

Raising Tadpoles

[Year/Subject] 2nd Year, Environmental Life Studies
[Course Name] Raising healthy animals

Optimum Season

If Sera Yume Kouen (Sera Dream Park) is to be used as a base reference, the best season around the Sera area to observe the development of frogs and the various stages of their growth cycle, and to catch them, is the middle of May (second to third weeks). Clear days after heavy rains are particularly good for finding black-spotted pond frog egg deposits. With the diverse ecosystem of animals living within Sera Yume Kouen, it is possible to catch various types of tadpoles until the start of June. (Note) The black-spotted pond frog and daruma pond frog take approximately 75 days to metamorphose from eggs to frogs. The black-spotted pond frog is the best species to raise if you wish to observe the metamorphosis process before the school summer holidays.

Items to Prepare

Preparing before catching frogs

- Medium sized breeding case or glass aquarium for tropical fish
- Gravel for tropical fish (to cover the bottom of the case to approximately 1 cm depth, not essential)
- Fresh water left exposed to de-chlorinate (necessary amount)
- Waterweeds (as required, not essential)
- Food for tadpoles: boiled soft spinach or goldfish food

Preparing for catching frogs

- Medium sized breeding case, bucket or plastic bag (double layer)
- Fine spoon-net


Notes on raising frogs

- ① Place a lid on the breeding case (aquarium). This prevents unnecessary items from entering the case. It also prevents fully grown frogs from escaping.
- ② Fill the case with water up to a depth of 5 to 6 cm. Filling the case any deeper will not change the number of tadpoles that can be raised, as they tend to live around the bottom of the case.
- ③ Too many tadpoles, or conversely too few tadpoles, are not ideal for breeding conditions. Too many can lead to insufficient oxygen or defects in their rear legs, while too few will make it easier for left over food to rot.
- ④ When a medium-sized case is used, the relationship between the length of the tadpoles and the number is as follows:
Length: 3 cm ⇒ 20
5 cm ⇒ 10 to 15
- ⑤ Raise the tadpoles in a different case when their front legs start developing. Use a plastic container with a lid (with breathing holes) and cover the bottom of the container with gravel for tropical fish. Ensure that water and gravel each cover half the container.

Example answers (partially entered)

Raising Tadpoles

Where do you think tadpoles live?



It's time to raise your own tadpoles. After some time, these tadpoles will grow into frogs. What do you think is the best way to raise tadpoles? Write down your thoughts on the following.

Aquarium

Where to place the aquarium

How to change the water

Food

Let's study the best way to raise these tadpoles by reading some books.

Aquarium - Plastic breeding case - Glass case for tropical fish
- Large plastic container with a height of 7 to 8 cm

- ① Replace half the water in the case with fresh water (de-chlorinated).
- ② Replace the water once every several days. If there are any dead tadpoles, replace the water immediately.
- ③ Wash hands thoroughly before replacing the water to remove any oil or dirt.
- ④ Gravel at the bottom of the container can encourage the growth of bacteria and can be hard to clean, so is not necessary.

Objectives

- Increase the pupil's awareness of the development of animals by finding, catching and raising tadpoles.
- Enable pupils to understand the best way to handle animals, and nurture a fond respect for them.

Tadpoles are outstanding teaching aids

Tadpoles are animals that children are familiar with, and they have numerous advantages as valuable teaching aids. ① Easy to collect tadpoles in Sera town as there are many rice paddies. ② Raising them is simple as spinach can be boiled and then frozen, providing an easy source of food as it dissolves. ③ Tadpoles undergo a fascinating process of metamorphosis, where they transform from living in the water to living on dry gravel, and pupils are able to observe this natural phenomenon. ④ Pupils can see for themselves how the tadpole body develops to suit these different living environments. ⑤ Just like humans, frogs are vertebrates, and their bone structure can be compared with that of humans.

