

■ 郑锡荣 孙彤 孙歆 编译 ■

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ENGLISH-CHINESE  
SCIENCE FLORILEGIA

汉

英汉科学百花园

PLANTS  
ANIMALS  
AND  
LIVING  
THINGS  
IN  
THE  
SEA



植物  
动物  
和  
海洋  
生物

山东教育出版社



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## 植物 动物和海洋生物

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## 说 明

本书在编译过程中，参考了《简易英语科技丛书》、《少年儿童知识文库》、《阶梯新世纪百科全书》，*Science Encyclopedia*, *General Science*, *Physical Science in the Modern World* 等书刊和资料，在此表示衷心的感谢。我们恳请出版者同我们联系，以便作出妥善处理。



# CONTENTS

## 目录



- 1 Classification  
分类法
- 7 Classifying: Plants and Animals  
分类：植物和动物
- 13 Plants  
植物
- 31 Animals  
动物
- 49 Living things in the sea  
海洋生物





# 分类法 CLASSIFICATION

Do you collect stamps as a hobby? Millions of people do. Stamps from all over the world tell stories of history, great people, sports, and different types of plants and animals. How would you organize your stamp collection? Would you do it by the country they are from? By the subject shown on the stamp? By the price of the stamp? There are many ways.

There are many different types of plants and animals. How do scientists group living things?

Over two hundred years ago, a Swedish biologist named Carolus

Linnaeus developed a way of classifying the different plants and animals. His system was based on likenesses in structure. Linnaeus examined thousands of organisms. He found that many organisms had the same characteristics. All the organisms with the same characteristics he put into the same groups. This group he called a species. Linnaeus placed similar species into a larger group called a genus. The scientific name of the organism is made up of the genus and species name. The genus name is capitalized.

Today there are many more





你爱好集邮吗？千百万人有这种爱好。来自世界各地的邮票诉说着历史、伟人、体育运动以及各种植物和动物的故事。你是怎样使你的邮集成为有条有理的呢？你是按国别这样做？还是按邮票的主题？还是按面值？方法多的是。

植物和动物种类繁多。科学家是怎样对生物进行分类的呢？

两百多年前，瑞典生物学

家卡罗拉斯·林奈研究出一种不同植物动物的分类法。他的体系立足于构造上的类似性。林奈考察过千万种生物。他发现许多生物具有相同的特点。他把所有具有相同特点的生物归入一类，他把这一类称为一个种。林奈又把相类似的种归入比种大的属，生物的学名由属名和种名组成。属名是大写的。

如今又有了更多的特点可用于生物分类。科学家研究细







characteristics used to classify an organism. Scientists study the structure and chemical makeup of the cells. They also examine the number and type of genes on these cells. From this information, they can decide

which organisms are related and which are not.

The classification system used today has seven groupings or levels. This system begins with the broadest group, called the Kingdom. A kingdom includes the largest number of different organisms. As you move down through the levels, the number of organisms in each gets smaller. The smaller the group, the more alike the organisms in that group are. Eventually, you will end up with a single species.

**KINGDOM** — includes several related Phyla (plural of phylum)

**PHYLUM** — includes several related Classes

**CLASS** — includes several related Orders

**ORDER** — includes several related Families

**FAMILY** — includes several related

Genera (plural of genus)  
**GENUS** — includes one or more related species

**SPECIES** — includes all organisms with the same characteristics

For a long time, all living organisms were placed into either the Animal or Plant Kingdoms. The classification of most plants and animals did not pose a problem. It was easy to see that a redwood was a plant and a whale an animal. However, many microscopic organisms presented a problem. For years, biologists disagreed on the kingdom these organisms belong in. Finally, most biologists agreed to put these organisms in a third kingdom, Protista.

The Protista Kingdom is made up of many phyla. In order to study the protists, we will place these phyla into four groups. These four groups are the algae, fungi, protozoans, and bacteria.

