

1.1

Awareness of Environment

*"God saw all that he had made, and it was very good."
Genesis 1:31*

Objectives:

Recruit

1. Identify 5 of each of the following found in your area. State the characteristics of each and their possible uses.
 - a. Trees
 - b. Birds
 - c. Mammals

Camper

1. Identify 5 of each of the following found in your area. State the characteristics of each and their possible uses.
 - a. Fish
 - b. Amphibians
 - c. Reptiles

Frontiersman

1. Identify 5 of each of the following found in your area. State the characteristics of each and their possible uses.
 - a. Wildflowers
 - b. Insects

UNIT 1

GOD'S WONDERFUL CREATION

*CHAPTER 1 - Awareness
of Environment*

CHAPTER 2 - Recycling



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TIPS TO REMEMBER

As a leader, you never quit learning. Watch other people work, and learn from them. Be willing to experiment and learn yourself.

Applying God's Word to the Lesson

DEVOTION #1

Psalm 19:1 *The heavens declare the glory of God; the skies proclaim the work of his hands.*

The earth is not a boring place to live in. For the scientist, meteorologist, astronomer, and others who study the sky and the earth, the earth is full of exciting new discoveries. The skies are full of wonders.

Even the average person like you and me can find something new every day. You can lay on your back in the grass and look at the big fluffy clouds slowly sliding across the sky. Each cloud takes on a shape that stimulates your mind to think of animals, plants, people and machines. You can watch as storms quickly race across the horizon being chased by lighting bolts and yelled at by big claps of thunder. From science books, you learn that clouds are formed by water droplets and when there are enough of those droplets joined together, the clouds drop the water upon the earth in the form of rain, snow, sleet and hail.

Scientists will try to have an answer for every situation and every happening that takes place. Weather forecasters try to predict what the weather will bring. They want to find answers to everything. That is why we learn more and more about the earth every day.

But the greatest joy in this process of exploring is the fact that Psalm 19:1 brings out. God is in control. At his command and desire, the clouds move in the direction mapped out for them. The rains and snow fall only when he determines it. The storms beckon at his command. Remember how the people marveled when Jesus calmed the storm by just speaking to it!

While there seems to be a scientific answer for the way things happen in the sky, it is a joy for the believer to realize that God controls the heavens. Just look up and see what he is doing every day. It is not chance or a stroke of luck that makes the weather do what it does. It is carefully planned out by a loving and all knowing God. Think about why God allows storms. Think of ways in which God blesses us with the weather. Thank God for everything.

PRAYER: Almighty God, maker of heaven and earth, we stand in wonder and awe at the way the weather changes, the clouds change form and the earth benefits from what takes place in the skies. We are truly thankful for the weather that brings us sunshine, rain and snow. While we may complain about the weather, let it be a lesson to us that you are in control and that you are doing what is best for the earth and for each of us. From the Bible we learn that you are in control and we ask that you continue to use the weather to benefit this earth that we live on. Make us ever thankful for all of your blessings, especially for the blessing of Jesus who will carry us to our heavenly home one day. Amen.

HYMN: 15 (TLH) 250 (CW)

Applying God's Word to the Lesson

DEVOTION #2

TEXT: Matthew 13:19-23

THEME: Compare What Happens in Nature
with What Happens by Nature in the Heart

Jesus told the parable of the sower and the seed in verses 3-8. The disciples did not readily comprehend what Jesus was talking about. So Jesus explained it to them.

Each person reacts differently to hearing God's Word. Christians are the sowers. The command Jesus gave was to go and make disciples of all nations. He didn't say that we are to analyze how that Word that we preach and teach will take effect. But by knowing how it can affect another person will help us understand why our witnessing has a different response each time.

Regardless of where the seed of the Word lands, we need to spread it. Let the winds of the Holy Spirit determine its effect and effectiveness.

PRAYER: Dear Lord, we now have a better understanding of hearts to whom we witness. Lead us to appreciate your Word which has taken root in our hearts and has produced a bountiful crop of faith there by the power of the Holy Spirit. Amen.

