

LIFE CYCLES OF DIFFERENT ANIMALS







All animals reproduce more of their own kind, and their offspring grow, change, and eventually reproduce. Most animals come from eggs produced by the female and fertilized by the male. Fertilized eggs contain everything needed to form a new animal. When the animal has grown enough, it breaks out of the egg. This is called *hatching*.

Many young animals look much like their parents, while others do not. Some go through stages of growth. In each stage of growth they look more like their parents.

Take a look at the life cycle of a frog to see how it grows from an egg to an adult.







Step 1	Step 2	Step 3	Step 4
			

1. A frog lays its **eggs** in water.
2. The eggs hatch into a **tadpole**. Each tadpole has a rounded body, a long tail, fins, and gills that are used for breathing in water.
3. A tadpole grows quickly. After five weeks, the tadpole's back legs develop, followed shortly by development of the front legs. During this time, the tadpole's tail begins to shorten. The tadpole also begins to develop lungs to replace its gills. As weeks pass the young tadpole becomes more like the adult.
4. The **adult** frog makes its way out of the water onto land. It has lost its tail and can use its legs and lungs.



Let's look next at how a butterfly changes from an egg to an adult.

Step 1	Step 2	Step 3	Step 4
			

1. The butterfly lays its eggs on a leaf.
2. When the egg hatches, a larva emerges. A butterfly larva is called a caterpillar. A larva is always hungry and eats constantly. After a certain time, the larva stops eating.
3. It then makes a covering for itself, which is usually semi-hard. It attaches itself to a tree branch, and is now called a pupa. The pupa is the stage of the insect between a larva and an adult. During the pupa stage, the butterfly begins to develop. Inside the covering the pupa slowly changes.
4. When the changes are complete, the adult butterfly emerges. Now the insect looks the same as other adults of its kind.



ACTIVITY I

RAISE A MONARCH BUTTERFLY

1. How to make a home for your Monarch caterpillar:

Find a big, clean glass jar with a metal lid. Make several holes in the lid with a hammer and nail so air can get inside the jar.

2. How to find your Monarch caterpillar:

Late July and August is the best time to find a Monarch caterpillar. Go to a field where milkweed plants grow. Look underneath the milkweed leaves. When you find a Monarch caterpillar, pick it up gently.

3. How to care for your Monarch caterpillar:

Pick four or five leaves from the milkweed plant and drop them into the jar for the caterpillar to eat. Then, carefully put the caterpillar into the jar and put the lid on. Don't set the jar in a sunny place. Each day have someone watch the caterpillar while you clean its home. Replace the old milkweed leaves with new ones. Then put the caterpillar back inside the jar.

4. Your caterpillar will change into a chrysalis:

When the caterpillar is full grown, it will hang upside down from the lid of the jar, shed its skin, and form its chrysalis. Don't touch the chrysalis.

5. The chrysalis will change into your Monarch butterfly:

In about two weeks, you will be able to see through the chrysalis.

When this occurs it is time for the Monarch butterfly to emerge. When it does emerge, it will need a few hours for its wings to grow and dry.

6. **How to release your butterfly outside:**

A Monarch butterfly doesn't want to be a pet. Carefully let it climb out of the jar onto your finger. When it is ready to go, it will fly up into the sky. Or you can leave the opened jar outside in a safe place.

Click on the link below to learn more about the Monarch Butterfly.

<https://www.monarch-butterfly.com/>

ACTIVITY II WATCH BUTTERFLIES AND MOTHS



You can photograph butterflies and moths or catch them in a net for better examination. When watching butterflies or moths, you can discover the answers to many questions about their behavior. Do they feed at a certain time of day? Do they have a territory, and if so, how do they defend it? Do they migrate, and if so, when and to where? Do their flight patterns change in different seasons? Studying butterflies is simple but takes time. You do not need much equipment, just patience.

Equipment:

1. Notebook – to draw pictures of them and record what you see
2. Camera
3. Telescope
4. Butterfly net

ACTIVITY III



Ask your local greenhouse what plants attract butterflies. Then start a butterfly garden and enjoy watching them in your yard.

ACTIVITY IV COLLECT FROGS EGGS AND TADPOLES



Equipment for Collecting

To gather tadpoles or frog eggs, you'll need a long-handled collecting net and a container in which to carry your finds. You can buy a collecting net, but it's easy to make one.

What to Do:

Tape a food strainer tightly to a mop handle. If you're using fabric, follow these steps:

1. Bend the clothes hanger to form a round loop. Straighten the hanger's hook. (Ask an adult to help if the hanger is hard to bend.)

2. Put your bag or fabric through the loop, so that it forms a pouch about 12 inches (30 cm) deep. If you are using a section of material cut from an old pair of tights, sew the bottom of the pouch closed.
3. At the open end, fold the fabric over the wire loop, and sew it in place.
4. Tape the net to the handle.

Your container can be any sort of wide-mouthed plastic pail or jar, deep enough (or with a lid) to keep water from splashing out when you carry it. Fill the container with pond water at the collecting site. You may also find it helpful to bring along a shallow, light-colored container, such as a dishpan or an old food keeper. If you empty your net into the flat pan first, it will be easy to see and sort out debris and water creatures that you don't want. Then you can put only the material that you do want in your collecting jar.

