



REVIEWED & RECOMMENDED
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EXPLORING Your Environment

ECOSYSTEM SERVICES



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WELCOME TO EXPLORING YOUR ENVIRONMENT: ECOSYSTEM SERVICES HOW THIS BOOK WORKS

Have you ever wondered...

How does water pollution affect wildlife?

What alien species live in your neighborhood?

How can you decrease your use of energy?

The activities in *Exploring Your Environment: Ecosystem Services* will help you answer some of these questions and many more! Each section of your project book focuses on an environmental question or issue and provides activities that will help explain how **Ecosystem Services** works. You will jump right into real-world issues that affect your life through investigations and explorations of the natural world. Use your **Field Notes** to write questions, keep track of data or make a drawing of what you observe.

Your Project Facilitator

You will have lots of help as you learn about the environment! Your *Exploring Your Environment: Ecosystem Services* Project Facilitator is an important part of your overall environmental learning experience. The choice of a facilitator is yours. This person may be your project leader or advisor, teacher, family member, neighbor, friend or anyone who has the interest to work with you on these activities. Involve your facilitator as you set your goals. Discuss questions that come up during and after the activities. When possible, find someone with experience or training in environmental science to work as an advisor to you and your facilitator.

Let your facilitator know there are additional resources that can enhance your experiences as you work through the book. There is a facilitator guide that:

- Correlates each activity to the National Science Education Standards
- Identifies Life Skills built in each activity
- Includes the Science, Engineering and Technology abilities that are addressed through each activity
- Provides helpful facilitator tips for each lesson

In addition, have your facilitator check out the **Exploring your Environment website** for additional resources, such as the Experiential Learning Model, Facilitation Tips, and Professional Development information. The website can be accessed at this URL: www.4-H.org/curriculum/environment

EXPLORING YOUR ENVIRONMENT: ECOSYSTEM SERVICES PLANNING GUIDE

My Plans

- Choose a Project Facilitator
- Complete all four steps of the *Exploring Your Environment: Ecosystem Services Planning Guide*
- Keep the *Exploring Your Environment: Ecosystem Services Field Notes* throughout the project
- Go to *4-H Exploring Your Environment* online www.4-H.org/curriculum/environment for additional activities and information

My Name _____ My Project Facilitator _____

Facilitator's Phone Number _____ Facilitator's E-mail Address _____

I plan to complete my *Exploring Your Environment: Ecosystem Services* project book by _____.

1. Complete the *Exploring Your Environment: Ecosystem Services Activities*

Ask your Project Facilitator to date and initial this log as you complete the activities.

REQUIRED ACTIVITIES

Activity Name	Date Completed	Facilitator's Initials
1. What are Ecosystem Services?		
2. Pollination Buzz		
3. What's that You're Drinking?		
4. Soil Detective		
5. How Does Soil Form?		
6. How Much is Soil Worth?		
7. Food as a Provisioning Service		
8. Fuel as a Provisioning Service		
9. Recreation and Ecotourism		
10. Cultural and Aesthetic Values		
11. Field Notes		

2. Leadership Experiences

Participate in at least two of these experiences. Put a check mark by the ones you plan to do.

Experience	Plan to Do	Date completed
Give a demonstration on an environmental topic		
Teach someone something about the environment		
Encourage a friend to be a part of this project		
Attend an environmental workshop		
Give a speech on an environmental subject		
Tour a nature center		
Exhibit an environmental project		
My own activities:		

3. Exploring Your Environment: Ecosystem Services Project Highlights

A Field Note area can be found in each activity. Record your observations and ideas in your Field Notes every time you do and learn something which is personally exciting and challenging in *Exploring Your Environment: Ecosystem Services*. Describe what you learned.

4. Exploring Your Environment: Ecosystem Services Project Review

Once you have completed the activities in this book, arrange to talk with your Project Facilitator about what you have learned. You will want to have your planning guide and Field Notes up-to-date to help you with this discussion.



STATION CURTAIN



WHAT ARE ECOSYSTEM SERVICES?