HYMN: 49 (TLH) 324 (CW)

DEVOTION #3

TEXT: Genesis 8:22

THEME: Nature Shows What God Has Planned

OUTLINE

1. God planned everything out at creation to happen a certain way.
2. The way God planned everything out will continue its present course until the end of time.

Additional References:

- Psalm 8:3-4
- Psalm 33:6
- Psalm 36:5-6
- Matthew 10:29-31
- Mark 10:6
- Luke 12:27
- John 12:24
- Romans 1:20
- Romans 2:14
- Romans 7:18
- Romans 8:8
- Romans 8:19-22
- Romans 8:39
- Romans 11:24
- 1 Corinthians 11:14
- 1 Corinthians 15:37-38
- Galatians 4:8, 6:8
- Ephesians 2:3
- Philippians 2:6-7
- Colossians 3:5
- Hebrews 4:13
- 2 Peter 3:4

1 Introducing the Lesson

You probably won't need much of an attention-getter to get the interest of the boys for this chapter. In general boys like to explore, learn about, and get their hands on things in nature.

Taking this into account, you will want to have examples of the things to be discussed on hand and visible, so that the attention of the boys is immediately focused as they wait to dig in. These examples could be photographs, slides, or (if at all possible) real live or stuffed/pressed animals or plants. You could have a recording of bird calls or other animal sounds playing in the background. Of course, if you have the opportunity to be outdoors when you present this lesson, some of these sights and sounds will naturally be present.

As you introduce the lesson, ask or remind the boys of the nature they see everyday and the wider variety they observe on a Pioneer campout. Perhaps a short walk through the neighborhood or grounds around the church could sharpen their attention to this fact. You might also give a short oral quiz, asking the boys as a group to identify different samples you will be covering.

It is much more important that the boys have an awareness of a variety of different plants and animals than the ability to

CHAPTER 1 - AWARENESS OF ENVIRONMENT

How many are your works O Lord! In wisdom you have made them all. The earth is full of your creatures.

Psalm 104:24



**Stop
and consider
the wondrous
works of God.**

Wandering in the wilderness for forty years, the children of Israel grew close to nature. They knew the songs of the birds and the cries of the animals. They slept beneath the stars and watched the seasons come and go. They saw the glories of God's great creation and cried out with the Psalmists

"Come let us bow down and worship. Let us kneel before the Lord our maker for He is our God and we are the people of his pasture." Behold your God as you study his creation.

PLANTS

In the beginning God created the heavens and the earth...then God said, "Let the land produce vegetation, seed bearing plants and trees on the land that bear fruit with seeds in it according to their various kinds."

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Possible Materials for Teaching and Demonstrating this Lesson

Photos or slides of various plants and animals

Three-dimensional models (real or artificial, live or stuffed/pressed) of plants and animals

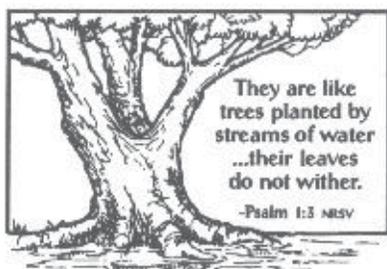
Various animal and plant identification books

Bird call tapes

Videos from the Lutheran Pioneer National Office

TREES

Trees are woody plants with a single erect stem, growing to a height of ten feet or more. They are distinguished from shrubs, which are also woody plants, since shrubs are usually smaller than trees and tend to have stems growing in a clump.



The United States has over 800 species of native and naturalized trees growing wild over 600 million acres of forest. This produces about ten billion dollars worth of forest products yearly. Of these 800 plus species, over 650 are the broad-leaved trees such as oaks, maples, cherry, ash and birch. Conifer, such as pine, hemlock, spruce, fir and cedar account for over 100 kinds and there are over 15 kinds of palm trees in the warmer regions.

Trees are very complex living things. They are composed of leaves, flowers, fruits, seeds, bark, buds, roots and wood. All of these parts may vary in some degree between two different trees, so you can see how broad the study of trees can be.

Leaves, using the energy of sunlight, make food for the tree from water and carbon dioxide. All trees produce a flower of some kind. It may not always be recognizable, but it is there.

