, provide insulation, protect delicate organs, supply fat-soluble vitamins A, D, E, K.

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Lipids: digestion	Triglyceride is broken down, lipase helps the digestion of it into glycerol and fatty acids.
Lipids: absorptions	Small intestine via the lacteals in the lymphatic system.
Utilisation	Provide energy, insulation, protection of delicate organs.

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