

# RECREATE ANIMAL LIFE CYCLES

Shape, mold and study life-cycle stages

## What you'll need:

- A paper plate or blank piece of paper
- A ruler
- Markers or crayons
- A pencil
- Play dough (store bought or homemade)

## Create:

1. Place your paper plate or blank piece of paper on a flat working surface.
2. Use a ruler to separate your paper plate or paper into four equal sections.
3. Read the information in the Learn section and decide which animal life cycle to recreate first. Would you like to create a butterfly life cycle or a frog life cycle?

4. Write one life-cycle stage in each quadrant of your plate or paper. If you are making a butterfly life cycle, write **Egg**, **Caterpillar**, **Chrysalis** and **Butterfly**. Be sure to write them in the correct order. If you are making a frog life cycle, write **Egg**, **Tadpole**, **Froglet** and **Frog**, in that order.
5. Look at the life-cycle stages template for your animal in the Learn section, then try to recreate these stages with your play dough.
6. Feel free to get creative with your models, especially in the last step! There are many different species of frogs and butterflies that come in all different sizes and colours.

## Play:

The fun doesn't need to end once you've finished sculpting your animal's life-cycle stages! Explore these stages more by drawing them or using your animal toys to imagine and act out each stage.

Once you're done crafting, use your body to act out the different stages. How do you think a caterpillar moves? What about a tadpole? Wrap yourself up in a blanket to create your own chrysalis, then spread your new butterfly wings and fly away!



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Learn:

## The Butterfly Life Cycle

There are four main stages of the butterfly life cycle:

### Did you know?



Butterflies have four wings. The colours and patterns on a butterfly's wings are caused by tiny overlapping scales.



Butterflies need to warm up their wings before they fly off each day to search for food. If you've ever seen a butterfly sitting on a branch or plant moving their wings up and down, they are probably just getting warmed up.



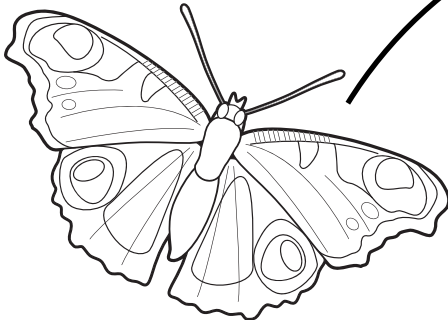
Butterflies can see some colours that humans can't. This helps them locate flowers with nectar to drink through a proboscis: a long, tube-like tongue that they keep curled up under their heads when not in use.

### 1. Egg



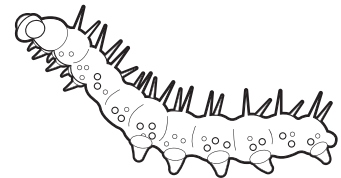
The female butterfly uses taste sensors located in her feet to find a plant where she can lay her eggs. She uses a sticky substance to attach the eggs to a leaf. Butterfly eggs are usually somewhere between 1 and 3 mm in diameter. Depending on the species, they can be smooth or textured, oval or round, and yellow, white or green in colour. The eggs hatch within three to eight days, depending on the temperature.

### 4. Butterfly



Once its transformation is complete, the butterfly emerges from the chrysalis by moving its wings and slowly breaking free. After hanging on the chrysalis to let its new wings dry, the butterfly moves its wings up and down and flies away. While some species get energy by drinking nectar from flowers, many butterflies don't feed at all. Most adult butterflies live only one or two weeks, though certain species hibernate during the winter or migrate to warmer places. These butterflies may live for up to 11 months.

### 2. Caterpillar



The caterpillar begins eating very soon after it hatches. Its first meal might be its own eggshell, or it might munch on the leaf it was born on. During the caterpillar stage, the animal eats a lot of leaves so that it can grow. As the caterpillar grows, its skin splits and sheds. This can happen up to five times, allowing the caterpillar to grow to 100 times its original size!

### 3. Chrysalis/Pupa






When the caterpillar can't grow any larger, it forms a **chrysalis** (also called a **pupa**) out of its outer skin. Some species suspend their chrysalis from a branch, others hide it in leaves. Inside the chrysalis, special cells within the caterpillar are activated. These form the legs, wings, eyes and other parts of the adult butterfly. The pupal stage usually lasts for about a few weeks to a month, though some species stay inside their chrysalis for two years!

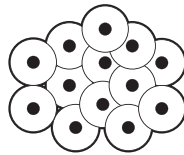
## The Frog Life Cycle

There are four main stages of the frog life cycle:

### Did you know?

-  While most frogs take a few months to develop, some take longer. It can take up to three years for a bullfrog to grow from tadpole to frog!
-  Some interesting frog species live at the Ontario Science Centre, including a few types of poison dart frogs. The bright colouring of these frogs lets other animals know they are poisonous and not good to eat.
-  The Science Centre is also home to an Amazon milk frog. This species of tree frog uses its sticky toe pads to hang onto tree leaves. When they think they are going to be eaten, these frogs release a white liquid that tastes bad to other animals.

### 1. Egg



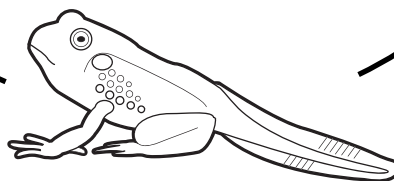
Frogs lay their eggs in ponds, lakes or streams in the early spring. Some frog species lay eggs multiple times a year, while others lay eggs only once a year. The eggs are usually clumped together and protected by a gelatinous material that looks like clear jelly. Some frog species, like the North American bullfrog, lay tens of thousands of eggs at a time. Others, like the poison dart frog, lay only a few. It can take as little as 3 days or as long as 25 days for a frog egg to hatch, depending on the species.

### 2. Tadpole



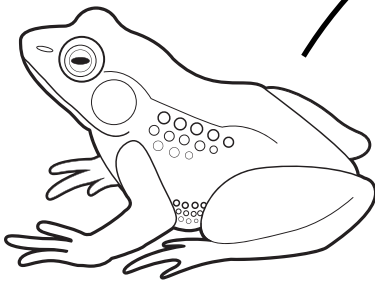
Each frog egg hatches into a tadpole. The tadpole looks very different from an adult frog. It has a short, oval body, a broad tail for swimming and a small mouth. The tadpole's internal gills are covered by a thin layer of skin called an **operculum**, which allows the tadpole to breathe underwater. Many tadpoles eat algae, but some eat smaller tadpoles, insects and fish. Tadpoles come in many different sizes. As a tadpole, the miniature frog from Papua New Guinea is only about 2 mm in size. The tadpole of a Goliath frog, on the other hand, can be as large as 25 cm across!

### 3. Froglet



As the tadpole grows into a froglet, its legs develop and its tail starts to shrink. The froglet also develops lungs so that it can breathe above water, and its mouth grows much larger. During this stage, the animal's diet changes from the plant-based diet typical of a tadpole to the animal-based diet of an adult frog.

### 4. Frog



It usually takes a few months for a frog to become fully developed. Once the frog has grown lungs, its gills disappear. The frog leaves the water for life on land, but it stays close in case it ever needs to escape from large land predators. Frogs vary widely in both size and colouration. Species that are native to Ontario are either green or brown, which lets them blend in well with their surroundings. Depending on the size of the species, these frogs usually live for about 2-5 years. They begin reproducing about 1-2 years after completing their metamorphosis from tadpole to frog.