

Western Australia

The new Biological Sciences course for WA covers two years, during which students will take one of two course combinations. In the first option, students take Units 1ABIO and 1BBIO in Year 11 and Units 2ABIO and 2BBIO in Year 12. In the second option,

students take Units 2ABIO and 2BBIO in Year 11 and Units 3ABIO and 3BBIO in Year 12. Course material is covered in the workbook in the topics indicated. Weblinks supporting each topic are present throughout, but are not specifically indicated.

Biological Sciences	Topic in Workbook Year 11 unless indicated	Topic in Workbook Year 11 unless indicated
Unit 1ABIO		
Ecosystems: Biodiversity & Sustainability Diversity of life, reasons for diversity. Classification of organisms. Structural characteristic for classification. Food chains. Energy flow through food chains. Predator - prey relationships, symbiosis, parasitic relationships. Word equations for photosynthesis and respiration.	Classification	
	Communities	
The Functioning Organism Structural, behavioural and physiological adaptations of plants and animals. Cell structure and organelles. Comparing plant, animal, and protist cells. Levels of organisation (tissue, organ, system).	Communities Plant & Animal Nutrition	
	Plant & Animal Nutrition Gas Exchange	
Continuity of Species Definition of a species. Species variation. Life cycles of organisms. Physical adaptations and survival.	Environment & Adaptation Gas Exchange	
	Cell Structure	
Working as a Biologist Planning and conducting biological research Designing and conducting safe experiments. Collecting data and using observations and inference to make valid conclusions. Use of classification keys and microscopy. Evaluating and communicating as a biologist Communicating results and findings.	Cellular Processes	
	Yr 12 Evolution The Evolution of Australia's Biota Reproduction & Development Environment & Adaptation	
Unit 1BBIO		
Ecosystems: Biodiversity & Sustainability Ecosystems. Biomes. Abiotic and biotic factors. The role of water in the biosphere. Energy flow and transfer in an ecosystem. Cycling of matter in an ecosystem. Food webs and pyramids. Effect of human acclivity on food webs. Species interactions.	Habitat & Niche Communities	
	Communities	
The Functioning Organism Obtaining energy and oxygen. Obtaining energy and nutrients. Waste removal. Reproduction. Adaptations for support and protection from the environment and predators.	Communities Human Impact on Ecosystems Communities	
	Gas Exchange Plant & Animal Nutrition Transport & Excretion Reproduction & Development Environment & Adaptation	
Continuity of Species Role of cell division in growth and reproduction. Sexual and asexual reproduction. Reproductive structures. Gametes. Fertilisation mechanisms. Biotechnology to control reproduction. Use of family trees for breeding experiments. Commercial and social benefits of advances in agriculture and medicine.	Cellular Processes	
	Reproduction & Development	
Working as a Biologist Planning and conducting biological research Designing and conducting safe experiments. Observation, data collection, inference. Use of appropriate skills (pH, volume, temperature). Evaluating and communicating as a biologist Report writing, use of tables and references. Awareness of issues raised by using GM.	Reproduction & Development Yr 12 Inheritance	
	Skills in Biology	
	Skills in Biology	
	Skills in Biology Yr 12 Gene Technology	
Unit 2ABIO		
Ecosystems: Biodiversity & Sustainability Classification Classification system, binomial classification. Taxonomic keys.		Classification
Communities Autotrophs, heterotrophs, decomposers. Energy flow in food chains, webs, and pyramids. Cycling of matter The carbon and nitrogen cycles.		Communities
		Communities
Productivity in communities Biomass and trophic levels. Community productivity.		Communities
The Functioning Organism Requirements of living organisms Energy, water, nutrient requirements. Waste removal. Photosynthesis, respiration, fermentation.		Cellular Processes Animal & Plant Nutrition Transport & Excretion Plant & Animal Nutrition
Carbohydrates, lipids, and proteins.		Cell Structure
Cell Structures and functions. Cell structure and organelles. Eukaryotic & prokaryotic cells.		Cell Structure
Exchange of materials Diffusion and osmosis. SA:V ratio, concentration gradient.		Cellular Processes
Adaptations Adaptations of plants and animals to terrestrial, marine and freshwater habitats. Adaptations of plant and animal transport systems.		Environment & Adaptation
		Transport & Excretion
Adaptations for gas exchange. Gas Exchange surfaces.		Gas Exchange Cellular Processes
Adaptations for excretion in plants and animals. Adaptations for nutrient acquisition.		Transport & Excretion Plant & Animal Nutrition
Unit 2BBIO		
Ecosystems: Biodiversity & Sustainability Population dynamics Population dynamics and change, competition. Carrying capacity, population calculations.		Population Dynamics
Continuity of Species Mitosis and the cell cycle. Asexual and sexual reproduction in plants and animals. Comparisons of each strategy.		Cellular Processes
		Reproduction & Development
Offspring survival strategies. Lifecycles. Metamorphosis.		Environment & Adaptation Reproduction & Development
Process and functions of meiosis.		Yr 12 Inheritance
DNA Genes and chromosomes. Monohybrid crosses, pedigree charts. Environment and genotype. Sex determination.		Yr 12 The Genetic Code Yr 12 The Genetic Code Yr 12 Inheritance
Working as a Biologist Planning and conducting biological research Hypotheses, variables and experiments. Ecosystem study and field sampling methods. Computer modeling of population dynamics.		Skills in Biology Practical Ecology
Evaluating and communicating as a biologist. Written and oral reports, critical reflection.		Skills in Biology