



REVIEWED & RECOMMENDED
National 4-H Curriculum

Product Number 08411



EXPLORING Your Environment

EARTH'S
CAPACITY



ACKNOWLEDGMENTS

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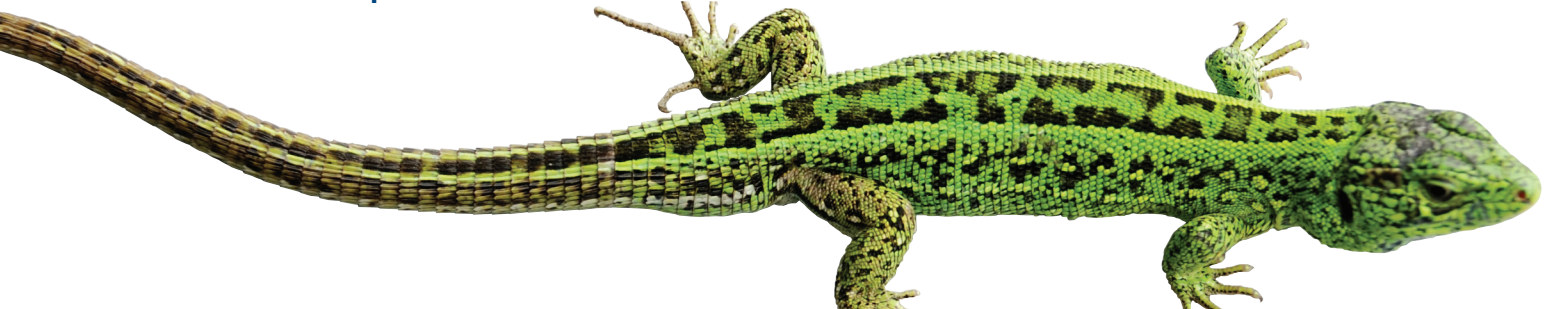
ISBN: 978-1-936582-01-3

For ordering information contact National 4-H Council Supply Service at: (301) 961-2934.

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WELCOME TO EXPLORING YOUR ENVIRONMENT: EARTH'S CAPACITY 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: Earth's Capacity* 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 **Earth's Capacity** 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: Earth's Capacity* 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 the 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 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: EARTH'S CAPACITY PLANNING GUIDE

My Plans

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

My Name _____ My Project Facilitator _____

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

I plan to complete my *Exploring Your Environment: Earth's Capacity* project book by _____.

1. Complete the *Exploring Your Environment: Earth's Capacity* 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. Dream Steward		
2. Abundance and Scarcity		
3. My Land Use		
4. Our Carrying Capacity		
5. Butterflies I See		
6. Aliens in the New World		
7. Investigating My Climate		
8. Responding to Climate Change		
9. Take In the Trash		
10. My Ecological Footprint		
11. My Promise to the Earth		
12. Community Action Leadership Challenge		
13. 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: Earth's Capacity Project Highlights

A Field Note area can be found in each activity. Record your observations and ideas in your Field Notes when you learn something which is personally exciting and challenging in *Exploring Your Environment: Earth's Capacity*. Describe what you learned.

4. Exploring Your Environment: Earth's Capacity 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 CURRICULUM



Materials:

- Book - "The Lorax" by Dr. Seuss
- Book - "The Curious Garden" by Peter Brown
- 2-3 environmental stewardship stories (found via the internet or the local library)

GET GROUNDED: INTRODUCTION

Stewardship is defined as the "careful and responsible management of something entrusted to one's care." **Environmental Stewardship** is when individuals (and communities) take on roles to care for the Earth and its resources. Environmental stewardship is an action that fosters **sustainability**, including planting with native species, shopping locally, and walking, biking or using mass transit. Ultimately, adopted stewardship practices are intended to preserve/maintain healthy, functioning ecosystems for present and future generations.

DIG IN!: ACTIVITY

Find a learning partner (youth or adult) and read at least two folktales/stories. You can choose one or two from the materials list, or use other stories on environmental stewardship that you may have found at your library, online, or from your facilitator.

- Book - "The Lorax" by Dr. Seuss
- Book - "The Curious Garden" by Peter Brown



THINK ABOUT IT: REFLECTION

With your learning partner, discuss and answer the following:

1. What were the key points of the story?
2. What surprised you?
3. What did you learn about yourself from the story?
4. What kinds of qualities do you think are needed in a good earth steward?
5. Are these qualities revealed within the characters?



