



Metamorphosis Journey



What is metamorphosis?

Some creatures are born looking just like adults. Other however, undergo a series of dramatic physical changes as it matures. This process is known as metamorphosis. Numerous insects and amphibians go through metamorphosis. We'll explore a couple of examples here!

Doing the butterfly: acting out the four stages of metamorphosis of a butterfly

Stage 1 - Become the egg by squatting down in a small ball. Tuck your head down and wrap your arms around your legs.



Stage 2 - Hatch out of the egg as a caterpillar by standing up and keeping your arms tight against your body. Wiggle around like a caterpillar would. Open and close your mouth to "eat" until you get enough food and then "shed" your skin (molting - make movements like you're peeling your skin off). Repeat wiggling around, eating and molting several times before moving to stage 3.



Stage 3 - After the caterpillar has its last meal, put your arms down to your sides and spin in a circle to become a pupa (called a chrysalis for butterflies). Stand very, very still and quiet for a minute or so.



Stage 4 - Emerge from the pupa as an adult butterfly. Start moving your arms, gently fluttering and extending them up and outward. Be careful not to hit neighboring butterflies!



To extend the activity, ask participants where butterflies go to find food (answer: flowers - they use their proboscis, a long tube-like straw/tongue, to suck up nectar). Participants flutter over to a flower, roll out their proboscis (they can make a funny noise when they do) and suck up the nectar (make a sucking noise). Ah, now all are full and happy butterflies!





From Egg to Frog Mobile

Other amphibians share a similar metamorphosis cycle to frogs, this includes toads and salamanders. Born as tadpoles, they will grow legs and switch from gills to lungs as they prepare for life on land.

Here we will construct a mobile featuring all the different stages.

Materials:

- page 3 to cut up
- glue stick
- scissors
- pipe cleaners
- hole punch

1. Twist first pipe cleaner in the middle.
2. Thread second pipe cleaner through and twist.
3. Add loop for hanging and center short length of pipe cleaner.
4. Cut out metamorphosis circles. Read about each stage.
5. Glue back to back.
6. Hole punch each circle
7. Attach to the ends of each pipe cleaner.
8. Hang!



Metamorphosis Facts

- Most amphibians go through metamorphosis. Tadpoles grow legs, develop lungs, and lose their tails (in the case of frogs and toads) to become adult amphibians. The word “amphibian” means “double life” because these creatures live both in water and on land.
- Many species of insect go through metamorphosis. Quite a few begin as larvae living in water. This includes dragonflies, damselflies, mosquitoes, caddisflies, and mayflies. All of these insects change dramatically when becoming adults, splitting out of their old skins to reveal wings, and heading for the sky!
- Butterflies and moths are some of the most well known creatures to go through metamorphosis. They both begin as caterpillars, however they look

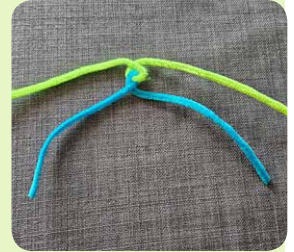
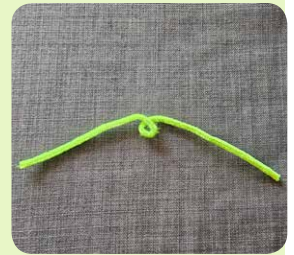
very different when they change into pupa. For butterflies, this is done in a hard-shelled chrysalis, but moths wrap themselves in a silk cocoon. All emerge as fluttering adults.

