

iUHB263 – Concepts of science in trichology

URN – M/617/5616

Guided Learning Hours: 44

Learning outcome	Assessment criteria	Taught content to include
LO1 Understand the different states of matter and how they change	1.1. Define each of the three states of matter	<ul style="list-style-type: none"> • Solid • Liquid • Gas
	1.2. Describe how substances change from one state to another	<ul style="list-style-type: none"> • Solid to liquid • Liquid to solid • Liquid to gas • Gas to liquid
	1.3. Describe the possible variable states when water is mixed with a solute	<ul style="list-style-type: none"> • Solution • Aqueous solution • Solvent • Saturation • Insolubility • Suspension • Miscibility/immiscibility • Emulsion
LO2 Understand the chemical composition of matter	2.1. Describe atoms, elements, molecules and compounds	<ul style="list-style-type: none"> • Matter • Atoms • Elements • Molecules • Compounds

LO3 Understand how chemical symbols are used to represent chemical elements	3.1. Describe how chemical symbols represent each element	<ul style="list-style-type: none"> • Universal symbols • Molecules • Compounds • Formulae • Representative letters • Capitalisation of letters
	3.2. Describe how chemical symbols and numbers are used to represent elements of the periodic table	<ul style="list-style-type: none"> • Letters representing elements • Numbers in subscript • Number of atoms • Use of brackets
	3.3. Explain the order used when representing chemical compounds	<ul style="list-style-type: none"> • Influence of periodic table • Tradition
LO4 Understand the sub-atomic particles that comprise atoms	4.1. Describe the distribution of sub-atomic particles in an atom and how they vary to create different elements	<ul style="list-style-type: none"> • Protons • Neutrons • Electrons • Nucleus • Energy shells • Orbitals • Number of sub-atomic particles • Isotopes • Positive/negative charges
	4.2. Explain the mass of each sub-atomic particle in an atom	<ul style="list-style-type: none"> • Atomic mass units • First, second, third & fourth levels • Atomic number • Mass number • Periodic table <ul style="list-style-type: none"> - Rows - Periods
LO5 Understand how elements bond to form molecules	5.1. Describe the two main ways in which elements bond together	<ul style="list-style-type: none"> • Molecules • Compounds • Valency • Ionic bonds • Covalent bonds

	5.2. Describe an ion and an atom	<ul style="list-style-type: none"> • Atom • Ion • Cation • Anion
	5.3. Describe how ionic and covalent bonds are formed	<ul style="list-style-type: none"> • Ionic bonding • Covalent bonding • Single, double & triple covalent bonds
	5.4. Describe the construction of a chemical equation	<ul style="list-style-type: none"> • Reactants • Products • Balancing the equation • Solids (s) • Liquids (l) • Gas (g) • Aqueous solutions (aq)

LO6 Understand how carbon forms various covalent bonds	6.1. Explain the ability of carbon to form various covalent bonds	<ul style="list-style-type: none"> • Organic/inorganic chemistry • Organic products • Single, double, triple covalent bonds
	6.2. Describe aliphatic and aromatic compounds	<ul style="list-style-type: none"> • Aliphatic compounds • Aromatic compounds • Benzene • Delocalised electrons
	6.3. Describe the important biological molecules in their various bonded chemical forms	<ul style="list-style-type: none"> • Biochemistry • Carbohydrates <ul style="list-style-type: none"> - Monosaccharides - Disaccharides - Polysaccharides • Proteins <ul style="list-style-type: none"> - Amino acids - Dipeptides - Polypeptides • Lipids <ul style="list-style-type: none"> - Triglycerides - Phospholipids • Nucleic acids <ul style="list-style-type: none"> - Nucleotides

		<ul style="list-style-type: none"> - Dinucleotides - Polynucleotides - Monomers - Dimers - Polymers - Polymerisation
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LO7 Understand how penetration enhancers affect skin absorption	7.1. Describe the term 'penetration enhancer' in relation to skin absorption	<ul style="list-style-type: none"> • Definition: <ul style="list-style-type: none"> - A physical or chemical medium that improves substance diffusion across biological membranes • Sebaceous fluid • Lipid soluble molecules • Skin <ul style="list-style-type: none"> - Stratum corneum - Pores - Skin's relative impermeability - Substance diffusion - Penetration enhancer
	7.2. Describe types of penetration enhancers and how they operate	<ul style="list-style-type: none"> • Transcellular and intercellular routes • Physical and chemical enhancers • Electroporation • Ultrasound/sonophoresis • Laser irradiation • Skin abrasion • Water • Sulphoxides • Essential oils, terpenes, terpenoids • Surfactants • Sweat ducts, hair follicles • Sebaceous glands

Assessment	
Portfolio of evidence	Containing an assignment

Guide to taught content

The content contained within the unit specification is not prescriptive or exhaustive but is intended to provide helpful guidance to teachers and learners with the key areas that will be covered within the unit, and, relating to the kinds of evidence that should be provided for each assessment objective specific to the unit learning outcomes.

Document History

Version	Issue Date	Changes	Role
v1	08/08/2019	First published	Qualifications and Regulation Co-ordinator