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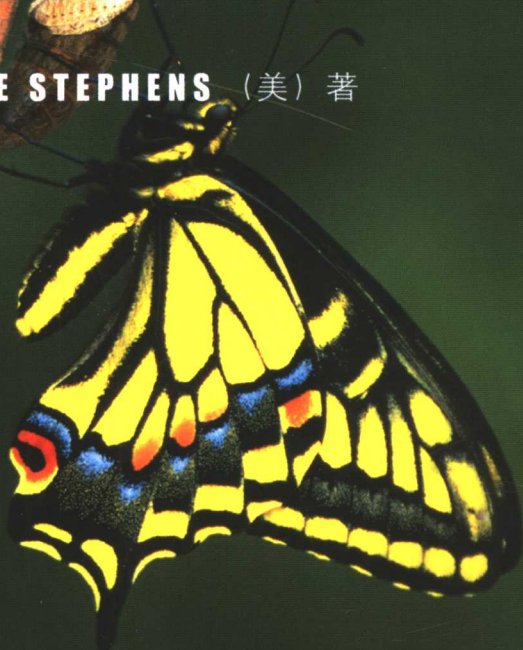
L I F E   S C I E N C E

生命科学

# Life Cycles

## 生活周期

CATHERINE STEPHENS (美) 著



外语教学与研究出版社

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**如**果你希望在享受英语阅读乐趣的同时又能增长知识、开拓视野，由外语教学与研究出版社与美国国家地理学会合作出版的“国家地理科学探索丛书”（英文注释版）正是你的选择。

“国家地理科学探索丛书”（英文注释版）第二辑分为8个系列，共46本，内容涉及自然科学和社会研究，除对本套丛书第一辑已包含的“生命科学”、“物理科学”、“地球科学”和“文明的进程”4个系列进行了补充外，又推出了4个新的系列——“生活中的科学”、“科学背后的数学”、“专题研究”以及“站在时代前沿的科学家”。

这套丛书秉承《国家地理》杂志图文并茂的特色，在书中配有大量精彩的图片，文字地道易懂、深入浅出，将科学性和趣味性完美结合，称得上是一套精致的小百科全书。特别值得一提的是本套丛书在提高青少年读者英语阅读能力的同时，还注重培养他们的科学探索精神、动手能力、逻辑思维能力和沟通能力。

本套丛书既适合学生自学，又可用于课堂教学。丛书各个系列均配有一本教师用书，内容包括背景知识介绍、技能训练提示、评估测试、多项选择题及答案等详尽的教学指导，是对课堂教学的极好补充。



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# Life at the Pond

池畔生物

A box turtle<sup>1</sup> comes up for air.

1. box turtle 箱龟



*Listen carefully at the pond's edge. You'll hear the sounds of all sorts of animals. Birds sing, bees buzz<sup>1</sup>, frogs splash<sup>2</sup>, and crickets<sup>3</sup> chirp<sup>4</sup>.*

**N**ear one end of the pond, a box turtle digs a nest<sup>5</sup> in the sandy soil<sup>6</sup>. Scritch<sup>7</sup>, scratch<sup>8</sup> . . . the mother turtle's back feet push at the sand. She makes a hole in the sand and lays her eggs. She'll cover them with sand. Then she will leave. Soon, the turtle hatchlings<sup>9</sup> will scurry<sup>10</sup> off toward the water. They'll join the birds, bees, crickets, fish, and other animals living at the pond.

Each kind of animal here—mammal<sup>11</sup>, bird, fish, reptile<sup>12</sup>, insect<sup>13</sup>, and amphibian<sup>14</sup>—is at a different stage<sup>15</sup> in its life cycle. Maybe the animal is a baby. Perhaps it is a mother or father.

In this book, you'll read about how some animals begin life and how they develop. There is an amazing<sup>16</sup> variety of life in the animal world. And each animal has its own life cycle story to tell.



**Eastern box turtle with her eggs**

1. buzz	<i>v.</i>	发出嗡嗡声	9. hatchling	<i>n.</i>	孵出的一窝
2. splash	<i>v.</i>	溅起水	10. scurry	<i>v.</i>	急赶
3. cricket	<i>n.</i>	蟋蟀	11. mammal	<i>n.</i>	哺乳动物
4. chirp	<i>v.</i>	唧唧叫	12. reptile	<i>n.</i>	爬行动物
5. nest	<i>n.</i>	窝, 穴	13. insect	<i>n.</i>	昆虫; 虫
6. soil	<i>n.</i>	土壤	14. amphibian	<i>n.</i>	两栖动物
7. scritch	<i>v.</i> (=screech)	发出尖锐刺耳的声音	15. stage	<i>n.</i>	阶段; 时期
8. scratch	<i>v.</i>	发刮擦声	16. amazing	<i>adj.</i>	惊人的



# Life Cycle Stories

生活周期的故事





*This raccoon<sup>1</sup> cub<sup>2</sup> runs, rolls, climbs, and climbs some more. It's growing and changing every day.*

**W**hen this raccoon cub was born, it couldn't see or hear. It was so small it could fit in your hand. It weighed only about 85 grams (about three ounces). That is less than the weight of a stick of butter. But look at the cub now! It has come a long way in a short time.

