

HABITAT NETWORK

WATER

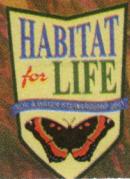
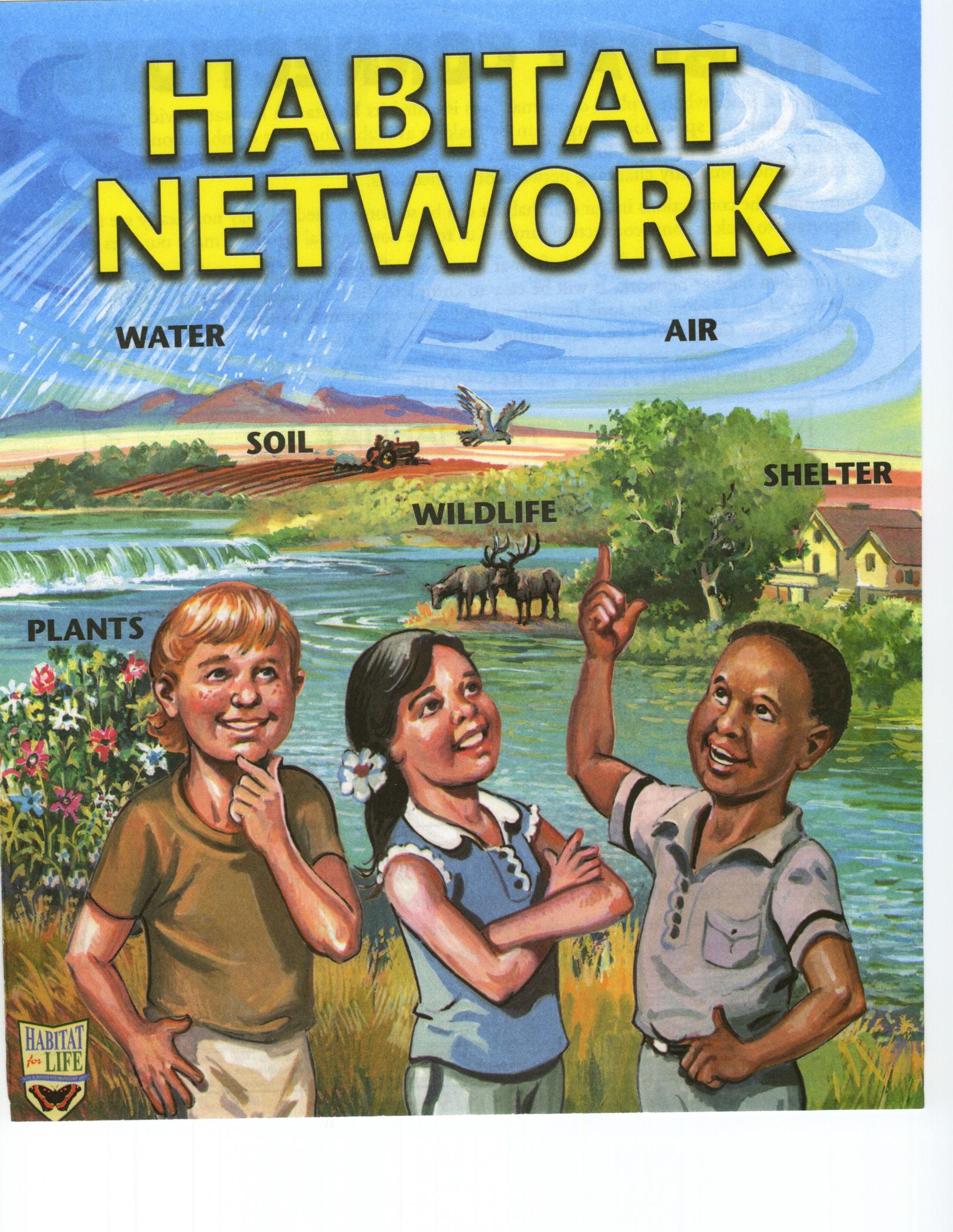
AIR

