DISCOVERING 4-H

A First-Year Project for Young 4-H Members

Name _______________________

Club _______________________ 

County _____________________

Date completed ______________

Reviewed by __________________

(Parent or project helper’s signature)

The Ohio State University
College of Food, Agricultural, and Environmental Sciences
This book is based on the Discovering 1 and Discovering 2 series that was originally created for Ohio 4-H by Bob Horton, 4-H Extension Specialist, in 1987. This edition has been rebranded and updated to include MyPlate.
Dear 4-H Family,

The Discovering 4-H project is designed to encourage parents and members to work together on project activities and to explore the variety of project topics available through your local 4-H Youth Development program. It is meant to be easily completed in one year.

Parents are the most important people in the life of a 4-H member, and this project book is an excellent way for families to work together toward a common goal.

During your work on Discovering 4-H:

1. Complete all of the interest areas in this book.
2. Complete all of the activities in each interest area.
3. Write a summary about this project and what you learned. Review your project book and the summary with a parent or project helper.

Interest Areas

Use this table to record the date that each interest area is completed. Although you should complete all of the interest areas, you do not have to do them in order. Ask your parent or project helper to initial the interest areas when you complete them.

<table>
<thead>
<tr>
<th>Interest area</th>
<th>Page numbers</th>
<th>Date completed</th>
<th>Parent or project helper’s initials</th>
</tr>
</thead>
<tbody>
<tr>
<td>Animal World</td>
<td>2-4</td>
<td></td>
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</tr>
<tr>
<td>Insects</td>
<td>5-6</td>
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<tr>
<td>Nature</td>
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<td>Plants and Soil</td>
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<tr>
<td>Recreation</td>
<td>12-13</td>
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</tr>
<tr>
<td>Health</td>
<td>14-15</td>
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<tr>
<td>Food and Nutrition</td>
<td>16-17</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Machines and Tools</td>
<td>18-19</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Clothing</td>
<td>20</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Animal World

There are more than one million species (kinds) of animals in the world. Some are **warm-blooded** animals. Others are **cold-blooded** animals.

Birds and mammals are warm-blooded. Their body temperatures stay about the same at all times. A large change in body temperature means they are sick.

Reptiles, fish, and amphibians are cold-blooded. That means their body temperatures change with the temperature of the air or water in which they live.

Normal temperatures of some warm-blooded animals:

<p>| | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Human</td>
<td>98.6°F</td>
</tr>
<tr>
<td>Cow</td>
<td>101.5°F</td>
</tr>
<tr>
<td>Pig</td>
<td>102°F</td>
</tr>
<tr>
<td>Dog</td>
<td>102°F</td>
</tr>
<tr>
<td>Cat</td>
<td>101.5°F</td>
</tr>
<tr>
<td>Horse</td>
<td>100°F</td>
</tr>
<tr>
<td>Chicken</td>
<td>104°F</td>
</tr>
</tbody>
</table>

**Activity**

Name three cold-blooded animals

1. ______________________
2. ______________________
3. ______________________

Some fish like cold water and some fish like warm water.

I am a bird.
Birds and mammals are warm-blooded.

I am a reptile.
Reptiles, fish, and amphibians are cold-blooded.
Animal World

Animals on the Farm
Farm animals are raised for food and products that all humans need. Hogs and almost all other farm animals produce meat. Cows also give milk. Chickens lay eggs, and sheep supply wool.

Can you name another product that comes from farm animals?

____________________________________

When you visit a grocery store meat counter, notice the different cuts of meat that come from farm animals. What is your favorite cut of meat from these farm animals?

*Example: Chicken (poultry): drumstick*

Chicken (poultry): _____________________________
Hog (pork): _____________________________
Cow (beef): _____________________________

Animals in the House
Many families keep animals in their houses as pets. Dogs, cats, hamsters, birds, and fish make good pets.

What kind of pet is your favorite? Why?

____________________________________
____________________________________
____________________________________
____________________________________
____________________________________

Do you have a pet? yes no

What kind of animal is it?

____________________________________
Animal World

Animals in the Wild

Animals live everywhere on earth. They live in every kind of terrain and every kind of climate. An animal’s living place is called its habitat. Most animals live in only one or two habitats.

Fish could not live in a tree. A shark could not live in the desert. A rattlesnake could not live very long in the Arctic. A leopard could not live under the water.

Some animals migrate in the spring and again in the fall to find warmer habitats with an abundance of food.

Activity

Draw a line from each animal to a good place for it to live.

Name at least one good animal habitat in your backyard, schoolyard, or park:
Insects

Our Best Friends?

