



Australian Government

Department of Education, Employment and Workplace Relations

ACMSPE309A Provide basic care of terrestrial and freshwater invertebrates

Revision Number: 1

ACMSPE309A Provide basic care of terrestrial and freshwater invertebrates

Modification History

Not applicable.

Unit Descriptor

<p>Unit descriptor</p>	<p>This unit of competency covers the process of identifying terrestrial and freshwater invertebrates and their behavioural and physical needs, providing daily care requirements as well as assisting with behavioural requirements and preventative health measures.</p> <p>Licensing, legislative, regulatory or certification requirements may apply to this unit. Therefore, it will be necessary to check with the relevant state or territory regulators for current licensing, legislative or regulatory requirements before undertaking this unit.</p>
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Application of the Unit

<p>Application of the unit</p>	<p>The unit is applicable to those working in animal care industry sectors where it may be necessary to care for commonly available terrestrial and freshwater invertebrates. This may include aquariums, pet shops, zoos, animal technology facilities or similar workplaces.</p> <p>In addition to legal and ethical responsibilities, all units of competency in the ACM10 Animal Care and Management Training Package have the requirement for animals to be handled gently and calmly. The individual is required to exhibit appropriate care for animals so that stress and discomfort is minimised.</p>
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Licensing/Regulatory Information

Not applicable.

Pre-Requisites

Prerequisite units		

Employability Skills Information

Employability skills	This unit contains employability skills.
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Elements and Performance Criteria Pre-Content

Elements describe the essential outcomes of a unit of competency.	Performance criteria describe the performance needed to demonstrate achievement of the element. Where bold italicised text is used, further information is detailed in the required skills and knowledge section and the range statement. Assessment of performance is to be consistent with the evidence guide.
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Elements and Performance Criteria

ELEMENT	PERFORMANCE CRITERIA
1. Identify commonly available terrestrial and freshwater invertebrates	<p>1.1. Profile of <i>terrestrial and freshwater invertebrates</i> commonly held in facility, including habitat, nutrition, health and <i>behavioural characteristics</i>, is defined.</p> <p>1.2. External features are described using industry terminology.</p> <p>1.3. Invertebrates are classified using industry-specific terminology.</p> <p>1.4. <i>Colours, markings and other identifying features</i> are defined, interpreted and documented.</p>
2. Identify and evaluate behavioural and housing needs	<p>2.1. <i>Water quality</i> (for freshwater species) is monitored and <i>adjustments</i> made, as required, to maintain optimum water quality appropriate for the species being housed as directed by supervisor.</p> <p>2.2. Indicators of <i>animal comfort and normal behaviour</i> are identified and signs of distressed invertebrates are recognised and reported to supervisor.</p> <p>2.3. Industry guidelines for <i>housing design, environmental factors</i> and appropriate stocking densities are identified.</p> <p>2.4. <i>Enrichment needs</i> are identified and evaluated for specific animal species.</p> <p>2.5. Current animal housing design is evaluated in relation to the <i>welfare of animals</i> kept and legislation requirements.</p>
3. Approach and handle invertebrates	<p>3.1. <i>Occupational health and safety (OHS) risks</i> associated with handling and restraining invertebrates are identified and methods used to minimise risks are demonstrated.</p> <p>3.2. Appropriate <i>equipment to catch and handle invertebrate</i> are identified and prepared.</p> <p>3.3. Invertebrates are approached and handled while minimising risks to animal and others using a range of appropriate animal welfare procedures.</p>
4. Assist with health care needs	<p>4.1. Signs of good health in invertebrates are identified and recorded in animal health and treatment records.</p> <p>4.2. <i>Common health issues</i> are identified and signs of disease or other conditions are reported to supervisor.</p> <p>4.3. <i>General health maintenance and preventative treatment procedures</i> are identified and implemented in accordance with level of job responsibility, regulatory requirements and supervisor guidance.</p> <p>4.4. Options for activity and enrichment are identified,</p>

ELEMENT	PERFORMANCE CRITERIA
	evaluated for impact on invertebrate health and implemented as directed by supervisor.
5. Feed invertebrates	<p>5.1. <i>Digestive system features</i> are identified and related to invertebrate specific feeding routines and diets.</p> <p>5.2. Preferred <i>food sources</i> are identified and food samples are assessed for quality and suitability.</p> <p>5.3. Potential <i>feeding hazards</i> are identified and risk control options defined.</p> <p>5.4. Feed is prepared in accordance with dietary needs.</p> <p>5.5. Feed is distributed and consumption, including abnormalities, is reported in accordance with workplace routines.</p>
6. Maintain records	6.1. <i>Documentation</i> on the care and management of terrestrial and freshwater invertebrates is completed in accordance with workplace procedures and legislation requirements.