IMPORTANT FACT

Stewardship practices are based on sound science about how our environments form and function. For example, in Yellowstone National Park during the early 20th century, the management practice adopted was to prevent and suppress forest fires. This practice led to devastating forest fires years later due to fuel build up in the forest that created more intense fires.

DIG IN DEEPER:

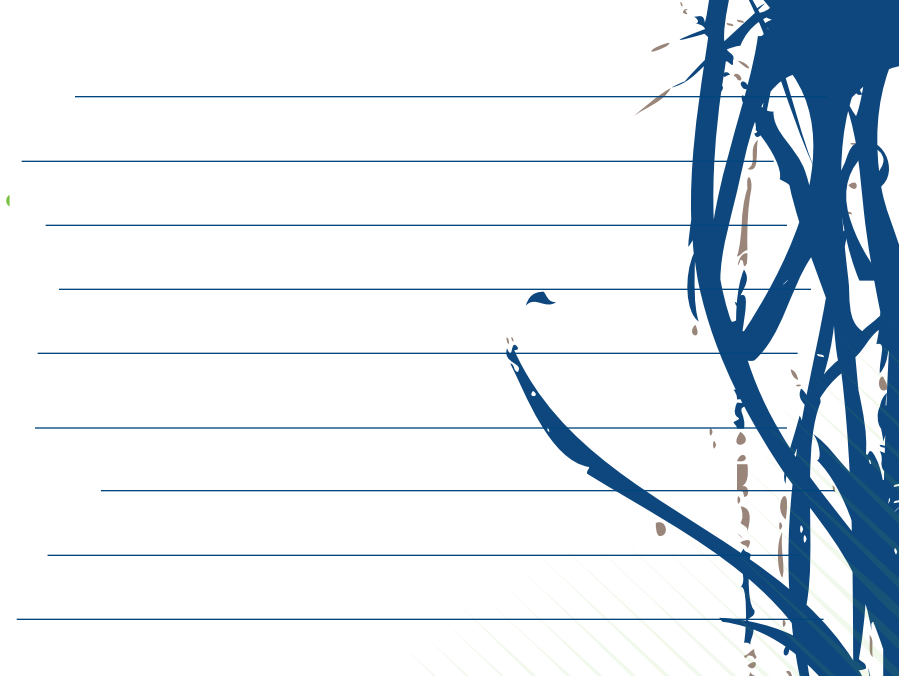
EXTENSION ACTIVITIES

Research local, national and global organizations that are devoted to environmental stewardship activities. How are these organizations similar? How are they different from one another? What impacts are occurring because of these organizations' efforts? What role does science play in making decisions? How could you take part in supporting their stewardship goals?

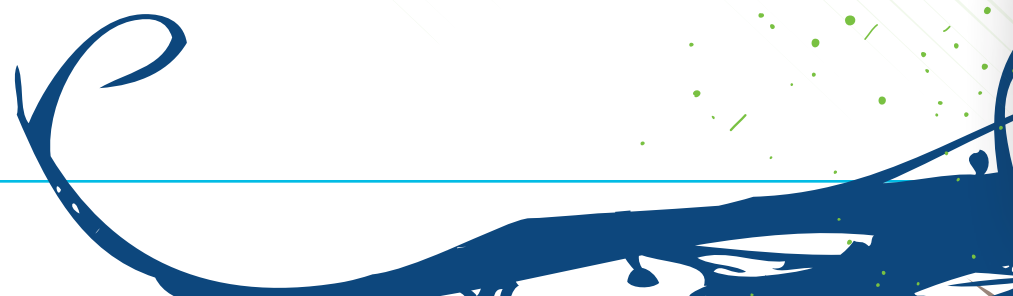


NATURAL CONNECTIONS TO EARTH'S CAPACITY

Good stewardship is based on sound science about how our environments form and function. While stewardship decisions and practices are based on the best science available at the time, we are always learning new and better management practices.



STATION CITIES



ABUNDANCE AND SCARCITY

Materials:

- Exploring Your Environment: Earth's Capacity

GET GROUNDED: INTRODUCTION

Natural Capital describes natural **ecosystems** and resources that provide valuable inputs and services for economic production. For example, a forest of trees is renewable, providing new trees and resources for the future, and a wetland can act as a filter to clean pollution from lakes and streams. Natural capital are natural resources, lands, and ecosystems that are considered essential to long-term sustainability because they provide functions and services to the economy to humans and to other living beings on our Earth.

DIG IN! : ACTIVITY

1. With your partner, think about where you live. Take some time to brainstorm and think about the following:
 - What is there a lot of in your environment?
 - What is there not much of in your environment?
 - What is just about right?

