YOUNG EXPLORER SERIES

apologia

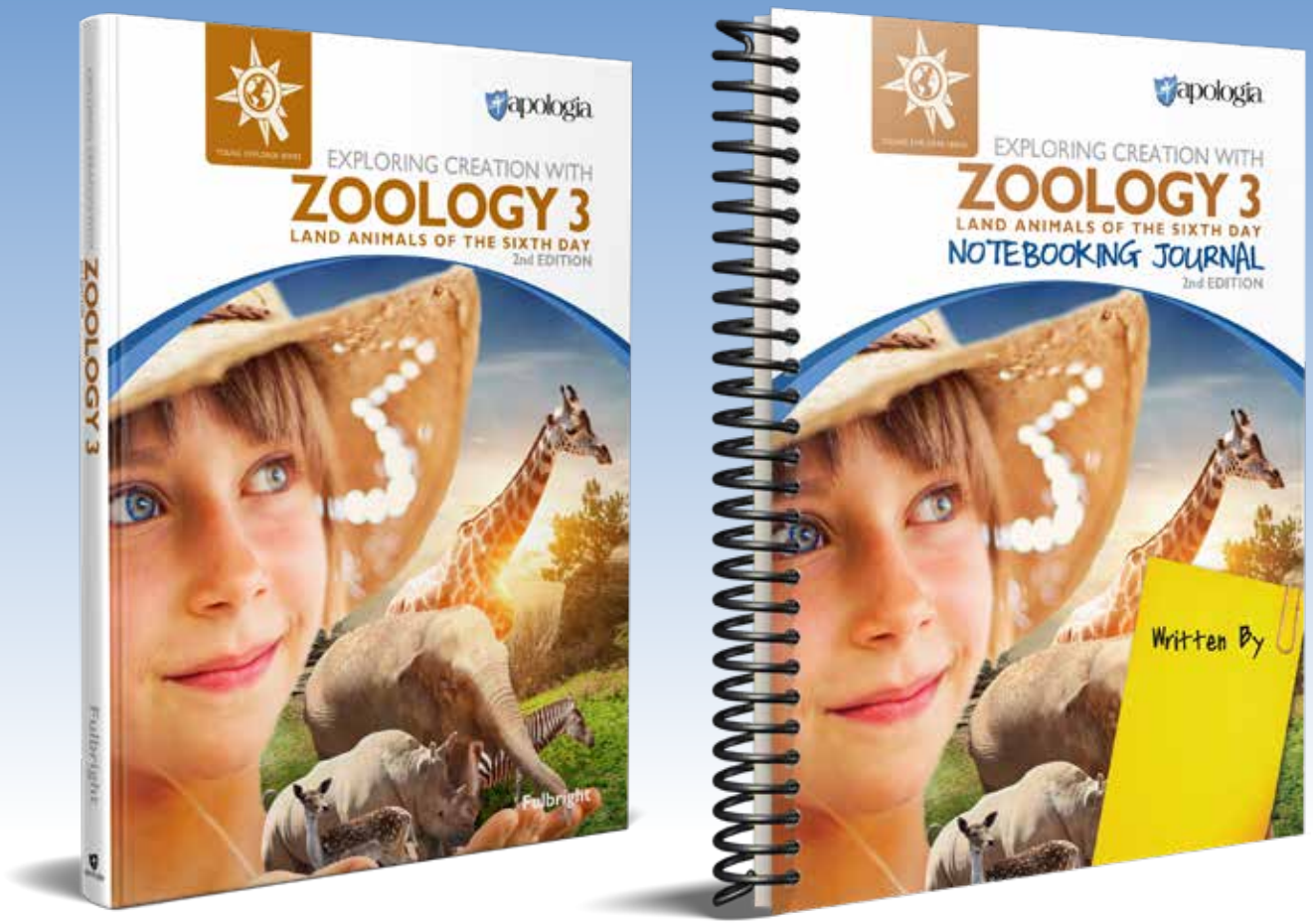
EXPLORING CREATION WITH

ZOOLOGY 3

LAND ANIMALS OF THE SIXTH DAY

2nd EDITION

Fulbright



Click the section you want to preview.

---

apologia

TABLE OF CONTENTS

LESSON 1

INTRODUCTION TO THE ANIMALS OF DAY SIX

grounded in truth

God's original design for the world did not include animals preying on one another. When He created Earth, it was very good. It wasn't until the fall of man through the sin of Adam and Eve that animals and man began to consume one another. One day, God will restore Earth to its original design. When that happens, there will be no more death.

And to every beast of the earth and every bird of the air and every creature that crawls upon the earth—everything that has the breath of life in it—I have given every green plant for food." And it was so.
Genesis 1:30, BSB

ZOOLOGY OF THE LAND

Welcome to Zoology 3, the study of the land animals God created on the sixth day. Can you imagine a world without animals? What if God created only Earth, plants, and people? What would that world look like? Personally, I think that would be a very sad thing. Of course, if we never knew that animals could exist, we wouldn't miss them. But just thinking about the possibility makes me very grateful that God did create animals.

And God said, "Let the earth bring forth living creatures according to their kinds: livestock, land crawlers, and beasts of the earth according to their kinds." And it was so. God made the beasts of the earth according to their kinds, the livestock according to their kinds, and everything that crawls upon the earth according to its kind. And God saw that it was good.
(Genesis 1:24–25, BSB)

Here we see that God separates land animals into 3 groups: wild animals, livestock, and the creatures that move along the ground. In this book, we'll study the animals in that order.

ANIMALS OF THE WILD

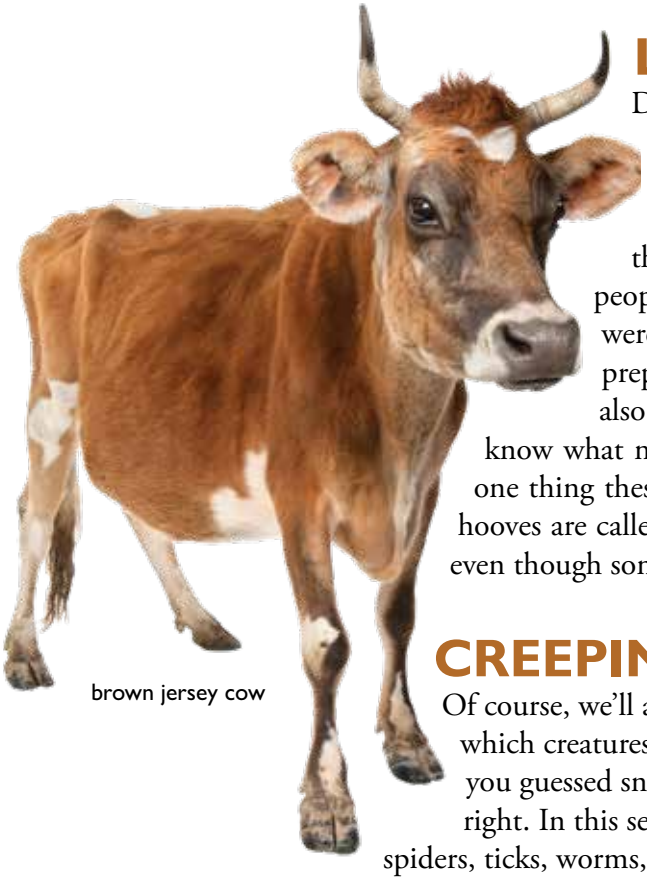
Wild animals are not **domesticated**. Domesticated means tame—like a farm animal or a pet. Wild animals don't make great pets. I know this because when I was a child I attempted to have many wild animals as pets. When my father worked in the Amazon rainforest as a geologist, he brought home a lot of interesting things. One day, he came home with a kitten—an ocelot kitten. The kitten's mother had been killed in an accident.


ocelot

How cute that kitten was! It played and scampered about, climbing up the furniture and attacking anything that moved, just like any young house cat. As it grew bigger and heavier than any house cat should, its playful bite became more powerful, and its claws grew longer and sharper. When it climbed up my grandmother's dress to be held in her arms, its claws left marks on her legs.