Did you ever observe a small pond and notice that the water wasn't crystal clear? The water probably had a greenish color. This color was caused by the green algae living in the water. These algae often form a messy film on the surface of the pond. You may have wondered how anything could live in such a mess. Actually, algae are vital to the organisms living in the pond. All algae contain chlorophyll and make their own food. During this process, oxygen is released into the water. The oxygen dissolves in the water and is

mushrooms  
蘑菇





胞的结构和化学成分。他们还  
对细胞里基因的数目和类型进  
行考察。根据这些信息，他们能  
确定哪些生物有亲缘关系，而  
哪些却没有。

今天使用的分类体系有七  
个类或层次。这一体系始于称  
为界的最大的类别。界包含的  
不同生物的数目最多。层次下  
移时，其生物数依次减少。类别  
越小，类里的生物就更为相似。  
最终将止于单一的种。

界一包括几个有亲缘关系的门  
(Phyla是phylum的复数形式)  
门一包括几个有亲缘关系的纲  
纲一包括几个有亲缘关系的目  
目一包括几个有亲缘关系的科  
科一包括几个有亲缘关系的属  
(Genera是genus的复数形式)  
属一包括一个或更多的有亲缘  
关系的种

种一包括所有具有相同特点的  
生物

在很长一段时间里，所有  
的生物不是归入动物界就是归  
入植物界。大部分植物和动物  
的分类并不发生问题。显而易  
见，红杉是植物，鲸则是动物。  
但许多微生物的归属却很麻烦。

多年来，生物学家们  
对这些生物应归属于  
哪一个界有分歧。最  
后，多数生物学家同意  
把这些生物归入第三个  
界——始先生物界。

始先生物界由许多门  
组成。为研究始先生物，  
我们把这些门分为四类。  
这四类是藻、真菌、原生生物和  
细菌。

你观察过小池塘并注意到塘  
里的水并不清澈吗？水可能带有  
绿色。这种颜色是由生活在水中的  
绿藻引起的。这些藻类在池水  
表面形成一层肮脏的膜。对于生  
物竟然能生活在如此肮脏之处，  
你可能会感到惊奇。而实际上，  
藻类对生活在水塘里的生物至关  
重要。所有的藻类都有叶绿素为  
自身制造营养。在这个过程中，  
氧气被释放到水中。氧气溶解于  
水并为鱼类所利用。

除为自身制造食物外，藻类



a small pond  
小池塘





used by fish.

In addition to making their own food, algae are food makers for the organisms around them. Many small animals eat the algae. Fish eat the smaller animals. Larger fish eat the smaller fish. Thus the algae directly or indirectly feed the organisms around them.

Another group of protists is the fungi. Fungi include yeast, mushrooms, molds, and mildews. Fungi do not have chlorophyll and cannot make their own food. They must obtain their food from other organisms. Fungi can live in or on other living or dead organisms.

Some fungi can be very harmful. They cause the destruction of crops and spoil food. A few types are harmful to humans. Athlete's foot and ringworm are caused by a fungus growing under the skin. There are other fungi that attack the lungs.

On the other hand, fungi can be very useful. They break down decaying materials, so that the materials can be used again. In industry, yeast, a fungus, is used in baking and brewing. Other types of fungi are used in making cheese. The mold, penicillium, produces a substance useful in medicine. Many nonpoisonous

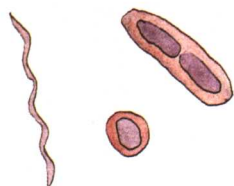
mushrooms are used for food.

Protozoans are another group of protists. For many years, biologists thought that these single-celled organisms were simple animals. A few of these organisms have chlorophyll and can make their own food. Thus, some biologists called them plants. Today they are classified as protists.

The last group of protists are the bacteria. Bacteria are very small one-celled organisms. They are so small that it would take about 50,000 of them to cover the head of a pin. Bacteria are everywhere. They are found living in soil, in the depths of oceans, in the atmosphere, and in the bodies of animals.

Many diseases of humans are caused by bacteria. Pneumonia, diphtheria, and tuberculosis are such diseases. Other bacteria are used in making dairy products such as yogurt, buttermilk, butter, and cheese. Bacteria are also useful in producing vinegar, tanning leather, and curing tobacco.

Before we leave the classification of living organisms, we should look at a group that is a real puzzle. These are the viruses. They are so simple that it is hard to tell whether they are living or nonliving. Viruses are not organized into cells. However, when they enter a living cell, they are able to reproduce. In doing so, they damage the cell and cause disease. Polio, mumps, and the common cold are diseases caused by viruses.



bacteria  
细菌

The algae of this pond serve as food for the fish and produce oxygen.