Entomology is the study of insects. Did you know there are more kinds of insects on earth than there are of any other kind of living creature? Millions of insects can exist in a single acre of land.

Insects eat more plants than all the other creatures on earth. That is usually a good thing because they break down dead plant and animal matter. Without them, we would have a world covered with dead plants and animals! Insects are also a major food source for many other animals. Some insects are our friends and others are not.

Insects have a head, a thorax, and an abdomen. They have three pairs of jointed legs. Instead of bones, insects have a hard exterior, called an exoskeleton. They may have no wings, a pair of wings, or two pairs of wings.

Activity

Choose an insect that is interesting to you.

Write the kind of insect here:

____________________________________

Draw a picture of your insect in the box and label the parts of its body.
Insects

Are Spiders Insects?

Insects and spiders both have exoskeletons covering the outside of their bodies. Other than that, their bodies are very different!

Another way spiders are the same as insects is that they benefit humans. They eat pests such as flies, crickets, mites, and other insects. They are always hard at work in and around homes, yards, gardens, and crops.

<table>
<thead>
<tr>
<th>Insect</th>
<th>Spider</th>
</tr>
</thead>
<tbody>
<tr>
<td>3 body parts</td>
<td>2 body parts</td>
</tr>
<tr>
<td>2 compound eyes</td>
<td>8 simple eyes</td>
</tr>
<tr>
<td>2 antennae</td>
<td>no antennae</td>
</tr>
<tr>
<td>jaws</td>
<td>fangs</td>
</tr>
<tr>
<td>0, 2, 4 wings</td>
<td>no wings</td>
</tr>
<tr>
<td>Roach</td>
<td>6 legs</td>
</tr>
<tr>
<td></td>
<td>8 legs</td>
</tr>
<tr>
<td></td>
<td>Tarantula</td>
</tr>
</tbody>
</table>

Activity

Not all spiders capture their food by building webs, but many do. Each kind of web-building spider makes a different kind of web. Some are built in sheltered areas indoors and outside, some are between the branches of bushes and trees, and some are in the quiet, damp corners of cellars and basements.

Draw a picture of a spider web here. What kind of insect is your spider web likely to catch?
Nature

Have you ever noticed the smell of the air after a spring rain? Have you ever seen a stream or pond with fish in it? Have you ever seen a rainbow?

If you have, then you are very aware of your surroundings. Another word for our surroundings is **environment**.

It is our responsibility to take care of the environment. That’s called **conservation**.

**Ecology** is the science of the relationship between living things and their environment. For example, think of the important role of trees.

Activity

Trees are also home to many birds and animals. Circle the ones you find in the picture.

Trees help keep the soil from washing away and help save our valuable water supply.

Forests supply trees that are used to make paper, furniture, cloth, and many other valuable products.

Forests are also recreation areas for camping, hiking, and fishing. We should enjoy our forests and protect them.
Nature

Farmers need things from nature to grow food. We call these things **natural resources**.

Activity

Read each sentence that talks about a natural resource. Draw a line from the sentence to the name of the resource. Then find that resource in the picture below and color it.

1. I shine brightly in the sky to help plants make food.  
   [Image of the sun]  
   Soil

2. I fall from the sky as rain to give plants a drink.  
   [Image of rain]  
   Sun

3. I give plants food to grow and help hold their roots.  
   [Image of clouds]  
   Water
Plants and Soil

Plants need water to grow

and the sun’s energy to make food from water and carbon dioxide

"Bzzzzz!"

Flowers’ friend!

Soil is one of the things plants need to grow. Plants get some of their food from the soil.

The kind of soil affects plant growth. Some plants grow best in rich, moist soil. Others like soil that is sandy and dry. A few grow best in rocky soil.
Plants and Soil

All plants have flowers. The purpose of flowers is to produce seeds. The stamen is the “father” of the flower. The pistil is the “mother” of the flower. The petal helps attract helpful insects.

Activity

Find a flower with a stamen, pistil, and petal and take it apart. Compare your flower’s parts to the one on the right.

Activity

• Press a small flower between paper.
• Tape or glue it in the box.

The name of my flower is

Some of the flowers and shrubs growing in my yard are:

1. 
2. 
3. 
4. 
Plants and Soil

Activity: Plant Parts
Draw an arrow to these parts of the dandelion on the right.

Roots
Leaf
Stem
Flower
Seeds

Activity: Soil Parts
Soil is very important for growing things. Many ingredients help make soil good for growing.

Look at the piece of soil below. Read the list of soil parts. Count how many of each part is shown here. Write the number next to the name. All these things help make soil! The first one is done for you.

