

Day

Introduction to Ecology



Oh good! We are so glad you're here! My name is Hannah, and this is my brother Ben. We've been waiting for you to start our science adventure this year! During the summer, we started to explore the places where plants and animals live. We also learned a little about the relationships God created between living and non-living things. It's a type of science called **ecology** (said this way: ĩh-cáll-ō-jē).



As we explored ecology, though, we found that some people believe all the amazing relationships we see in creation just happened through lots of time and chance. We've learned from the Bible in the Book of Genesis, though, that God created the heavens and the earth. He is the One who designed all the relationships we see in creation.

That's right! God should receive the glory and praise for His design. So now, we're on a mission to find and share God's amazing designs.

In Revelation 4:11, it says:

You are worthy, our LORD and God, to receive glory and honor and power, for you created all things, and by your will they were created and have their being.





As we begin our science adventure, we can pray and ask God to give us insight and wisdom as we explore His creation.

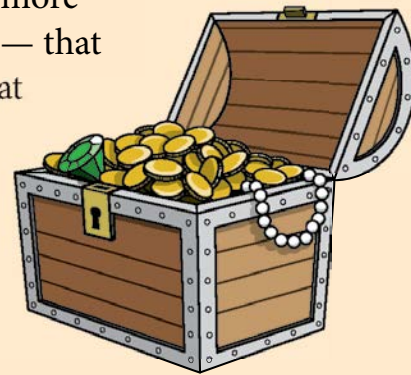
Proverbs 2:3–5 says:

Indeed, if you call out for insight and cry aloud for understanding, and if you look for it as for silver and search for it as for hidden treasure, then you will understand the fear of the LORD and find the knowledge of God.

As we look for and document God’s design in creation — like a hidden treasure — we’ll also learn more about God. Oh, one more thing — that verse talks about the “fear of the LORD” — that doesn’t mean that we’ll become scared of God, but that we are amazed by Him and that we respect and follow Him.

So, will you join us on our mission to find and document God’s amazing design in His creation?

Let’s get started!



Prayer is the way we talk to God. As we begin our school adventure each day, we can pray and ask God for insight, wisdom, and understanding as we learn more about Him and the world He made.

• Read Genesis 1 and 2 as a family.





Before we get started, there are a few words we'll need to learn. My brother Ben is good at keeping track of words and their meanings. Where should we start, Ben?



Let's start with environment! An **environment** (said this way: ěn-vĭ-rŭn-mĕnt) is the place a person, plant, or animal lives. The environment includes what the land looks like, what plants grow there, what animals live there, and even the weather patterns.



We talked about ecology in our last lesson — **ecology** is the study of the environment plants and animals live in. Ecology also studies the relationships between living and non-living things.

Perfect! Thanks, Ben! We're going to be building on those words this year as we explore ecology, and I don't want us to lose track of all the words we're going to learn.

Good point, Hannah, I think we need a glossary. A **glossary** (said this way: glŏss-ŭh-rĕ) is a tool that lists words and their meanings. It's usually found in the back of a book and the words are listed in alphabetical order.

Alphabetical order means that the words that start with the letter A will be listed first. Words that start with the letter B will be next, and so on. If we forget the meaning of a word that was shown in **green**, we can look it up in the glossary.

Let's try it now! Can you find the word **ecology** in the glossary in the back of this book? You can ask your teacher for help if you need to! Once you've found the word, let's go explore our own environment.



Go outside and explore your environment. What types of plants or animals do you see around you? Can you spot two of the same kind of trees or plants? What is the weather like? Is the land around you flat or are there hills and mountains? What do you enjoy about your environment?

Now, draw a picture of your environment. You can show what the land looks like, what plants grow there, what animals live there, and even what the weather is like today.



