

AEC STANDARD OPERATING PROCEDURES

SOP No:	10	
SOP	Axolotls	
Scientific Name:	<i>Ambystoma mexicanum</i>	
Category:	2 only	
Approved activities	Activity	Category
	a. Observation of a particular behaviour of axolotls	2
	b. The appropriate care of classroom pet axolotls	2
Approval Level:	Where an activity is not listed in this SOP, approval must be sought from the Animal Ethics Committee and confirmed before it can be undertaken.	
Authority:	Government Schools – Department for Education and Childhood Development Animal Ethics Committee Independent and Catholic Schools - Non Government Schools Animal Ethics Committee (NGSAEC)	
Authority Approval Date:	1 August 2010	
Last Update:	21 April 2020	
Disclaimer:	<i>This document may be updated at any time. You should check the web site regularly to ensure that you are meeting the most recent recommendations. If you note any concerns with the information provided (inadequate, incorrect) please contact the relevant AEC.</i>	
Licensing Requirement:	Not applicable	
Compliance Requirement:	The keeping of this species requires approval from the School Principal. It is recommended that this Standard Operating Procedure be followed as a minimum in the provision of appropriate care and housing for this species.	

General Information: Axolotls are aquatic amphibians that are the ‘tadpole’ (larval) stage of a salamander (a land dwelling amphibian) found in two lakes near Mexico City. It is named after the Aztec God, XOLOTL and is part of the staple diet of natives of Mexico, being sold in markets. It rarely changes into a terrestrial adult. They are available in a range of colours including nearly black, albino, golden or pied.

- Physical Attributes:**
- **Size (adult):** 20-30cm in length
 - **Weight (adult):** 300gms
 - **Life span:** 12-15 years
 - **Sexual maturity:** At one year

Behaviour:

Normal: Axolotls should NOT be placed with other species in aquariums. They are nocturnal and therefore more active during the night. They are able to regenerate body parts.

Socialisation: They can be cannibalistic when different sizes are grouped together or if they are underfed.

Activity levels (hibernation etc): They will be slow and sluggish during the day and tend to rest away from the light. Sudden movements and noises near a tank can startle them causing them to panic and injure themselves.

Environment:

Housing/ Space: You will need a large aquarium (30 litres of water for 1 axolotl adding 10 litres for each additional axolotl). To set up your aquarium you need an aerator, filter, plants, pondweed and a rock for hiding beneath. The tank can be lined with pebbles as a base substrate but not too small as the axolotl may eat them. An aquarium 60cm x 30cm x 30cm will house two adult axolotls. Keep the depth to about 20-25cm.

Movement: Axolotls have long tails and four legs. They have feathery gills on either side of their head. They need to be able to move freely and turn around freely in the aquarium. They appear clumsy and uproot plants readily but can move with surprising speed.

Water: Axolotls must always remain underwater to breathe so ensure the tank is filled 20-25 cms at least. Use water conditioners to remove chlorine and other contaminants. Water conditioners can be added to the tank after weekly water changes of 25% of the tank water. The pH of the water should be maintained at a pH 7.5 or higher.

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Temperature: Axolotls thrive in cooler temperatures – between 15-18°C, not exceeding 25°C. Tank temperature must be monitored daily. Aquariums should not be exposed to direct sunlight or heating or cooling appliances directly. On hotter days (over 25°C) where cooling is difficult to maintain, a plastic water bottle containing frozen water can be placed into the tank.

Filtration: Essential for providing the axolotls with oxygen. As axolotls can get stuck behind in-tank filters, out of tanks filters are recommended.

Lighting: Axolotls thrive in dim light. Normal indoor lighting is sufficient and no tank lights are required. Where pond plants need a light a darker area of the tank must be provided. Their eyes have no eyelids and they are sensitive to light.

Covering: To prevent students accessing the axolotls and in shallower tanks from jumping out, tanks should be covered. Do not spray chemicals such as room deodorisers or insect sprays near tanks.

Shelter: The aquarium should provide a refuge created from plants and rocky overhangs to protect from lights, noise and other axolotls.

Cleaning: Filters should be cleaned every 2-3 months with tank water to prevent the loss of bacteria required to remove ammonia. Replace 25% of the water weekly. Use only water of the same temperature. Water conditioners can be added to the tank after weekly water changes of 25% of the tank water. The pH of the water should be maintained at a pH 7.5 or higher. The wastewater from tank cleaning must not be discarded into the storm water drains or septic tank systems. It may be placed on gardens or it must be treated with 1:5 ratio of bleach to water and be poured into the toilet. Daily removal of solid waste, bacterial scum growing on the tank glass and spoiled food is required. **Full tank cleaning of the entire tank is not recommended as if the water level gets below 50% ammonia levels will spike and can cause gill damage.**

Feeding:

Diet: Axolotls are carnivorous eating insects, crustaceans, earthworms, tadpoles and small fish. Commercial frozen axolotl food can be purchased from your local pet shop. Juveniles will eat brine shrimp, tubifex worms, water fleas and small insects. Talk to your axolotl expert for more advice.

