

Title	Principles of seafood quality science				
Ofqual unit ref	J/602/0621				
Level	3	Credit value	4	GLH	20
Learning Outcomes			Assessment Criteria		
The learner will:			The learner can:		
<p>1 Understand the principles of live animal variation, harvesting and spoilage organisms</p> <p>2 Understand the principles of seafood biochemistry</p> <p>3 Understand the principles of quality impacts on seafood</p>			<p>1.1 Explain the impact of variations in the live animal - species, age, sex, season, presence of parasites, contaminants</p> <p>1.2 Describe the impact of harvesting method, live holding regimes and stress</p> <p>1.3 Summarise the differences between white fish, oil rich fish and shellfish, marine and freshwater species</p> <p>1.4 Summarise the typical microflora, the key spoilage organisms and their role in seafood spoilage.</p> <p>2.1 Summarise the physical and biochemical characteristics and composition of fish and shellfish flesh including;• Connective tissue• Muscle• Unsaturated lipid levels• Soluble nitrogen compounds• Enzymes</p> <p>2.2 Describe the role and characteristics of Inosine, Hypoxanthine, Xanthine, Uric Acid, TMA, TVB, ATP, ADP and AMP</p> <p>2.3 Summarise post-mortem flesh changes in pre-rigor, rigor mortis and post-rigor</p> <p>2.4 Explain the autolysis of flesh and enzyme activity</p> <p>2.5 Explain the oxidation of lipids and rancidity in flesh</p> <p>2.6 Summarise the microbial spoilage features and metabolic activities of microbes during spoilage</p> <p>2.7 Describe the post-mortem changes of melanosis, colour loss and gaping.</p> <p>3.1 Explain the impact of post harvest handling on spoilage including;• Bleeding• Gutting• Washing• Chilling• Freezing</p>		

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<p>3 Understand the principles of quality impacts on seafood</p> <p>4 Understand the principles of seafood freshness, nutrition and food safety risks</p>	<p>3.2 Explain the impact of post harvest processing on quality including; • Temperature reduction • Heat treatment • pH and water activity • Salt • UHP • Irradiation</p> <p>3.3 Explain the impact of post processing packaging and handling on quality including; • Overwrap • MAP • Cook-chill</p> <p>4.1 Explain the basis of flesh flavour and odour changes</p> <p>4.2 Summarise how freshness is determined by electrochemical, biochemical, chemical and organoleptic methods, and the advantages and limitations of each</p> <p>4.3 Summarise how seafood shelf life is determined</p> <p>4.4 Describe the nutritional qualities of seafood</p> <p>4.5 Summarise the food safety risks in seafood including; • Biotoxins • Allergens • Parasites • Common contaminants.</p>	
Unit purpose and aim(s)	<p>This unit is designed to assess the underpinning knowledge and understanding of learners in the workplace context, in the principles of seafood quality science. It can be assessed on or off the job. The learner must demonstrate their current knowledge and understanding, to meet all assessment criteria. Assessment methods appropriate to the needs of the learner must be used to generate satisfactory evidence of knowledge and understanding. The Improve Assessment Strategy sets out the overarching assessment requirements.</p>	