



## Mini 4-H TADPOLES TO FROGS

Name \_\_\_\_\_



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## Jumping Frogs



Frogs are one of the best leapers on the planet! Did you know that frogs can launch themselves over 20 times their own length using those big strong legs of theirs? That would be like if you could jump 100 feet!

The average flea can jump up to 150 times its own length.  
A kangaroo can leap about 4 1/2 times its length.  
Elephants can't jump at all!

As far as I know, the longest frog jump on record measured 33 feet 5.5 inches



## Amphibians

Frogs are members of the zoological class called *Amphibia*. Amphibians are cold-blooded . They differ from reptiles in that they lack scales and generally return to water to breed.



## Egg

Frogs and Toads tend to lay many, many eggs because there are many hazards between fertilization and full grown frogness!

Life starts right as the central yolk splits in two. It then divides into four, then eight, etc.- until it looks a bit like a raspberry inside a Jello cup. Soon, the embryo starts to look more and more like a tadpole, getting longer and moving about in its egg.

Usually, about 6-21 days (average!) after being fertilized, the egg will hatch. Most eggs are found in calm or static waters, to keep them safe.

## Tadpole



allaboutfrog.org

Shortly after hatching, the tadpole still feeds on the remaining yolk, which is actually in its gut! The tadpole at this point consists of poorly developed gills, a mouth, and a tail. It's really fragile at this point. They usually will stick themselves to floating weeds or grasses in the water using little sticky organs between its' mouth and belly area. Then, 7 to 10 days after the tadpole has hatched, it will begin to swim around and feed on algae. After about 4 weeks, the gills start getting grown over by skin, until they eventually disappear. The tadpoles get teeny tiny teeth which help them grate food into tiny particles. By the fourth week, tadpoles can actually be fairly social creatures. Some even interact and school like fish!

## Tadpole with legs

After about 6 to 9 weeks, little tiny legs start to sprout. The head becomes more distinct and the body elongates. By now the diet may grow to include larger items like dead insects and even plants. The arms will begin to bulge where they will eventually pop out, elbow first.



allaboutfrog.org

After about 9 weeks, the tadpole looks more like a teeny frog with a really long tail. It is now well on its way to being almost full grown!

## Young Frog, or *Froglet*



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By 12 weeks, the tadpole has only a teeny tail stub and looks like a miniature version of the adult frog. Soon, it will leave the water, only to return again to lay more eggs and start the process all over again!



## Frog



By between 12 to 16 weeks, depending on water and food supply, the frog has completed the full growth cycle.

## Raising a tadpole into a frog



Frog tadpoles have got to be the favorite pet of all time! But I CAN tell you that raising tadpoles can be much more than just fun- it is easy and educational too!

Here's what you need to know for dealing with tadpoles yourself.

1. First you'll need a suitable container, like an aquarium, fishbowl, plastic garbage bin, paddling pool, or garden pond.  
Be sure it has good shade---about 3/4 shade is ideal.  
If you are planning on having a frog pond, be sure there are no Oleanders, Pine trees or other poisonous plants near it! The fallen needles and leaves can be toxic to tadpoles.
2. Tadpoles absolutely depend on having fresh, clean water.  
If you take the water from a local stream, creek or pond, be sure it isn't polluted. Ideally, you can get it upstream from any suspected sources like factories, sewers, etc.  
If using tap water, let it stand exposed to full sunlight for 5 to 7 days. This will allow the Chlorine to be removed by evaporation.  
If you don't have that much time, you can buy de-chlorinating drops at your local fish-carrying pet store. But at least leave the water out overnight, even after using the droplets.  
Even a little chlorine is deadly to tadpoles.  
It is always a good idea to keep a little de chlorinated water on hand.
3. What do tadpoles eat?  
Well, I hear they LOVE lettuce. Boil the lettuce for 10 to 15 minutes and then drain it. Chop it up a little, and then you can lay it on a tray to freeze it. For average home ponds, use an icecube tray- 1 cube every couple of days should be enough. For smaller tanks, just lay some flat on a tray and freeze it, and keep it in a baggie in the freezer. Give the tadpoles a pinch every few days.  
Remember: too much food will get the water all dirty, and too little will make the tadpoles get nutty and go after each other. If your water gets dirty really fast, slow down on the feeding...and be sure to replace the dirty water with some fresh spare water.
4. The length of frog development from egg to tadpole to frog usually takes between 6 to 12 weeks.  
But it is also temperature dependant, so during cold spells it may take a bit longer or even be suspended till the temperatures go up.  
For example, eggs laid towards the end of summer may hatch, but tadpoles may stay tadpoles until the Spring/Summer period. So if it's cold and your tadpoles don't seem to be growing up very fast, it's no reason to panic.
5. The length of time a tadpole takes to develop really depends on what kind of frog it came from! I've even heard that some tadpoles can remain in their tadpole stage as long as 8 months, while others only take 6 to 9 weeks! When the tadpoles start getting close to developing legs, they will need some sort of perch so they can get out of the water.