Required Skills and Knowledge

REQUIRED SKILLS AND KNOWLEDGE

This section describes the skills and knowledge required for this unit.

Required skills

- complete relevant work-related documents and maintain accurate animal records
- comply with OHS, animal care, ethics and industry guidelines, relevant regulations and legislations
- employ safe and environmentally responsible organisational systems and procedures when working with, catching and handling terrestrial and freshwater invertebrates
- maintain the highest standards of personal and workplace hygiene and infection control at all times to reduce the risk of infection and cross-infection
- measure, interpret and record invertebrate weight, length and other relevant objective indicators of change in physiological status
- monitor invertebrate health, condition and behaviour and recognise normal and abnormal signs
- monitor water quality parameters using physical and chemical assessments and tests
- prepare doses for treatments as directed and verified by supervisor
- use equipment and materials correctly and in accordance with manufacturers' specifications
- literacy skills to read and follow organisational policies and procedures, including OHS and animal welfare; follow sequenced written instructions; and record information accurately and legibly
- oral communication skills/language to fulfil the job role as specified by the organisation, including questioning, active listening, asking for clarification and seeking advice from supervisor
- numeracy skills to estimate, calculate and record routine workplace measures
- interpersonal skills to work with others and relate to people from a range of cultural, social and religious backgrounds and with a range of physical and mental abilities
- problem-solving skills to assess appropriate practices and prioritise daily tasks
- use safe manual handling techniques and/or equipment
- use safe waste handling and disposal procedures.

Required knowledge

- anatomical and physiological terminology and glossary of terms
- anatomical structures and physiological features related to basic care requirements for invertebrates
- awareness of natural invertebrate behaviour relating to the characteristics of the species, developmental stage, health and reproductive status, behavioural and social needs and the signs of distress, illness and undesirable behaviours

REQUIRED SKILLS AND KNOWLEDGE

- basic invertebrate care and hygiene principles
- basic water chemistry parameters and physical indicators of water quality relevant to the care and husbandry of marine aquatic invertebrates
- common aeration and filtration systems
- housing, social and activity needs of terrestrial and freshwater invertebrates and environmental impacts on health and wellbeing
- methods of transmission of disease and infection
- organisational policies and procedures regarding the care and health maintenance of terrestrial and freshwater invertebrates
- personal protective clothing and equipment and when and how it should be used
- physical conditions and vital signs of terrestrial and freshwater invertebrates
- relevant legislation, regulations and codes of practice, including OHS, animal welfare and ethics
- safe invertebrate handling techniques and procedures, potential hazards and control measures
- terminology and language variations used by workplace staff and the public to describe terrestrial and freshwater invertebrates, their behaviour, status, health and treatments
- terminology used to describe and document health and behavioural signs, including desirable and undesirable features
- types of food and food supplements and their role in terrestrial and freshwater invertebrates diets, including natural dietary requirements for specific species
- types of information that has to be reported and recorded in animal care workplaces
- workplace hygiene standards, disinfectants, cleaning agents, cleaning techniques and cleaning equipment and materials.

Evidence Guide

EVIDENCE GUIDE	
<p>The Evidence Guide provides advice on assessment and must be read in conjunction with the performance criteria, required skills and knowledge, range statement and the Assessment Guidelines for the Training Package.</p>	
Overview of assessment	
Critical aspects for assessment and evidence required to demonstrate competency in this unit	<p>The evidence required to demonstrate competence in this unit must be relevant to workplace operations and satisfy all of the requirements of the performance criteria, required skills and knowledge and the range statement of this unit. Assessors should ensure that candidates can:</p> <ul style="list-style-type: none"> • identify the specific characteristics and needs of terrestrial and freshwater invertebrates and apply these to the best practice industry standard of housing, socialising, feeding and health management • classify and identify invertebrates by developmental stage, sex, condition, colours, markings and other identifying features using industry terminology • safely and humanely catch and handle terrestrial and freshwater invertebrates • assess water quality for suitability for maintained species • report and document treatments, behaviours and other information on individual animals in accordance with animal welfare regulations, industry guidelines and workplace protocols and procedures. <p>The skills and knowledge required to provide basic care of terrestrial and freshwater invertebrates must be transferable to a range of work environments and contexts and include the ability to deal with unplanned events.</p>
Context of and specific resources for assessment	<p>Assessment of this unit is to be largely practical in nature and will most appropriately be assessed against the types of processes required in the industry sector in which candidates are working or in a situation that reproduces normal work conditions. Industry sectors can include aquariums, pet shops, zoos, animal technology facilities or similar workplaces.</p> <p>There must be access in either situation to a range of terrestrial and freshwater invertebrates as well as relevant</p>