Day

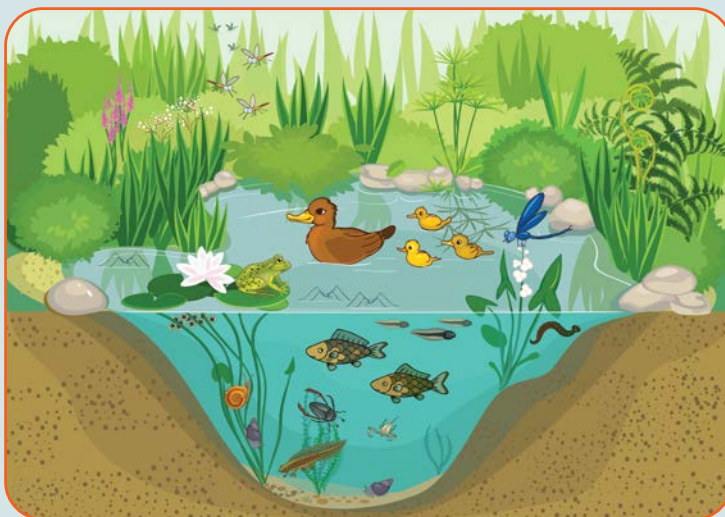


Have you ever looked at a cake with different layers? Maybe it had a layer of vanilla cake, then a layer of chocolate, then another layer of vanilla, and finally a layer of yummy frosting on top. Ecology is a type of science that has many layers too. As we learn new words, they build on each other like a layered cake or a block tower. Let's learn a few new words today so that we're ready to explore deeper!

We can start with the word **habitat**. A **habitat** (said this way: häb-ĭ-tăt) is the natural environment a plant or animal lives in. For example, if you saw a squirrel in the forest, the forest would be the squirrel's habitat.



Ecosystem is also an important word. An **ecosystem** (said this way: ē-cō-sīs-tŭm) is all of the living and non-living things that are together in a place. Let me think of an example of an ecosystem — a pond! The water, plants, fish, birds, and animals in and around the pond form an ecosystem.



We have one more word to build on top of that! A **biome** (said this way: bī-ōm) is a very large habitat that contains many of the same types of plants and animals. A biome can be home to many ecosystems, like a pond and a forest.



Let's practice. Can you match each word with the correct meaning?

Habitat

All of the living and non-living things that are together in a place.

Ecosystem

A natural environment that a plant or animal lives in.

Biome

A very large habitat that contains many of the same types of plants and animals.





The earth has several types of biomes. We're going to explore four biomes together this year:

1. the boreal (said this way: bō-rē-ūhl) forest
2. the deciduous (said this way: dīh-sīj-ū-ūs) forest
3. the grassland
4. the tropical rainforest



We're going to start with the boreal forest. This biome can also be called the taiga (said this way: tī-gūh). I can't wait to dig into our exploration of the boreal forest!



Ecology is all about relationships in creation. One thing that I love about science is how it also teaches me more about God and my relationship with Him. This week, all the talk about habitats, the places we live and dwell, can remind us of Psalm 91:1–2:

Whoever dwells in the shelter of the Most High will rest in the shadow of the Almighty. I will say of the LORD, "He is my refuge and my fortress, my God, in whom I trust."

Sometimes, we get distracted by life and forget to keep our minds and hearts focused on God — to be dwelling in Him as the Psalm talks about. When we get distracted, we also forget that we can trust God — that He is good — and we become fearful and anxious. Have you ever felt fearful and anxious? What is one way you can begin to trust God, to dwell in Him?

When science teaches us more about our relationship with God, it's like finding a hidden treasure that we can share with others!





A biome is a natural habitat that covers a very large amount of land. Biomes can look very different from one another. Let's copy the name of each of the biomes we're going to explore this year!

Boreal Forest



Grassland



Deciduous Forest



Tropical Rainforest





Memorize all, or part, of Psalm 91:1-2.

Day



Before we explore deeper into the boreal forest, we need to get ourselves ready. Do you know what every important mission needs? A notebook to record and collect all the things we gather along the way!

Scientists often draw or take a picture of what they observe so that they can share it with others. As we explore God's creation through ecology this year, we're going to compile a Science Notebook. We'll record the things we learn about and the designs God created in our Notebook. Each week you can share what you've learned with someone else, just like a real scientist.



This week we built our vocabulary — **vocabulary** (said this way: vō-căb-ū-lěh-rē) is a fancy word that means all the words that we know. We talked about our environment, habitats, and biomes. Do you remember what a habitat is? A habitat is the natural environment a plant or animal lives in. Let's add that word to our Science Notebook!

We talked about a squirrel's habitat in the forest, so let's draw a picture of a squirrel. Here's a picture of a squirrel we can look at and the basic shape we can use to draw in our Notebook. You can also use any other picture of a squirrel if you'd like!



Ben and I already added this page to our Notebooks. Ben's squirrel is gathering acorns into a pile in his home. Our little brother Sam even drew a squirrel. His is smiling!





I love how each of our pictures is different; it reminds me of God's creativity. We see God's creativity in creation, in the many different kinds of plants and animals He made. God gave us the ability to be creative just like Him. Each of our pictures is unique, and they show the creativity God has given us.



In your Science Notebook, write:
A **habitat** is the natural environment
a plant or animal lives in.

Then draw a picture of a
squirrel in its habitat.

Hidden Treasure

Learning about habitats this week also reminded us that God is our dwelling place and that we can trust Him. Copy Psalm 91:2 on the back of your Notebook page as a reminder.

