

# Chapter 2 Classification

## Lesson 1

## Why Classify?

### Genesis 1:28

Then God blessed them, and God said to them, “Be fruitful and multiply; fill the earth and subdue it; have dominion over the fish of the sea, over the birds of the air, and over every living thing that moves on the earth.”

### Genesis 2:19 (NKJV)

Out of the ground the Lord God formed every beast of the field and every bird of the air, and brought them to Adam to see what he would call them. And whatever Adam called each living creature, that was its name.”

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## Vocabulary

**Directions:** Match the correct word to the definition by writing the letter of the word in the circle.

Letter	Definition	Word
C	1. plants that have tubes that carry water and minerals from the roots to the leaves and carry food	A. respiration
G	2. animals without a backbone; animals that have soft sacs or hard shells around them for support of their bodies	B. reproduction
B	3. living things making new living things like themselves	C. vascular
F	4. the process that living things use to remove harmful waste products from the body such as carbon dioxide, and things that cannot be digested	D. nonvascular
A	5. the process of living things using oxygen	E. vertebrate
H	6. things that cause a living thing to respond or do something	F. excretion
E	7. animals with a backbone; animals that have a bony skeleton inside them for support of their bodies	G. invertebrate
D	8. low-growing plants without tubes in the stems to carry materials; they pass water and nutrients only from one cell to the next	H. stimuli

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## Vocabulary Matching Answer Key

**respiration**—the process of living things using oxygen

**stimuli**—things that cause a living thing to respond or do something

**excretion**—the process that living things use to remove harmful waste products from the body such as carbon dioxide, and things that cannot be digested

**reproduction**—living things making new living things like themselves

**cell**—the smallest unit of a living thing that can perform all life processes

**vascular**—plants that have tubes that carry water and minerals from the roots to the leaves and carry food

**nonvascular**—low-growing plants without tubes in the stems to carry materials; they pass water and nutrients only from one cell to the next

**vertebrate**—animals with a backbone; animals that have a bony skeleton inside them for support of their bodies

**invertebrate**—animals without a backbone; animals that have soft sacs or hard shells around them for support of their bodies

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## The Biblical Definition of Life

### Genesis 1:20-21a (NKJV)

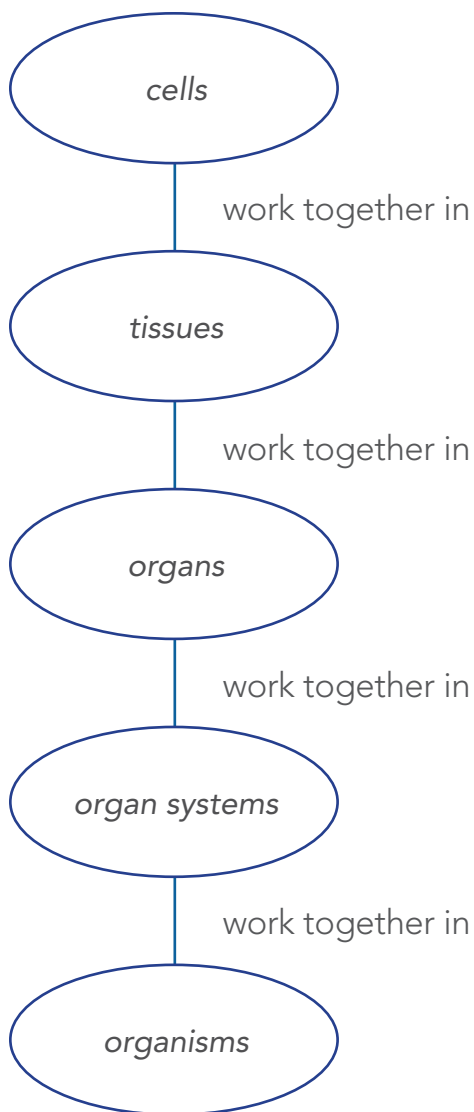
Then God said, 'Let the waters abound with an abundance of living creatures, and let birds fly above the earth across the face of the firmament of the heavens.' So God created great sea creatures and every living thing that moves, with which the waters abounded...