This raccoon will keep changing as it gets older. Like all animals, it will go through<sup>3</sup> several stages in its life. Let's explore<sup>4</sup> the stages of an animal's life cycle.

## Life Begins

An animal's life begins as an egg. Some mother animals, including most mammals, keep their eggs inside their bodies. One or more of the eggs develop into baby animals. After the animals develop fully, they are born live. Humans are mammals. So are dogs. Usually humans have just one baby at a time. But dogs, cats, raccoons, and many other mammals have litters<sup>5</sup> of several babies at a time.



Baby raccoon

- |               |    |           |
|---------------|----|-----------|
| 1. raccoon    | n. | 浣熊        |
| 2. cub        | n. | 幼兽        |
| 3. go through |    | 经历        |
| 4. explore    | v. | 探究        |
| 5. litter     | n. | 一窝 ( 仔畜 ) |

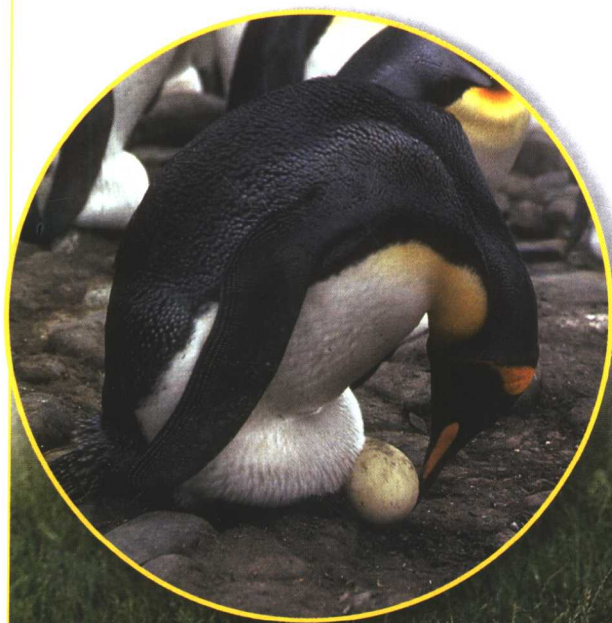


Other animals, such as the turtles, do not keep their eggs within their bodies. Instead, they lay their eggs, and the babies develop inside the eggs. The babies hatch<sup>1</sup> when they are fully developed. Many animals lay eggs. Penguins<sup>2</sup>, frogs, snakes, and snails<sup>3</sup> are a few examples. Can you think of other animals that lay eggs?

## Growing and Changing

From the minute they're born, animals start to grow. They need many things in order to grow. Food, water, and oxygen<sup>4</sup> are the basics. As they grow, animals get bigger and stronger. As this foal<sup>5</sup> grows, its legs, tail, and mane<sup>6</sup> will get longer.

A foal looks a lot like its mother, only smaller. But some baby animals don't look at all like their parents. A baby frog, called a tadpole<sup>7</sup>, looks like a fish.



Penguin caring for egg

1. hatch	h	孵出
2. penguin	p	企鹅
3. snail	s	蜗牛
4. oxygen	o	氧气
5. foal	f	马驹
6. mane	m	马鬃
7. tadpole	t	蝌蚪





A frog's life cycle is different from a mammal's. A frog's body changes as it gets older. This change is called a metamorphosis<sup>1</sup>. Animals that go through a metamorphosis won't look like their parents until they are adults<sup>2</sup>.

## Adulthood<sup>3</sup>

The last stage of an animal's life cycle

is adulthood. As adults, animals can reproduce<sup>4</sup>. This means that they can create babies of their own. These babies then start their own life cycles.

- |                   |    |          |
|-------------------|----|----------|
| 1. metamorphosis  | // | 变态       |
| 2. adult          | // | 成年动物, 成体 |
| 3. adulthood      | // | 成年       |
| 4. reproduce      |    | 繁殖, 生殖   |
| 5. giant tortoise |    | 巨型陆龟     |



Foal with mother

Did you ever

wonder...

... which animal  
lives the longest?

The giant tortoise<sup>5</sup> can live more than 150 years in a zoo. In fact, most animals live longer in zoos than in the wild. Why do you think animals live longer in zoos?





# The Life Cycle of a Grasshopper<sup>1</sup>

Insects go through a metamorphosis as they grow. Some insects go through three life cycle stages. Dragonflies<sup>2</sup>, crickets, and aphids<sup>3</sup> are insects that have three stages of growth. So is the grasshopper.

Like all animals, a grasshopper begins its life as an egg. After hatching, the young insect is called a nymph<sup>4</sup>. A grasshopper nymph is missing some body parts. For one thing, it doesn't have wings. As a nymph, a grasshopper will molt<sup>5</sup>, or shed<sup>6</sup> its skin<sup>7</sup>, several times. Each time a

grasshopper molts, it grows a little larger and develops more of its body parts.

Finally the nymph becomes an adult<sup>8</sup> insect. Now it has wings. It can fly! An adult female<sup>9</sup> grasshopper can lay eggs. And the cycle can start all over again.