I will say of the LORD, "He is my refuge and my fortress, my God, in whom I trust" (Psalm 91:2).



Boreal Biome Project

Day



It has been so much fun learning about the boreal forest biome with you over the last several weeks! But I was reading about the deciduous forest last night — there are some amazing elements of God’s design in that biome too. Do you think we could explore deeper into another biome now?

We sure can! There is so much more to study in other biomes, and many more elements of God’s design to discover through ecology. First though, I have a surprise for you. We’re going to create our own model boreal forest biome this week!



Woohoo! I’m so excited, where do we start?

First, we’ll need a shoebox. Then we can start with the sky. I have some blue paper we can cut to fit inside the shoebox. I also noticed that there are mountains in the background of many pictures from Yellowstone. Let’s add some mountains too! Are you ready to create a biome with us, friend?

- Green, blue & brown construction paper
- Glue stick
- Shoebox with lid
- Scissors
- White paint & brush
- Glitter glue
- 1/8-inch wooden dowels (6–12 inches long)
- Tape
- Playdough or clay
- Small model animals
- Small twigs or toothpicks

Weekly materials list

materials needed

- Blue & brown construction paper
- Glue stick
- White paint & brush
- Shoebox with lid
- Scissors
- Glitter glue

Today, we'll create the background for our biome. We'll add something new to the biome each day this week.

Activity directions:

1. Ask your teacher to help you cut the blue piece of construction paper to the right size so that it can fit inside the bottom of your shoebox.
2. Now it's time to make the mountains! Cut medium-sized triangles from the brown construction paper. They'll need to fit on the blue piece of paper but should be large enough to stand tall in the background.
3. Paint the tops of the mountains white to make it look like there is snow on top. If you'd like, you can also add some glitter glue on top once the paint has dried.
4. Once the mountains have dried, glue them to the blue piece of paper.
5. Insert the blue piece of paper into the bottom of the box.
6. Set your biome in a safe place. We'll continue adding to it all week!



Day

Hannah and I are all ready to make the land in our model biome today!



I'm so excited. I've been thinking about beaver dams — can we add a beaver dam to our model biome?

That's a great idea! Let's create some grassy land, and then add a pond with a little stream flowing from it. Then, we can add the beaver dam around the pond.



Perfect. I've gathered some small twigs we can use! Let's get started.

materials needed

- Green & blue construction paper
- Glue stick
- Hot glue gun
- Scissors
- Small twigs or toothpicks

Activity directions:

1. Tip your shoebox on its side (be sure the background is facing the right direction).
2. Cut the green piece of paper to fit inside the bottom.
3. Cut a circular pond out of the blue piece of paper, then cut a narrow stream. Glue both to the green piece of paper and set it inside the bottom of the model biome.
4. Now it's time to put together our beaver dam. Ask your teacher to use the hot glue gun to glue the sticks or toothpicks into the shape of a beaver dam. Be careful, the glue will be hot! You can also ask your teacher to glue some twigs upright to look like old trees the beaver can cut down.
5. Set your biome in a safe place while the glue dries.





Alright, we've got our mountain background, the ground, and even a beaver dam in our model boreal biome. It's starting to look really good! What should we add today?




Let's add coniferous trees. After all, they are the main type of tree in this biome! I've got a plan to create some coniferous trees. Ready to get started?

materials needed

- Green construction paper
- 1/8-inch wooden dowels (6–12 inches long)
- Tape
- Scissors
- Playdough or clay

Activity directions:

1. Decide how many trees you'd like to add to your biome — 3–6 are recommended, depending on the size of your box. Remember to save room for deciduous trees and animals. Then, ask your teacher to cut or break the wooden dowels to the height you would like your trees to be.
2. With your teacher's help, cut 1-inch wide strips from the sheet of construction paper. Cut one strip for each tree you plan to make.
3. Carefully cut fringe in the paper strips — your teacher may need to help. You'll want each cut to go almost to the edge of the paper strip. Here's what it will look like:

4. Place the wooden dowel at one end of the paper strip. You'll want the paper to be near the bottom of the dowel. Tape the dowel to the paper edge.
5. Begin to roll the paper around the dowel at an angle, so that the paper begins to wind up the dowel. Once you reach the top, tape the paper to secure it. If the paper strip is too long you can cut it. Fluff out the paper fringe. You've created a coniferous tree! Repeat as desired to create more trees.



6. Form a small piece of playdough into a ball and flatten the bottom a bit. Insert the bottom of the dowel into the playdough. This will be the stand that holds the pine tree.
7. Place your coniferous trees in the biome and then put the biome in a safe place until tomorrow.