Hebrew	Meaning	Scripture Reference
<i>nephesh</i>	air-breathing, blood pumping life	<b>Genesis 1:21a</b> "So God created great sea creatures and every living thing that moves..."  <b>Genesis 1:24a</b> "The God said, 'Let the earth bring forth the living creature..."  <b>Genesis 2:7</b> "And the LORD God formed man of the dust of the ground, and breathed into his nostrils the breath of life; and man became a living being."
<i>dam</i>	blood	Leviticus 17:11a "For the life of the flesh is in the blood..."

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## Cells to Organisms



All living things are made of cells.

A cell is the smallest unit of a living thing that can perform all life processes.

Cells work together in tissues.

Tissues work together in organs.

Organs work together in systems.

All the systems come together to form an organism.

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## Lesson 3

## Life Processes

For something to be alive, it must do seven things. We call these seven things life processes. The life processes are: respiration, nutrition, growth, movement, sensitivity, excretion, and reproduction.

### Respiration

Most living things need oxygen to stay alive. They use oxygen to turn food into energy.

### Nutrition

All living things need food. They feed to obtain energy.

### Growth

All living things grow. They get bigger by growing taller or wider.

### Movement

Most living things move. Living things move in order to get food or to survive.

### Sensitivity

All living things are sensitive and respond to changes. This means they react to changes in their surroundings.

### Excretion

Living things have to remove waste products from the body.

### Reproduction

All living things reproduce. That means a living thing can make a new member of their same kind of living thing before they die.



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## Respiration

Some animals such as insects, use breathing tubes called trachea.



Some animals such as worms, can absorb oxygen through the surface of their skin.

Green plants make their own oxygen. They exchange gases with their surroundings through holes underneath their leaves. These little holes are called stomata.



Animals often breathe in ways to match where they live. Many animals obtain oxygen from the air using lungs. Some animals such as fish, obtain oxygen using gills because they live underwater.

To obtain oxygen from the air, animals and plants exchange gases between themselves and their surroundings.



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## Nutrition

### Nutrition

Plants make their own food. Most green plants make their own food through photosynthesis.

Special parts of the plant cells called chloroplasts convert sunlight, carbon dioxide, water, and minerals into food for the plant. Plant and animal bodies are made up of millions of tiny building blocks called cells.

Animals do not make their own food. They must eat plants or other animals for their food. Animals must eat in order to grow and to repair their cells.



### Growth

All living things grow. They get bigger by growing taller or wider. Seedlings grow into bigger plants and increase their size in all directions. Plants can grow taller and wider. Their shape is always changing. Baby animals grow into adult animals by growing taller and wider. Most animals only get bigger in a definite shape.





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## Movement



### Movement

Most living things move. Living things move in order to survive.

Plants move when they grow. They also move their roots down toward the center of the earth. They move their stems and leaves up toward the sunlight.

Animals move to keep themselves safe and to look for food. Some move on the land. Some move in the air. Some move in the water.

### Sensitivity

All living things are sensitive and respond to changes. This means they react to changes in their surroundings.

Animals respond to what is happening around them. Animals on land may shiver when they feel cold. Or, like the skunk, may spray when they are scared.

Animals in the sea will also respond to what is happening around them. Animals can have the senses of taste, sight, hearing, touch, and smell.

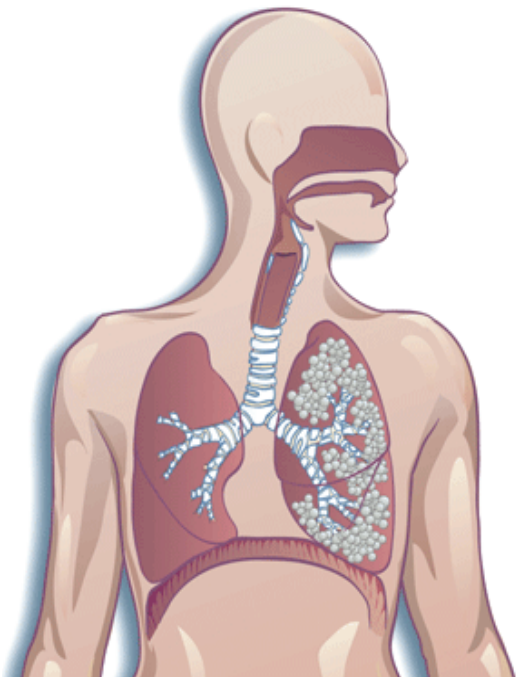
Plants also respond to changes. Their roots sense and move toward water. Leaves sense and turn toward sunlight.



