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Life Cycles



Written by Robert Charles
Illustrated by Signe Nordin

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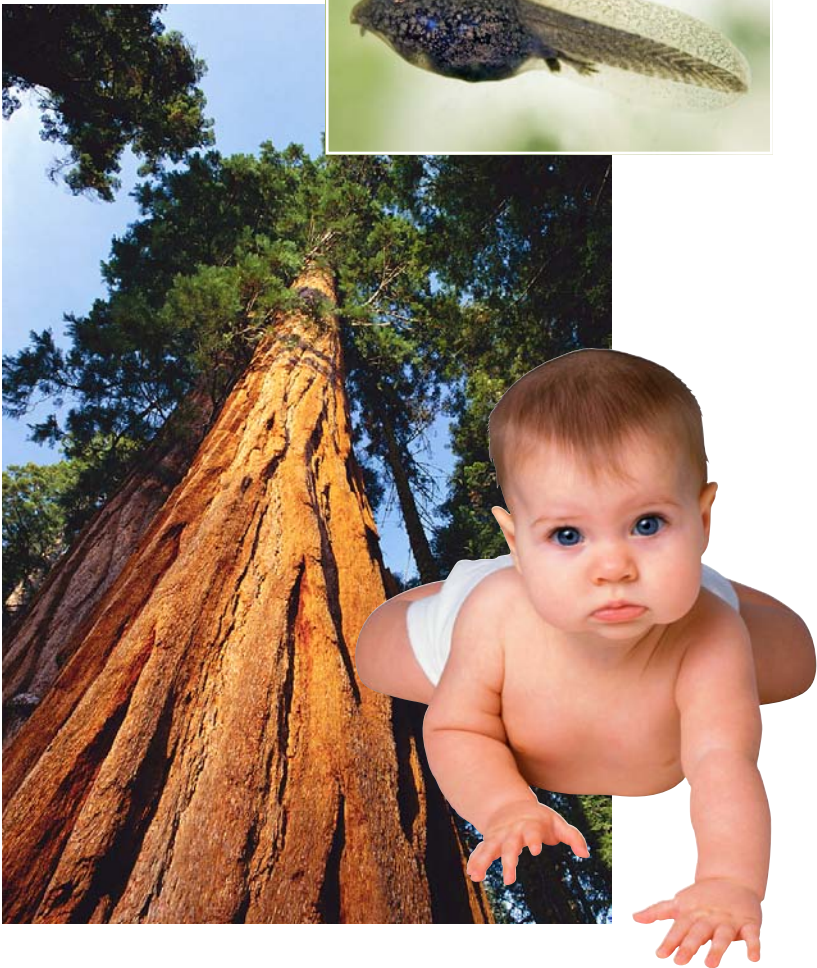
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Introduction

Whether plant or animal, all living things undergo changes as they go through life. This is also true for tiny living things made of only one cell. This book is about the changes living things go through during their lifetime. It is about life cycles.



A **life cycle** includes all the stages a living thing goes through from birth to death. All living things have a beginning, and they all must die. What happens between birth and death varies from one kind of living thing to another. Most living things have one thing in common—they begin life as a tiny single cell. The simplest forms of life never grow beyond a single cell. The life cycle of these simple life forms is really just a matter of growing a bit larger and then dividing into two smaller cells. But most of the plants and animals we know have much more complicated life cycles. We are going to examine how life cycles differ among some plants and animals.





Human Life Cycle

Let's start with you. You are a human being, or at least I hope you are. You started out as a tiny egg inside your mother, and you began to change when that tiny egg began to split. It split and split and split and continued splitting until it split millions and millions of times. Before long, body parts began to form. You began to get legs, arms, a head, and a whole bunch of organs, and over time, you looked more and more like a human.

After about nine months of cell splitting and development inside your mother, you were born. You entered the first stage of life as an **infant**. You were pretty helpless at first, but you continued to grow and get stronger.



In the next stage of your life cycle, you became a toddler. That's when you got into lots of trouble. You learned to walk and talk, and you probably got into all sorts of things. You probably also said some things you should not have said.