Day

Our biome is coming along.
We're almost done!



I can't wait to see it tomorrow when we finish everything. Our coniferous trees look so good. The boreal forest is made up of mostly coniferous trees. But we also learned that sometimes we find trees like aspen, willow, or cottonwood around too.

Do you think we should add one or two deciduous trees?

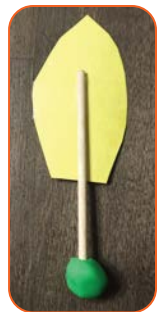
I think so! We can cut some paper into the shape of a deciduous tree and tape it to the dowel, just like we did with the coniferous trees. Let's make yellow aspen trees for our biome!

materials needed

- Green or yellow construction paper
- 1/8-inch wooden dowels (6–12 inches long)
- Tape
- Scissors
- Playdough or clay

Activity directions:

1. Carefully cut one or two tree shapes from the construction paper.
2. Ask your teacher to cut or break the wooden dowels to the height you would like your trees to be.
3. Place the dowel in the middle of the piece you cut from the construction paper and tape the dowel to the paper.
4. Form a small piece of playdough into a ball and flatten the bottom a bit. Insert the bottom of the dowel into the playdough to hold your tree upright.
5. Add the trees to the biome and put it in a safe place — we'll finish off our biome tomorrow.





Today is the day! We'll finish up our biome by adding some animals to it.



We have some small, model animals that we are going to put into our biome. If you don't have any, you can also use playdough to create some or ask your teacher to help you find and print some pictures you can use.

materials needed

- Small model animals such as a beaver, wolf, elk or moose, bear, rabbit, etc.

We also have some coniferous trees around our house. I cut a couple of small pieces off the branch for us to add to our biome. If you have coniferous trees around your house, you can add a small piece of a branch and pine needles to the floor of your biome, or even a small pinecone!

Activity directions:

1. Add the small animals to your boreal biome model.
2. If you have coniferous trees where you live, you can also add a small branch to your biome if you'd like!
3. Share your biome with your family. Be sure to tell them what you've learned about the boreal forest and God's design.



Bonus! Take a picture of your boreal biome and ask your teacher to help you print it out. Then, tape or glue the picture on the next page in your Science Notebook. Write **My Boreal Biome** at the top of the page.

Deciduous Biome Project

Day



Do you know what today is? It's the day we're going to start creating our own temperate deciduous forest biome! I'm super excited to get started.

Me too! I've got a shoebox all ready to go. We'll first need to create our background, and I have an idea. Let's paint the background this time. We can paint the sky and several deciduous trees and bushes.



Activity directions:

1. Cover your table or counter with the plastic tablecloth.
2. Determine if you can paint inside your shoebox or if you will need to paint the background on paper in order for it to show. If your shoebox is dark cardboard, you may need to paint the background on paper. Be sure to cut the paper to the right size before you begin painting.
3. Begin painting your deciduous background. Some things you can paint would be the sky, deciduous trees, grass, flowers, and bushes.
4. Allow the paper or shoebox to dry. If paper was used, glue the background inside the shoebox once it is dry. Set the shoebox in a safe place — we'll add the forest floor tomorrow!

materials needed

- Acrylic paint
- Paintbrushes
- Shoebox or similar size box
- White construction paper
- Glue stick
- Tablecloth (plastic)





It's time to add the forest floor to our biome today. Do you have an idea for what we should do, Ben?



I think I've got a plan. We used paper to create the ground last time, and I think that will work this time too. Let's also go outside and see what we can gather! We may be able to find some acorns, old leaves, a twig, dirt, or grass to add to our forest floor.

Great idea. If we can find a twig, it will look like an old, fallen tree! Ready to get started?

Activity directions:

1. Cut the green construction paper to the right size so that it fits in the bottom of your shoebox.
2. Add any items you found outside to the forest floor. Ben and Hannah added a twig as a fallen tree. They also found some acorns under an old oak tree. If you can find old leaves you can tear them up for the forest floor. If you'd like, you can also draw squiggly earthworms on the forest floor.

materials needed

- Green construction paper
- Scissors
- Gather any items you can find from outside: dirt, a twig, old leaves, leaves, or acorns.





Let's add some deciduous trees to our biome today! We learned a lot about them in our studies. We can cut out deciduous tree shapes just like we did last time and tape them to the wooden dowels.

Okay! Let's get started on our trees. The biome will really start to look like a deciduous forest today!



