

# CHAPTER 13

**I**n the past unit, you looked at the life cycles of plants and animals. However, there are many other kinds of organisms other than plants and animals in the world. How do scientists group all of them together? Let's find out...

In this unit you are going to look at **biodiversity** ("bi-o-di-vurs-ity"). Biodiversity means all of the different kinds of organisms that exist in the world, such as:

**Plants, animals, bugs, mushrooms, pond slime...**

Since there is so much biodiversity (different kinds of organisms) in the world, scientists place all of these organisms into groups. Placing organisms into groups is called **taxonomy**.

Think of taxonomy as a way of putting away your clean clothes. I would guess that you have organized your clothes before, right? Do you have a drawer for socks, how about one for pants? By putting your similar clothes (for

example, all of your socks) in its own drawer, you are putting your clothes into groups! Sorting your clothes into groups is an example of taxonomy!



DO YOU THINK THESE SOCKS GET SHOULD GET THEIR OWN DRAWER?

Scientists do the same thing with organisms. You have already learned a few of the groups. In the last unit you learned about reptiles, amphibians, Fish, birds, mammals, and insects. But... all of these groups of species are still animals right?

Scientists place all animals in the world into their own "drawer" called a **Kingdom**. These kingdoms are the largest groups that scientists have created to sort all living organisms. In fact, scientists have placed all organisms of the world into six different kingdoms:

**Animal Kingdom**

**Plant Kingdom**

**Fungi Kingdom**

("FLUN-GY")

**Protista Kingdom**

("PRO-TEES-TA")

**Archaeobacteria Kingdom**

("ARK-EE-BAK-TEAR-E-AH")

**Eubacteria Kingdom**

("U-BAK-TEAR-E-AH")

The first kingdom you are going to explore should be very familiar to you...

# The Animal Kingdom



There is a lot of biodiversity in this kingdom! There are close to one million different kinds of animals that scientists have grouped into this kingdom.

However, there are two traits that make these organisms very similar:

First of all, most animals can move on their own. Second, Animals are **heterotrophic** ("het-er-o-tro-fick"). This means they cannot make their own food. A plant can make its own food inside itself. However, animals cannot do that!



There are so many different kinds of animals with similar traits, scientists decided to **classify** (a word that means "to sort") into two smaller groups:

## Vertebrates and Invertebrates

If you remember, **vertebrates** are animals that contain a backbone and have skeleton inside their bodies. Birds, fish, reptiles, amphibians and mammals are all vertebrates.

You may think that there are more vertebrates in the world than any other animal... but this is not true! Vertebrates are the easiest groups of creatures we can find because Most animals with backbones are large!

*GIRAFFE'S HAVE A LONG BACKBONE. AND THEY ARE NOT AFRAID OF BEGGING FOR FOOD TOO...*



YOU'RE NOT GOING TO EAT THAT WHOLE SANDWHICH, ARE YOU?

Remember when we studied mammals in the last unit? Mammals are vertebrates, right? Let's take a look at some different groups of mammals:

**Primates** ("PRY-MATES")

**Marsupials**  
("MAR-SOOP-EE-ALZ")

**Rodents**  
AND **Cetaceans**  
("SEE-TAH-SEE-ANZ")

**Primates** are animals like the monkey, chimpanzee and gorilla. Many of these animals have very strong hands and fingers because of the use of thumbs. Primates also have very large brains that give them the ability to control and change their environment.

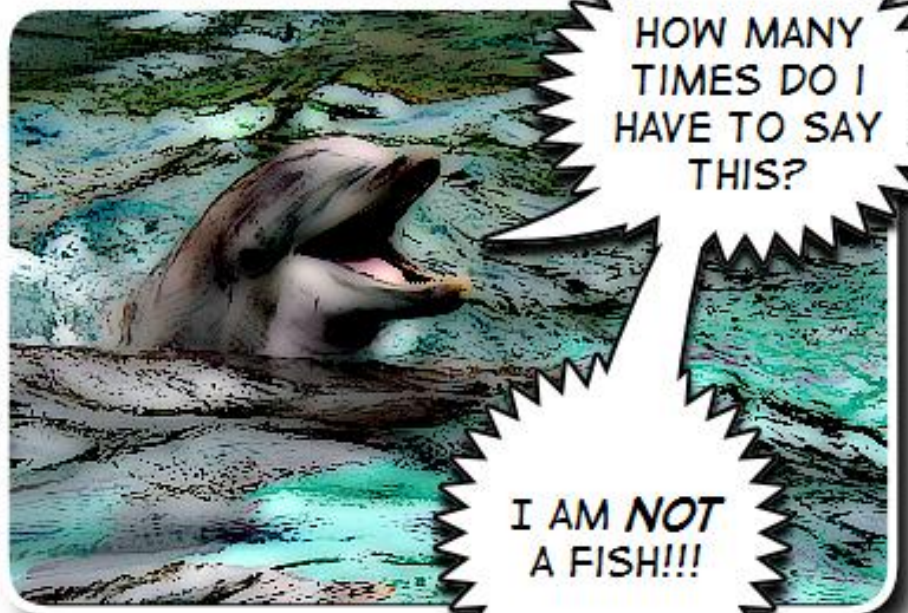




**Marsupials** are different from other vertebrates because they have a pouch on their body. They use this pouch to carry their children! There are two different marsupials ("mar-soop-ee-alz") you may have heard about - the kangaroo and the koala ("koe-ah-lah").