As my oldest brother was sleeping one night, our ocelot saw his feet twitching over the edge of the bed. After a few minutes of crouching on the floor, the ocelot leaped up and grabbed my brother's feet with both claws, hanging on for dear life. My brother was hurt so badly he had to go to the hospital! Although it made us sad, we had to find a better home for our kitten. So we gave it to a wild animal conservatory.

Although wild animals aren't suited to be pets, some have become domesticated. Can you think of any? Pets such as dogs and cats are good examples of domesticated animals. We will study them when we study wild animals, as many kinds of dogs and cats are still wild.


brown jersey cow

LIVING LIVESTOCK

Do you know what livestock are? Livestock are animals that people own, care for, and use for food, clothing, or helping us in some way. Can you think of some examples? Horses, donkeys, sheep, cows, camels, and pigs are all livestock. Isn't it interesting that God created these animals for the specific purpose of helping people? They were always designed to be useful to us. Before machines were built, horses and donkeys carried people and pulled plows to prepare the soil for crops. Sheep give us wool for clothing. They can also be eaten. Cattle are eaten and milked and give us leather. Do you know what meat comes from pigs? Bacon, ham, and pork. Can you think of one thing these animals have in common? They all have hooves. Animals with hooves are called **ungulates**. In the livestock section, we'll study every ungulate, even though some of them (like zebras and gazelles) are not really livestock.

CREEPING, CRAWLING CREATURES

Of course, we'll also study creatures that creep along the ground. Try to guess which creatures creep or move along the ground. If you guessed snakes, lizards, or frogs, you were right. In this section, we'll also include spiders, ticks, worms, and centipedes.

Activity 1.1

CREATE YOUR GIANT DRIVE-THRU ANIMAL ATLAS

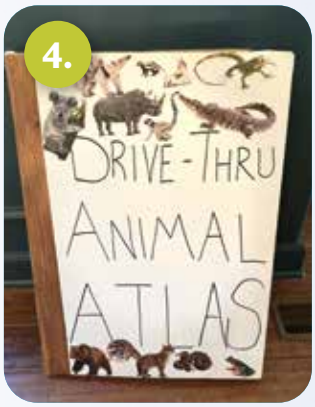
In this activity, you'll make a giant book to learn where different animals live around the world. As you learn about each animal, you'll place a small cutout of it on the right continent. A toy car will drive through your book to visit animals from different regions.

You will need:

- 6 foam boards (at least 20 × 28 inches)
- Duct tape (2–3 colors)
- Box cutter (used by an adult)
- Large roll of craft paper
- Glue or Mod Podge®
- The world map provided
- Chalk
- Green acrylic paint (several shades)
- Paintbrush
- Paper plate
- Permanent markers
- Small toy car

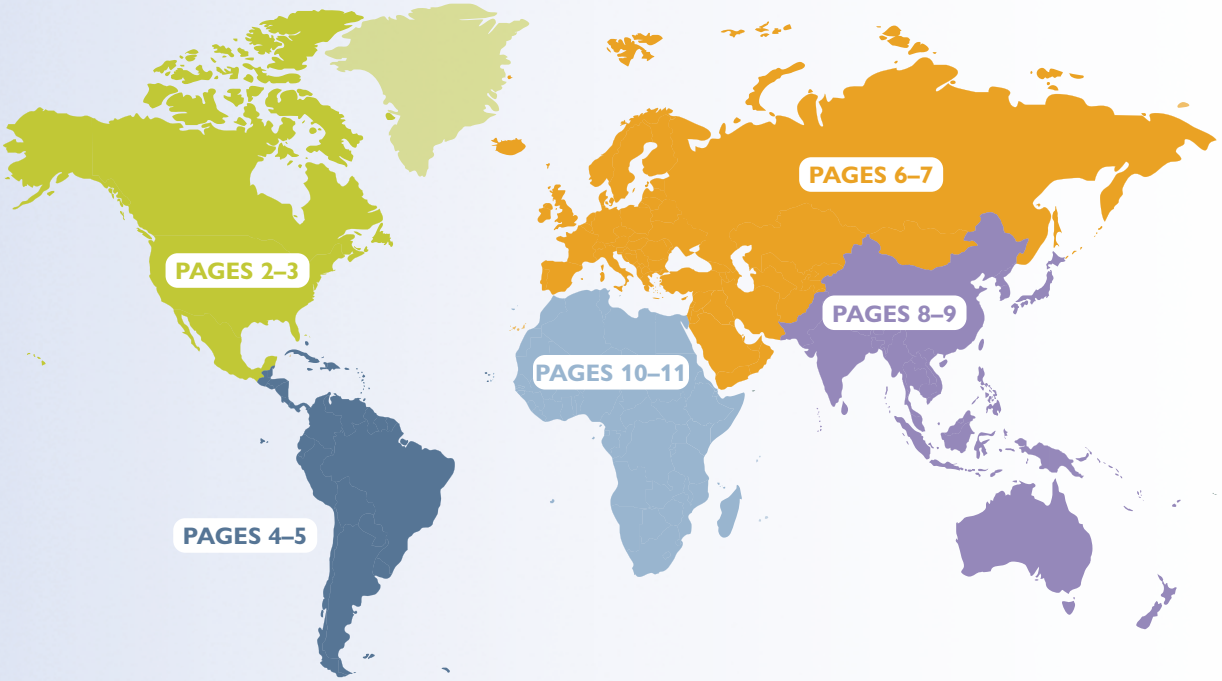
You will do:

1. Make car passageways: Have an adult cut a 2 × 3-inch rectangle on the long side of 4 foam boards. Change the location of the cut on each board so the car won't accidentally go through more than one page at a time.
2. Assemble the pages: Tape the boards together at the side with the cutouts. This will create pages that can turn, like a book. If the tape covers the passageways, cut them out again.
3. Add the covers: Place the uncut boards on the top and bottom of the stack to be the front and back covers. Use duct tape to attach them to the inside pages. You can use a different color of tape for the spine.
4. Decorate the cover: Get creative and decorate the cover of your atlas however you like!
5. Prepare the maps: Cut 5 pieces of craft paper to 36 × 30 inches. Study the map of the world provided. Using chalk, draw maps on each 2-page spread. Adjust the size and shape of the continents to fit the pages and make sure the regions with more animals are larger. (Exclude Greenland since it has fewer animal species.)



Map layout (the front cover is page one):

- Pages 2–3: North America (include a bit of Mexico and Hawaii)
- Pages 4–5: Central America, South America, and the Galapagos Islands
- Pages 6–7: Europe, Russia, and the Middle East
- Pages 8–9: China, India, Japan, Southeast Asia, Australia, New Zealand, Tasmania, and New Guinea
- Page 10–11: Africa and Madagascar



6. Paint the maps: Paint the continents and regions different shades of green. Let them dry.
7. Attach the maps to the book: Glue or tape the craft paper maps onto each 2-page spread. Recut the car passageways if needed.
8. Label the maps: Use permanent markers to label each continent, country, and region.
9. Add the roads: Use a different color of duct tape to make roads. Start on the first page in Florida, move through North America, and exit through the cutout. On each following page, draw roads leading to and from the passageways. On the last page, make sure the road can loop back to the beginning so the car can travel both ways.
10. Add animals: As you learn about each animal, find a picture online (or use the Zoology 3 Notebooking Journal) and print it. Cut it out with a small tab on the bottom that can be folded under so the animal can stand up. Glue the tab down on the correct page of your atlas. Keep adding animals throughout the year!