Activity directions:

1. Determine how many deciduous trees you would like to create. Remember to keep some room in your biome for small plants and animals. Carefully cut tree shapes from the construction paper.
2. Ask your teacher to cut or break the wooden dowels to the height you would like your trees to be.
3. Place the dowel in the middle of the piece you cut from the construction paper and tape the dowel to the paper.
4. Form a small piece of playdough into a ball and flatten the bottom a bit. Insert the bottom of the dowel into the playdough to hold your tree upright.
5. Add the trees to the biome and put it in a safe place.

materials needed

- Green construction paper
- 1/8-inch wooden dowels (6–12 inches long)
- Tape
- Scissors
- Playdough or clay





Me too, it sure is fun to put the biome together! Let's add some small shrubs today.

Our biome is almost complete. I love the way it looks!



Ooh, good idea! That will create our understory and shrub layer. We can cut out some green construction paper again to make the shrubs.

Activity directions:

1. Decide how many bushes you would like to add to your biome. Cut small bush shapes from the green construction paper.
2. Fold up the bottom 1/4 inch of the bush shape as shown in the picture below. This will form a stand for your bush. You can draw fruit or flowers on your bush if you'd like.
3. Place your bush in the biome. You can also add glue to the folded stand to help hold the bush in place. Set the biome in a safe place; we'll finish it tomorrow!

materials needed

- Green construction paper
- Scissors
- Glue stick





I can't believe we're ready to finish our biome today! I have some small, model animals that we are going to put into our biome. If you don't have any, you can also use playdough to create some or ask your teacher to help you find and print some pictures you can use. Let's add our animals to the temperate deciduous forest model!



Activity directions:

1. Add the small animals to your deciduous biome model.
2. Share your biome with your family. Be sure to tell them what you've learned about the temperate deciduous forest and God's design.

materials needed

- Small forest animals like deer, raccoon, rabbit, fox, bear, cardinal, woodpecker, opossum, or skunk.

Bonus! Take a picture of your temperate deciduous biome and ask your teacher to help you print it out. Then, tape or glue the picture on the next page in your Science Notebook. Write **My Temperate Deciduous Biome** at the top of the page.





Color this picture of a deciduous forest.



Rainforest Biome Project

Day

I don't know about you, but I sure had a lot of fun learning about the tropical rainforest biome! I also enjoyed seeing the different ways God designed plants and creatures to live in this biome.



I did too! I'm most excited about creating our own model biome of the tropical rainforest, though.

I knew you would be. I've got our shoebox here all ready to go. Mom thought we should paint our background for the tropical rainforest.

Ooh, painting? This should be fun! What do we need to paint first?

The tropical rainforest has a lot of green due to all the plants. Let's paint the sides, top, and back of the shoebox green first. Then we'll add more to our biome each day this week.

materials needed

- Acrylic paint set
- Tablecloth to protect table
- Paintbrushes
- Shoebox

Activity directions:

1. Spread out a tablecloth to protect the table.
2. Use green acrylic paint to paint the inside of your shoebox. You'll want to paint the back, top, and sides green.
3. Put the shoebox in a safe place to dry. We'll add more tomorrow!
4. Carefully rinse out your paintbrush.





I've got our model biome here.
What are we going to add today?



Our background looks nice and green — now it's time to add some trees or bushes. We can paint tall trees on the back and sides of our shoebox.

Ooh, we can add some epiphytes to the trees, and even some vines winding their way up the tree!

Great ideas, Ben! I've got a few paint colors here for us to use. We'll need to rinse out our paintbrush before we change paint colors. We can dry the brush on the paper towel before we dip it into the next paint color.

Let's get started!

Activity directions:

1. Spread out a tablecloth to protect the table.
2. Begin painting trees on your biome. You can start by painting the trunks and branches. Then rinse the paintbrush in the water and dry it on the paper towel.
3. Next, paint leaves on the tree. You'll need a darker green paint color than the background is. You can paint green circles at the end of your branches, or paint smaller groups of leaves if you'd like.
4. Rinse your paintbrush and choose the next color. Now you can paint some epiphytes or vines on your trees!
5. Once you're done painting, carefully rinse out the paintbrush. Put the shoebox in a safe place to dry. We'll add more tomorrow!

materials needed

- Acrylic paint set
- Tablecloth to protect table
- Paintbrushes
- Bowl of water
- Paper towels



Day

It has been so much fun creating our tropical rainforest biome! Let's create the ground today. We can paint the bottom of the box brown.



Can I paint a river through our biome?

Sure! I'll paint the brown dirt and vines, and you can paint the river. Oh, you can also paint some green along the bottom edge of our box. Let's start painting!

