



Getting Froggy

Teacher's Notes

AusVELS Domain and (Level): Science (F-6), Health and Physical Education (F-6)
Equipment: Habitat mats (can be borrowed from NCCMA) or sheets of paper
Duration: 30 minutes
Setting: Classroom or outside

Frog eggs

Frogs lay their eggs in water or wet places. A floating clump of eggs is called frog spawn or a frog raft. Frog eggs begin as a single cell and several thousand are sometimes laid at once. The eggs are surrounded by a jelly-like covering, which protects the egg and makes it slippery. This is nature's way of adapting to ensure survival. Frog eggs develop slowly and only a few develop into adults. Ducks, fish, insects and other water creatures all eat the eggs. The embryo feeds off of its internal yolk, which supplies it with nutrients for 21 days. Organs and gills begin to form in the first few days.

Tadpoles

After 21 days, the embryo leaves its jelly shell and attaches itself to a weed in the water. This quickly becomes a tadpole. Tadpoles grow until they are big enough to break free into the water. Depending on the species of frog, this can take from a few days to three weeks. They eat algae which are very small plants that stick to larger plants in the water. The tadpole has a long tail and lives in the water. It is extremely vulnerable and must rely on its camouflage to protect it from predators.

Froglets

After about five weeks, the tadpole begins to change. It starts to grow hind legs and bulges begin to appear behind its head, which turn into front legs. Now and then, they wiggle to the surface to breathe in air. The tail is now larger, which makes it possible for the tadpole to swim around and catch food. They eat plants and decaying animal matter. The tadpole's tail becomes smaller and lungs begin to develop, preparing the frog for its life on land.

Frogs

Eleven weeks after the egg was laid, a fully developed frog with lungs, legs and no tail emerges from the water. This frog will live mostly on land, swimming occasionally. The tiny frogs begin to eat insects and worms. Eventually, it will find a mate and have its own young. The reproductive process varies depending on the species. The female lays the eggs, the male fertilises them, and the whole process begins again.

The life cycles of frogs found in the north central region can be found on the Fact Sheets within the Waterwatch section of the North Central CMA website: <http://www.nccma.vic.gov.au/Water/Waterwatch/Frogs/index.aspx>



www.nccma.vic.gov.au



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Frog Diet

Most frogs eat insects, although some eat other frogs and even animals such as bats! They have a sticky tongue, which is connected at the front instead of the back like ours. They flick it out very quickly to catch insects. They eat their prey whole, as they have no teeth on their upper jaw. Tadpoles are herbivores, mostly eating decomposing plant material or algae.

Frog Behaviour

Many frog species are nocturnal to avoid predation, heat loss and to hunt insects which are mostly out at night. Frogs are particularly noisy during the breeding season which can be at different times of the year depending on the species. Males call for females using the buccal or vocal sac under their mouth which amplifies sound. This is why you can hear frogs from a distance. Different frogs have different calls and can be identified by their call. Frog calls are also used to mark territories. Frog calls of the north central region can be found on the NCCMA website.

Frog Defence

Frogs have a range of defence mechanisms. Some frogs are toxic to other animals or have poison glands e.g.: Cane Toad and Poison Arrow Frog. Some frogs have a specific colour or pattern to warn off predators e.g.: Corrobooree Frog. Some may use colour to camouflage themselves in the environment e.g.: Green Tree frog. Some frogs can even change colour to match their environment. Frogs have large eyes with a panoramic view, to see predators more easily. Some other frogs can fill their body with air to look bigger e.g.: Tomato Frog. Some even play dead to confuse predators e.g.: Leopard Frog. Other defence mechanisms include squirting urine out of their bottom into the eyes and mouth of a predator as a deterrent!





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Activity

Our frogs are just emerging from the water after spending weeks as tadpoles. They no longer have tails and need to use their legs to leap over the native water lilies to a new habitat. On the way, there is the danger of being eaten by larger animals and there is no guarantee that the new habitat will be healthy for the frog. Students will explore the dangers that come with looking for healthy habitats, as the frogs leap over the water lilies to a new water source. But ... they do not know what kind of water they are leaping into. It might be polluted, clean, turbid or salty water.

1. use the habitat mats or write the water quality habitats on pieces of paper (students could illustrate what the water may look like on each sheet):
 - Clean water
 - Turbid water
 - Polluted water
 - Salt water
2. the mats / sheets of paper are placed face down in a line
3. divide students into water lilies (70% of students) and frogs (30% of students)
4. the frogs line up opposite the sheets of paper on the 'river bank', approximately three large steps away
5. ask the water lilies to find a place between the frogs and the sheets of paper
6. each frog has three leaps over the water lilies to make it into the clean water from the river bank
7. once the frog has arrived in its new habitat, they flip over their 'mat' to discover what type of habitat they have leaped into; they can dramatise the impact this new habitat will have on their health
8. students swap roles and you can add frog predators to see what happens on their next migration (snakes, lizards, birds)

Discussion

- ◆ What would happen to the frog that landed in the salt water habitat?
- ◆ Would the frog survive in the polluted water? Yes/No, Why/Why not?
- ◆ Why would landing in the clean water be good for a frog?
- ◆ What animals may eat the frog along the way? What defence mechanisms do frogs have against predators?
- ◆ What are some disadvantages of landing in the turbid water?