EVIDENCE GUIDE	
	<p>information, equipment and/or resources to enable one to demonstrate competence. Assessment must cover a minimum of three species including at least one terrestrial and at least one freshwater invertebrate species.</p>
Method of assessment	<p>To ensure consistency in one's performance, competency should be demonstrated, to industry defined standards, on more than one occasion over a period of time in order to cover a variety of circumstances and where possible, over a number of assessment activities.</p> <p>The assessment strategy must include practical skills assessment. Suggested strategies for this unit are:</p> <ul style="list-style-type: none"> • written and/or oral assessment of candidate's required knowledge • observed, documented and first-hand testimonial evidence of candidate's application of practical tasks • simulation exercises that reproduce normal work conditions • third-party evidence • workplace documentation • portfolio. <p>This unit may be assessed in a holistic way with other units of competency relevant to the industry sector, workplace and job role.</p>
Guidance information for assessment	<p>Assessment methods should reflect workplace demands (e.g. literacy and numeracy demands) and the needs of particular target groups (e.g. people with disabilities, Aboriginal and Torres Strait Islander people, women, people with a language background other than English, youth and people from low socioeconomic backgrounds).</p>

Range Statement

RANGE STATEMENT

The range statement relates to the unit of competency as a whole. It allows for different work environments and situations that may affect performance. Bold italicised wording, if used in the performance criteria, is detailed below. Essential operating conditions that may be present with training and assessment (depending on the work situation, needs of the candidate, accessibility of the item, and local industry and regional contexts) may also be included.

Commonly available <i>terrestrial and freshwater invertebrates</i> may include:	<ul style="list-style-type: none"> • crickets • freshwater lobsters, shrimp and snails • giant cockroaches • large spiders (e.g. tarantulas) • beetles (e.g. rhinoceros) • stick insects (e.g. goliath and titan) • scorpions.
<i>Behavioural characteristics</i> may include:	<ul style="list-style-type: none"> • behaviour characteristics can vary according to: <ul style="list-style-type: none"> • the species, breed, developmental stage and sex of the animals • the time of day or night • behavioural characteristics associated with different species: <ul style="list-style-type: none"> • activity levels at certain times of day or night • feeding behaviours • fight or flight • social interaction • reproductive behaviours • the other animals in that environment • defensive behaviour: <ul style="list-style-type: none"> • defending territory, other animals or food • hiding or retreating.
<i>Colours, markings and other identifying features</i> may include:	<ul style="list-style-type: none"> • developmental stage, sex and size • skin or shell colours and texture • markings and patterns • tags.
Indicators of poor <i>water quality</i> may include:	<ul style="list-style-type: none"> • colour • odour • unsuitable water chemistry parameters.
Water quality <i>adjustments</i> may involve:	<ul style="list-style-type: none"> • correcting chemical imbalances • partial water change

RANGE STATEMENT

- raising or lowering pH or hardness.

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<p>Indicators of <i>animal comfort and normal behaviour</i> may be identified by:</p>	<ul style="list-style-type: none"> • daily observation and visual examination is the best way to establish the appearance of a healthy invertebrate and at the same time allows detection of changes from normal. These observations will include: <ul style="list-style-type: none"> • posture and attitude • activity level • response to stimuli including handling • assessment of body condition • assessment of state of hydration • appetite and dietary history • presence of external organisms.
<p><i>Housing design and environmental factors</i> may include:</p>	<ul style="list-style-type: none"> • environmental: <ul style="list-style-type: none"> • aeration rates and supply • biological control of waste • cleaning routines and methods • correct humidity levels • day/night cycle lighting • drainage and weather protection • electrical safety • escape proofing • filtration requirements to maintain the water quality and optimal environmental conditions for target species • housing furniture and compatible plants • lighting, ventilation, temperature, heating and cooling requirements • water flows and currents • housing requirements: <ul style="list-style-type: none"> • compatibility of species housed together • food and water distribution • location and security considerations • longevity and sturdiness of materials • maintains ambient temperature conditions for the specific species • provides continuous access to water free of ammonia or chlorine • provides generous ventilation and is safe from fumes and vapours:

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- insecticides
- cleaning agents
- required floor area, vertical and/or horizontal space for specific species
- suitability for specific species
- species-specific options for animals to hide or rest
- substrate appropriate to the specific species
- designs that allow for species-specific activity, feeding or socialising
- social options:
 - solitary
 - pairs
 - single sexed groups
 - polyandrous/polygynous groups
 - mixed species.