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name every item. You will want to focus on the items that your boys will most commonly observe. For instance, the palm tree will not be one that will need to be identified by Pioneers in Wisconsin or Minnesota.

Take time throughout the lesson to marvel at the work of God, who created every item you will study. Also, be genuinely grateful for the abilities and tools he has given us to observe and study his creation.

Finally, you will want to make the material personal to the Pioneers by addressing how the items you discuss fit into their world.

Other Possible Materials for Teaching and Demonstrating this Lesson

Materials for building bat or bird houses or feeders

Materials for planting a wildflower bed

Different meats from animals/birds/fish to sample

Animal Tracks® or Circle of Life® Game

Materials for constructing leaf or animal identification books

2 Teaching the Lesson

You may find a challenge in making this lesson one that is hands-on. The temptation will be to read out of the handbook or just show pictures of different plants or animals and discuss them. This will not keep the boys interested for long (unless you have some pretty remarkable pictures!).

If you must stay indoors when teaching this lesson, try to bring the nature in with you.

"Expert" Presenters

Here are some "experts" you might ask to present the material for this lesson.

- A speaker from the Department of Natural Resources could speak about any of the material covered in this lesson.
- For presenting material concerning trees, you might contact a lumberyard worker or a woodworker to address the different types of wood and their uses.
- A city or county forester could speak both about trees and about wildflowers.
- A sport or commercial fisherman could be an excellent resource for talking about fish (and possibly also

The stem, or trunk, of the tree develops or grows due to a layer of cells called the cambium. This layer of cells is constantly growing and dividing. Those cells which grow and push outward form the bark. Those which grow and push inward form the wood. This constant formation of wood enables the tree to grow larger.

The wood is made up of cellulose and lignin. New wood cells produced in the springtime are often longer and thinner than those which form later, and so each season is often marked by an annual ring. This fact is helpful in determining the age of a tree.

The fruits of trees bear the seeds by which the tree reproduces. These seeds may be spread by many means. Some seeds have "wings" which the wind carries or blows to other areas.

The roots of the tree anchor it to the ground. They absorb water and minerals from the soil. Some trees have a long slender tap root which grows deep. Others have a spreading system of roots. The spread of a tree's root system is at least equal to the spread of its crown or branch growth.

Trees are an important natural resource. They provide us with wood and wood products, turpentine and resins. They also hold soil, preventing floods, and provide home and shelter for many kinds of wildlife. We should use great care and wisdom when dealing with such a valuable product.

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LET SOMEONE ELSE DO IT!!!

Often, the way to grab and hold the attention of the Pioneers is to step aside and let someone else do the work. Does this sound like a cop-out? It's not. Pioneers will consider almost anyone more of an expert on a subject than their own leader, whom they see and hear at every meeting and activity. Also, if you find someone for whom the subject matter is a career or hobby, they will have a special interest in the material, and they will have fun presenting it while the boys enjoy learning it. Instead of spending your funds to pay a presenter, get to

The everyday study of trees must begin with identification. This is not as difficult as may be thought. A systematic description of this process of identification follows and will enable you to identify trees correctly on your next outing or field trip.

Trees are classed into two broad groups: the conifers or cone bearing trees which hold their leaves all year and bear their seeds in cones, and the deciduous trees which lose their leaves in the fall and do not bear their seeds in cones. It is usually quite simple to decide to which group a particular tree belongs. When this has been done, you are ready to pin down the actual identity of the tree. There are many tree identification books available from your Library. Using them you will be able to identify most trees.

WILDFLOWERS

When you travel along roads and highways to fields and woods, you will see flowers which differ from those which you may have growing in your yard at home. Those which you have growing in your yard are usually grown from seeds or bulbs and roots purchased from a store. These varieties have been selected because they have appeal to the general public and are sought for planting in yards. They all have their beginnings in some wild flower.

The flowers which you see growing along roadways, fence rows and streams as you wander in the field are termed wildflowers. It is the purpose of this section to describe some and give information on their identification.

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amphibians).