These are considered to be part of your environment's natural capital – the resources that you consider to be of value in your natural world.

Find a way to record your thoughts. You might choose to create a chart in your Field Notes, or use the chart on page 13. Identify the best recording method for you!

2. Next to each resource you listed, record the following:
 - What Ecosystem Services do these things provide? Look at Supporting, Provisioning, Regulating, and Cultural Services. Be as specific as you can.
 - Place a dollar value on each of those resources. What do you think that they are worth to you? What are they worth to others?
3. Next, on your own, fill in the spaces of your chart with the following:
 - If you could pick two resources in your natural environment that you would like to have more of, what would they be?
 - If you could pick two resources to reduce, or get rid of, what would those be?
4. Then with your partner, share your answers with each other. What does this tell you about the balance of natural capital in your natural environment? Does this seem like a suitable mix to you?

THINK ABOUT IT: REFLECTION

- How did you and your partner's natural capital answers differ? How were they the same?
- How did you place a value on the resources listed in your natural capital chart in your Field Notes on page 13?
- Have you asked yourself these kinds of questions before? If so, when?
- What new questions do you have about your environment?
- In what other areas of your life do abundance and scarcity play an important role?

IMPORTANT FACT

We have thought for a long time that our resources were nearly unlimited. Now we are rethinking how we use various competing resources. Resources are not as “abundant” as they seemed in the past.

DIG IN DEEPER: EXTENSION ACTIVITIES

Look at abundance and scarcity from the perspective of an animal or plant. Use the second grid in the Field Notes section for your answers. Be sure to label your grid with the name of animal or plant that you are choosing.

When you are finished, discuss with your facilitator or another person the following:

- How was your grid different when you looked at it from the perspective of an animal or plant?
- What did you learn from taking a different perspective on abundance and scarcity in your environment?



NATURAL CONNECTIONS TO EARTH'S CAPACITY

For ecosystems to work properly, and provide a flow of services, they must function as whole systems. This means that the structure and diversity of the whole system contains all the important components of natural capital needed. Resources need to be able to renew themselves within that system. If they are overharvested (if we use too much of them), this will damage their capacity to renew themselves, and the services they provide to that ecosystem are placed at risk. If the damage is too great, the ecosystem itself could change into a completely different one, one that may provide very different—and possibly much fewer or less useful—services.

MY ENVIRONMENT HAS:

A Lot of This	A Little of This	Just the Right Amount of This	What I Would Boost & Reduce
Resource: Service Provided: Value:	Resource: Service Provided: Value:	Resource: Service Provided: Value:	Boost 1.
Resource: Service Provided: Value:	Resource: Service Provided: Value:	Resource: Service Provided: Value:	
Resource: Service Provided: Value:	Resource: Service Provided: Value:	Resource: Service Provided: Value:	2.
Resource: Service Provided: Value:	Resource: Service Provided: Value:	Resource: Service Provided: Value:	
Resource: Service Provided: Value:	Resource: Service Provided: Value:	Resource: Service Provided: Value:	Reduce 1.
Resource: Service Provided: Value:	Resource: Service Provided: Value:	Resource: Service Provided: Value:	
Resource: Service Provided: Value:	Resource: Service Provided: Value:	Resource: Service Provided: Value:	2.
Resource: Service Provided: Value:	Resource: Service Provided: Value:	Resource: Service Provided: Value:	

ENVIRONMENT HAS: (FROM THE PERSPECTIVE OF: _____)

A Lot of This	A Little of This	Just the Right Amount of This	What I Would Boost & Reduce
Resource: Service Provided: Value:	Resource: Service Provided: Value:	Resource: Service Provided: Value:	Boost 1.
Resource: Service Provided: Value:	Resource: Service Provided: Value:	Resource: Service Provided: Value:	
Resource: Service Provided: Value:	Resource: Service Provided: Value:	Resource: Service Provided: Value:	2.
Resource: Service Provided: Value:	Resource: Service Provided: Value:	Resource: Service Provided: Value:	
Resource: Service Provided: Value:	Resource: Service Provided: Value:	Resource: Service Provided: Value:	Reduce 1.
Resource: Service Provided: Value:	Resource: Service Provided: Value:	Resource: Service Provided: Value:	
Resource: Service Provided: Value:	Resource: Service Provided: Value:	Resource: Service Provided: Value:	2.
Resource: Service Provided: Value:	Resource: Service Provided: Value:	Resource: Service Provided: Value:	

SUSTAINABILITY

3

MY LAND USE

Materials:

- Internet access
- Access to topographic maps and aerial photographs
- Poster board
- Pens, pencils, markers, crayons, colored pencils

GET GROUNDED: INTRODUCTION

Land use on Earth varies broadly from urban to natural land settings. There are many ways that land is used. For example, within an urban landscape, there are residential, commercial, industrial and mixed land uses. The goal of land use planning is to ensure that land use is appropriate and sustainable, and that it does not cause environmental damage to the site or landscape.