SOIL

SHELTER

WILDLIFE

PLANTS

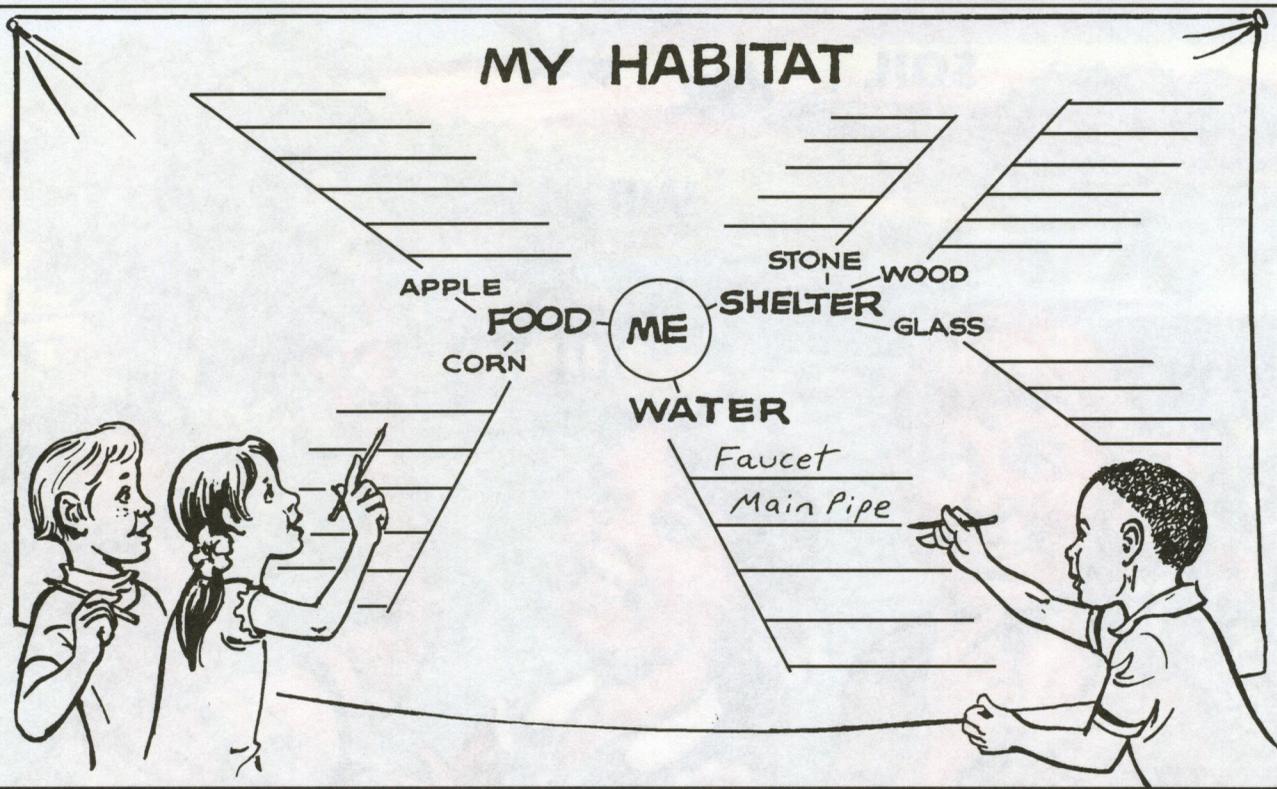


HABITAT CONNECTIONS

The special place where a plant or animal lives is called its **habitat**. A habitat provides **water, food, shelter** and **space** for an organism by making available the right combination of **natural resources**. Natural resources like **air, water, soil, plants** and **wildlife** all work together in a complex and constantly changing network of connections.

Sometimes the connections in our own habitat can be so complicated we may not clearly see them. It's important to look at some connections around us to see how natural resources make our lives possible.

Look at the diagram below. Use this format to create a diagram on a separate large sheet of paper of your own habitat network. It will be easy to complete the first space representing your source of water, food and shelter. But look further, to find what contributes to these primary sources. Diagram these things, and keep expanding until you follow them back to their original natural resource. For example, you may follow "WATER" from "FAUCET" to "WATER MAIN" to "WATER TREATMENT PLANT" to "RESERVOIR."



For "FOOD," pick only one or two specific foods you like, so your diagram doesn't get too big. For "SHELTER," pick only one or two materials from your home.

You might need to ask other people, check your library, search online or make phone calls to learn your specific information. Try to learn if other people or communities share the same resources. You may wish to add them to your diagram.

Even with this limited search, your diagram can get very complicated! Our habitat network can be large and complex, and it depends on a foundation of good natural resources.