CREATION OR EVOLUTION

In the Bible verse we read earlier (Genesis 1:24–25), we learned that God made animals according to their kinds. Have you ever heard someone say that one animal is related to another? For example, house cats are related to wild cats. This is because God originally created only one kind of cat. Today, we see many different kinds of cats, but they all originally descended from the original kind of cat.

Remember, God said that all the animals reproduce after their own kind. The word *kind* is very important. You see, there are many different species of animals, but not nearly as many kinds of animals. For example, calico cats and Siamese cats live in people's homes, but lions roam the wilds of Africa, and tigers span the continent of Asia. Even though all these cats are very different from one another, they all came from a pair of cats that walked off the Ark after the worldwide Flood.

calico cat and a tiger

In other words, God created each kind of animal with the ability to adapt and change over time. So after the 2 cats walked off the Ark and began to reproduce, their young were similar to, but not exactly the same as, their parents. As time went on, the differences between the young and their parents continued to "pile up," until there were many different species of cats—from the cute little Siamese to the dangerous lion.

Some people argue that the account of the worldwide Flood can't be true because all the different animals of the world could not fit on the Ark. However, Noah took only 2 of most kinds of animals onto the Ark. He took 7 of each kind of "clean" animal, such as camels, cattle, sheep, goats, and many birds. But it was mostly just 2 of each animal kind on the Ark. He didn't have to take 2 of each of the different species of cat, for example. He just had to take 2 from the cat kind, and they would eventually be the great, great, great, great, great grandparents of all the different species of cats we see today.

IT'S ALL IN THE GENES

Today, we do see animals change and develop into different species. These micro, or small, changes in features do not change an animal into a different kind of animal. An animal can *only* develop features that are programmed into the original animal kind's **DNA**.

DNA contains the special codes (called genes) God built to tell our cells what features we should develop. Inside our genes, there are also hidden codes for features that we don't develop. For example, if your mother has curly hair and your father has straight hair, you will most likely have genes for both curly and straight hair, but only one type of hair will develop. If you have curly hair, you probably have hidden genes, called **recessive genes**, for straight hair. And your children may have curly or straight hair, depending on which of those genes are passed on to them. However, your children will never develop feathers instead of hair. That's because their DNA is coded for hair, not feathers. You can have variations in the kind of hair you grow, but it will always be hair.

So, this takes us back to the animals that came out of the Ark. In the biblical account, the animals that God sent onto the Ark were likely animals that had a great variety of DNA codes for a great many different features. The dogs on the Ark may have been 2 totally different kinds of dogs that could breed with one anoth-

er. Inside both dogs were likely many different DNA codes for all kinds of features: long ears, short ears, long legs, short legs, long tails, short tails, long hair, short hair, and many different colors. After the Flood, as the dogs bred with one another, these codes came out in their offspring. And the features that helped the dogs survive the best in the area where they lived would become the dominant features for the dogs in that area.

Here's an example of this: If a pair of dogs found themselves in a very cold climate, their long-haired offspring would survive better until eventually only the long-haired dogs would be found in that area. We call this process **natural selection**. The features that help a species survive best in certain areas are naturally selected to become the main features of animals in that area. Some people call this **microevolution**. *Micro* means "small." The word *evolution* simply means "the gradual development or change of something." Therefore, microevolution refers to small changes. In our dog example, the offspring could eventually become a new species, such as a coyote or a fox, but they are still part of the dog kind. They have not changed into another kind of animal, such as a cat. Another word for microevolution is *speciation*. Speciation is the process where an animal group develops specific features that scientists use to classify them into different species.

NATURAL SELECTION

natural selection of dogs

Scientists use the word *evolution* to refer to changes in nature. Some scientists also use this word to explain their belief in enormous or macro (*macro* means "big") changes such as from a simple life-form to a more complex life-form. This kind of evolution has no real evidence and has not been seen in nature. The only kind of evolution that has ever been observed is *micro*evolution, or natural selection—the process where changes take place within the created kinds to develop unique characteristics and separate species. These changes have been observed and recorded in nature, in the fossil record, and in the lab. **Macroevolution** refers to the erroneous idea that enormous changes can develop in an animal species over time, causing the animal to develop features that were not in the original DNA code. They say this happens over millions of years. This has never been observed or recorded in any way—not in nature, not in the fossil record, nor in the lab.

Microevolution and macroevolution are very different things. As we learned, microevolution occurs when one feature of an animal alters, causing the animal to look somewhat different from its ancestors. On the other hand, macroevolution requires the code within the DNA to change to cause an animal's body part to become something altogether different through mutations (abnormalities that might accidentally happen in the DNA code). Mutations are sometimes mistakes that limit or hurt the survival of a creature. And the fact is that a beak simply cannot become a jaw with teeth; a bird's foot cannot become a paw with claws. Scales cannot become feathers. Legs cannot become wings.

Let's look at a real example before we move on. We'll base this example on a real occurrence a man named Charles Darwin observed. On a tropical island, he found that there were birds that had unusually

long bills. These birds were exactly like birds that had been observed before, except their bills were much longer. These birds had an advantage because they could get nectar from flowers that had a very long neck. Without the long bills, the birds couldn't reach the nectar of these flowers. And these flowers grew on this tropical island in abundance.

Cactus finch, Galapagos Islands National Park, Ecuador

What seemed to have happened was the original species of birds with shorter bills had DNA coding that allowed for longer bills to occasionally show up in their offspring. Those with the longer bills were able to get more nutrients than their shorter-billed siblings. The longer-billed birds became healthier, laid more eggs, and preferred to breed with the other healthier birds (those with long bills). When short-billed birds mated with long-billed birds, the young that developed longer bills had more young than the ones that had shorter bills. Slowly, the birds with shorter bills became scarce until the only species of birds left in the area was the one with the long bills. That's speciation.

This can go on and on with longer and longer beaks becoming prevalent, as long as their DNA has the coding to produce such a beak. The longer beak—which is better for their survival—is naturally selected as the preferred beak. Do you see now how natural selection works? The birds' physical characteristics changed, but the birds were still birds.

This process can take a very short time. In fact, scientists have observed new species of wallabies (a kind of kangaroo) develop within 12 years in Australia. In Croatia, it took only 36 years for a brand-new species of lizard to develop. A brand-new species of crayfish is quickly invading the waters of Europe and Japan. New species are developing all the time. In fact, scientists discover around 18,000 new species of animals each year. In addition to that, people breed and grow new species of plants and animals all the time.

If we traced a species' ancestry, we would find DNA codes for many variations. As living things develop more and more specific features, the DNA code becomes more specific. In fact, the DNA becomes so specific that it often can no longer produce a creature like the original. This is why creation scientists believe God selected 2 kinds of animal with the most variations in their genetic code to enter the Ark. And this would explain why we have so many different species today from each kind of animal.

However, people who believe in macroevolution make a giant leap and say that if a bird's beak size or shape can change over time, then it could eventually evolve into a mouth with teeth. They believe a dinosaur could evolve into a bird, a fish could evolve into a man, and everything alive today was once a simple organism floating in water. Creation scientists believe this giant leap changes truth into a lie. Creationists explain that macroevolution refers to impossibly vast changes for which there is no evidence.

Often, in public and private school textbooks, *micro*evolution is explained, and all the evidence supporting it is given. After the students come to understand how *micro*evolution works, the textbook then states this is how we evolved from monkeys and monkeys evolved from fish, and fish evolved from smaller organisms. Because the students understand how small changes occur, they assume the textbook is right about big changes. And many, many people simply accept this faulty thinking as fact.

As creationists, we know that if macroevolution were true, the fossil record would show animals in transition from one kind of animal to another. However, no transitional creatures have ever been found for any

animal kind. Though millions of fossils have been unearthed, none show a halfway or changing body from one creature to another. The physical evidence does not support macroevolution.