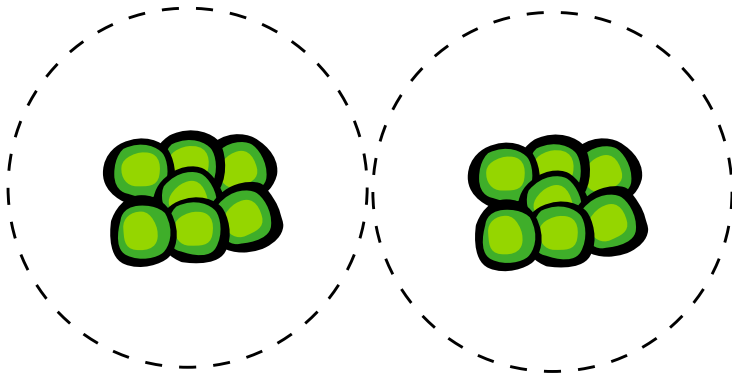


Moth Cocoon



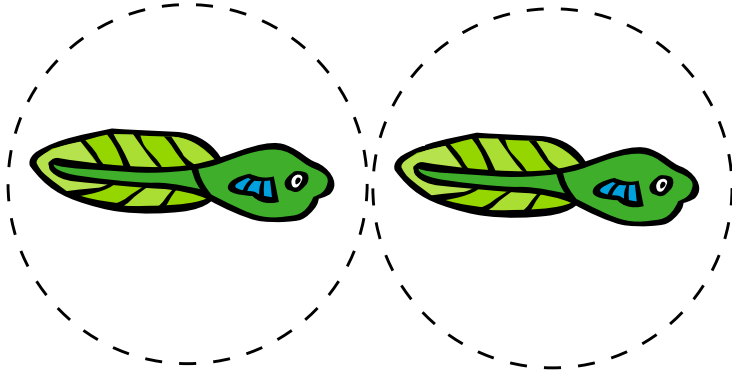
Butterfly Chrysalis





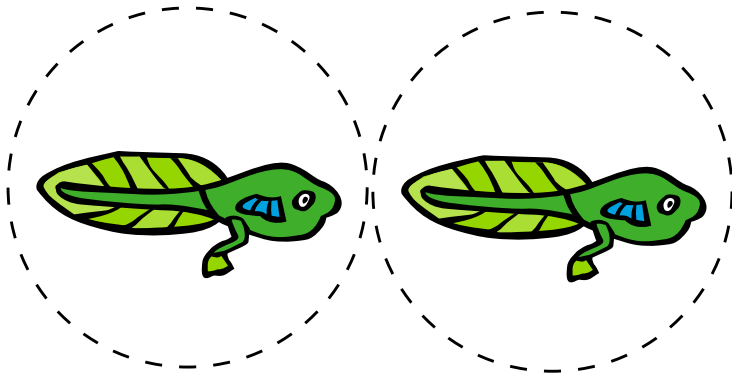
Stage 1 - Egg

Tiny frog eggs are laid in masses in the water by a female frog. The eggs hatch into tadpoles.



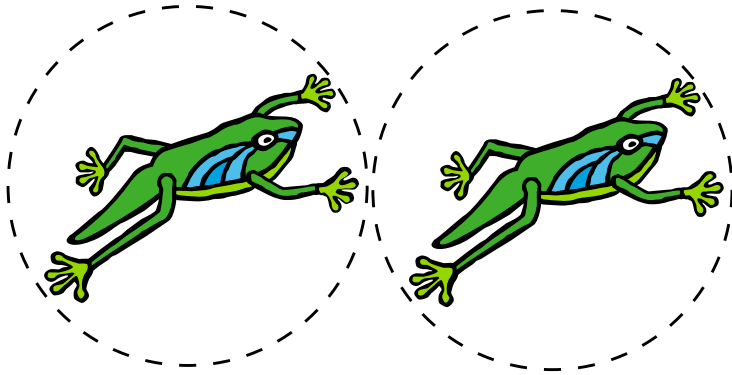
Stage 2 - Tadpole

Tadpoles can also be called pollywogs. This stage hatches from the egg. The tadpole spends its time swimming in the water, eating and growing. Tadpoles breathe using gills and have a tail.



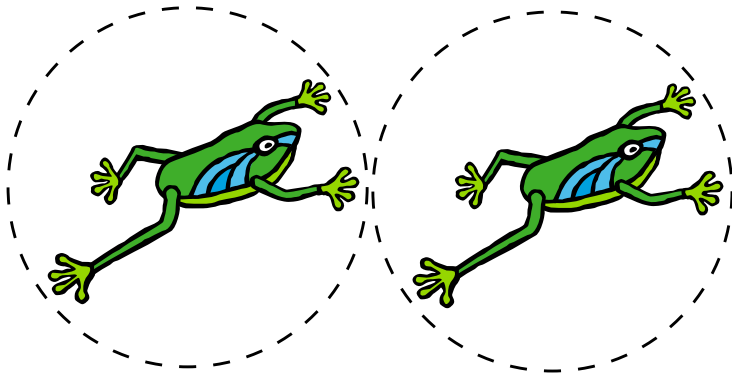
Stage 3 - Tadpole with Legs

In this stage the tadpole sprouts legs (and then arms), has a longer body, and has a more distinct head. It still breathes using gills and has a tail.



Stage 4 - Froglet

In this stage the almost mature frog breathes with lungs and still has some of its tail.



Stage 5 - Adult Frog

The adult frog breathes with lungs and has no tail because it has been absorbed by the body.