Materials:

- 1 pad of Construction paper
- Pens, markers and colored pencils (1-2 boxes of any combination)
- Make copies of handouts on pages 10 and 11
- Handout 1 illustrates different landscapes (1 per youth or 1 per group)
- Handout 2 has four headers: Provisioning, Regulating, Supporting, and Cultural (1 per youth or one per group)

GET GROUNDED: INTRODUCTION

What are Ecosystem Services?

Ecosystem Services are the benefits that our natural world brings to our households, communities and economies. We receive many essential items and services from our Ecosystem. These items and services are essential for sustaining life and enhancing the quality of our lives.

There are four main kinds of **Ecosystem Services**.

- **Supporting:** Ecosystem Services that are necessary for the production of all other Ecosystem Services. Some examples include: biomass production, production of atmospheric oxygen, soil formation and retention, nutrient cycling, water cycling, and provisioning of habitat
- **Provisioning :** The products obtained from ecosystems, including, for example, genetic resources, food and fiber, and fresh water
- **Regulating:** The benefits obtained from the regulation of ecosystem processes, including, for example, the regulation of climate, water, and some human diseases
- **Cultural:** The non-material benefits people obtain from ecosystems through spiritual enrichment, cognitive development, reflection, recreation, and aesthetic experience, including, e.g., knowledge systems, social relations, and aesthetic values.

While each is named separately, these different types of **Ecosystem Services** are all closely related. You'll see how one part of the ecosystem can provide services in all of these areas.

Throughout this book, you will do a variety of investigations that will help you understand how **Ecosystem Services** works in your everyday life. Let's get going!

DIG IN!

PART 1

At Your Service!

1. Cut out the landscapes on Handout 1 found on page 10.
2. Now place the landscapes next to the correct **Ecosystem Service** category on Handout 2 found on page 11.

Discuss the following:

- Where did you place the landscapes and why?
- Which of the landscapes were harder to place than others?
- Did any of the landscapes fit in more than one category?
- If you found landscapes that fit in more than one category, what does that mean? How does it relate to the interconnectedness of **Ecosystem Services**?

PART 2

Everywhere You Look!

1. Go outside and sit a few feet away from a tree.
2. On a piece of construction paper, draw the tree. Try and capture as many details of the tree as you can. Once you have your tree, draw the grass and ground underneath it.
3. Now, draw the sky above the tree. Include everything you see. If the sun is shining or there are birds in the sky, make sure to include them too!
4. If there are other natural items in the area, make sure to draw them as well!

Now that you're done, let's investigate! How are all the things you see connected to what we call "**Ecosystem Services**?"

Let's look back at the picture you drew.

Look at the ground you drew underneath your tree.

1. Share with a partner what you observed about the ground underneath the tree. Was it grassy? Could you see the soil? What did the soil look like?
2. Next to the ground on your drawing, write down the characteristics of the soil.
3. Now think about: Why is soil important to the tree?
Soil is important to the tree because it provides a place where it can get nutrients. If the tree didn't have the right soil, it wouldn't be able to grow.
4. Soil is a **Supporting Service** because it's a service that is necessary for the production of all other Ecosystem Services. For example, if we didn't have soil, we wouldn't have the organisms and nutrients to grow our food, trees for our forests, or habitats for our animals. Supporting Services are the basis for all other Ecosystem Services.
5. Take a look at your drawing and see how Supporting Services are the foundation for everything.
6. Use a new color and write the word "**Supporting**" next to the soil and the ground.

DIG IN! (CONT'D)

Now, let's look at the tree.

1. What kind of leaves or needles does it have? Does it have buds, fruit, or flowers on it? These parts of trees provide habitat for animals and possible pollination.
2. Pollination is known as a **Regulating Service**.
3. On your drawing, write down how the type of tree benefits organisms, other plants, and us, if we choose to let it grow.
4. Sometimes we cut down trees to change how the land is used. How we regulate land, trees and resources affects services we can get from them.
5. Next to the branches on your drawing, write the word "**Regulating.**"
6. Your tree might also produce a fruit, which might be food for us, or food for animals.
7. Ecosystem Services that produce products for us, are known as **Provisioning Services**. Can you think of other products that your tree might provide? How about paper?
8. On your drawing next to the trunk, write down products that we receive from trees. Next to these products write the word, "**Provisioning.**"
9. How would a nature walk be different if you didn't have the beauty and shade provided by trees? Trees are also a **Cultural Service**. Trees contribute positive aesthetics to our environment. They are an important part of our beautiful landscapes and parklands. This service that your tree provides is known as a Cultural Service.
10. Next to the sky and surrounding scenery items in your picture, write the word "**Cultural.**"

Your Ecosystem Services picture is now complete. Look at your drawing again. Can you think of other Ecosystem Services now that you have looked everywhere?