这个池塘里的藻类为鱼类提供食物并产生出氧气。





还为它们周围的生物提供食物。许多小动物以藻类为食。鱼吃较小的动物。大鱼再吃小鱼。藻类就是这样直接或间接地喂养着它们周围的生物。

始先生的另一类是真菌。真菌包括酵母、蘑菇、霉菌和霉。真菌没有叶绿素，不能制造自身的营养。它们必须从其他生物获取营养。真菌能在其他活的或死的生物体内或体表生活。

真菌可能非常有害。它们毁坏作物，使食物变质。有几种真菌还对人体有害。脚癣和金钱癣就是由皮下真菌引起的。还有其它几种真菌会侵袭肺部。

另一方面，真菌还非常有用。它们能分解正在腐烂的物质，使其能被重新利用。工业上，酵母菌这种真菌可用于烤面包和酿酒。一些其他种类的真菌被用来制造乳酪。称为青霉菌的霉菌能产生出药用物质。许多无毒的菌类可以食用。

原生物是始先生物中的另一类。多年来，生物学家认为这些单细胞生物是简单动物。它们中少数有叶绿素，能制造自身的营养。于是一些生物学家称它们为植物。目前它们被归于始先

界生物。

始先生的最后一类是细菌。细菌是非常小的单细胞生物。它们小到要有50,000个才有针头大。细菌到处皆有。它们生活在土壤里、海洋深处、大气里和动物体内。

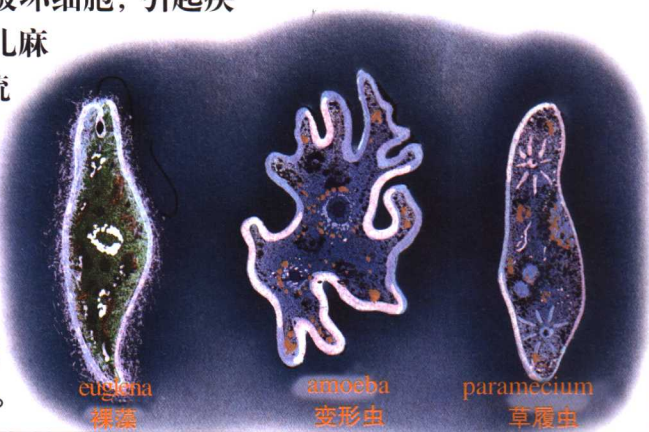
人类的许多疾病由细菌引起。肺炎、痢疾和肺结核等都是。别的细菌可用来制造酸奶、搅乳、牛油和奶酪等奶制品。细菌在制醋、制革和加工烟草方面也都有用。

在结束生物分类这个问题之前，我们还得看一下真正令人困惑的另一类，那就是病毒。它们简单得令人难以辨明究竟是生物还是非生物。病毒尚未进化到细胞。不过，一旦它们进入活细胞，就能繁殖。这时，它们就会破坏细胞，引起疾

病。小儿麻痹症、流行性腮腺炎和感冒都是由病毒引起的疾病。



typical single-celled protists  
典型的单细胞始生生物



euglena  
裸藻

amoeba  
变形虫

paramecium  
草履虫



## CLASSIFYING : PLANTS AND ANIMALS



Most people enjoy looking at plants and animals, but few can identify many of them. In many parks and zoos, plants and animals are identified by small name tags. Unfortunately, the more than a mil-

lion and a half living things do not come with natural labels. Scientists have classified these organisms in order to simplify their identification.

The animal kingdom may be divided into two major groups: animals with backbones and those without. Animals that have backbones are called vertebrates. These all belong to Phylum Chordata. There are five classes of vertebrates in this phylum.

Mammals have hair or fur on their bodies. They give birth to live young. They are also warm-blooded. Mammals may be as different as a whale and a human, but they all have the same general characteristics.

Birds have feathers. They are also warm-blooded animals. They lay eggs with brittle shells.