The word **rodent** means "gnawing animal". Mice, rats, gerbils, and squirrels are all different kinds of rodents. These organisms have sharp front teeth. They use their teeth to gnaw through hard foods like nuts and wood.

**Cetaceans** ("see-tah-see-anz") are found in aquatic biomes and are also known as whales and dolphins. These organisms are warm-blooded and they cannot breathe air under the water. So, these mammals must come to the surface of the water to breathe air. That's right! Whales and dolphins are not fish. They are mammals!



# Remember!

There are not as many vertebrates in the world as there are **invertebrates**. Invertebrates do not have a backbone.



*YOU MAY NOT WANT TO CHALLENGE A CRUSTACEAN TO AN ARM WRESTLING MATCH!*

Most of the animal species in the world are invertebrates. In fact, most of these invertebrates are spiders, insects or **crustaceans** ("krus-tase-shun").

Crustaceans are animals like lobsters or crabs that have an exoskeleton and pinchers!

If you remember from the last chapter, an exoskeleton is a skeleton that is found outside of the body.

Many invertebrates, like spiders, insects or crustaceans, have exoskeletons and body parts (like arms and legs) that can move around... Just like humans!

There are so many organisms like this that scientists have placed them into their own group: the **arthropods** ("r-throw-pods"). All arthropods have exoskeletons and body parts that help them to move.