Where to place the aquarium - Next to a window and out of direct sunlight
- Placed on a solid table or bench

How to change the water - Tap water left exposed half to full day in order to de-chlorinate - Depth of 5 to 6 cm
- Frequency of water replacement: once every several days

Food - Boiled soft spinach or goldfish food
- Dried food

Let's go out and catch some tadpoles.

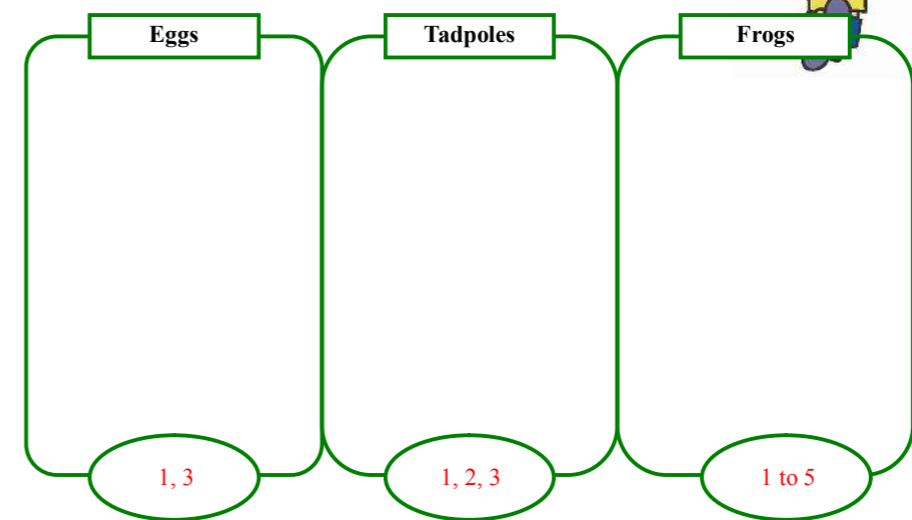
There are some here!

What did you catch?

Examine their shape, color and size, and draw a picture of it below.

Where did you catch them? Enter the appropriate number in the circle at the bottom.

1. Pond 2. Ditch 3. Rice paddy 4. Weeds 5. Dike



- ① Sketching the tadpoles enables more thorough observations.
- ② Taking note of the shape, color, size and habitat is the fundamental point for observation. If these observations are being conducted before pupils have learned how to use a ruler, allow them to compare the size of animals with their fist.
- ③ Ensure that the pupils understand that eggs and tadpoles can only live in water, while frogs can live in both water and on land.

- ① Have the last of the six observations on the day that front legs have appeared on the tadpoles.
- ② Sketch the tadpoles every 10 days (although this depends on the size of the tadpoles when they were found).
- ③ Focus on the development of the rear legs.

- ① Placing the breeding case in direct sunlight can lead to sudden changes in water temperature, which is not ideal for tadpoles. Yet insufficient sunlight can result in weaker bone formation, and care should be taken as tadpoles perish easier at the peak of the metamorphosis process.
- ② Place for breeding case on a solid table or bench next to the window and out of direct sunlight.
- ① Spinach that has been boiled soft is ideal for food.
- ② If providing food everyday, do so in small amounts so that there is no food remaining at the end of the day. Some textbooks recommend bread as a source of food, however is not ideal as there are quantities of oil attached.
- ③ Take note that food made of dried animals, such as dried fish, can rot easily.
- ④ The tadpoles will not eat any food immediately before or during metamorphosis.
- ⑤ After metamorphosis, provide small living animals such as crickets for food.

Observation Date: / /	Observations
Sketch	Observations
<p style="color: red; font-size: small;">It is best if this sketch is timed on the day that the front legs appeared (day metamorphosis starts) on the tadpoles.</p>	<div style="border: 1px dashed green; height: 100px;"></div>

Caution

- ① Living animals that have been collected must continue to be raised in a responsible manner.
- ② The transportation of eggs, tadpoles and adult specimens of invasive bullfrogs (edible frogs) is prohibited by law (Invasive Alien Species Act).