Activity directions:

1. Spread out a tablecloth to protect the table.
2. Paint the bottom of the shoebox brown. Rinse out the paintbrush and then let the brown dry for a bit.
3. Once the brown is dry to the touch, you can begin painting a river through your biome if you'd like.
4. You can also paint long, winding vines along your rainforest floor.
5. Once you're done painting, carefully rinse out the paintbrush. Put the shoebox in a safe place to dry. We'll add more tomorrow!

materials needed

- Acrylic paint set
- Tablecloth to protect table
- Paintbrushes
- Bowl of water
- Paper towels



Day

I love the river you painted through our model rainforest biome, Ben!

Thanks! Today is the day it'll really start coming together — we need to add some more trees. I have an idea for how to add buttress roots to our trees too!

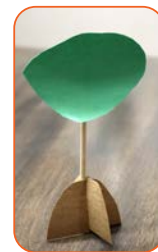
Ooh, I can't wait to get started. I have the trees we made for our deciduous biome. We can re-use those trees.

materials needed

- Trees from the deciduous biome
- Brown construction paper
- Tape
- Scissors
- Twine or yarn
- Hot glue gun or mini glue dots

Activity directions:

1. If you no longer have the trees that were created for the deciduous biome, you can make new trees following that same process.
2. Fold the brown construction paper in half. Cut a semi-oval from the paper to create 2 equal pieces.
3. Cut the bottom of one semi-oval so that the cut is about $\frac{1}{4}$ inch from the top. Cut the second semi-oval from the top so that the cut is about $\frac{1}{4}$ inch from the bottom.
4. Slide the cut slits of the semi-ovals over each other to create a buttress root base.
5. If you are re-using the deciduous trees, remove the playdough base. Tape the bottom of the dowel to the buttress root base.
6. Cut pieces of twine to attach to the biome ceiling. These will be our vines. Use mini glue dots or a hot glue gun (adult only!) to attach the ends of the twine to the shoebox's ceiling.
7. Place the biome in a safe place; we'll be finishing it tomorrow!





Our biome looks so good — but it's missing one important part! We're ready to add some small model birds and animals to our biome today. If you don't have any, you can also use playdough to create some or ask your teacher to help you find and print some pictures you can use. Let's add our animals to the rainforest model!



Activity directions:

1. Add the small animals to your tropical rainforest biome model. If you'd like, you can use mini glue dots to attach some creatures, like frogs, higher in the biome. You can also let animals swing from the vines.
2. Share your biome with your family. Be sure to tell them what you've learned about the tropical rainforest and God's design.

materials needed

- Small rainforest animals like toucan, snake, tiger, frog, monkey, etc.
- Mini glue dots



Bonus! Take a picture of your tropical rainforest biome and ask your teacher to help you print it out. Then, tape or glue the picture on the next page in your Science Notebook. Write **My Tropical Rainforest Biome** at the top of the page.



Color this picture of a toucan from the tropical rainforest.



Answer Keys

Page 24

Habitat – A natural environment that a plant or animal lives in.

Ecosystem – All of the living and non-living things that are together in a place.

Biome – A very large habitat that contains many of the same types of plants and animals.

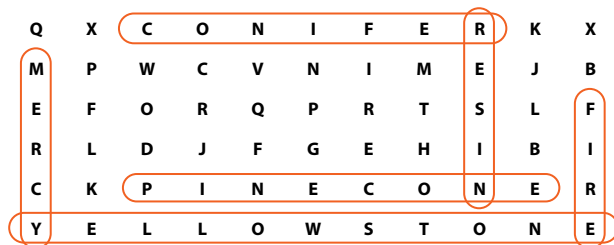
Page 40



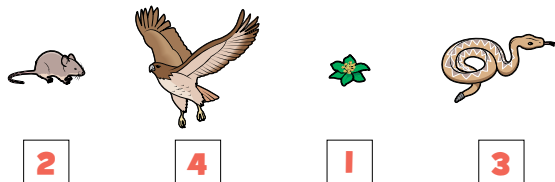
Page 52

needles

Page 56



Page 62



Pages 65–66

Answers may include:

Deuteronomy 7:9: God is faithful.