Big rocks ________
Tiny rocks ________
Sticks ________
Drops of water ________
Worms ________
Insects ________
Recreation

Fun! That’s what recreation is all about! Explore this maze of recreational activities and discover fun things to do in your spare time.

Arts and Crafts

Drawing, painting, scrapbooking, stitchery, and clay sculpture are a few creative things you can do. Making art from things found in nature can be fun too!

Draw a picture of your favorite sport and attach it to this page. Choose one of these art materials to use: pencil, pen and ink, charcoal, chalk, felt-tip pens, colored pencils, or a combination.

Sports

Some sports require teamwork. Others are fun to do alone.

It’s fun to play outdoors!

Name a sport that needs
9 team players

____________________

11 team members

____________________

5 team members

____________________
Performing Arts
The performing arts let you show your talent in music, dance or drama.

1. _________________________
2. _________________________
3. _________________________

Reading is recreation, too!

In bad weather, you can play a game inside!

Hobbies and Collections

Some people enjoy making collections of things that interest them. You might collect stamps, rocks, or leaves. List five other things you can collect.

1. _________________________
2. _________________________
3. _________________________
4. _________________________
5. _________________________
Health

It’s up to you to make your body last by keeping it strong and healthy. Read the characteristics of good health below. Then use the scorecard to score your health. Place a check in the column that shows your score for each characteristic of good health. Ask your parent or helper to score your health too.

Characteristics of Good Health

**Expression**: Alert and happy.

**Attitude**: Eager, willing to participate.

**Appetite**: Good! Willing to try new foods.

**Posture**: Stands up straight, doesn’t slump.

**Weight**: Right for age, height, and body type

**Muscle**: Firm and strong, enjoys work and play.

**Teeth**: Clean and even

**Skin**: Smooth and clear

**Eyes**: Bright, clear, no circles under them

**Hair**: Shiny, free from dandruff

<table>
<thead>
<tr>
<th>Characteristics of Good Health</th>
<th>My Score</th>
<th>Other Score</th>
</tr>
</thead>
<tbody>
<tr>
<td>Expression</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Attitude</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Appetite</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Posture</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Weight</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Muscle</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Teeth</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Skin</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Eyes</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Hair</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

I need to improve these areas:

____________________________________
____________________________________
____________________________________
____________________________________

My score was good in these areas

____________________________________
____________________________________
____________________________________
____________________________________
Health

Why Wash?
Why is it important to wash your hands? If you think it is important because hand-washing helps protect you from germs, you are correct!

When Should You Wash Your Hands?
Fill in the blank in each sentence.
Before ___________________________ food.
After going to the ___________________________.
After blowing your ___________________________.
After touching your ___________________________ (hint: animals that live in your house.)
After ___________________________ outside.

What’s Wrong with this Picture?
The boy and the girl shown here are each doing something that is not healthy. Can you say what they are doing?
Food and Nutrition

For good health, eat food from each of these five food groups.
- Grains
- Dairy
- Vegetables
- Protein
- Fruits

Oils are part of healthy eating styles because they provide nutrients for the body, like fatty acids and vitamin E. They also enhance the flavor of your food. Some oils are eaten as a natural part of your diet in food such as in nuts, olives, avocados, and seafood. Other oils are refined and added to a food during processing or preparation such as soybean, canola, and safflower oils. Choose the right amount of oil to stay within your daily calorie needs.

Eat food from each of these food groups every day!

Activity: Go Shopping!

The next time you are at the grocery store, look for the foods in the chart below. Identify the food groups, the departments, and the aisles where they are found.

The name of the grocery store where my family usually shops is ________________.

<table>
<thead>
<tr>
<th>Food</th>
<th>Food group</th>
<th>Department</th>
<th>Aisle number</th>
</tr>
</thead>
<tbody>
<tr>
<td>Example: Apple</td>
<td>Fruit</td>
<td>Produce</td>
<td>1</td>
</tr>
<tr>
<td>Ground beef</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Corn flakes</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Cheese</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Green beans</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
MyPlate
MyPlate helps you learn about the foods that make your body strong. It is a reminder to find your healthy eating style and build it throughout your lifetime. Read about MyPlate at [chooseMyPlate.gov](http://chooseMyPlate.gov), and then use these colors to color in the plate, with each food group.

- Grains = orange
- Vegetables = green
- Fruits = red
- Dairy = blue
- Protein = purple

Be Physically Active Every Day.
Be physically active for 60 minutes or more each day! Activities such as running, walking the dog, playing, swimming, biking, or climbing lots of stairs are all great things to get active.