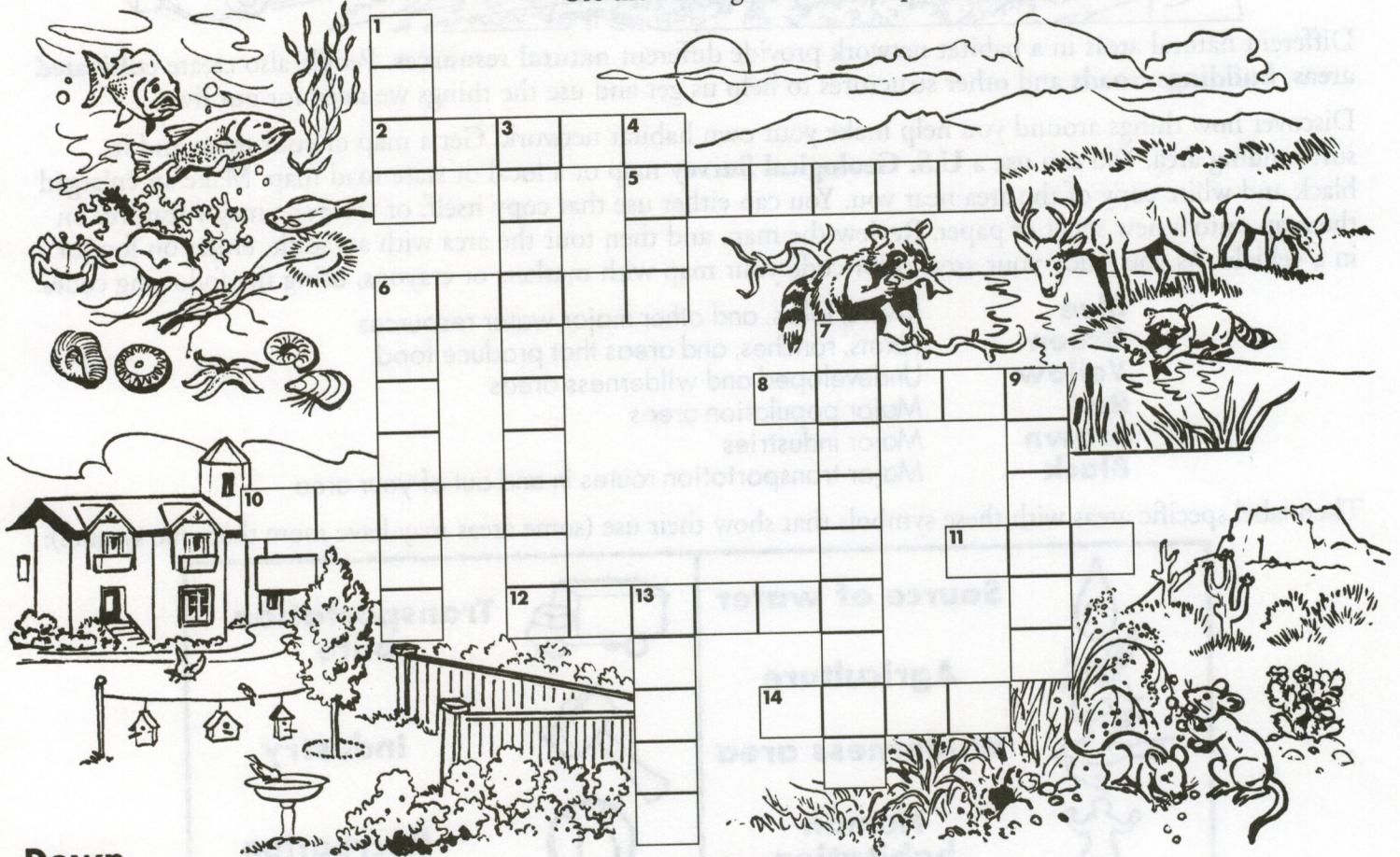
Goal: Readers will research their specific sources of water, food and shelter and create a diagram that traces them to the natural resources from which they originate.
EE Standards: Strand 1 – Questioning and Analysis Skills. Guideline C – Learners are able to locate and collect information about the environment and environmental topics.
References to National Education Standards: Arts 31; English Language Arts 27-29, 38-39; Geography 46, 106-107; History 22; Science 122; Social Studies 35.

HABITAT WHAT

Our world has a huge variety of habitats that provide resources to communities of living things. Since habitats always change, the number and type of organisms that live there change, too. When resources in a habitat become scarce or unusable, living things either adapt, move or die. People can conserve and manage resources to make a better habitat for ourselves and other living things.

Read the sentences below that describe habitats, natural resources and living things that depend on them.

Use the missing word to complete this crossword puzzle.