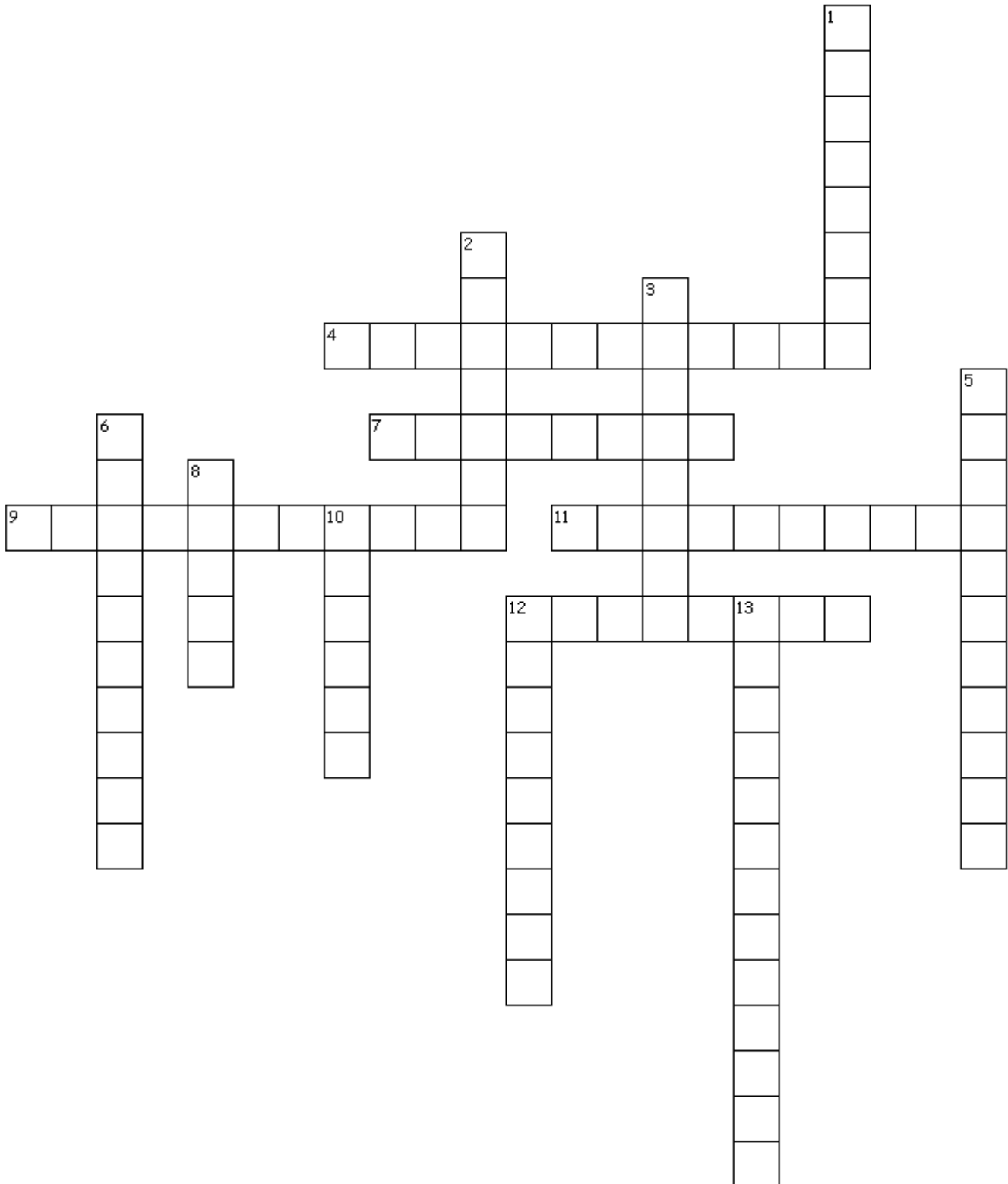


There are, however, invertebrates that do not have an exoskeleton. One of these organisms is known as a jellyfish. This organism has no skeleton at all. The jellyfish forces water out of its body which causes it to move.

In the next chapter, you are going to look at another kind of organism I'm certain you have seen before...

# Plants!

Place the answers to the following clues in the boxes below. Each box should contain one letter.



## Across

4. all of the different kinds of life that exist on the world
7. six different groups that scientists have placed all living organisms into
9. animals that contain a backbone and have skeleton inside their bodies
11. the largest group of invertebrates that include spiders, insects and crustaceans
12. to group things

## Down

1. the way scientists place all of the different organisms into groups
2. vertebrate animals like rats, mice and squirrels who have sharp front teeth used for gnawing
3. vertebrate animals like the monkey, baboon, chimpanzee and gorilla which have very strong hands and fingers because of the use of thumbs
5. animals like lobsters or crabs that have an exoskeleton and pinchers
6. vertebrate animals like the kangaroo or koala that have a pouch on their body for carrying their children
8. the smallest part of a living organism
10. in this kingdom most organisms can move on their own and are heterotrophic
12. these warm-blooded vertebrates (such as whales and dolphins) breathe air above the water
13. animals that do not have a backbone



**Match the words in the first column to the best available answer in the second column.**

- |                      |  |
|----------------------|--|
| _____ Biodiversity   | 1) six different groups that scientists have placed all living organisms into                                |
| _____ Taxonomy       | 2) animals that contain a backbone and have skeleton inside their bodies                                     |
| _____ Kingdoms       | 3) the smallest part of a living organism  |
| _____ Animal kingdom | 4) animals that have an exoskeleton and pinchers   |
| _____ Cells          | 5) most organisms in this kingdom can move on their own and are heterotrophic                                |
| _____ Classify       | 6) vertebrate animals which have very strong hands and fingers because of the use of thumbs                  |
| _____ Vertebrates    | 7) to group things   |
| _____ Invertebrates  | 8) vertebrate animals like the kangaroo or koala that have a pouch on their body for carrying their children |
| _____ Primates       | 9) animals that do not have a backbone   |

- \_\_\_\_\_ Marsupials 10) these warm-blooded vertebrates breathe air above the water
- \_\_\_\_\_ Rodent 11) vertebrate animals like who have sharp front teeth used for gnawing
- \_\_\_\_\_ Cetaceans 12) all of the different kinds of life that exist on the world
- \_\_\_\_\_ Crustaceans 13) the way scientists place all of the different organisms into groups
- \_\_\_\_\_ Arthropods 14) the largest group of invertebrates that include spiders and insects and crustaceans

**Which one is right? Circle the correct answer.**

**1. Most animals are heterotrophic because they \_\_\_\_\_.**

- a. choose not to make their own food
- b. use other organisms for food
- c. make their own food

**2. What is the largest group that scientists place organisms?**

- a. populations
- b. species
- c. kingdoms

**3. Which of the following organisms are all vertebrates?**

- a. birds, fish, insects and reptiles
- b. fish, amphibians, reptiles and primates
- c. fish, amphibians, reptiles and spiders

**4. Which type of organism contains a pouch to carry its babies?**

- a. marsupials
- b. cetaceans
- c. primates

**5. The number of invertebrates in the world \_\_\_\_\_.**

- a. is about the same as the number of vertebrates
- b. is more than the number of vertebrates
- c. is less than the number of vertebrates

**6. Which of the following organisms are all arthropods?**

- a. spiders, insects and crustaceans
- b. spiders, mice and crustaceans
- c. spiders, lobsters and rodents