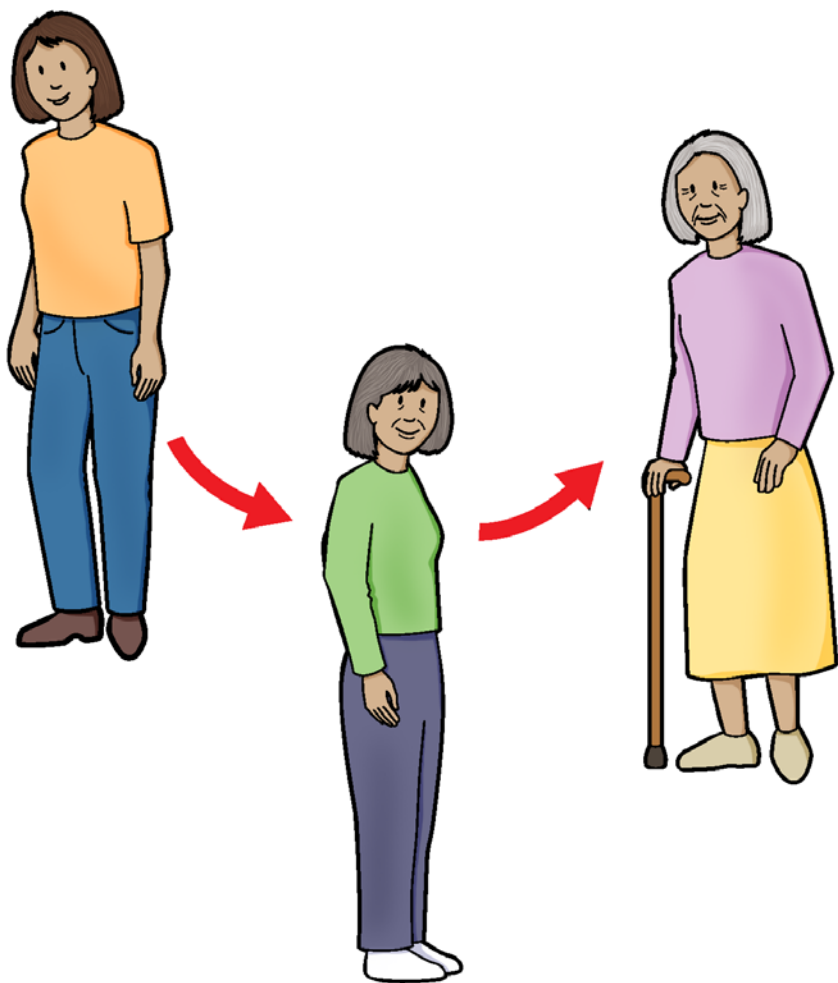
Then you entered childhood. This is where you are now and where you will stay for a few more years. During childhood, you learn more and more about taking care of yourself. You will become less dependent on your parents by learning how to do all sorts of things, from riding a bike to reading and writing. As a child, you can now feed yourself, go to the bathroom by yourself, and dress yourself.



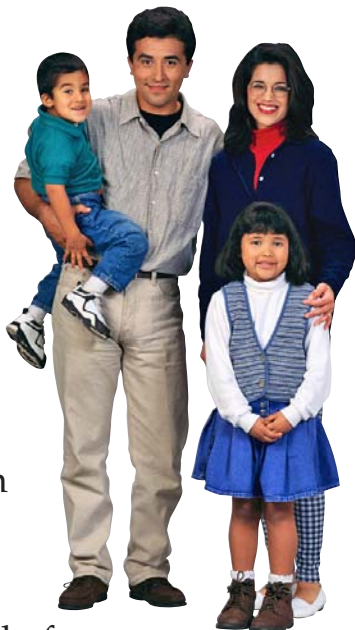


You will stay at this stage for several years until you enter **adolescence**. This is the stage when children rapidly grow into adulthood. This stage is also called your teen years.

The **adult** stage is the longest, going on for many years. In fact, the average adult stage lasts more than fifty years, and adult life spans seem to get longer and longer. Toward the end of your adult stage, you will become what many people call a “senior citizen.” This is the last stage of the human life cycle.



The adult stage is when many people choose to have and raise children. These children will also go through a life cycle and change with each stage.



When an animal produces more of its own kind, it helps ensure that that kind of animal will remain on Earth. If a kind of animal dies off faster than it can reproduce, it becomes **extinct** and disappears from Earth.

Long ago, humans had to produce many offspring to make sure that we would survive. Now, however, the number of humans on Earth is too many for the balance of life on our planet. This is called *overpopulation*. Many countries around the world are working to limit the number of babies each family produces. Over time, this may help to restore the balance.