Land management decisions most often focus on the use of Earth's limited space and resources for producing products and services. For example, local governments may decide that a new road is necessary for a community even though it may run through an individual's property. The individual, however, might not think this is the best decision. Since building the road will benefit many people and it is for the public good of the community, they may decide to build the road anyway. Effective stewardship of land use helps preserve ecosystems to ensure that the Ecosystem Services are sustainable for current and future generations.

DIG IN! : ACTIVITY

- Now it's your turn to identify land uses in your community, determine the effects of changing landscapes, and make your recommendations to local stakeholders on how the land can best be used in your area.

Part I

Have you ever gone by an area in your community and wondered, "What was this land like before? How was this land used prior to its current use?" Take a walk, bike ride, or ride through your community and find an interesting area that you want to learn more about what it "used to be."

You might select a school area, downtown, apartment complex, residential area, industrial area, shopping district, or something else. The size of area you choose will vary, but for general consideration, think about something between two blocks and one square mile.

Once you have identified the area, find out what this area "used to be." Now it is your turn to become the "expert."

DIG IN! (CONT'D)

How can you find this out? Here are some ideas:

- Contact your local planning and zoning office.
- Contact the current owner of the property.
- Talk with area residents that have lived in the area for a while, or contact your local historical society for more information.
- Investigate the effects that the change in land use has had on the ecosystem.
- Look at photographs or vegetative and land maps of the area over the course of time.
- Compare historical aerial photographs with current aerial photographs of your identified area.

Create your own map of the previous and current land use. You can choose how you want your map to look. Color the different types of uses in the area such as wildlife area, water, agriculture, buildings, etc. Make your drawings big enough so they can be seen when put on a display board.

Part II

Now, research and think about what effects the changes in land-use have had on the following items:

- Abundance and types of wildlife (What used to be here that is not here any longer?).
- Biodiversity.
- Aesthetics of the area.
- Soil.
- Water.
- Energy consumption.
- Climate.
- Other.

Design a way to record and report your observations, and add this to your map. You could use a table, chart, drawing, diagram or something else to demonstrate this. Add these findings to your display board.

- Energy consumption.
- Climate.
- Other.

Design a way to record and report your observations, and add this to your map. You could use a table, chart, drawing, diagram or something else to demonstrate this. Add these findings to your display board.

THINK ABOUT IT: REFLECTION

What did you notice about the area you selected?

- How did you find out about the kinds of land uses in your community?
- What was the most challenging part of the activity? Why? How did you overcome any challenges you had?
- How does the current land use affect you and your community?
- How might changes in land use in general affect us and the things we use?
- If needed, what could you do to change land use in your community?

IMPORTANT FACT

Did you know that availability of energy can affect population density in and around urban areas? Cheap energy allows people to spread out—to live in suburbs and commute into urban centers. The higher the cost of commuting, the more concentrated the human populations become. In this way, an energy footprint is reflected in how our communities are arranged.

DIG IN DEEPER: EXTENSION ACTIVITIES

Currently, the world's population is around 6.5 billion, with 80-85 million more people being added each year. In addition, various populations live differently, creating different impacts on land uses (developed countries versus developing countries). Research at least 2 different populations from different countries and learn about how each lives. What are their similarities and differences? Think about and list ideas regarding why their needs are different. Compare these two populations with your own. You might consider looking at Google Earth to explore the impacts humans have on Earth.



NATURAL CONNECTIONS TO EARTH'S CAPACITY

Some uses of land result in areas that are more densely populated by human than others. For example, a city typically has more people per square mile than a rural town does. Sometimes different ideas on land use can create tensions in the community development processes, especially if a community is transitioning from one type of land use or transportation system, to another. Typically, communities strive to provide mixed land use areas and a variety of vehicle and pedestrian transportation options.





STATION CITIES

For the full version of this program visit
<http://www.4-hmall.org/Category/environment-outdoor-eye.aspx>





"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."

To learn more about this 4-H Exploring Your Environment curriculum please visit:
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