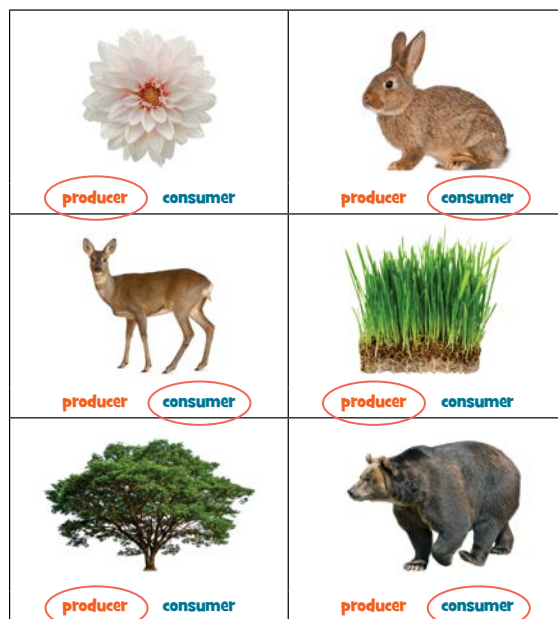
Deuteronomy 32:4: God is faithful, without iniquity, just, and upright.

Psalms 147:5: God is great, abundant in power, and His understanding is beyond measure.

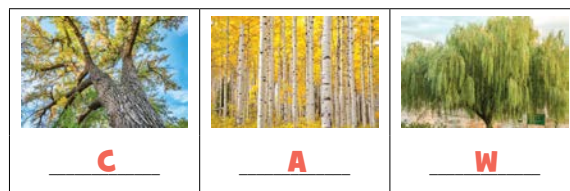
Romans 11:33: God is wise and unsearchable.

1 Corinthians 14:33: God is peaceful.

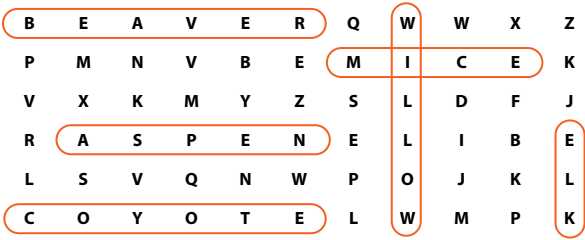
Page 68



Page 91



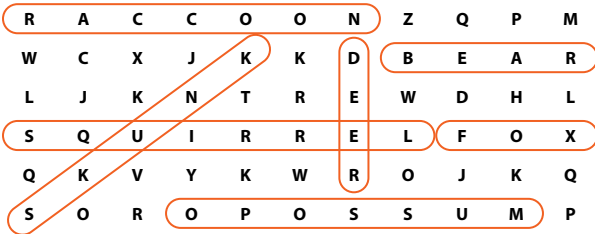
Page 93



Page 118

1. **does not have**
2. **four**
3. **30-60**

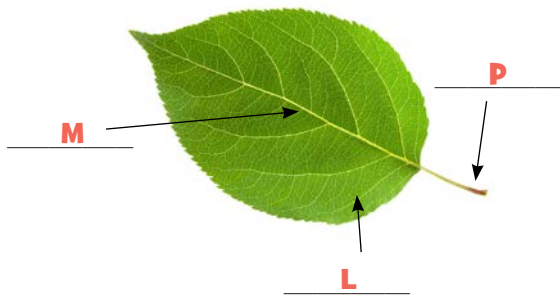
Page 120



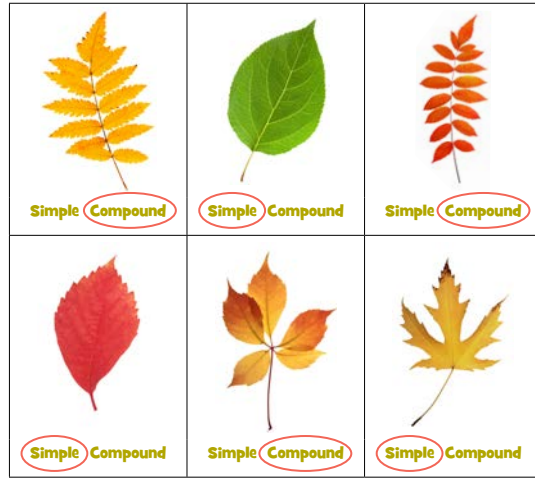
Page 126

Shorter days cause a change in the amount of light, and the trees begin preparing for the winter.