CAMBRIAN CONUNDRUM

There are numerous examples throughout zoology that give evidence for the biblical account of creation. The first and foremost is the Cambrian Explosion, which is to macroevolutionists a zoological enigma—an enigma is something that is a mystery or a puzzling situation. However, if you believe the Bible's history of Earth, the Cambrian Explosion is not an enigma at all.

What is the Cambrian Explosion? Well, let me first tell you that evolutionary scientists date the Earth as much older than what creation scientist's date it as, even though scientists have seen firsthand the explosion of a volcano called Mount Saint Helens. When Mount Saint Helens exploded, it only took minutes and days to form canyons and earth layers that looked similar to the layers of earth in other parts of the world that scientists believe took millions of years to lay down. This is important to understand. If no one had seen Mount Saint Helens lay down these layers and form canyons, they might have believed those layers took millions of years to develop—just as some say about the Cambrian Explosion layers.

Mount Saint Helens before erupting in 1980 (left), and during its eruption (right)

The Cambrian Explosion is a zoological event where a huge number of small, fully developed animals suddenly appear in the fossil record. In addition to including wildly exotic and complex animals like the *Opabinia*, *Marella*, and *Anomalocaris* pictured here, familiar creatures like shellfish, jellyfish, sea stars, worms, and regular fish were found in this layer of the earth. Many of these creatures were completely different from one another in form and design.

What's so interesting is that these animals appear abruptly, most having characteristics that are the same as those we see today, sometimes with little or no changes in features.

Scientists are still studying this because these animals have no evidence of earlier ancestors in the layers below the Cambrian Explosion layer. These novel, or new, animals seemed to appear out of nowhere—with no similar animal in layers beneath this Cambrian layer. Even the founder of the idea of macroevolution—Charles Darwin—was stumped by this zoological event.

The Bible's record of a worldwide Flood can easily explain this sudden appearance of thousands of fully developed animals buried in rock layers. When the water sprang up from underground and poured down from above, the land became extremely muddy. This mud rolled down from the mountains, creating vast rivers of fast-moving sludgy sediment that trapped the animals, burying them. Fossils can only form when animals are immediately buried in sediment, which is exactly what happened during this worldwide Flood that wiped

out many of the marine creatures and all of the air-breathing land creatures. The only land animals that survived were safely aboard Noah's Ark. Indeed, the Cambrian Explosion gives us solid evidence for a worldwide Flood as depicted in the Bible.

Did you know that when we believe something, we begin to create a set of assumptions. An assumption is a thing that is accepted as true without proof. Everyone makes assumptions. Some assume that everything on Earth formed through a sudden explosion that later, over millions of years, developed all life-forms. Others believe the Bible that says God created everything in 6 literal days. When people study science, people apply their assumptions to whatever they see. If something doesn't make sense according to their assumptions, they often call the problem a mystery. However, many mysteries (such as the Cambrian Explosion) are not mysteries at all and can be clearly explained by God's account of origins in the Bible.

Explain what you learned about microevolution.

Activity 1.2
DNA OFFSPRING

You will need:

- Your Notebooking Journal or paper
- Pencil
- Colored pencils, markers, or crayons (optional)
- Imagination

You will do:

1. In your Zoology 3 Notebooking Journal, draw 2 imaginary dogs with completely different features.
2. Then draw their puppies, each showing the different features found in the parents. You can include things like eye color, hair color, length, and texture, tail length and shape, nose length and shape, and ear length and shape. Be creative!

CLASSIFYING ANIMAL GROUPS

When scientists discover a new animal species, the first thing they do is classify it with others of its kind. Then they place the new species into its own unique group and give it a special name—sometimes, it's given the name of the scientist who discovered the animal. Animal classification is important to understand because we will learn about animals according to how they are classified.

All living things are put into a large group called a kingdom. For example, plants are placed in the plant kingdom and animals are in the animal kingdom. There are 5 kingdoms. But in this book, we are focused on the animal kingdom, also called **Kingdom Animalia**.

Once a creature is classified as an animal, it is then separated into a phylum, which is a smaller group—but still a rather large group of animals with a few similar features. There are 9 major animal phylum or phyla (which is plural for phylum). Those 9 animal phyla can be seen in the images on the next page.

9 MAJOR ANIMAL PHYLA

PORIFERA

sponges

CNIDARIA

coral, jellyfish, and sea anemones

PLATYHELMINTHES

parasitic flatworms and tapeworms

ANNELIDA

earthworms and leeches

MOLLUSCA

clams, mussels, and snails

ARTHROPODA

insects, crustaceans, arachnids, and scorpions

CHORDATA

vertebrates such as lizards, frogs, dogs, cats, monkeys, horses, and birds

NEMATODA

roundworms

ECHINODERMATA

sea stars, sea urchins, and sea cucumbers

As you may have guessed, most of the animals we will study in this book are in the Phylum Chordata. The animals in this phylum all have a backbone with a spinal cord—which is where the word ***chordata*** comes from. After the animal is separated into a phylum, it is then placed into a smaller group called a class. The Phylum Chordata contains 5 classes of animals. Look at the images here to see each of these classes.

PISCES

AMPHIBIA

REPTILIA

AVES

MAMMALIA

Since this book is about the animals created on the sixth day, we will focus our studies on mammals, amphibians, and reptiles—as well as creatures from a couple of other phyla that are not in chordata, such as spiders, scorpions, and worms.

After an animal is placed in its class, it is then divided into orders. There are more than 20 orders of animals in Class Mammalia. Animals in each order have some similarities but are still very different from one

another. For example, in the Order Carnivora we have bears, raccoons, walruses, dogs, and cats, and many other animals that all eat mostly the flesh of other animals. The word *Carne* refers to "meat" and *vore* refers to "eating." Carnivores are meat eaters.

After they are placed in their orders, they are then divided into families. Animals in the same family look a lot more alike than animals in other families. For example, animals in the Family Ursidae are bears. All the bears are in this family.

Animals that are very close in features are placed in a genus together. And then after the genus, each animal is placed in its own unique species that includes all the animals that look exactly like that specific animal.

In order to remember the way animals are classified, scientists often use the mnemonic Kings Play Chess On Fine Glass Sets. The first letter of each word in this phrase refers to the first letter of each classification: Kingdom, Phylum, Class, Order, Family, Genus, Species.

Activity 1.3
CLASSIFY YOUR FAVORITE ANIMAL

You will need:
- Your Notebooking Journal or paper
- Pencil
- Internet with adult supervision

You will do:
1. Think of your favorite animal and draw a picture of it at the top of your page.
2. With adult help, research how your favorite animal is classified by scientists.
3. Classify your animal by Kingdom, Phylum, Class, Order, Family, Genus, and Species.

PREDATORS AND PREY

In this book, we'll study a lot of **predators** and their **prey**. This means we'll have to learn about animals (the predators) chasing, capturing, and eating other creatures (the prey). This might bother you.

It might make you sad to learn about an animal and then learn that it gets eaten by other animals. Do you know why this bothers you? It's because you were created in the image of God and have emotions that are similar to God's emotions. The Bible says God notices when a single sparrow falls to the ground. He cares about the animals, just like you do. It is a sad thing to God that animals are now predators and prey. But did you know that this was not the way it was originally meant to be?

Not Designed for Death

After God finished His work of creation, He said something very important about what all the animals should eat. Let's read what God said in Genesis 1:29–31:

> **God also said,** ***"Look, I have given you every seed-bearing plant on the surface of the entire earth and every tree whose fruit contains seed. This will be food for you, for all the wildlife of the earth, for every bird of the sky, and for every creature that crawls on the earth—everything having the breath of life in***

it—I have given every green plant for food." And it was so. God saw all that he had made, and it was very good indeed. Evening came and then morning: the sixth day. **(Genesis 1:29–31)**

All the animals were given plants to eat. That means all animals were originally herbivores (creatures that eat only plants). To God, this wasn't just good; it was *very* good.