- An exterminator or pest control agent is a possible expert about insects.
- Local Conservation Clubs and organizations such as Pheasants Forever, International Crane Foundation, and conservationists at city, county, state, and federal parks may be willing to offer their expertise about various items.

Field Trips

Here are some possible sites to visit with your Pioneers to see and learn about the environment.

- An aquarium or fish hatchery could provide valuable and interesting information about fish and amphibians.
- If time permits, a zoo could be a good place to see animals in various habitats. Remember to focus on those that are native to your area and might be seen more regularly by the boys.
- If a state or federal forest is nearby, a guided hike could provide a lot of valuable information.
- A hike on a nature or hiking trail, both during the day and at night, can be an eye-opening experience for

know your congregation. Members are often very eager to help out and share what they know.

This doesn't relieve you of all responsibility, though. You must brief the presenter in advance on the material to cover, keys to remember when teaching children at the given age level (see following lessons), and information about how your meetings or activities are run. You may also have to do some legwork for him/her, such as gathering materials and setting up equipment. Be sure to follow up your volunteer's visit with at least a written note of thanks.

many boys.

Other Resources

There are other resources available to help you learn about nature before you present the lesson. These might give you new ideas or tools to use for your presentation.

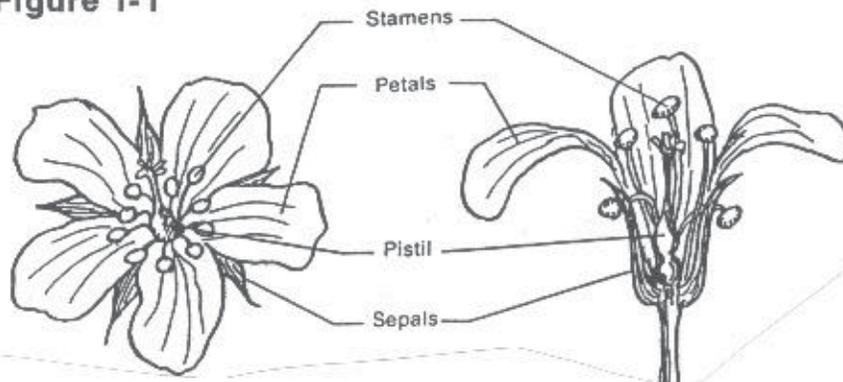
- Outdoors or Sportsman magazines (e.g., *Field & Stream*, *Outdoor Explorer*, etc.) will have vast information and illustrations.
- The internet, especially on nature and wildlife organization sites, will have information for you to use.
- The Lutheran Pioneer Library has a wide variety of videos on this subject
- The Boy Scouts of America *Fieldbook* illustrates and explains nature observation very simply.

Projects & Activities

Getting the boys involved in projects or activities often will keep them interested in the subject matter. Here are a few ideas for activities for teaching *Awareness of Environment*.

- A frog jumping contest is one way to introduce the younger Pioneers to amphibians and make it fun.
- A fishing outing also teaches about God's water-dwelling creatures.
- You might also try tasting different kinds of fish, especially since boys like to eat!
- Various building projects could be a part of this chapter, including bird houses, bat houses, and bird feeders. These could be followed up with installation, care, and observation of the house or feeder.
- Games for identifying birds, leaves, wildflowers, insects, or other items of nature (with or without identification books) can make learning them interesting and fun.

Figure 1-1



First, let's look at how a typical flower is constructed. There are four main parts of every flower: the petal, the sepal, the pistil and the stamen. (see Figure 1-1) Each has a purposeful part of the flower. The petals of the flower are the showy part, that which we admire for color or form.

The sepals are the ring of smaller, generally green, bracts below the petals. These often are colored also, and have different forms from one kind of flower to another.

The pistils and the stamens are the essential parts of every flower for they are the means for the reproduction of that plant. The stamens produce the pollen which fertilizes the pistil and enables the ovules in the pistil to develop into seeds. This transfer of pollen grains may take place due to the wind or may be accomplished when insects crawl around in the flower in search of nectar. Pollen grains, clinging to the hairs on the legs

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of the insect, are carried from the stamens to the pistil. The flowers of any plant have only one goal: producing seeds for the propagation of that plant.