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<i>Enrichment needs</i> may include:	<ul style="list-style-type: none"> • food or food-related enrichment • physical enrichment items: <ul style="list-style-type: none"> • plants and foliage • retreats • rocks or artificial rocks • social enrichment: <ul style="list-style-type: none"> • levels of contact with other animals of the same species • mixed species exhibits to encourage positive inter-species interactions.
<i>Welfare of animals</i> requirements may include:	<ul style="list-style-type: none"> • adequate housing, nutrition and stock levels • compliance to appropriate/relevant state or territory legislation and regulations • enrichment opportunities • the absence of predators, pests and vermin • the compatibility of species and breeds.
<i>OHS risks</i> when working with animals may include:	<ul style="list-style-type: none"> • animal bites, envenomation, scratches and crush injuries • biological hazardous waste and sharps disposal • electrical hazards enhanced by the presence of water • handling of chemicals and medicines • gas leakage • inhalation of aerosol particles • intraocular contamination • manual handling, including carrying, lifting and shifting • needle pricks and cuts from other sharps • release of infective agents (animal and human) • slippery or uneven work surfaces • zoonoses.
<i>Equipment to catch and handle invertebrate</i> may include:	<ul style="list-style-type: none"> • equipment: <ul style="list-style-type: none"> • isolation tanks or enclosures • plastic bags • soft gloves • soft knotless hand nets • traps • handling of invertebrates should: <ul style="list-style-type: none"> • always be minimised as excessive handling could result in stress or injury

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- be undertaken slowly and gently
- undertaken with care as many invertebrates are venomous and some can make humans or other animals sick or die.

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<i>Common health issues</i> may include:	<ul style="list-style-type: none"> • environmental hazards: <ul style="list-style-type: none"> • contamination of the water due to presence of toxins • exposures of extremes of water quality • exposure to the elements • humidity and ventilation • inadequate activity • temperature extremes • infectious diseases caused by: <ul style="list-style-type: none"> • bacteria, virus, fungus and protozoa • internal and external parasites • non-infection diseases: <ul style="list-style-type: none"> • nutritional imbalances and disruptions • metabolic • neoplastic • physical traumas • chemical toxicities and allergies • zoonotic diseases.
<i>General health maintenance and preventative treatment</i> may include:	<ul style="list-style-type: none"> • routine health check-up • control of parasites • temperature, humidity, heat and light requirements for specific species • quarantine and isolation procedures • water quality.
<i>Digestive system features</i> may include:	<ul style="list-style-type: none"> • anatomical features relevant to the specific species • physiological features: <ul style="list-style-type: none"> • eating processes • nutrient requirements, absorption and storage methods • waste elimination • feeding patterns and natural dietary requirements for the species • potential digestive system malfunctions or problems • water needs.
<i>Food source</i> considerations include:	<ul style="list-style-type: none"> • captive diets must be similar to the natural diet of the species to: <ul style="list-style-type: none"> • minimise the impact of captivity

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	<ul style="list-style-type: none"> • stimulate normal digestive function • maximise development of natural survival techniques • food sources will vary widely subject to the specific species.
<i>Feeding hazards</i> may include:	<ul style="list-style-type: none"> • animal movement and handling • shelf life of foodstuffs • manual handling and general food preparation, storage and distribution equipment • contamination of foodstuffs from vermin, bacteria, fungus, virus and other sources • organic and other dusts • possibility of zoonotic infection.
<i>Documentation</i> on the care and management of terrestrial and freshwater invertebrates may include:	<ul style="list-style-type: none"> • accident and incident records • chemical and veterinary supplies register • detailed and accurate records for each animal (or group of animals): <ul style="list-style-type: none"> • species and sex of animal • identification and history • feeding, health and treatment records • diary, rosters and task completion and timeframe records • equipment use, damage and repair register • OHS safe work method statements, material safety data sheets (MSDS) and other records • provisions records of current stock and items used and items required • stock control records • water chemistry and quality records • water change frequencies and amounts.

Unit Sector(s)

Unit sector	Species specific
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Competency field

Competency field	
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Co-requisite units

Co-requisite units		