Christians believe that there was no animal death on Earth right after Creation. For if death existed before the fall of creation, then Adam and Eve were living in a fallen world before they sinned. In the beginning, animals weren't supposed to die. Death and decay came as a result of Adam and Eve's sin in the Garden of Eden. Because of their sin, all of creation, including animals, was subject to death and decay. Apparently, some animals (especially the ones that had the right kind of teeth) began to develop a taste for other animals. As a result, some animals stopped eating the plants God had made for their food, and they began eating other animals.


prairie dog

Romans 8:20–22 tells us that all of creation waits for the day when the world will be restored to its original state:

For the creation was subjected to futility—not willingly, but because of him who subjected it—in the hope that the creation itself will also be set free from the bondage to decay into the glorious freedom of God's children. For we know that the whole creation has been groaning together with labor pains until now. **(Romans 8:20–22)**


gorilla

The Bible promises that one day Jesus will return and remove death from the world, rescuing creation from its groans and suffering. Let's read 1 Corinthians 15:24–26:

Then comes the end, when he hands over the kingdom to God the Father, when he abolishes all rule and all authority and power. For he must reign until he puts all his enemies under his feet. The last enemy to be abolished is death. **(1 Corinthians 15:24–26)**

When Jesus destroys death, the world will look something like what is described in Isaiah 11:6–9:

The wolf will dwell with the lamb, and the leopard will lie down with the goat. The calf, the young lion, and the fattened calf will be together, and a child will lead them. The cow and the bear will graze, their young ones will lie down together, and the lion will eat straw like cattle. An infant will play beside the cobra's pit, and a toddler will put his hand into a snake's den. They will not harm or destroy each other on my entire holy mountain, for the land will be as full of the knowledge of the Lord as the sea is filled with water. **(Isaiah 11:6–9)**

Can you imagine lions that will only eat plants, and venomous snakes that will be harmless? Wolves playing with lambs, and leopards with goats is hard to picture, but that's what it was like when God originally created the animals. The Bible also promises that someday it will be like that again!

You might be wondering, "But don't carnivores only eat meat? Aren't their sharp teeth meant for tearing flesh?" This isn't exactly true. You see, many animals with extremely sharp teeth eat only fruit and other plant parts.

The teeth of fruit bats, for example, are perfect for tearing into the flesh of the thick skin of fruits, or ripping tough leaves off a branch. Also, the panda's sharp teeth are perfect for peeling the flesh off the bamboo shoots it eats.


fruit bat

Furthermore, there have been reports of carnivorous animals, such as dogs and lions, that will eat only plants. In fact, 2 people called Georges and Margaret Westbeau had a lion they named Little Tyke. This interesting animal refused to eat any kind of meat. The Westbeaus were worried because they thought lions must eat meat to survive. They tried everything they could to coax the lion to eat meat. Nevertheless, it survived on grain, rice, milk, and eggs.

Though it's hard to imagine a world without death and decay, we are promised that this is the way it will be one day. So as you are reading this book and learning about predators and their prey, just remember: It won't always be like that.

Explain what you learned about classification and God's design for animals.

STUDYING ANIMALS

Have you ever studied an animal? I don't mean just watching or playing with an animal. I mean, have you observed an animal, taken note of its behavior, and thought about the reasons it does what it does? Have you ever read a book about an animal's anatomy or behavior and tried to remember what you learned? If so, you are probably someone who would enjoy a career in zoology.

Zoologists study animal behavior, habitats, anatomy, and everything else they can about animals. Most of what we know about animals is the result of scientists studying them. A zoo is a false habitat, and the animal may adjust its behavior to the zoo environment. For example, in a zoo, animals do not need to avoid predators and search for food. They don't need to teach their young these skills either, though you may see animals doing these behaviors if they are instinctual. Although scientists can learn a lot about animals in a zoo, the best way to understand their behavior is to study creatures in their natural habitat and environment.

Studying animals in their natural habitat is tricky. When an animal encounters a human, it will usually behave differently than it normally would. Zoologists can learn how animals usually act, how animals form relationships with one another, and how animals exhibit habits by hiding from the animals' view or by getting the animals used to their presence. Because many animals have keen senses, it is often hard to hide from them. As a result, zoologists will sometimes try to get animals used to people, a process called **habituation**.

HABITUATION

To habituate animals, scientists will slowly get closer and closer to the animals, then remain there—causing no harm or disruption, day after day—until the animals get used to their presence. In the beginning, the animals hide and are cautious. After a time, however, the animals no longer see the scientists as a threat, and they begin to go about their usual business. The scientists can then begin studying them. One famous scientist, Dr. Jane Goodall, habituated chimpanzees to her presence and studied them for many years in a wildlife park in Africa.

This was also done by scientists at Cornell University with a group of meerkats in an African desert. The study lasted for 10 years, and much was learned about meerkats during this time.

In most such circumstances, animals become habituated to the sights, smells, and sounds of the particular scientists who have been there day after day, week after week, month after month, and even year after year. The animals are habituated to these individual scientists only. It's important to note that the animals are not tamed by these scientists, though the creatures might trot right up to the scientists and investigate them, even crawling on their laps. However, they are still wild animals that could hurt anyone they don't trust. These animals have learned to trust only a few particular scientists. If a new scientist approaches, the animals go back to their guarded behavior.

Habituating animals to humans can be risky for both the animals and the people. If an animal becomes habituated to many people, it can come to think that all humans are somewhat safe. This is dangerous for an animal because it could walk right up to a hunter who would shoot it. On the other hand, if the animal seems tame to a person, the person might start trying to treat it like a pet. Since a wild animal is not used to such treatment, it might think the person is trying to hurt it, and it could harm the person, thinking it must defend itself. So once again, a habituated animal is not tame. General habituation often happens with bears in national parks. Some bears become used to humans feeding them, even though people are told not to do this. As a result, bears sometimes approach people, looking for food. Although bears may look friendly, they are very dangerous wild animals. People sometimes make the mistake of thinking such bears are tame and start feeding them. But when they stop feeding them, the bears may become violent. One swipe from a bear claw can result in death. We'll learn more about bears later.

Many of the animals you will learn about in this book, such as monkeys, have been studied for hundreds of years, whether through habituation or by being observed from afar. Others, such as certain species of salamanders, have only been studied by a very few scientists because they are difficult to find. There are some animals we know almost nothing about, typically because they are difficult to track and because they live in a habitat not frequented by people.

Even though there are many things we do not know about animals, you will learn a great deal about what we do know as this book takes you on a tour through the world, looking at the different orders and families of animals. However, there isn't room to tell you about every animal species in creation. If you want to learn more about a particular species of animal, check out books from the library or do some research on the internet with your parents permission. Book Extras I told you about in the introduction to the book is a great place to start. If there is a lot known about an animal, you will find a lot of information. If little is known or understood about a particular animal, there probably has not been a scientist dedicated to studying it. Perhaps you will be the one who does that when you grow up!

Activity 1.4
HABITUATE THE ANIMALS IN YOUR YARD

Training to be a zoologist requires a lot of patience. Scientists must sit still in nature for a long time until the animals that ran or flew away from them return. In this activity, you will need to find a very natural area where animals visit, such as a nature preserve, a forest, or even your own backyard.

You will need:

- Natural outdoor environment
- Chair or pillow
- Notebooking Journal or paper
- Pencil

You will do:

1. Find a comfortable place to sit outdoors. Bring a pillow or camp chair and your Notebooking Journal and a pencil.
2. Sit in one spot without moving much.
3. Observe how long it takes for the animals to begin gathering around you.
4. Make a sketch of one of them and write down what you notice about its behavior.