Reptiles have a scaly skin and lay eggs on land. The eggs have a tough shell. Reptiles are

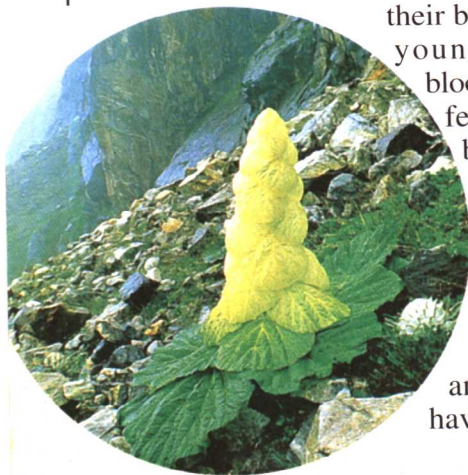
cold-blooded. They breathe air through their lungs. Snakes, lizards, turtles, and crocodiles are reptiles.

Amphibians have a smooth skin and lay their eggs in water. Their eggs do not have hard shells. Amphibians are also cold-blooded. The young breathe oxygen from the water through their gills. The adults develop lungs. The amphibian group includes frogs, toads, and salamanders.

Fish have a scaly skin and lay small, jelly-like eggs in water. They are cold-blooded and breathe oxygen from the water through their gills.

The rest of the major animal phyla do not have backbones. These animals are thus called invertebrates. The animals in Phylum Arthropoda have a hard outside covering made of the same material as your fingernails. Their legs and antennae bend at joints. The animals are commonly called arthropods. The four major groups may be identified by the number of pairs of legs they have.

If there are three pairs of legs the animal is an insect. Most insects also have one or two pairs of wings. There are more species of insects than any other type of animal.



# 分类：植物和动物



人人都喜欢观赏植物和动物，但许多植物和动物不为人知。许多公园和动物园里，植物和动物能通过小小的标签予以识别。然而，不幸的是，150多万种生物并未贴上标签。科学家已对这些生物进行分类，以便简化对它们的识别。

动物界可分为两大类：有脊椎的动物和无脊椎的动物。有脊椎的称为脊椎动物。它们都属于脊索门。这个门里有五纲脊椎动物。

哺乳动物身上有毛皮。它们生出活生生的幼仔。它们还是热血动物。哺乳动物可以有鲸与人之间那样的差异，但它们却都有相同的特征。

鸟类有羽毛。它们也是热血动物。它们下的蛋有脆壳。

爬行类动物有鳞状皮，在陆地上产卵。卵有坚壳。爬行类动物是冷血动物。它们用肺呼吸。蛇、蜥蜴、海龟和鳄都是爬行类动物。

两栖类动物皮肤光

滑，在水中产卵。卵没有硬壳。两栖类动物也是冷血动物。其仔通过鳃从水中吸取氧气。成年动物长肺。两栖类包括蛙、蟾蜍和蝾螈。

鱼类有鳞，在水中产小而呈胶状的卵。它们是冷血动物，通过鳃从水中吸取氧气。

动物界其他主要的门没有脊椎。因此称这些动物为无脊椎动物。节肢门动物有指甲般的硬覆盖物。它们的足和触角有能弯转的关节。这些动物通常称为节肢动物。四个大类可从它们足的对数来加以区分。

有三对足的是昆虫。多数昆虫还有一或两对翅。昆虫的种数比其他任何动物都多。







a spider  
蜘蛛



a centipede  
蜈蚣



an oyster  
牡蛎

If there are four pairs of legs and two sections to the body, it is an arachnid. Arachnids include spiders and scorpions.

If there are at least five pairs of legs and two body sections, it is a crustacean. Crustaceans also have several pairs of feelers, movable mouth parts and breathe through gills. Most crustaceans live in water.

Animals with many body sections with legs on each section are called many-legged. If there is one pair per section it is called a centipede. If there are two pairs on each section, the animal is a millipede.

The Phylum Echinodermata contains animals with a hard internal skeleton. Some have five to ten arms that spread out from the body like spokes on a wheel. All the animals have spines covering their bodies. Starfish, sea urchins, and sand dollars are all echinoderms.

Mollusks have a hard outer shell protecting a soft body. They are in Phylum Mollusca. Most mollusks have a one-or-two-part shell. The

group contains clams, oysters, snails, and even squids and the octopuses.