Daily requirements: The ideal tank water temperature is 14-18°C with feeding occurring 2-3 times a week (daily during breeding times) in the evening. Food should be offered until the axolotl loses interest (up to an hour) Juveniles need feeding more often. Food can be held in blunt nosed tweezers or straws when offered.

Supplementary feeding: It is important to feed only axolotl appropriate food. Talk to your local axolotl expert as dietary deficiencies can lead to health problems.

Equipment: Blunt nosed tweezers can be used for feeding and a soft net for catching if required.

Breeding:

- **Gestation period:** Axolotls lay their eggs onto plant material one day after indirect fertilisation. The male releases spermatophore into the water, which the females take into their body indirectly. The eggs hatch after 2-3 weeks and will remain attached to the plant material for another 2-3 weeks.

- **Number of offspring:** 300-1,000 eggs. Eggs should be removed from the tank as axolotls will eat them.

Mating: The male releases spermatophore into the water, which the females take into their body indirectly.

Pregnancy: Axolotls lay their eggs onto plant material one day after indirect fertilisation.

Handling:

Human: Axolotls should not be handled or kept out of the water by adults or children. They are only to be observed. Handling damages their skin and exposes them to increased risk of bacterial or fungal infections. Ensure no one knocks on the tank.

Equipment: An aquarium net should be used for capture or moving axolotls.

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Transport: Axolotls should be transported in watertight clear plastic bags, half water and half air. Transport quickly and do not leave unattended or allow the axolotl to overheat.

Hygiene: Thoroughly wash hands with soap and running water for at least 15 seconds after working with or handling axolotl. Dry hands with clean paper towel or an air dryer. Turn off the tap with the paper towel if possible.

Signs of illness:

Indicators:

- loss of appetite
- deterioration of the gills
- skin lesions, jaundice
- poor swimming balance
- injuries including loss of toes
- failure to thrive

Treatments:

Schools are encouraged to develop relationships with a Veterinarian or Animal industry representative (e.g. pet shop staff) familiar with axolotls. These contacts can be used for disease diagnoses, treatment options and dietary, husbandry and welfare advice, Veterinarians can also assist with emergencies particularly when euthanasia is needed, Many aquarium treatments are not suitable for axolotls and may cause further distress or death.

Disposal/fate planning:

When no longer required axolotls must be rehomed. As an introduced species they must NEVER be released into the environment or waterways. Bodies must be disposed of correctly in accordance with local council regulations.

Euthanasia:

When an illness or injury is such that recovery is unlikely then the axolotl must be euthanised by a Veterinarian. Schools should contact their local Veterinarian to discuss emergency treatment options prior to an event occurring when keeping axolotls. Any adverse event including death must be reported to the AEC using the ADVERSE EVENTS form. Forms must be returned to the AEC within 7 days of the event occurring.

Holiday and weekend care:

Axolotls can be sent home for weekends or holiday care with students providing consent is received from the school Principal and the parents. Staff should provide carers with animal care and record-keeping instructions, emergency contacts and provide appropriate equipment and food. Animals must be checked daily, records kept and any problems reported to the school immediately whether kept onsite or taken offsite.

Approved activities:

Where an activity is not listed in this SOP, approval must be sought from the Animal Ethics Committee and confirmed before it can be undertaken.

Activity:

a. THE OBSERVATION OF A PARTICULAR BEHAVIOUR OF AXOLOTLS

Category:

Category 2

Objective:

To instruct students on observing a particular axolotl behaviour

Axolotls should not be removed from their tanks. Behaviours should only be observed within the tank (e.g. feeding).

Activity:

b. THE APPROPRIATE CARE OF CLASSROOM PET AXOLOTLS

Category:

Category 2

Objective:

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To instruct students on the appropriate care of Axolotls as pets

Axolotls should not be removed from their tanks. Behaviours should only be observed within the tank (e.g. feeding).

Resources:

Axolotl care

www.axolotl.org/index.htm

General Axolotl care and health checks - Brisbane Bird and Exotic Veterinary Service

bbevs.com.au/wp-content/uploads/2018/01/General-Axolotl-Care-and-Health-Checks-FINAL.pdf

Pet care – Axolotls – Sydney Exotics and Rabbit Vets

www.exoticsvet.com.au/pet-care

Axolotl care – Edinburgh Zoo

www.edinburghzoo.org.uk/animals-and-attractions/animals/axolotl/

Axolotls – World Land Trust

www.worldlandtrust.org/species/amphibians/axolotl/