1. grasshopper	<i>n.</i>	蚱蜢; 蝗虫
2. dragonfly	<i>n.</i>	蜻蜓
3. aphid	<i>n.</i>	蚜虫
4. nymph	<i>n.</i>	蛹
5. molt	<i>v.</i>	蜕皮
6. shed	<i>v.</i>	蜕(壳、皮等)
7. skin	<i>n.</i>	皮
8. adult	<i>adj.</i>	充分长成的; 成年的
9. female	<i>adj.</i>	雌的

## Grasshopper

2. Nymph

1. Eggs

3. Adult

## Word Power

*Metamorphosis* is a Greek word that means "a change in shape."

## The Life Cycle of a Butterfly

Most insects go through four stages in their life cycles. Let's take a look at the life of a butterfly. It grows and changes in four stages.

A butterfly begins its life as an egg. The butterfly egg shown below rests on a leaf of a milkweed<sup>1</sup> plant. The egg is about the size of the period at the end of this sentence. The picture has been magnified<sup>2</sup> many times.

After a few days, a caterpillar<sup>3</sup> hatches from each egg. Then the caterpillar turns into an eating machine! First it eats its eggshell<sup>4</sup>, and then it eats the green leaves around it. The caterpillar eats and grows

until its skin is too tight. It molts, or sheds its skin, four or five times. Then it hangs from a branch<sup>5</sup>. A hard shell, or chrysalis<sup>6</sup>, forms around the caterpillar.

The caterpillar is now a pupa<sup>7</sup>. What is happening inside the chrysalis? The caterpillar's body is changing. Wings are growing. The pupa is becoming a butterfly.

When an adult butterfly crawls<sup>8</sup> out of its chrysalis, its wings are soft and wet. They dry in the sun and air. Then the adult butterfly is ready to fly away.

- |                |    |        |
|----------------|----|--------|
| 1. milkweed    | // | 马利筋    |
| 2. magnify     | v  | 放大, 扩大 |
| 3. caterpillar | // | 毛虫     |
| 4. eggshell    | // | 卵外壳    |
| 5. branch      | // | 树枝     |
| 6. chrysalis   | // | 虫茧     |
| 7. pupa        | // | 蛹      |
| 8. crawl       | v  | 爬      |

### Butterfly

1. Egg

2. Caterpillar

3. Pupa

4. Adult



## The Life Cycle of a Frog

Amphibians also go through a metamorphosis. The pictures show how a frog grows and changes.

In spring a mother frog lays lots of eggs in the cool water of a pond. Within a month the eggs hatch. Out come thousands of tiny tadpoles. A tadpole swims and eats through the summer. It begins to develop. Its tail grows shorter. If the froglet<sup>1</sup> lives in a climate<sup>2</sup> that has cold winters, it may dig a hole in the mud<sup>3</sup>. It sleeps in the mud until spring. Then it wakes up and continues its life cycle. Froglets living in warmer climates may complete their entire<sup>4</sup> metamorphosis in one summer.

When the froglet's tail is gone, the frog is an adult. What a handsome amphibian! It's time to find a mate<sup>5</sup> and begin the cycle of life all over again.

### Frog

1. Eggs



2. Tadpole



3. Froglet



4. Adult



- |            |             |       |
|------------|-------------|-------|
| 1. froglet | <i>n.</i>   | 小蛙    |
| 2. climate | <i>n.</i>   | 气候    |
| 3. mud     | <i>n.</i>   | 泥; 泥浆 |
| 4. entire  | <i>adj.</i> | 全部的   |
| 5. mate    | <i>n.</i>   | 配偶    |



## The Life Cycle of a Rabbit

Most mammals, as well as most birds and reptiles, do not go through a metamorphosis. Rabbits, for example, are born with all the body parts they will need as adults. They look a lot like their parents. They are just smaller.

A rabbit develops inside its mother's body for about a month. Then it's born live as part of a litter of about five baby rabbits. A newborn<sup>1</sup> rabbit, or bunny<sup>2</sup>, is quite helpless. It has no hair. Its eyes and ears are closed. In just a week, though, the bunny can see and hear, and it starts to grow hair.

In just two weeks, a bunny takes its first hops<sup>3</sup> away from the nest. Two days later, it leaves the nest for good. It can take care of itself. It spends its time hiding from enemies and looking for food. A bunny eats all kinds of green plants.

Rabbits reach adulthood when they're about six months old. Now they can have their own babies.

### Rabbit

1. Newborn rabbits



2. Bunny



3. Adult rabbit



- |            |             |     |
|------------|-------------|-----|
| 1. newborn | <i>adj.</i> | 新生的 |
| 2. bunny   | <i>n.</i>   | 小兔子 |
| 3. hop     | <i>n.</i>   | 跳跃  |





## Watch Them Grow

### 看着它们生长

Baby animals change as they grow. If an animal goes through a metamorphosis, it changes a lot! Try to match each baby on the left with its mother on the right.

Baby



Answer: 1A, 2E, 3C, 4D, 5F, 6B