Animals with wormlike bodies with many sections are in Phylum Annelida. They are also called segmented worms. They are the simplest animals to have complex body systems such as digestive and nervous systems. Earthworms and sandworms are in this phylum.

Animals with long, smooth, threadlike bodies are in Phylum Nematoda. Many roundworms, which live in or on other animals, are nematodes.

Flatworms are in Phylum Platyhelminthes. Flatworms have digestive systems with only one opening. The other systems are poorly developed. The tapeworm is a flatworm that lives in the intestines of many animals.

Coelenterates are in Phylum Coelenterata and have hollow bodies. There is a ring of tentacles around the mouth opening. The tentacles catch food and stuff it into the mouth. The body walls are only two cell layers thick. Jellyfish, coral, and sea anemones are in this phylum.

Phylum Porifera contains the sponges. Sponges are colonies of cells. They take in water through their pores and filter out food. They are even less organized than coelenterates.



coral  
珊瑚





如果有四对足而且身体分成两段，那就是蜘蛛纲动物。蜘蛛纲动物包括蜘蛛和蝎。

如果至少有五对足和两节身体，那就是甲壳纲动物。甲壳纲动物还有几对触须和可动的口部并通过鳃呼吸。大多数甲壳纲动物生活在水中。

身体分许多节，每节长足的叫做多足动物。如果每节只有一对足，就叫做蜈蚣。如果每节有两对足，那就是千足虫。

棘皮动物门包括有硬内骨骼的一些动物。它们中有些从身上长出五至十条臂，像轮辐。所有这些动物周身盖满壳针。海星、海胆和饼海胆都是棘皮动物。

软体动物有硬壳保护着柔软的身体，它们属软体动物门。多数软体动物有单壳或双壳。

这一族包括蛤、牡蛎、蜗牛，连乌贼和章鱼也属于这一类。

有蠕虫般多节身体的动物属于环节动物门。它们也叫分节蠕虫。它们是具有诸如消化和神经系统等复杂身体系统的最简单的动物。蚯蚓和沙虫都属于这一门。

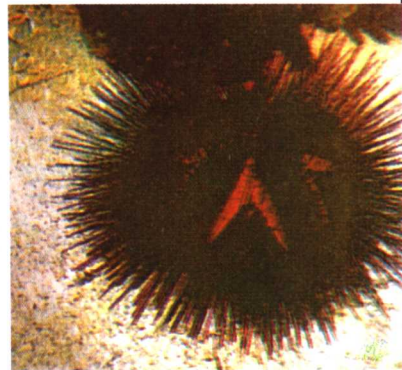
有着长而光滑的线状身体的动物属于线虫门。许多生活其他动物体内或体表的线虫都属此门。

扁虫属于扁形动物门。扁虫的消化系统只在一端开口。它的其他系统发育很差。绦虫是生活在许多动物肠内的一种扁虫。

腔肠动物属于腔肠动物门，其体内空。在嘴部开口周围有一圈触须。触须捕捉食物并将其塞入口内。体壁仅两层细胞那么厚。水母、珊瑚和海葵都属于这



a starfish  
海星



sea urchins  
海胆



a monocot flower  
单子叶植物的花



a monocot leaf  
单子叶植物的叶



a dicot flower  
双子叶植物的花



a dicot leaf  
双子叶植物的叶

different types of plants  
各种不同类型的植物

There are two major plant phyla. The first, the Phylum Bryophyta, contains plants that do not have special tissue for transporting water, minerals, and food. They are called nonvascular plants. These plants have no true roots, stems, or leaves. Mosses and liverworts are two common types of bryophytes.

The Phylum Tracheophyta contains the vascular plants. Tracheophytes include ferns and seed plants. Ferns can be found growing in damp, shady areas. The big, lacy structure is the leaf of the fern. The stems grow just beneath the surface. From the stem, small roots grow out into the soil.