The word "flower" is generally used to describe a flowering plant, although it is actually the name of only one part of the plant. Many flowering plants are very useful to us, providing materials for food, clothing and shelter. Plants which we do not like and which do not provide useful materials are usually termed "weeds". It is a characteristic of weeds that they are active, hardy flowering plants that thrive in poor soil and under adverse conditions.

Flowers are in bloom every month of the year in some parts of the country. Only a few are found during the winter, the natural resting time for nature. Late in the spring, there is a general rush of blooming when many flowers push forth. This rush slacks off in the early summer and is followed by another surge of blooms in the early fall.

Most identification systems for flowers are based on color. Guide books are divided into sections of flowers which are white or whitish, yellow and orange, pink or red, blue or violet and green or brown. Obtain a good guide to flowers and study it. Learn the system of identification which it proposes. Then take to the field for hours of enjoyment of color and form.

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- Boys could also make a leaf identification book. This could range from simple to quite detailed and intricate, including any of the following:
 - ◊ Have the boys record specific data about each tree as they gather the leaves, including its location, a description of its appearance, any fruit/seeds, and the date on which they collect them.
 - ◊ Have the boys press their leaves between books (with a paper towel on each side of each leaf) for three to four weeks before mounting them.
 - ◊ Have the boys research each tree and its leaves and write up a description of them.
 - ◊ Have the boys mount their leaves on paper (with tape or glue) along with their description
 - ◊ Laminating, if it is available, can make this project turn out very nice and something to keep.
 - ◊ Bind the pages together to make a leaf identification book for the boys to keep.
- A similar book could be made in correlation to a trip to the zoo, where the boys can photograph animals and assemble information about them into a book.
- Listening to bird-call tapes for a short period of time, especially if they

include birds that the boys regularly hear, is a practical exercise.

- Games such as *Circle of Life*® or *Animal Tracks*® can be used.
- Boys might enjoy planting and caring for a wildflower garden at church or home.

AV Materials for This Chapter Available from Lutheran Pioneers

- AV 501 *WILDFLOWERS* - 25 Minutes - Ages 10-Adult
- AV 502 *COKA, THE COUGAR* - 30 Minutes - Ages 6-Adult
- AV 503 *THUNDER, THE BLACK WOLF* - 30 Minutes - Ages 6-Adult

- AV 504 *BACKYARD AMERICA* - 30 Minutes - Ages 10-Adult
- AV 505 *WILD IN THE CITY* - 30 Minutes - Ages 10-Adult
- AV 506 *BIRD WATCHING* - 30 Minutes - Ages 8-Adult
- AV 512 *THE UN-ENDANGERED SPECIES* - 20 Min. - Ages 10-Adult
- AV 513 *WILDLIFE FOR TOMORROW* - 20 Minutes - Ages 10-Adult
- AV 515 *WHITETAIL DEER* - 30 Minutes - Ages 6-11
- AV 516 *SLY THE ORPHAN FOX GROWS UP* - 30 Minutes - Ages 6-11
- AV 517 *THE BALD EAGLE - FLYING HIGH* - 30 Minutes - Ages 6-11
- AV 518 *BLACK BEARS - THE FIRST YEAR* - 30 Minutes - Ages 6-11
- AV 519 *BLACK BEARS - MOVING TO ADULTHOOD* - 30 Min. - Ages 6-11
- AV 520 *THE COMMON LOON* - 30 Minutes - Ages 6-11
- AV 521 *A FAWN GROWS UP IN THE FOREST* - 30 Minutes - Ages 6-11
- AV 528 *THE TIMBER WOLF* - 17 Minutes - Ages 8-13
- AV 532 *THE WHITE-TAILED DEER* - 14 Minutes - Ages 8-13
- AV 533 *BIRDS OF PREY (Midwest)* - 14 Minutes - Ages 8-13
- AV 534 *WILDLIFE SIGNS* - 11 Minutes - Ages 8-13
- AV 541 *VICTORY THE BEAR* - 30 Minutes - Ages 6-11

ANIMALS

And God said, "Let the water teem with living creatures and let birds fly above the earth, across the expanse of the sky." So God created the great creatures of the sea and every living and moving thing with which the water teems according to their kinds and every winged bird according to its kind.