Now let's look at some other life cycles.



Animal Life Cycles

Even small animals like insects go through life cycles. Most insects go through three or four stages during their life cycle. The change an insect goes through during its life is called **metamorphosis**. All insects begin as eggs. During the stage after the egg stage, known as the **larval stage**, many insects look much different than they do as adults. As a larva, many insects eat huge amounts of food.

They grow larger and then enter a stage where they are not active. For some insects, this stage is spent inside a protective covering called a cocoon. Other insects spend this stage inside a hard case called a chrysalis. When insects leave this stage, known as the **pupa**, they enter the adult stage of their life. As adults, female and male insects mate. The female then lays eggs, and the life cycles of many new insects begin.



Do You Know?

An insect known as the mayfly has an adult life that is only one day long.

A monarch butterfly emerging from a chrysalis

Some animals lay eggs with shells as the first stage of their life cycle. Birds and reptiles lay eggs that are covered by protective shells. The eggs hatch when the baby animal breaks through the protective shell. The young animal that emerges has many of the same features as the adult. Other animals, like frogs and fish, lay eggs without shells in jellylike clumps. These eggs are usually laid in water.



Do You Know?

Reptile eggshells are soft like leather. Bird eggshells are hard and brittle.

A snapping turtle hatching



Do You Know?

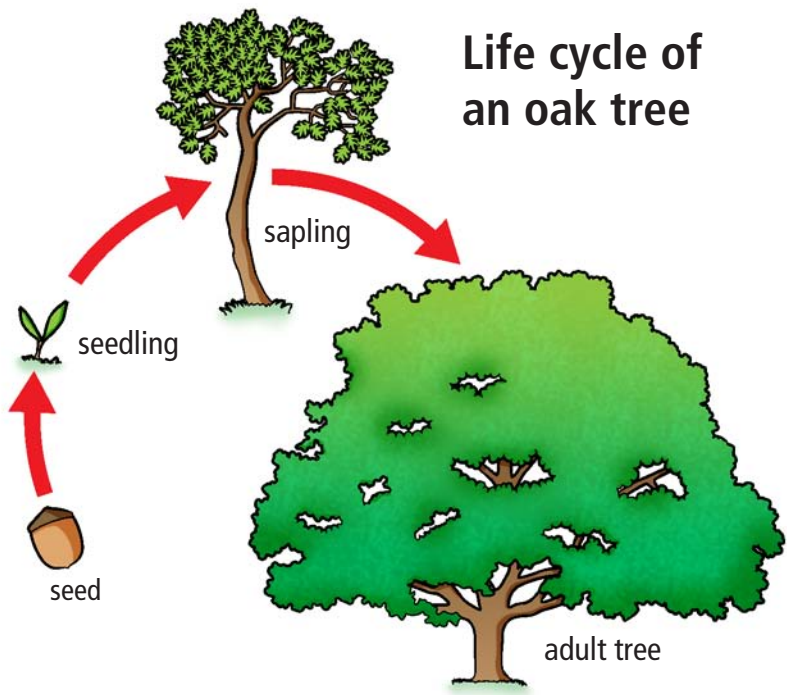
Some insects and frogs lay thousands of eggs in a lifetime. Some birds lay only one egg a year.

When a frog egg hatches, a creature called a tadpole emerges. The tadpole looks more like a fish than a frog. It slowly changes during its life cycle, growing legs, developing lungs, and losing its tail. Soon it looks like a frog. Fish eggs, on the other hand, hatch into tiny fish, called **fry**, which more closely resemble adult fish.

Other animals give birth to live babies. Some of these babies are born helpless and blind. Rabbits, mice, and kittens are like this and require a lot of care from their mothers. Marsupials, or pouched animals, such as kangaroos, give birth to very tiny, helpless babies that they keep in a special pouch until the babies develop enough to survive outside the pouch. Other baby animals are born ready to walk and run.