ANIMAL CAREERS

If you have a special love for animals, you may want to consider a career that will give you the opportunity to work with them. There are many careers for people who want to work with animals. All of them can be rewarding if you love animals. Some require degrees or certification; others don't require any special education, but they do require training. Let's take a look at a few of the jobs you could get working with animals.

veterinarian with a chicken

Veterinarian

The most obvious career for a person who loves animals is to become a **veterinarian**, a doctor who works with injured and ill animals. Most veterinarians specialize in either small animals, like dogs and cats, or large animals, like horses and cows. A very few will specialize in exotic animals like marine animals, zoo animals, or chickens. I know chickens don't seem all that exotic, but once a veterinarian knows about chickens, she can treat parrots and injured birds. A veterinarian who specializes in exotic animals can also work in zoos, with wildlife organizations, or with animal research organizations. An exotic animal veterinarian can even work in chicken plants, treating the chickens that will one day be served on someone's dinner table! One interesting veteri-

nary career involves working with politicians and health organizations, educating people, and creating programs that deal with **zoonotic diseases**. Zoonotic diseases are illnesses transmitted from animals to people, like avian flu, mad cow disease, West Nile fever, and Lyme disease.

While there are more than 150 medical schools in the United States, there are only about 30 veterinary schools. This means a person has a better chance of becoming a doctor than a veterinarian. However, you have a greater likelihood of getting into veterinary school if you have experience working with different types of animals. There are many places to get this experience. You could volunteer as a vet's assistant or in a laboratory that studies animals. You could also volunteer for a few years on a farm, zoo, or nature preserve. The more experience you have with different kinds of animals, the better your chance of being accepted to veterinary school.

Zoologist

Zoologists are people who usually have a degree in zoology or biology and intend to work with animals. A zoologist will often work in the field, specializing in one type of animal. This often involves observing, tagging, or recording the number of animals found in a specific location. Studying animal populations is a very important part of zoology. Zoologists often work for government agencies or private companies, helping people decide how to preserve the animal population in that area. You will do an experiment in a later lesson that will help you understand population growth and decline.


zoologist with a kangaroo

Also, zoologists can become zookeepers or aquarists. Zookeepers usually begin by caring for specific types of animals and their habitats. Eventually, they can add more and more animal exhibits to their responsibilities, working their way up to overseeing the entire zoo. At that point, they are often called curators. In addition to making sure the animals are properly cared for, zookeepers watch for unusual behaviors and illness. They also make sure the animals get enough exercise, which is done through training interactions.

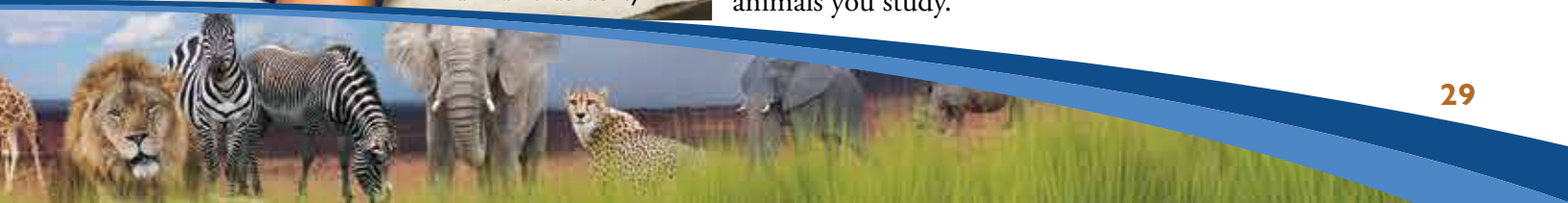
Zoologists can also spend time as animal educators, helping people understand animals and their habitats. Wildlife parks, sanctuaries, aquariums, and museums hire educators to create brochures, videos, tours, and exhibits. These zoologists often live on the park grounds and study, research, and explore wildlife behavior. They usually write books or magazine articles, which is another way for them to make a living as a zoologist. Animal educators and program directors need a strong background in writing and speaking.


baby raccoon being fed at an animal rehab facility

As a zoologist, you can also be a wildlife rehabilitator. In this case, you would work for the government (or some other agency) to care for ill, injured, or orphaned animals with the hope of one day releasing them back into the wild.

Zoologists can also make wildlife documentaries. These are the informative shows about animals you might watch on different television programs. It is a good idea to have experience with filmmaking if you want to make documentaries.

If you plan to become a zoologist, you will need to take a great many science and math courses. It is also important that you learn good communication and writing skills. You will need these skills to help others understand how to protect the animals you study.



Pet Careers


a guide dog


a farrier tending to a horse's hoof

Even if you don't want to get a degree in biology or zoology, there are a lot of careers that involve working with animals. For example, you could become a certified dog trainer, training dogs for all kinds of work, such as guide dogs, police dogs, or inspection dogs. You could also expand your career to include many other kinds of animals. Animal trainers are often hired to train animals to be in movies or television shows. Also, you could become an animal control officer, work at an animal shelter, or work at a pet store. Although most of these careers do not require college degrees, they do require lots of knowledge and experience with animals.

Because horses are a favorite animal for many, there are several careers in the equine (horse) field. In addition to becoming a large-animal veterinarian, you could become a horse breeder or a horse trainer. You could also work at a racetrack or rodeo. Some jobs involving horses are very specific. For example, you could become a **farrier**, which is a person who cares specifically for horses' hooves.

These are only a few of the many kinds of jobs you could get working with animals. Many places that work with animals use student volunteers to help them. Volunteers may clean habitats, help record animal behavior, or even assist with operations or training. Though volunteers don't get paid, they get a lot of the experience necessary to get a paying job someday.

As you study zoology this year, you might begin to develop your own ideas about what you want to do when you grow up. Whether or not you choose to work with animals, it's a lot of fun to study them.

Activity 1.5
ANIMAL CAREER STORY

You will need:

- Your Notebooking Journal or paper
- Pencil

You will do:

1. In your Zoology 3 Notebooking Journal, you will have an opportunity to write down what you learned in the "Fascinating Facts" section and make illustrations to go along with it. You will also be given creative assignments that will encourage you to think more deeply about the subject and develop neural pathways for your long-term memory.
2. In the "Fascinating Facts" section of your Notebooking Journal, record some "Fascinating Facts" from this lesson and make an illustration to go along with it.
3. Once you are finished, imagine you had to choose an animal career. Which animal career would you like to have? Imagine what your life would be like if you had that career.
4. In your Notebooking Journal, write a story of what your life would be like.
5. Explain what you would do each day, where you would go, what you would wear, what animals you would encounter, and all the things you imagine it would be like.

Activity 1.6
PREDATOR AND PREY EXPERIMENT

Remember how we discussed animals that are either predator or prey? Well, predators and prey need to blend in with their environment so they aren't seen. Prey want to avoid being seen so they don't get eaten; predators prefer not to be seen so they can sneak up on their prey. Let's do a little experiment with colored candies to see what happens to animals that are well camouflaged and those that are not.

Since you probably like to eat candies, you can think of yourself as a "predator" of candies. In this experiment, you (the predator) will be hunting for the candies (the prey) in a special habitat you create. Then you can discover which candies are best suited to survive in this habitat.