FISH

It has been estimated that there are about 30,000 species of fish in the world today. About 4,000 are found in North America. Many fish live only in fresh water, many in saltwater. Some divide their lives between the two. Some species live only in cold water while others are found only in warm water. Some are found the world around and others are limited to a single body of water.

Basically a fish has a backbone, is cold-blooded, lives in water and breathes by means of gills. All fish swim, Some also crawl along the bottom by means of specialized fins. Some burrow in the mud, others glide through the air, creep from pond to pond and, in the case of some eels, migrate through wet grass.

Fish do not see very well. This is due to their eye structure and the fact that as they swim deeper, the available light grows dimmer. Fish can hear and are sensitive to vibrations, currents and changes in temperature and pressure. They have a well-developed sense of balance and of taste. Fish are usually of streamlined shape and are very efficient in the water.

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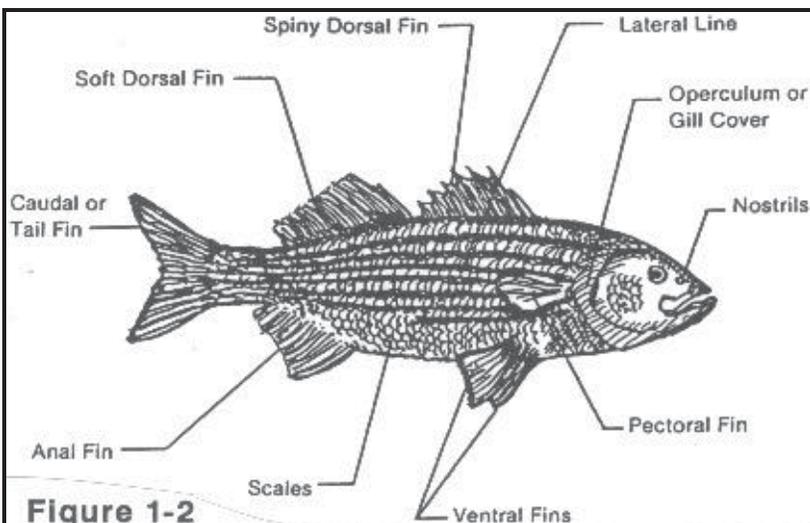


Figure 1-2

Parts of fish have precise names and, as in the case of birds, identification is greatly aided if we know these parts by their individual or proper names. Fish have two sets of paired fins, the pectoral and the ventral. In addition, they have three unpaired fins, the dorsal or back, and caudal or tail, and the anal. These fins differ in size and shape from fish to fish. The gills are covered by a gill cover called the operculum. Fish have nostrils; two openings on each side, and ears for which there are no external openings. (see Figure 1-2)

While a number of fish do not have scales, the majority do. The number of rows of scales is constant for a species of fish and the scales are useful in identification. Fins may help in identification also, the rays or spines being of different number in different fishes.

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3 Practicing and Testing the Material

The best way to practice and test this information is by using the projects and activities in this lesson.

You might follow up an activity with a discussion of the things the boys learned and/or a group oral quiz. You can follow up a nature hike with a memory competition, in which the boys write down the different plants and animals mentioned and a short description of each, with the boy who writes the most correct information. Identification games are a practical way of making testing fun.

Expanding the Lesson—Astronomy

If you are looking for ways to expand this lesson either for Troopers who have already completed their Frontiersman requirements or simply to mix it up and give your boys a little more information, astronomy might be a great place to turn. It is something that can be fascinating to the boys, since they will often see millions of stars on a given night at a campout or evening hike. You can do simple recognition of five or six common and easily recognized constellations. You could have an amateur or professional astronomer bring in different kinds of telescopes to demonstrate and use for viewing. You could also take a field trip to an observatory, if there is one near you. There is a wealth of astronomy information available online. You can get more information from astronomy magazines or from nearby college or university science departments.