Down

1. We think of wildlife as living in the wilderness, but some wildlife finds a habitat in a _____.
3. When habitat is changed by the actions of nature or humans, animals that live there may become an _____ species.
4. Plants that provide food for animals in a habitat use their roots to get nutrients from _____.
6. Extremes of weather require animals to seek _____ in their habitat.
7. Air or water can become unhealthy from the effects of _____.
9. Some birds find their habitat in trees, many find their habitat in low bushes, and others like quail and wild turkeys search for food on the _____.
13. For animals to forage, hunt and reproduce, and in order for plants to grow, a habitat must provide enough open _____.

Across

2. Many animals in forest habitats obtain both food and shelter from _____.
5. People, plants and even fish must get the gaseous element _____ from their habitat.
6. Habitats range in size from very large to very _____.
8. A good habitat gives animals a safe place to raise their _____.
10. Some animals in dry habitats must struggle to find a source of _____.
11. To make food, plants use light energy they get from the _____.
12. A dry and sandy habitat is called a _____.
14. Some animals use plants and some use other animals as sources of _____.

Goal: Students will complete a crossword puzzle using words that describe habitats and natural resources.
EE Standards: Strand 2.2 - The Living Environment. Guideline A - Learners understand basic similarities and differences among a wide variety of living organisms. They understand the concept of habitat. References to National Education Standards: Science Benchmarks 102-103; Science 127-129; Geography 120.

2

Answers
 Down: 1 city 3 endangered 4 soil 6 shelter 7 pollution 9 ground 13 space
 Across: 2 trees 5 oxygen 6 small 8 young 10 water 11 sun 12 desert 14 food

MAP-A-MATIC



Different natural areas in a habitat network provide different **natural resources**. People also create **cultivated areas, buildings, roads** and other structures to help us get and use the things we need for our lives.

Discover how things around you help make your own habitat network. Get a map of your town and its surrounding area. You can use a **U.S. Geological Survey** map or a local or state road map. Make an enlarged black and white copy of the area near you. You can either use that copy itself, or trace the major features on the map onto a new sheet of paper. Review the map, and then tour the area with an adult, either on foot or in a vehicle. As you study your area, color code your map with markers or crayons, using the following codes:

Blue	Rivers, lakes, and other major water resources
Green	Farms, ranches, and areas that produce food
Yellow	Undeveloped and wilderness areas
Red	Major population areas
Brown	Major industries
Black	Major transportation routes in and out of your area

Then label specific areas with these symbols that show their use (some areas may have more than one symbol):

	Source of water		Transportation route
	Agriculture		Industry
	Wilderness area		Recreation
	Human habitation		

After you've colored and coded your map, look at the relationships among the different areas and their uses. Consider these questions:

- Are the green areas on the map near blue areas? Are there relationships among water resources and food production areas?
- Where are yellow areas in relation to red areas? Since a habitat is constantly changing, project what the relation between human habitation and wilderness areas may be in years ahead.
- What color covers the largest area? How does this affect the other elements in your habitat?
- Where are green, red and brown areas in relation to black areas? Is there a relationship between availability of transportation and human activity?

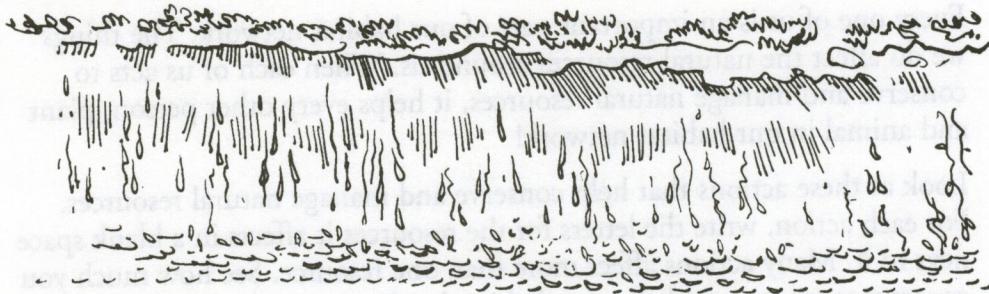
The elements and relationships in a habitat network are complex and they constantly change. What else does your map tell you about the relationships of people and resources in your area?

RESOURCE ROUNDBOUT

Resources in a habitat often move around and around as they are shared by many different living things. Help conserve natural resources and manage them wisely! This not only helps other organisms in our habitat, but it also helps make sure we ourselves have quality resources when we need them again.

For example, when people use water for cleaning or waste disposal, it becomes dirty. It must be cleaned before it can be safely used again.