Floating water lily leaves and branches are ideal, but you can also create ledges using stones or even tilting slopes of plastic in tanks.



The tilt of the ledge may be important depending on what type of frog you have. Young tree frogs can climb smooth vertical surfaces such as the plastic pond liners and glass, but the ground dwelling frogs will need a rough slope when the time comes to climb out of the water.

At this point, if they aren't big enough to eat crickets but are too large to eat lettuce, you can try starting them off with small insects. A good substitute is bloodworms (live is best) which are usually found in pet stores that carry fish. You can try feeding them to the frogs by taking the lid of a jar and turning it upside down. Fill the cap with a bit of warmish water and lay a bunch of the gross wiggly worms in and usually the frogs will find them. Or you can put the worms directly into their water...

6. If you're rearing the tadpoles outside, keep the garden well watered and well vegetated. Young frogs will need a lot of ground cover to hide. There is not much point in rearing frogs in a totally hostile environment.  
In tanks, the same rules apply as for full grown frogs. After all, even if you're not a frog predator, they still like to hide under plants and rocks when they can!
7. Frog ponds kept year-round may establish a permanent breeding pond. If you're worried about mosquito problems, drop in a few 'Blue Eyes' fish. I hear they thrive on mosquito larvae and won't hurt the frogs. These fish should be available from your local fish-carrying pet stores.

### **How to tell what kind of frog you have from a tadpole:**

Telling what a tadpole is is very hard to do...

About the only thing I can recommend is to find a regional guide (like go to the library and find a book about what sorts of animals live in your area) and often if there are frogs, they will also show photos of what they look like as tadpoles. There really aren't any obvious distinguishing features that separate frog types at tadpole stage. Remember there are around 3,900 species of frogs in the world!

# The Terrestrial Tank

## Tank Size

As a general rule however, most species do really well in a 20 gallon tank.

## Substrates

Use gravel or common potting soil.

## Humidity

Keep your frogs in a moist area. Keep a spray bottle handy with safe water.

## Tank Top

The main issue with finding an appropriate covering for your tank is 2-fold. On the one hand, preventing the escape of a beloved frog pal is the ideal, and on the other, good ventilation is necessary for the health of your pet.

First of all, soft screening is really good! I strongly recommend it for 2 reasons. One, the soft kind (i.e. not the kind that doesn't bend *a little bit* when you push on it) will prevent a lot of overactive frogs from getting injuries when hopping up against the ceiling. The other reason, of course is that the screen provides great ventilation. There are a number of screen cage lids that are available in your local pet stores that are perfect for frogs. Make sure the lid is on very secure...not to make the frogs sound like Superman, but you'd be amazed how they can get out.

## Cleaning

A dirty environment is almost always the cause of illness in frogs, and once your frog gets sick it can be very difficult to save it.

Regular tank maintenance includes a scrub-down of all the items in the tank (excluding the frogs) with warm water.....chlorine free!

## How Long Do Frogs Live?

**Average life is 4 to 14 years.**

### Super Skin

Frogs have very special skin! They don't just wear it, they drink and breathe through it.

Frogs don't usually swallow water like we do. Instead they absorb most of the moisture they need through their skin.

Not only that, but frogs also rely on getting extra oxygen from the water by absorbing it through their skin. Because frogs get oxygen through their skin when it's moist, they need to take care of their skin or they might suffocate. Sometimes you'll find frogs that are slimy. This is because the frog skin secretes a mucus that helps keep it moist. Even with the slimy skin, these frogs need to stay near water. In addition to jumping in water, frogs and toads can get moisture from dew, or they can burrow underground into moist soil.

Frogs shed their skin regularly to keep it healthy. This looks pretty yucky...they start to twist and turn and act like they have the hiccups. They do this to stretch themselves out of their old skin! Finally, the frog pulls the skin off over it's head, like a sweater, and then (this is gross) the frog EATS IT!!!! (EEEEWWW!)



When a bullfrog scuttles across your garden, the marks he'll leave will look like the ones above! They aren't really footsteps though, they're more like - belly and toe marks! Look for them near wet marshes, ponds and streams wherever frogs are common!

## Say "AAAAHHHH!"



Some frogs have tongues that are long and sticky that can be used to catch bugs. These roll out like an upside-down party horn and snap at the bug! (YUMMY!)

Frogs with long tongues go by the "see it, snap at it" technique of feeding.