You will need:

- Your Notebooking Journal or paper
- 1 laundry basket or large plastic container
- 1 bag of colored candies
- 1 plain sheet of white paper
- 4 clean paper towels
- 21 sheets of construction paper in 3 different colors matching 3 of the candies (we used 7 red, 7 yellow, and 7 blue)
- 3 or more extra sheets of construction paper (any color) to line the laundry basket or container
- 1 stopwatch or some other kind of timer

You will do:

1. On the sheet of plain white paper, make a table like the one below.

	RED CANDY	BROWN CANDY	GREEN CANDY	YELLOW CANDY	ORANGE CANDY	BLUE CANDY
Starting Number						
Number Found						
Number Not Found						

2. Lay some paper towels on the floor or on a table and pour your candies onto the paper towels.
3. Separate the candies into groups according to their color.
4. Count the number of candies in each color group. Whichever color has the least number in it will tell you the number of candies you will use in each color group. For example, if there are 18 brown, 16 red, 17 yellow, and 14 green candies, you will use 14 candies in each group.

Continued on next page.

5. Take the extra candies from the other groups so that all the groups have the same number in them.
6. With a parent's permission, eat the rest of the candies you will not need.
7. Write the number of candies you have in each group (it should be the same number for each color) in the first row of the table you made in step 1.
8. You are going to make the habitat. Cover the bottom of the laundry basket with some of the extra sheets of construction paper. They can be all one color or different colors. It doesn't matter.
9. Using the 7 sheets for each color, tear each sheet of construction paper into 6 pieces. It does not matter which way you tear it. Just make 6 pieces out of one sheet.
10. Crumple up each piece of construction paper and toss it into the basket.
11. After all 7 sheets of construction paper of each color have been torn up and the pieces crumpled and put inside the basket, place the other sheets of construction paper on the sides of the basket to cover the holes. If your laundry basket or container is deep enough, you may just need to line the bottom.
12. Pour the candies into the basket, spreading them around evenly.
13. You will have 30 seconds to search for candies in the habitat. Make a hypothesis about what you will find in 30 seconds. Will you find more of one color than another? If so, which colors will you find the most of? Which will you find the least of?
14. Set the timer for 30 seconds and begin searching for candies.
15. After your time is up, separate the candies into color groups and count the ones you found. Record the number of each color you found in the second row of the table you made in step 1.
16. For each color, subtract the number you found from the number you started with. That will be the number you didn't find. Write that number in the third row of the table.
17. Was your hypothesis correct?

Think about what the results of your experiment mean. If candies could reproduce and create other candies, which candy colors in your habitat would be most likely to reproduce? Which candy colors would have a hard time reproducing? After many years, which candies would be most abundant in that habitat? Which candies would probably become extinct?

You have just learned a lesson about camouflage and how natural selection can affect the number of animals that survive. Animals that are best suited for a particular environment, especially those that are able to hide themselves well, are naturally able to survive and reproduce in that environment. Those that cannot hide themselves well tend not to survive. It is almost like the habitat selects those animals that are best suited to survive there.

WHAT DO YOU REMEMBER?

What are the 3 animal groups mentioned in the Bible? What does domesticate mean? What does microevolution mean? What do natural selection and speciation mean? What is macroevolution? What are the 7 groups scientists use to classify animals? What is habituation? What is a veterinarian? What is a zoonotic disease? Name a few animal careers.

SUPPLY LIST

Lesson 1

- 6 foam boards (at least 20 × 28 inches)
- 2 or 3 colors of Duct tape
- Box cutter
- Large roll of craft paper
- Glue or Mod Podge®
- The world map provided
- Chalk
- Green acrylic paint
- Paintbrush
- Paper plate
- Permanent markers
- Small toy car
- Notebooking Journal or paper
- Pencil
- Colored pencils, markers, or crayons (optional)
- Internet access (with adult supervision)
- Natural outdoor environment
- Chair or pillow
- Laundry basket or large plastic container
- Bag of colored candies
- 1 piece of white paper
- 4 clean paper towels
- 21 sheets of construction paper in three different colors matching three of the candies (example: 7 red, 7 yellow, 7 blue)
- At least 3 extra sheets of construction paper to line the basket or container
- Stopwatch or timer

Lesson 2

- Water faucet
- Notebooking Journal or paper
- Pencil with eraser
- Pen
- Colored pencils, markers, or crayons
- Drive-Thru Animal Atlas
- Pictures of animals found in Notebooking Journal or on Book Extras
- Scissors
- Glue
- 1 box of lemon gelatin
- Sugar (as indicated by box instructions)
- Hot water
- Red food coloring
- 2 bowls
- 2 serving cups or dishes

Lesson 3

- Notebooking Journal or paper
- Clear night sky
- Pencil with eraser
- Colored pencils, markers, or crayons
- Pen
- 2 people
- Drive-Thru Animal Atlas
- Pictures of animals found in Notebooking Journal or on Book Extras
- Masking tape
- Food
- Paper
- Scissors
- Glue

Lesson 4

- Notebooking Journal or paper
- Pencil with eraser
- Colored pencils, markers, or crayons
- Pen
- Blindfolds
- Approximate square miles of your city and state
- Calculator
- Parental assistant
- Drive-Thru Animal Atlas
- Pictures of animals found in Notebooking Journal or on Book Extras

- Scissors
- Glue
- Colored tape
- Cellophane tape or glue
- Flat surface on which you can mark off a 2-foot by 2-foot square with painter's tape
- Several pieces of cardboard
- Paper
- Ruler
- 6 drawings or small pictures of a cougar (can be copies of one picture; included in Notebooking Journal or found on Book Extras)

Lesson 5

- Notebooking Journal or paper
- Pencil with eraser
- Colored pencils, markers, or crayons
- Pen
- Large outdoor space
- Measuring tape
- 2 items to mark the front and end of 30 feet
- Markers for distances participants hop
- Drive-Thru Animal Atlas
- Pictures of animals found in Notebooking Journal or on Book Extras
- Scissors
- Glue
- Lined paper or Notebooking Journal activity pages
- Sand
- Mineral oil
- Shallow, wide, disposable foil baking pan
- Small disposable container, such as margarine container or short plastic cup
- Bait (such as seeds, corn, or livestock feed)
- Plaster of Paris (optional)

Lesson 6

- Notebooking Journal or paper
- Measuring device (tape measure or ruler)
- Pencil with eraser
- Marker to indicate your spot
- Quiet place for prayer
- Pen
- Drive-Thru Animal Atlas
- Pictures of animals found in Notebooking Journal or on Book Extras
- Scissors
- Glue
- Colored pencils, markers, or crayons
- Paper

Lesson 7

- Notebooking Journal or paper
- Pencil with eraser
- Colored pencils, markers, or crayons
- Pen
- Scissors
- Stapler
- Pitcher of water
- Plastic container
- Materials for dam building (such as sticks, leaves, mud, grass, rocks, clay, etc.)
- Timer
- Drive-Thru Animal Atlas
- Glue
- Pictures of animals found in Notebooking Journal or on Book Extras
- Owl pellets
- Paper plate
- Bamboo skewer or toothpick
- Blank sheet of paper
- Tweezers
- Latex or rubber gloves

Lesson 8

- Pencil with eraser
- Pen
- Notebooking Journal or paper
- Colored pencils, markers, or crayons
- Handful of leaves from plants outdoors
- 2 plastic bags
- 4 stones, 1–2 inches each
- 8 sheets 8.5 × 11 inch paper
- Scrap paper
- Internet access (with adult supervision)
- Printer
- 1 sheet construction paper
- 4 chenille sticks

- Tape
- Hole punch
- Timer
- Assistant

Lesson 9

- Notebooking Journal or paper
- Pencil with eraser
- Colored pencils, markers, or crayons
- Pen
- Drive-Thru Animal Atlas
- Pictures of animals found in Notebooking Journal or on Book Extras
- Scissors
- Glue
- Family member or friend to take your quiz
- Few pieces of extra paper

Lesson 10

- Notebooking Journal or paper
- Pencil with eraser
- Colored pencils, markers, or crayons
- Pen
- Drive-Thru Animal Atlas
- Scissors
- Glue
- Pictures of animals found in Notebooking Journal or on Book Extras
- Picture of the continent of Africa
- Another person
- Table
- Small plastic bottle
- Pin
- Balloon
- Water
- Piece of tape or a friend to help