Choose Healthier Foods from Each Group.
Choose a variety of foods and beverages from each food group to build a healthy eating style. Focus on whole fruits. Be sure to have some food from each MyPlate food group to meet your daily needs.

Focus on These Types of Foods from Each Group.
Whole fruits include fresh, frozen, dried, and canned options. Choose whole fruits more often than 100% fruit juice. Vary your veggies. Include dark-green, red and orange vegetables, legumes (beans and peas), and starchy vegetables. Try to make half your grains whole grains. Vary your protein routine. Try seafood, meat, poultry, and eggs, plus nuts, beans and peas, and seeds. Choose low-fat or fat-free milk or yogurt.

Eat Every Color Every Day.
The colors orange, green, red, blue, and purple represent the five food groups plus oil. Remember to eat foods from all groups every day.

Take One Step at a Time.
You do not need to change overnight what you eat and how you exercise. Just start with one new, good thing, and add a new one every day.

Make Choices that are Right for You.
[MyPlate.gov](http://MyPlate.gov) is a website that gives everyone in the family ideas about how to eat better and exercise more.
Machines and Tools

Simple Machines

Simple machines have few or no moving parts. There are six kinds of simple machines, each useful for doing a specific task.

Activity

Can you match each simple machine with its definition?

1. lever
2. wheel and axle
3. pulley
4. inclined plane
5. wedge
6. screw

A. ______ A flat sloped surface. Example: a ramp
B. ______ A device that moves around a fixed shaft. Example: A wagon
C. ______ A device that tilts about a pivot point or fulcrum, often used for lifting or moving objects. Example: a seasaw
D. ______ An inclined plane wrapped around a shaft, often used to attach or move materials. Example: a bolt
E. ______ A wheel with a groove designed to guide a rope or belt. Example: the mechanism on a flag pole
F. ______ Two inclined planes joined back to back, often used to split things. Example: an axe or knife

Activity

Simple machines are all around us. Make a list that can be found in or around your home.

1. ____________________________
2. ____________________________
3. ____________________________
4. ____________________________
5. ____________________________
Machines and Tools

Compound Machines

When two or more simple machines work together, the device is called a **compound machine**. Good examples of compound machines include a bicycle, a wheelbarrow, and a can opener.

What does your bicycle do to make your life easier?

__________________________________________________________________________________

Can you identify two of the simple machines that are part of a bicycle? Write them in the boxes.

Activity

This path through the forest is too long to walk. Luckily, you have a bicycle to make your job easier. Now you can travel much faster! Draw the path you would take through the forest.
Clothing
Let’s explore the clothes you wear!
Most pieces of clothing have labels. Labels are not just tags attached to items to show the price. They also list the fiber content, care instructions, and manufacturer’s name.

Activity: What Does a Clothing Label Say?
Choose one piece of clothing with a label. Use the label to answer these questions.

What size is the garment? __________________________________________

What is the fiber content? (What is it made of?) Give percentage (%) for each type of fiber.
__________________________________________
__________________________________________

How should you clean and care for it? __________________________________
__________________________________________
__________________________________________

What is the manufacturer’s name? (Who made it?) _________________________
__________________________________________

Are there any special qualities (for example, waterproof or permanent press)?
__________________________________________
__________________________________________
Reviewing Your Project

Have you completed all the activities in this book? Use this space to write down a short summary about this project and what you have learned.

____________________________________________________________________________
____________________________________________________________________________
____________________________________________________________________________
____________________________________________________________________________
____________________________________________________________________________
____________________________________________________________________________
____________________________________________________________________________
____________________________________________________________________________

4-H projects can be about almost anything. Place a check next to the topics in this book you especially liked and that you would like to learn more about.

___ Animal World  ___ Health
___ Insects         ___ Food and Nutrition
___ Nature          ___ Machines and Tools
___ Plants and Soil ___ Clothing
___ Recreation

When you are finished with this book, ask your parent or project helper to sign the cover.
Hey, 4-H’er, you did a great job! Congratulations on completing your first 4-H project! Check out the Ohio 4-H Family Guide or projectcentral. ohio4h.org for other projects available through 4-H.

The 4-H Pledge
I pledge
My head to clearer thinking,
My heart to greater loyalty,
My hands to larger service,
and My health to better living, for my club, my community, my country, and my world.

Additional copies of this book and other Ohio State University Extension, 4-H Youth Development publications are available through local OSU Extension offices and online at estore.osu-extension.org. Ohio residents get the best price when they order and pick up their purchases through local Extension offices.