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### Excretion



### Excretion

Living things have to remove waste products from the body. Some of the waste products are: Carbon Dioxide and some Nitrogen compounds. Some animals remove the harmful effects of the gas Carbon Dioxide by breathing out. They also breathe out water vapor.

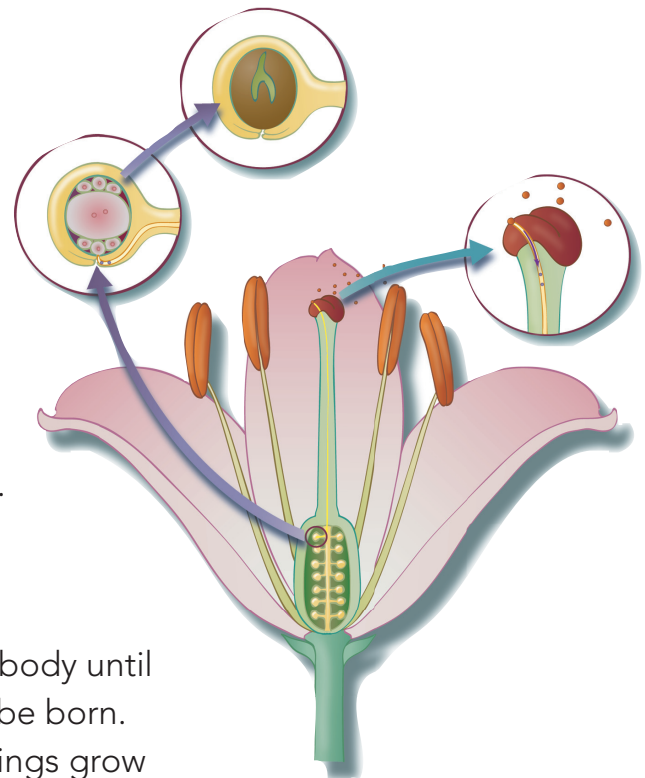
To grow and repair, cells of the body need Nitrogen. As the cells wear out, new ones take their place. This makes Nitrogen waste. It must be removed from the cells into the blood. The main organs whose job is removing the Nitrogen waste from your blood are the kidneys.

### Reproduction

All living things reproduce. That means a living thing can make a new member of their same kind of living thing before they die. To be able to reproduce, plants and animals must be mature.

Some simple organisms like amoebas reproduce by dividing to make two new organisms. Yeast cells and a tiny creature called a hydra can reproduce by buds. Some animals reproduce by laying eggs. Birds and insects, plus many fish and snakes lay eggs.

The eggs of most mammals stay inside the mother's body until they have grown into baby animals and are ready to be born. Plants with flowers reproduce with seeds. New seedlings grow into adult plants.

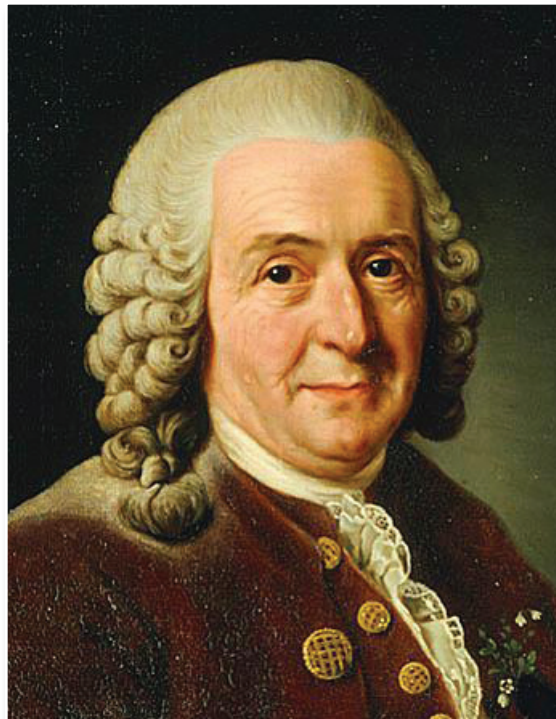




## Chapter 2 Classification

### Lesson 4

### Who was Carolus Linnaeus?



CAROLUS LINNAEUS

(1707-1778)

*The Father of  
Taxonomy*

# Chapter 2 Classification

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## False Conclusions

IS A COUGAR RELATED TO AN ALLIGATOR?