THINK ABOUT IT: REFLECTION

- What are **Ecosystem Services**?
- What are **Supporting, Regulating, Provisioning, and Cultural Services**?
- How do we alter our **Ecosystem** so that it affects the abundance of these services?
- What can you do to sustain these **Ecosystem Services**?
- Why is it important for community leaders to understand the importance of these **Ecosystem Services**?

DIG IN

DEEPER:

EXTENSION ACTIVITIES

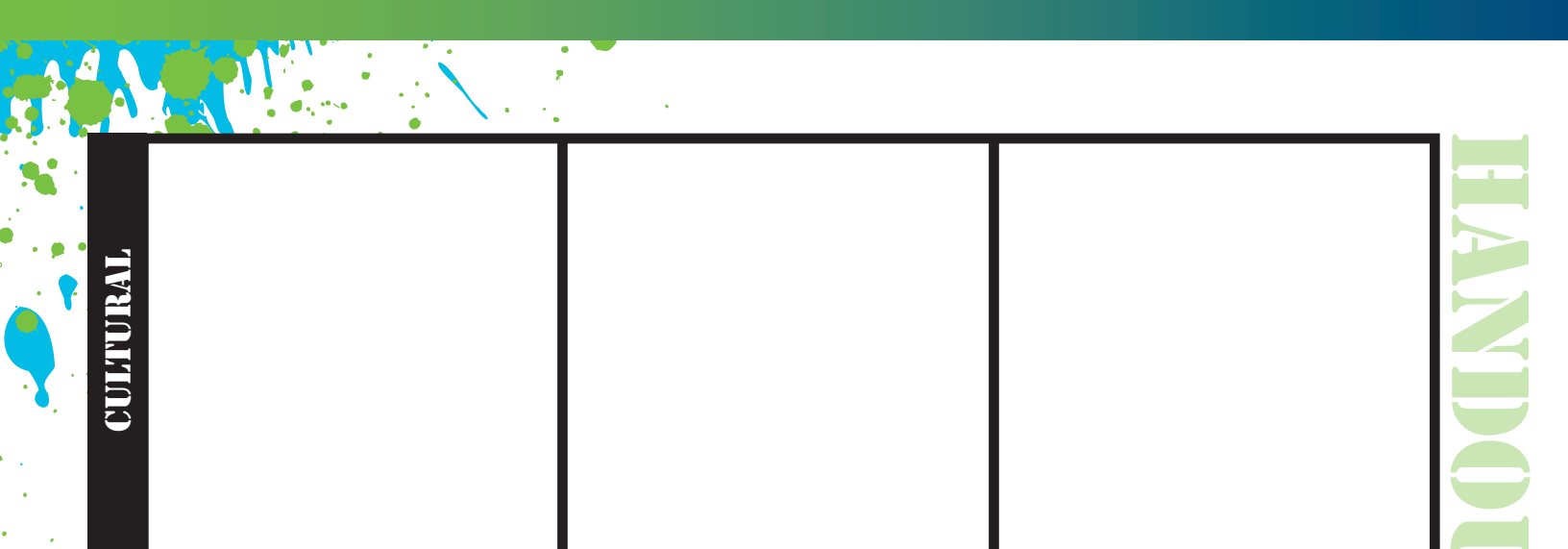
Take a field trip through your community. Identify different **Ecosystem Services** you have in your local area.



STATION CURTAIN

Handwriting practice lines consisting of ten horizontal blue lines. The first line is a solid blue line. The second line is a dashed blue line. The third line is a solid blue line. The fourth line is a dashed blue line. The fifth line is a solid blue line. The sixth line is a dashed blue line. The seventh line is a solid blue line. The eighth line is a dashed blue line. The ninth line is a solid blue line. The tenth line is a dashed blue line.





HANDOUT 2

PROVISIONING	REGULATING	SUPPORTING	CULTURAL