**DID YOU KNOW:** When a frog swallows a meal, his bulgy eyeballs will close and go down into his head! This is because the eyeballs apply pressure and actually push a frog's meal down his throat! \*GULP\*

## I Only Have Eyes For You!

Frogs have variable kinds of eye types. The colored part of the eye is called the *iris* (EYE-riss). They can be brown, green, silver, red, bronze, and even gold. The pupils come in all kinds of shapes too!



**Round pupils**



**Vertical pupils**



**Horizontal-Shaped pupils**



**Heart-Shaped pupils**



## Do Frogs Have Teeth?



Actually, yes! But not like in this silly picture!  
Most frogs do in fact have teeth of a sort.  
They have a ridge of very small cone teeth around the upper edge of the jaw. Toads, however, do NOT have any teeth.

## My, What Big Ears you Have!



Frogs can hear using big round ears on the sides of their head called a *tympanum*. On some frogs, the ear is very hard to see!

Ever wonder how frogs that can get so LOUD manage not to hurt their own ears?  
Some frogs make so much noise that they can be heard for miles! How do they keep from blowing out their own eardrums?

Well, actually, frogs have special ears that are connected to their lungs. When they hear noises, not only does the eardrum vibrate, but the lung does too! Scientists think that this special pressure system is what keeps frogs from hurting themselves with their noisy calls!



## Frog Feet

### Feet For Climbing

Tree frogs, like this White-lipped Treefrog (*Litoria infrafrenata*), have sucker-like adhesive disks, or **Sticky pads**, which aid in climbing, on the tips of the fingers and toes.

### Feet For Swimming

Aquatic Frogs have webbing between their toes that aid in swimming.

You can test how much this helps by the following little experiment:



1. First, try spreading your fingers and running them through a tub of water.
2. Now, get a plastic sandwich bag and place it over your hand.
3. Spread your fingers and NOW try running it through the water.

This adds a lot of swimming power!



### Feet For Digging

Frogs that burrow into the sand to keep moist in the heat have stubby clawlike fingers that are adapted to digging.

### Feet For Flying!

Some frogs have parachute-like webbing on their hands and feet which act as an air-brake when they glide from tree to tree or leaf to leaf. These frogs are known as "**Flying Frogs.**"



Try this little experiment to see how webbing helps:

1. First, take 2 pieces of paper, both the same size.
2. Now, spread out one paper flat and drop it. Notice how it takes a while to float to the floor.
3. Take the second piece of paper and crumple it into a little ball.
4. Drop the crumpled paper from the same height as the first paper. Notice how much faster it falls.

Without the extra webbing, a falling frog would go **\*SPLAT!\***

## Frog Enemies!

Frogs have to watch out for all kinds of enemies in the wild. There are a wide variety of frog predators. Animals that eat frogs for snacks include snakes, lizards, birds, and various small animals like hedgehogs. Even under water frogs can't be safe from hungry sharp toothed fish, swimming mammals like water shrews, and even diving birds! As if that wasn't bad enough, frogs even have to watch out for other hungry frogs!

Because there are so many bad guys to watch out for, frogs and toads have come up with a large variety of forms of protection.

The largest enemy that frogs have isn't something as easily adapted to: Pollution! Frogs are becoming particularly important as factors in measuring the health of the global environment and in tracking how much ultra-violet light gets into our atmosphere. For some years now, it has been noted that worldwide frog populations have been in the decline. Many species are on the verge of extinction, while others are thriving well.

Here's a FACT: Frogs in the environment are a true sign of a well balanced ecosystem!

## Hide and Seek

Many frogs rely on the art of camouflage to avoid getting spotted by predators. Some blend with their backgrounds, while others even change colors to match the backgrounds!



## Same, But Different



Some frogs are so variable that it's hard to tell what species they are! The frog on the left and the frog on the right are both really the same species.



## Frog Groups

- A group of fish is called a *School of Fish*.
- A group of geese is called a *Gaggle of Geese*.
- A group of sea gulls is called a *Flock of Sea gulls*.
- A bunch of cows and bulls is called a *Herd of Cattle*.

What do you call a group of frogs?

Answer: An **ARMY** of Frogs!



# **Tadpoles to Frogs**

## **Frog Jumping Contest at the Morgan County Fair!**



Now that you have raised a tadpole into a frog, bring your frog to the Morgan County Fair. (Don't forget to name your frog!) We will have a fun contest on Mini 4-H Pet Parade Day—Sunday July 31<sup>st</sup> at the Antique Machinery Building.

Registration will take place prior to the event. Watch your newsletter Refrigerator Page for details!

### **A Final Word...**

Sometimes, even when we try our hardest, things just don't turn out the way we plan. If your tadpole didn't quite make it to the frog stage by fair time (or just plain didn't make it!), you may, if you choose, get a replacement frog for the jumping contest. Our office will have resource information available.

**Good luck and Have Fun!**



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