When and Where to Search

Spring is the best time to find eggs and tadpoles because that's when frogs normally lay their eggs. The eggs hatch quickly, and the tadpoles of most species grow into frogs in just a few weeks. Later in the year, you may still find the tadpoles of bullfrogs, which take two to four years to reach adulthood, and green frogs, which will not become adults until the following year. These large tadpoles (with bodies the size of a grape or bigger) are best left in the wild—they need a pond-sized habitat in which to grow up.

Look for eggs and tadpoles in shallow, quiet, fresh water—along the edges of ponds and marshes, in shallow garden pools, even in ditches and other temporary wet spots that dry up in summer. When you visit a pond or a marsh, take an adult with you, and follow these steps for safety:

- Wear old sneakers or sandals for wading—don't go barefoot because glass or sharp stones may be hidden under the water.

- Use your net handle or another pole to test the depth of the water ahead of you, to be sure that the bottom doesn't drop off suddenly.
- Avoid streams with fast-running currents—they can be dangerous, and you won't find eggs or tadpoles there.
- Don't hunt for eggs and tadpoles from a boat or wharf—you might fall in deep water.

Frog eggs look like little black balls or seeds, encased in jelly. You'll normally find them in masses that may contain dozens, hundreds, even thousands of eggs. Don't take all the eggs—scoop up a dozen or so with your net, and put them in your collecting container.



Hunt for tadpoles where water plants grow. Tiny tadpoles are hard to spot. But if you sweep your net through a clump of water plants, you may catch some even without seeing them. Collect just a few tadpoles, and put some pond plants in your container along with them.

To make sure that your tadpoles and frog eggs arrive home safely, follow these steps:

- Make sure that other pond animals don't end up in the container with the tadpoles or the eggs. Small fish and other water creatures may eat them. Some large tadpoles will eat small tadpoles, too—so gather tadpoles that are all about the same size.
- Use a large collection container with plenty of pond water.
- Don't let the container sit in direct sunlight, which can heat the water and harm the tadpoles.
- Cover the container only to carry it. Otherwise, leave the cover off, so that air can reach the water surface.

ACTIVITY V

CARING FOR EGGS AND TADPOLES

You'll need to set up a more permanent container to keep eggs or tadpoles for a period of time. If you collect both eggs and tadpoles, put them in separate containers. Use a small aquarium, a large glass jar, or a plastic food-storage container, leaving the container uncovered.

Fill the container with pond water or spring water. Most tap water contains chlorine, which will harm tadpoles. The water will be safe to use only if you treat it with chlorine remover (available in pet stores) or let it stand for 24 hours before adding it to the container, so that the chlorine disappears. The water should be at room temperature. Keep the container out of direct sunlight and away from heat sources, such as radiators.

"Frogs Need Friends"



Add some pond plants to your tadpole container (and to your egg container when the eggs begin to hatch, which in most cases will be within a week or two). Don't crowd the tadpoles—you'll be able to keep five or six in a 1-gallon container. If you've

collected eggs, keep just a few of the tadpoles that hatch. Return the rest to the pond where you found the eggs.

Feed them lettuce and spinach leaves. Tear the leaves into 1-inch pieces and ask an adult to boil them for one minute. You can also boil a pinch of cornmeal with the lettuce and spinach pieces. Once they develop legs, feed them a small piece of liver or a bit of hard-cooked egg yolk, along with cooked cornmeal. Remove food that is not eaten.

Change the water every day. (Always use chlorine free water.) Remove waste from the bottom of the tank with a meat baster. Use a strainer or aquarium net to transfer tadpoles to other containers. Add a rock so that they can climb on it when they grow four legs.

When they have four legs and nearly lose their tails, release them on land.

ACTIVITY VI



Keep a tadpole notebook, including dates, notes, and drawings. Every few days, observe the tadpoles and record the changes they are going through. Note new features, such as legs, when they begin to appear, and make drawings of tadpoles as they change. Record changes in their behavior. For example, note when they begin to breathe air at the surface.

Suggested Reading:

Amazing World of Butterflies and Moths by Louis Sabin (Troll Associates)

Butterfly and Moth by Paul Whalley and Ernest Sutton Whalley (Eyewitness Books)

From Tadpole to Frog by Wendy Pfeffer (Harper Collins)

Monarch Butterfly by Gail Gibbon (Holiday House)

Tadpoles by Elaine Pascoe (Blackbirch Press)

The Butterfly by Angela Sheehan (Warwick Press)

The Tadpole by Hidetomo Oda (Raintree)

The World of Butterflies by David Saintsing (Gareth Stevens)



The 1982 book "The **Caterpillar** and the **Polliwog**" by Jack Kent comes alive in this



animated program. Two new friends discover, on their own, that spring is the time to turn into "something else." Part of the Weston Woods Series. The video is divided into three short segments.



Below are additional educational resources and activities for this unit.

[Unit 31 Science 130](#)