

Title	Explain the characteristics of enzymes		
Level	5	Credits	3

Purpose	People credited with this unit standard are able to describe: the structure and properties of enzymes; and how enzymes catalyse chemical reactions.
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Classification	Science > Biochemistry
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Available grade	Achieved
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Guidance Information

Recommended for entry: Unit 26490, *Demonstrate knowledge of the structure, properties, and functions of amino acids and proteins.*

Outcomes and performance criteria

Outcome 1

Describe the structure and properties of enzymes.

Performance criteria

- 1.1 The description explains the relationship between primary structure and native conformation and factors affecting this relationship.
- Range factors include – pH, temperature, salinity.
- 1.2 The description identifies activation energy, allosteric effectors, competitive and non-competitive inhibitors, and factors that affect enzyme activity.
- Range cofactor, coenzyme, prosthetic group, metal ion activator, substrate concentration, product concentration, active site, inhibitors.
- 1.3 The description outlines the biological role of enzymes.
- Range allosteric enzymes, multi-functional enzymes, iso-enzymes.

Outcome 2

Describe how enzymes catalyse chemical reactions.

Performance criteria

- 2.1 The description outlines the mechanisms of enzyme activity.
- Range substrate specificity, orientation, proximity, strain on bonds, proton exchange.
- 2.2 The description distinguishes Fischer's lock and key model from Koshland's Induced Fit model.
- 2.3 The description includes the classification of enzymes in accordance with their catalytic activity.

Replacement information	This unit standard and unit standard 26488 replaced unit standard 8053.
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This unit standard is expiring. Assessment against the standard must take place by the last date for assessment set out below.

Status information and last date for assessment for superseded versions

Process	Version	Date	Last Date for Assessment
Registration	1	17 September 2010	31 December 2025
Rollover	2	27 January 2015	31 December 2025
Review	3	27 September 2018	31 December 2025
Review	4	30 November 2023	31 December 2025

Consent and Moderation Requirements (CMR) reference	0113
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This CMR can be accessed at <http://www.nzqa.govt.nz/framework/search/index.do>.