Page 128



Page 130



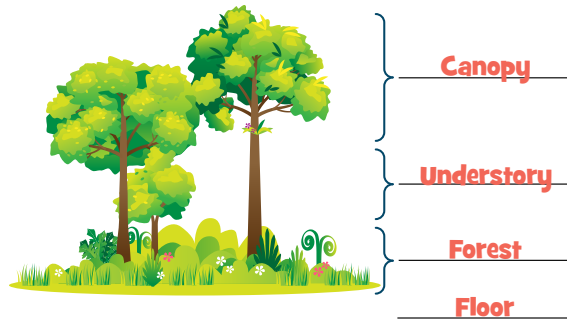
Page 146

1. **above**
2. **slowly**
3. **shade**

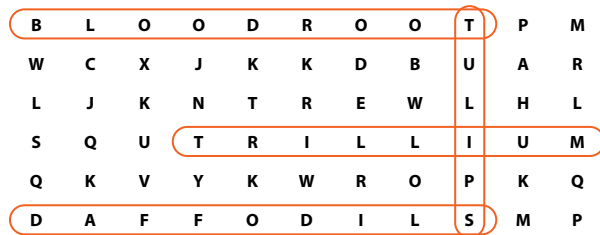
Page 150

Approximately 28

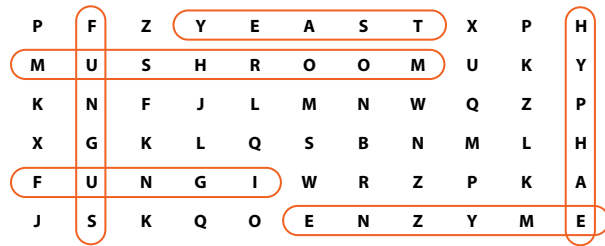
Page 156



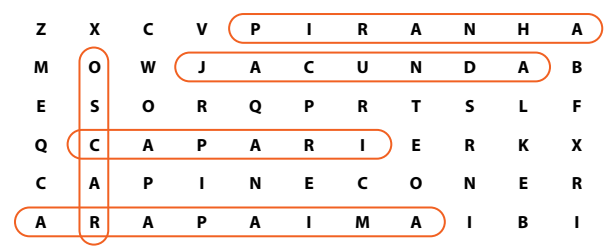
Page 158



Page 169



Page 210



Page 182

1. keystone
2. food
3. pollution

Page 190

Parasite – An organism that lives inside or on a different organism and receives nutrients from it.

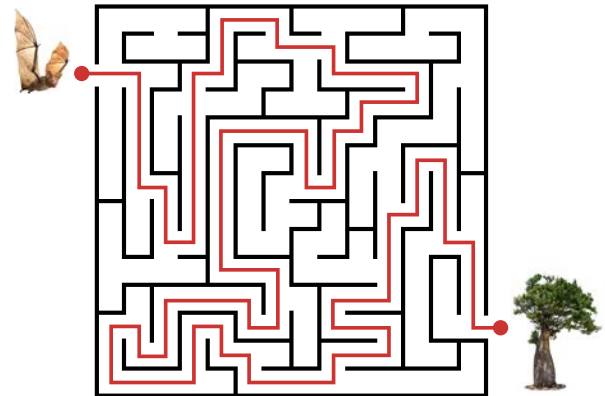
Commensalism – A type of relationship in which two organisms have a relationship, but only one receives a benefit.

Parasitism – A relationship when a parasite lives on a host.

Page 204

1. southern
2. do
3. warm and rainy
4. smallest

Page 220



Page 226

1. 100
2. upper
3. darker
4. evaporating
5. dense

Page 258

1. mammals
2. bigger
3. canopy
4. prehensile

Page 264

1. **large**
2. **very little**
3. **need**
4. **trees**

Page 290

1. continent
2. savannahs
3. Africa
4. wet

Page 292

To adjust or change for certain conditions or a particular environment.

Page 300

Answers may include:

Deep roots reach water that is deep.

The tangled roots hold the soil together tightly. Water tends to get trapped in the tight soil around the tangled roots.

This keeps water available for the grass longer.

Page 306

1. There usually isn't enough water to support many trees.
2. Fire

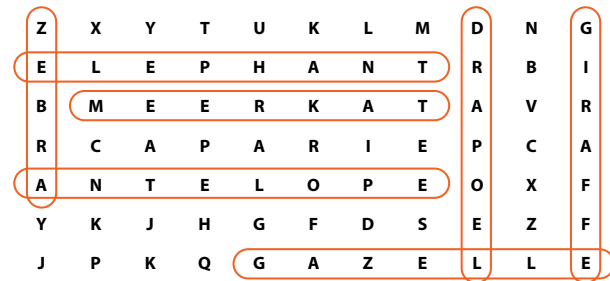
Page 320

1. keystone

2. tusks
3. herd

They use their tusks like a shovel to dig holes in the ground. If the elephant reaches stored water, the holes fill up with that water to create a small watering hole.

Page 326



Page 330

Answers may include:

Zebras smell predators and when alerting the other zebras, they are also alerting the ostriches. An ostrich has good vision and while alerting the other ostriches, they are also alerting the zebras.

Page 346

Answers may include:

God only created humans in His image.

Page 354

Steward means to manage.