Common name:  
**MOUNTAIN LION**

K—Animalia  
P—Chordata  
C—Mammalia  
O—Carnivora  
F—Felidae  
G—Felis  
S—Concolor

NOT  
RELATED



Common name:  
**ALLIGATOR**

K—Animalia  
P—Chordata  
C—Reptilia  
O—Crocodilia  
F—Crocodylidae  
G—Alligator  
S—Mississippiensis

# Chapter 2 Classification

## Lesson 4

## Classification System of Living Things

*Kingdom*

*Phylum*

*Class*

*Order*

*Family*

*Genus*

*Species*

Scientists sort living things to study, compare and identify. Kingdoms are further subdivided into smaller groups. The kingdom is divided into divisions. Divisions are divided into class. Class is divided into order. Orders are divided into families. Family is divided into genus. Genus is divided into species.

A mnemonic device to remember the order of the classification system: King Phillip called out for green sprouts.



# Chapter 2 Classification

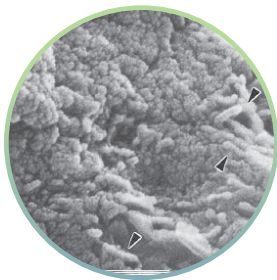
## Lesson 4

## The Kingdoms of Living Things

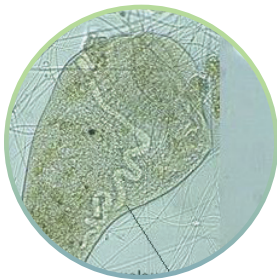
### Archaeobacteria



### Eubacteria



### Protista



### Fungi



Currently, there are six kingdoms identified by scientists: Archaeobacteria, Eubacteria, Protista, Fungi, Plantae, and Animalia (Creation scientists recognize Man as being separate from Kingdom Animalia and all other classifications, since Man was created in the image of God.)

- Archaeobacteria live as single cells. Many do not need oxygen or sunlight to live and can survive in extremely harsh environments like hot springs, sewage treatment plants, and volcanic vents. They make their own food.
- Eubacteria can cause disease, but many are helpful. They make soil fertile and are necessary for making foods such as yogurt and cheese. Some eubacteria make vitamins in the body.
- Protista are large but still microscopic life forms like the amoeba, paramecium, and most kinds of plankton. Although some protista are harmful, most are helpful. Many are food for other organisms, including Earth's largest organisms--whales.
- Fungi are used to make foods and medicines such as penicillin. Some fungi can cause human diseases such as athlete's foot and ringworm. They also plant diseases called rusts.
- Without plants (Plantae), life on earth would not exist.
- Animals (Animalia) get energy by eating other organisms or their remains.

### Plantae



### Animalia



A possible mnemonic device to remember the kingdoms:

**All Elephants  
Passed  
Furiously Past  
America**

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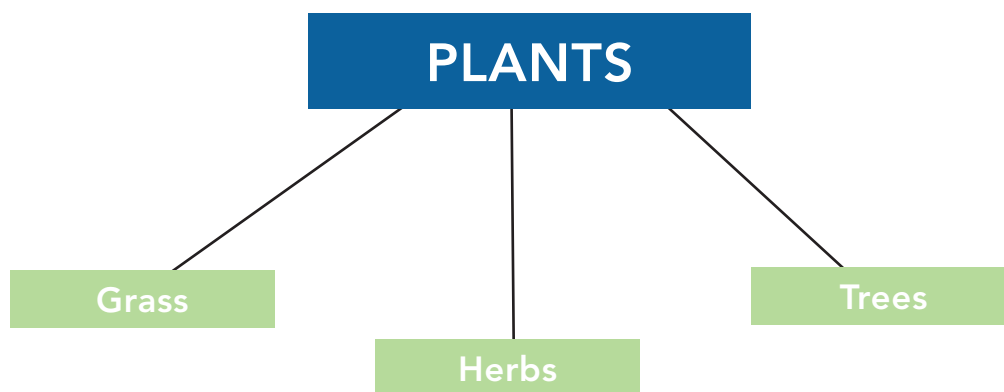
## Lesson 5

### Biblical Grouping of Plants

#### GENESIS 1:11-13 (KJV)

"And God said, Let the earth bring forth grass, the herb yielding seed, and the fruit tree yielding fruit after his kind, whose seed is in itself, upon the earth; and it was so. And the earth brought forth grass, and herb yielding seed after his kind, and the tree yielding fruit, whose seed was in itself, after his kind; and God saw that it was good. And the evening and the morning were the third day."

