

Chapter 13

Classifying animals



Day One:

Today, you and your child will:

1. Read the text
2. Review the text with your child
3. Complete the student worksheets
4. Collect the materials you will need for days two and three

National Science Education Standards covered this week:

Placing organisms into groups is a process called taxonomy and is very helpful in the study of every species on earth. Taxonomy gives scientists a way to communicate to each other about specific organisms in the world. The largest groups that organisms are placed into are called kingdoms.

The animal kingdom can be separated into two groups: animals with backbones (vertebrates) and those without backbones (invertebrates).

Definitions

Biodiversity	"bio-di-vurs-ity"; all of the different kinds of life that exist on the world
Taxonomy	the way scientists place all of the different organisms into groups
Kingdoms	six different groups that scientists have placed all living organisms into
Animal kingdom	most organisms in this kingdom can move on their own and are heterotrophic
Cells	the smallest part of a living organism
Classify	to group things
Heterotrophic	organisms that cannot make their own food
Vertebrates	animals that contain a backbone and have skeleton inside their bodies
Invertebrates	animals that do not have a backbone
Primates	vertebrate animals like the monkey, baboon, chimpanzee and gorilla which have very strong hands and fingers because of the use of thumbs
Marsupials	"mar-soop-ee-alz"; vertebrate animals like the kangaroo or koala that have a pouch on their body for carrying their children
Rodent	vertebrate animals like rats, mice and squirrels who have sharp front teeth used for gnawing
Cetaceans	"see-tah-see-anz"; these warm-blooded vertebrates (such as whales and dolphins) breathe air above the water
Crustaceans	"krus-tase-shun"; crustaceans are animals like lobsters or crabs that have an exoskeleton and pinchers
Arthropods	the largest group of invertebrates that include spiders, insects and crustaceans

Sample questions to ask your child after completing the weekly reading.

What is the largest group that scientists have placed organisms into?

The six kingdoms are the largest groups that are used to classify organisms.

Why is the taxonomy of living organisms always changing?

New ways of classifying organisms is required as scientists continue to find new information about each kingdom.

Are humans heterotrophic?

Yes. Humans cannot make their own food. We have to eat to survive.

Name two examples of vertebrates and invertebrates.

Vertebrates include animals such as whales, dolphins, humans, monkeys, etc.
invertebrates include lobsters, crabs, insects and spiders.

Answers to worksheet questions:

Page 1:

Across:

- 4. biodiversity
- 7. kingdoms
- 9. vertebrates
- 11. arthropods
- 12. classify

Down:

- 1. taxonomy
- 2. rodents
- 3. primates
- 5. crustaceans
- 6. marsupials
- 8. cells
- 10. animal
- 12. cetaceans
- 13. invertebrate

Page 2:

- 12 - biodiversity
- 13 - taxonomy
- 1 - kingdoms
- 5 - animal kingdom
- 3 - cells
- 7 - classify
- 2 - vertebrates

- 9 - invertebrates
- 6 - primates
- 8 - marsupials
- 11 - rodent
- 10 - cetaceans
- 4 - crustaceans
- 14 - arthropods

Page 3:

- 1. b
- 2. c
- 3. b

- 4. a
- 5. b
- 6. a

Day Two:

Today, you and your child will:

1. Review Day One using the following text
2. Run the first activity this week

The following text will give you the most important items to review for your activity today.

The process of classification is a part of our human intuition. As young children, we are constantly organizing, sorting and classifying everything in our world.

Taxonomy plays a vital role in science as it gives scientists around the world with a common language to identify individual species. Without taxonomy, there could be dozens of ways to explain any species.

Kingdom of donuts

Objective:

Children will classify a group of different kinds of donuts.

Materials:

eight different kinds of donuts (beans, buttons, pens, etc. all work just as good)

sealable baggies

classification worksheet/blank classification chart (see attached)

paper/pencil

Procedure:

Place each donut into its own baggie.

Ask the child what kinds of ways they can describe the donuts (i.e. their color, shape, size, frosting, etc.) list all of these things on the classification worksheet.