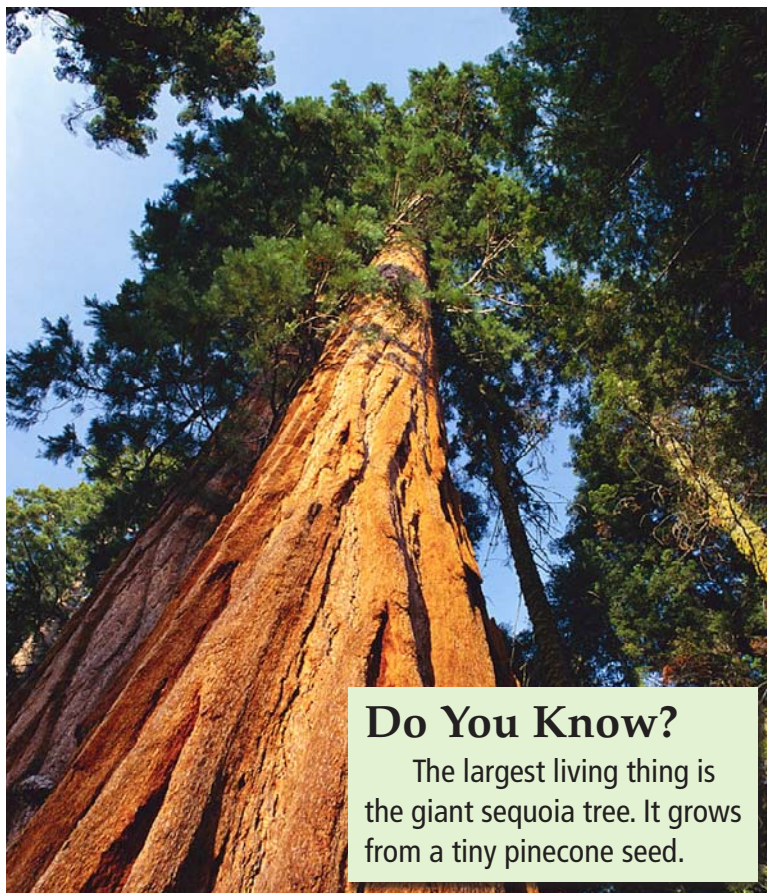
A newborn giraffe is six feet (2 meters) tall at birth and is able to walk.





Plant Life Cycles

Most plants begin their life cycle as seeds. It is hard to imagine that a giant oak tree was once a small acorn. When it first sprouts, it is called a **seedling**, but over the years it grows larger and becomes a young tree called a **sapling**. After a few more years, it becomes an adult tree capable of making seeds (acorns) that will grow into new trees. Plants are not born, and they do not hatch. Instead, a seed **germinates** or sprouts to form a new plant.



Do You Know?

The largest living thing is the giant sequoia tree. It grows from a tiny pinecone seed.

Some plant life cycles last hundreds of years. A bristlecone pine can live well over a thousand years. Plants with life cycles that are several years long, such as trees, grass, and shrubs are called **perennials**. Other plants, called **annuals**, live through only a single season. Many garden plants, including peas, beans, corn, and tomatoes, are annuals.

TRY THIS

Observing a Plant Life Cycle

Materials:

- Clear plastic cup
- Dirt
- Bean seeds
- Water

Steps:

- 1 Fill the cup with dirt.
- 2 Place the seeds about one-half inch below the soil.
- 3 Water the seeds enough to moisten the dirt.
- 4 Water again when the dirt begins to get dry.
- 5 Observe the growth.
- 6 Keep a journal of the changes.
Measure the height every three days.
Make drawings of the different stages.

Glossary

adult (<i>n.</i>)	the mature stage of a living thing's life cycle (p. 10)
adolescence (<i>n.</i>)	the stage of the human life cycle that comes just before adulthood (p. 9)
annuals (<i>n.</i>)	plants having a one-year life cycle (p. 18)
extinct (<i>adj.</i>)	no longer in existence; completely wiped out (p. 11)
fry (<i>n.</i>)	the stage of the fish life cycle after the eggs hatch (p. 15)
germinates (<i>v.</i>)	to begin to sprout from a seed (p. 17)
infant (<i>n.</i>)	a human baby (p. 7)
larval stage (<i>n.</i>)	the wormlike stage of an insect's life cycle (p. 12)
life cycle (<i>n.</i>)	the stages a living thing goes through during its lifetime (p. 5)
metamorphosis (<i>n.</i>)	an animal's change from one shape to a totally different shape (p. 12)
perennials (<i>n.</i>)	plants that live many years (p. 18)
pupa (<i>n.</i>)	an immature insect before the adult stage (p. 13)
sapling (<i>n.</i>)	a young tree (p. 17)
seedling (<i>n.</i>)	a young plant (p. 17)

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