Lesson 11

- Notebooking Journal or paper
- Pencil with eraser
- Pen
- Colored pencils, markers, or crayons
- 2 pieces of green construction paper
- Scissors
- Tape
- Hole punch
- 14 paper fasteners
- 2 google eyes
- Red paper
- Glue
- Chenille stick
- Jingle bells (about 10)
- Drive-Thru Animal Atlas
- Pictures of animals found in Notebooking Journal or on Book Extras

Lesson 12

- Notebooking Journal or paper
- Pencil with eraser
- Colored pencils, markers, or crayons
- Pen
- Drive-Thru Animal Atlas
- Laundry basket
- 3-foot piece of rope
- Timer
- Large room or space outdoors
- Pictures of animals found in Notebooking Journal or on Book Extras
- Scissors
- Glue
- Clothespin for each player
- Green paint
- Red paint
- White paint
- 2 googly eyes for each clothespin
- Bag of small different-colored beads
- Shoebox

Lesson 13

- Notebooking Journal or paper
- Pencil with eraser
- Colored pencils, markers, or crayons
- Pen
- Ball of yarn
- Tape
- Scissors
- Place to anchor your web
- Outdoor nature area
- Long, sturdy wooden dowel or broom handle
- Foam board about 1 foot by 1 foot

- Marker
- Sharp X-ACTO®-type knife (and adult's help)
- Duct tape or painter's tape
- Garden with a variety of plants
- Magnifying glass
- Sheet of white paper
- Moist area of yard
- Glass jar with lid
- Flashlight
- Shoebox
- Nail polish (yellow or another bright color)
- Yardstick or measuring tape
- Sticks or string

Lesson 14

- Notebooking Journal or paper
- Pencil with eraser
- Colored pencils, markers, or crayons
- Pen
- 4-oz. bottle white school glue
- 1 Tbsp. baking soda
- Contact solution (with sodium borate and/or boric acid in the ingredients)
- Food coloring (optional)
- Glitter or sequins (optional)
- Bowl
- Airtight container
- Spoon
- Outdoor garden
- Glass baking pan or bowl
- Snail or slug
- Snail drawing (or Notebooking Journal)
- Ruler
- Bucket
- Large spoon, spade, or small shovel
- Garden area
- Earthworms
- Magnifying glass
- 5-gallon bucket with lid
- Potting soil
- 50 sheets of newspaper
- Water
- Drill or hammer and nails (and adult's help)
- Food scraps
- Oblong baking tray
- Moist paper towels
- Heating pad
- Ice pack

YOUNG EXPLORER SERIES

apologia

EXPLORING CREATION WITH

ZOOLOGY 3

LAND ANIMALS OF THE SIXTH DAY

NOTEBOOKING JOURNAL

2nd EDITION

TABLE OF CONTENTS

EXPLORING CREATION WITH

ZOOLOGY 3

LAND ANIMALS OF THE SIXTH DAY

2nd Edition

Two Days a Week Suggested Schedule

Please feel free to adjust this schedule to fit your family's needs.

BEFORE YOU BEGIN

- ❒ Textbook Introduction p. 10–12
- ❒ Notebooking Journal (NJ) Parent Guide p. xvii–xviii
  - Coloring pages, Fascinating Facts, Creativity Pages, and some others are not included in the weekly lessons. They are to be used as the parent/student decide.
  - Please create the Creation Confirmation Bookmark with your child p. xix–xxii

WEEK 1

❒ **LESSON 1 – INTRODUCTION TO THE ANIMALS OF DAY SIX**

Textbook p. 14–17
Activity 1.1
NJ p. 26

❒ **LESSON 1 – INTRODUCTION TO THE ANIMALS OF DAY SIX**

Textbook p. 18–22
Activity 1.2
NJ p. 27

LESSON 1

INTRODUCTION TO THE ANIMALS OF DAY SIX

ZOOLOGY 3

FASCINATING FACTS AND PERSONAL REFLECTIONS

Activity 1.1

CREATE YOUR GIANT DRIVE-THRU ANIMAL ATLAS

Follow the instructions in your textbook for creating your Giant Drive-Thru Animal Atlas.
Print a photo of your completed atlas and paste the photo below.

Activity 1.2

DNA OFFSPRING

Draw 2 imaginary dogs with completely different features. Then draw their puppies, each showing the different features found in the parents. You can include things like eye color, hair color, length, and texture, tail length and shape, nose length and shape, and ear length and shape. Be creative!

MOTHER

FATHER

Activity 1.3

CLASSIFY YOUR FAVORITE ANIMAL

Draw a picture of your favorite animal. With adult help, research how it is classified by Kingdom, Phylum, Class, Order, Family, Genus, and Species.

classification of a

_____:

KINGDOM

PHYLUM

CLASS

ORDER

FAMILY

GENUS

SPECIES

Activity 1.4

HABITUATE THE ANIMALS IN YOUR YARD

Find a comfortable place to sit outdoors. Sit in one spot without moving much. Observe how long it takes for the animals to begin gathering around you. Make a sketch of one of them and write down what you notice about its behavior.

Activity 1.5

ANIMAL CAREER STORY

Imagine you had to choose an animal career. Which animal career would you like to have? Imagine what your life would be like if you had that career. Draw a picture and write a story of what your life would be like. Explain what you would do each day, where you would go, what you would wear, what animals you would encounter, and all the things you imagine it would be like.

Activity 1.6

PREDATOR AND PREY EXPERIMENT

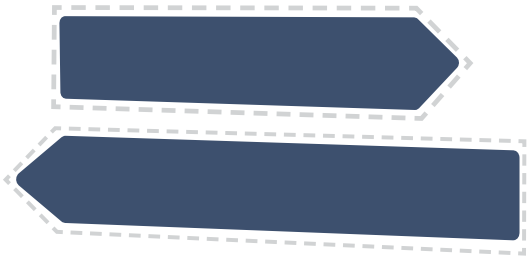
Follow the instructions in your textbook to fill in the chart.

	RED CANDY	BROWN CANDY	GREEN CANDY	YELLOW CANDY	ORANGE CANDY	BLUE CANDY
Starting Number						
Number Found						
Number Not Found						

what I did

what I learned

Vocabulary CLOCK



INSTRUCTIONS:

1. Cut out the vocabulary clock circle. Cut out the clock arms. Attach the clock arms to the center of the clock using a brass fastener.
2. Glue your clock onto the minibook page in your Zoology 3 Notebooking Journal.
3. As you play with your clock, point the big hand to the vocabulary word and the little hand to its definition.

KINGDOM ANIMALIA

the animal kingdom

ZOOLOGISTS

scientists who study animals

DNA

the special codes God built to tell our cells what features we should develop

NATURAL SELECTION

the features that are naturally selected because they help a species survive best in certain places

MACROEVOLUTION

small changes in features that gradually develop in a species over time

DOMINANT GENES

genes in our DNA code that show up in the features

RECESSIVE GENES

genes in our DNA code that do not show up in the features

MICROEVOLUTION

the erroneous belief that enormous changes to the DNA can develop in a species over time

ZOONOTIC DISEASE

an illness transmitted from animals to people

VETERINARIAN

an animal doctor

vocabulary clock
MINIBOOK

Attach your clock here.

WHAT DO YOU REMEMBER?

What are the 3 animal groups mentioned in the Bible?

What does domesticate mean?

What does microevolution mean?

What do natural selection and speciation mean?

What is macroevolution?

What are the 7 groups scientists use to classify animals?

What is habituation?

What is a veterinarian?

What is a zoonotic disease?

Name a few animal careers.

CREATIVITY PAGE

Make a scrapbook page of your journey learning about land animals.