The most common type of vascular plants are the seed plants. These plants reproduce by forming seeds. If conditions are right, the seeds will grow into new plants. Seed plants are divided into two groups. The first group has uncovered or naked seeds and are called Gym-

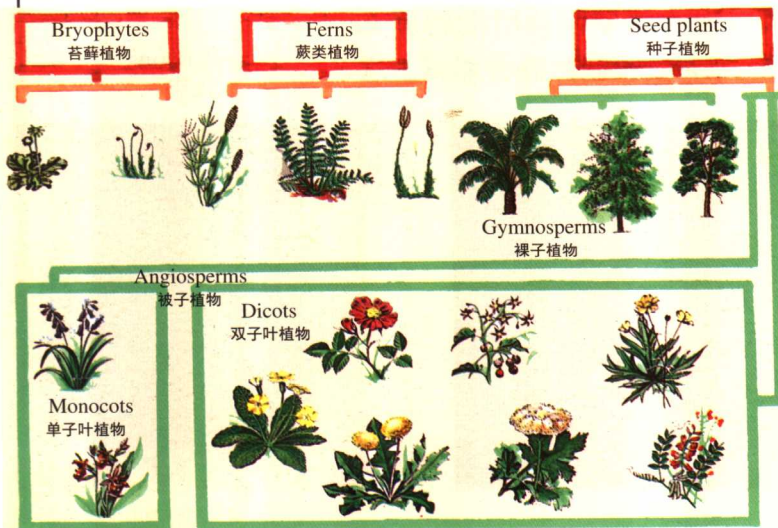
nosperms. The second group have covered seeds and are called Angiosperms.

Many naked seeds plants, the Gymnosperms, have seed cones. They are called conifers or, more commonly, evergreens. The seeds are located on the scales of the cones. The leaves of conifers are needlelike and remain green all year round. You may be familiar with pines, spruce, fir, or cedar which are all conifers.

All remaining plants belong to the group called Angiosperms. These plants have covered seeds. The seed is surrounded by protective tissue called fruit. Apples, blueberries, corn kernels, and pea pods are all examples of this protective fruit. Angiosperms are also called flowering plants since they produce flowers. These flowers are the reproductive organs of the plant.

Angiosperms may be either monocots or dicots. These terms refer to the structure of the seed. A peanut is a dicot seed. There are two halves to the seed. However, a corn kernel has only one part. It is a monocot seed.

There are other easily noticeable characteristics of monocots and dicots. Monocot leaves have veins that run the length of the leaf, side by side. Their flowers have three petals or multiples of three (6, 9, and so on). Dicot leaves have branching veins. The dicot flowers have four or five petals or multiples of four or five.





一门。

多孔动物门包括海绵。海绵是细胞的群落。它们通过孔吸入海水并滤出食物。它们比腔肠动物更加低级。

植物有两大门。第一个叫苔藓植物门。这些植物不具有用于输送水、矿物质和营养的特殊体组织。它们被称为无维管植物。这些植物没有真正的根、茎或叶。苔藓和欧龙牙草是常见的两种苔藓植物。

维管植物门包括各种维管植物,维管植物又包括蕨类和种子植物。蕨类可见于潮湿阴暗处。大而花边状的结构是蕨类的叶。茎就长在表面以下。小根从茎长出,伸入土内。

最普通的维管植物是种子植物。这些植物靠生成  
的籽繁殖。如果条件适合,种子就会长成新株。种子植物分两类。第一类种子无覆盖物而裸露的叫裸子植物。第二类种子有覆盖物的叫做被子植物。



许多裸子植物有果球。它们叫做针叶树,或常说的常绿树。种子位于果球的鳞瓣中,针叶树的叶子像针,终年常绿。可能你熟悉松、云杉、枞或雪松等,它们都是针叶树。

其余植物都属于被子植物一类。这些植物都有被覆盖的种子。种子被称为果实的保护性组织包裹。苹果、紫黑浆果、玉米粒和豌豆荚都是这种保护性果实的例子。被子植物开花,因此也叫开花植物。这些花是植物的生殖器官。

被子植物可以是单子叶也可以是双子叶。这些名词是指种子的构造。花生是双子叶种子。其种子有两半。而玉米粒是一个整体,它是单子叶种子。

单子叶和双子叶还有显而易见的其他特性。单子叶植物的叶有并排贯穿全叶的叶脉。它们的花有3瓣或3的倍数瓣(6、9等等)。双子叶植物的叶脉分支。它们的花有4瓣或5瓣或其倍数。



ferns  
蕨类植物

Angiosperms are also called  
flowering plants.  
被子植物也叫开花植物。