Pick one of the descriptions and place the donuts into two piles:

“Donuts with the trait” and “donuts without the trait”

You want to keep dividing the piles until you have placed each donut into its own individual pile. Each time you have to divide the piles, you will use one of the traits you placed on the classification worksheet. As you place your donuts into separate groups, write down each division on the blank classification chart.

For example...

Let's say you have the following donuts in baggies:

Glazed donut, Twist, Bear claw, Apple fritter, and Donut hole

If you choose the trait of being "round" you would place the glazed donut and donut hole in one pile (Round) while the twist, bear claw and apple fritter would be placed in another pile (Not round.)

Now you need to divide both of your piles into smaller piles. So, take a look at the list of traits from your classification worksheet. Let's say you described the donuts as "twisted". You could divide pile 1b into two more piles:

You would place the twist into one pile (Twisted) and the bear claw and apple fritter into another pile (Not twisted.)

So your classification chart would begin to look like this:

<i>Glazed donut, Twist, Bear claw, Apple fritter, and Donut hole</i>		
Round <i>Glazed donut and Donut hole</i>	Not round <i>Twist, Bear Claw, and Apple fritter</i>	
	Twisted <i>Twist</i>	Not twisted <i>Bear claw and Apple fritter</i>

This example is not yet complete. You would still have to divide the "round" donuts and the "not round/not twisted" donuts.

Explanation:

The classification table you have created with your donuts is very similar to the way scientists classify living organisms. The interesting part about this way of classifying is...there is more than one way of doing it correctly. That is why it is so important for scientists to speak with one another about how they classify new organisms.

To test your classification chart, give it to a person that has not been working on your donut project. Only give them the traits your child has used to classify the donuts. See if this new person can figure out which donut the classification chart is describing.

Classification worksheet:

Ways to describe the donuts	

Blank classification chart:

Day Three: Lab Activity

Today, you and your child will:

1. Review Day One using the following text
2. Run the first activity this week

The following text will give you the most important items to review for your activity today.

People's thumbs are called "opposable" because the thumb can be moved around to touch their other fingers. Not all organisms have this particular trait.

The ability to rotate one's thumb helps to grab and throw things which may be very helpful for an organism's survival.

I'm all thumbs!

Objective:

Children will explore the importance of their opposable thumb.

Materials:

transparent or masking tape	toothbrush
pencil and paper	hairbrush or comb
clothing with buttons and zippers sock	sealable plastic bag
shoe with laces coin	jar with a lid
balloon	

Procedure:

Have a helper lightly tape your thumbs to the sides of your hands. Do not tape them too tight, you should be able to move your four fingers easily.

Try each one of the activities below. Make sure not to use your thumbs at all as you do the activities.

Decide if the activity took longer or was more difficult to do without your thumbs, was about the same to do without your thumbs, or if you couldn't do it at all without your thumbs. Record your decisions on the data chart.

Activities to try without your thumb:

Write your name with a pencil

Put on a sock and shoe

Open a door using a knob

Blow up a balloon and tie it

Pull up a zipper

Brush your teeth

Open a jar

Seal a plastic bag

Brush or comb your hair

Button a button

Tie a shoelace

Pick a coin up off a flat surface

Explanation:

People's thumbs are called opposable because the thumb can be moved around to touch their other fingers. Most primates and some other animals have opposable thumbs. Humans can move their thumb farther across their hand than any other primate. Having opposable thumbs helps in grasping things more easily, picking up small objects, and eating with one hand.

Data chart

Activity	Took longer or was more difficult without thumbs	Took about the same time without thumbs	Couldn't do this activity without thumbs
Write your name with a pencil			
Put on a sock and shoe			
Open a door using a knob			
Brush or comb your hair			
Button a button			
Tie a shoelace			
Blow up a balloon and tie it			
Seal a plastic bag			
Pull up a zipper			
Pick a coin up off a flat surface			
Brush your teeth			
Open a jar			