Biblical Grouping	Description
grass	green ground-covering vegetation (examples: hay, wheat, barley)
herb	small non-woody plants other than grasses
tree	all large woody plants, including fruit-bearing trees



# Chapter 2 Classification

## Lesson 5

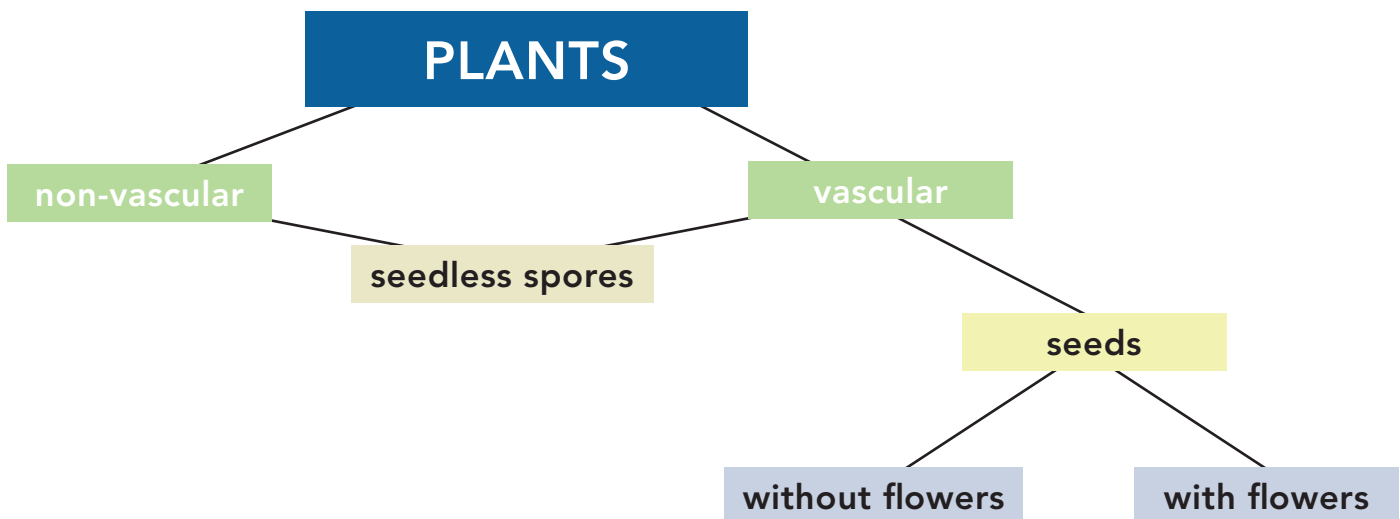
### Process of Classifying Plants

Plants are different from animals in that they produce their own food using sunlight, water, and carbon dioxide in order to make sugar.

Plants have distinctive features like stems, roots, and leaves. Plants can be multi-cellular, just like animals.

Plants are sorted by how they transport water and how they reproduce. Most plants are vascular which means there are tubes for carrying water and food to all areas of the plant. Plants can reproduce by flowers and seeds, cones and seeds, or spores.

Characteristics of Plants					
Phyla	Vascular	Seeds	Spores	Flowers	Other
flowering plants	yes	yes	no	yes	plants use flowers to reproduce
conifers	yes	yes	no	no	needles are special leaves
mosses	no	no	yes	no	very small and has tiny leaf-like structures
ferns	yes	no	yes	no	feather-like leaves



# Chapter 2 Classification

## Lesson 6

## Biblical Grouping of Animals

### Genesis 1:20

And God said, "Let the water teem with living creatures, and let birds fly above the earth across the expanse of the sky."

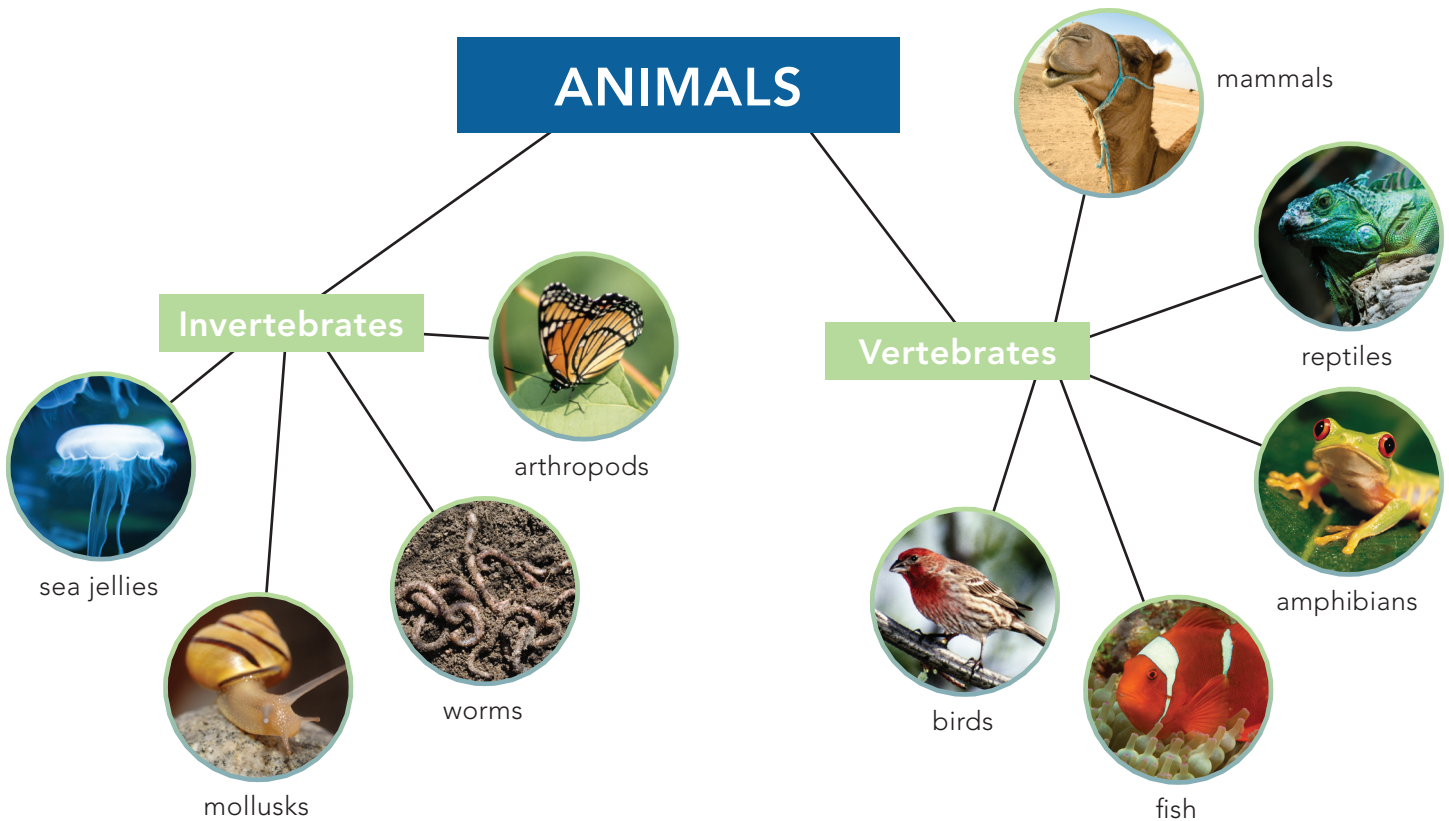
### Genesis 1:24

Let the land produce living creatures according to their kinds: livestock, creatures that move along the ground, and wild animals, each according to its kind." And it was so.

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## Lesson 6

## Animal Grouping



The members of each group share a specific set of traits.

Scientists divide the animal kingdom into two basic categories—vertebrates (with a backbone) and invertebrates (without a backbone).

Scientists have named more than a million species of invertebrates. Invertebrates can have soft sacs or hard shells for support.

Most of the world's animals are invertebrates.

### ANIMALS ARE...

- *unable to make their own food*
- *able to move on their own in part of their life*

A mnemonic device to remember the order of the subphylum of vertebrates:

***My Brother Fired Amazing Rockets***



# Chapter 2 Classification

## Lesson 9

### Concept Map