Water can be naturally cleaned when it **percolates** through soil. Impurities are filtered out as water moves through soil back into water supplies.

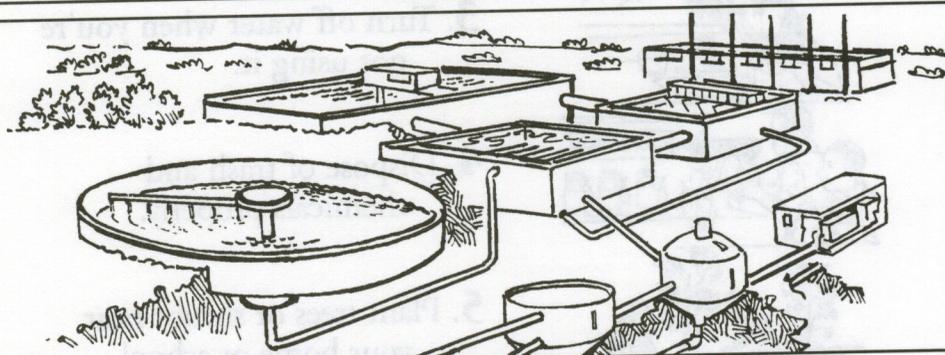


People and communities clean dirty water before it is released into water supplies.

Home **septic systems** or **sand mounds** use the principle of soil percolation to filter wastewater from kitchens and bathrooms.



Public wastewater treatment plants use a combination of cleaning processes. These may include **filtration**, exposing water to air and sunlight by **aeration**, **chemical purification**, or **disinfecting** with ultraviolet light.



Imagine that you are a droplet of water leaving your home. Write a short story describing your travels through a habitat until you finally end up back at your house. Have fun with your one or two page story! You might describe how you are cleaned, and some of the experiences you have as you travel back to a home where people need you.

Goal: Readers write a fanciful story describing the travels of a water droplet around their habitat.
EE Standards: Strand 2.1 – The Earth as a Physical System. Guideline B – Learners are able to identify basic characteristics of and changes in matter.
References to National Education Standards: Science 127; Science Benchmarks 76-77.

THE POWER OF ONE



Every one of us is an important part of our habitat network. The things we do affect the natural resources around us. When each of us acts to conserve and manage natural resources, it helps every other person, plant and animal in our habitat network!

Look at these actions that help conserve and manage natural resources. For each action, write the letters for the resources it affects in a blank space next to it. Many actions affect more than one resource. See how much you conserve resources and help your habitat by the simple things you do!

Resource Key

- A** = Air
- E** = Energy
- P** = Plants
- S** = Soil
- W** = Water
- WI** = Wildlife



1. Recycle glass, paper, plastic and metal to save energy, conserve trees and reduce landfill.



2. Ride a bike or walk instead of driving for short trips.



3. Turn off water when you're not using it.



4. Dispose of trash and chemicals properly.



5. Plant trees or shrubs near your home or school.



6. Turn off lights, TV or radios when they are not being used.



7. Use a compost pile to turn leaves, grass clippings and table scraps into new soil.

Goal: Readers will match individual acts of conservation with the natural resources they affect.

EE Standards: Strand 4 – The Living Environment. Guideline D – Learners understand that they have responsibility for the effects of their actions. References to National Education Standards: Civics and Government 38-39; Social Studies 73-75.

HABITAT MATH

Conservation adds up! When people, families and communities conserve natural resources, the benefits to a habitat network can be great.

First, find out about how many **people** live in your city, town or community. Divide that number by **4** to get the estimated number of **households** in your community. Make sure to use this number in each activity below to estimate your yearly community savings.

Read the conservation practices described below and how they save or benefit natural resources for one household. Solve each problem to see the yearly resource savings or benefit for one household. Then multiply that number by the number of households in your community to see the resource savings or benefits if everyone in your community practices that conservation act.

1. Fixing a leaky faucet can save **96 gallons** of water each week.



Yearly Savings per Household: _____ gallons of water
 Yearly Community Savings: _____ gallons of water

2. Turning off lights when not in use can save **720 watts** of electricity each day.



Yearly Savings per Household: _____ watts of electricity
 Yearly Community Savings: _____ watts of electricity

3. Planting ground cover on a slope can reduce soil erosion and save **3 cubic feet** of soil each month.



Yearly Savings per Household: _____ cubic feet of soil
 Yearly Community Savings: _____ cubic feet of soil

4. One tree can produce enough oxygen to fill **2 houses** each day.



Yearly Benefit per Household: _____ houses worth of oxygen
 Yearly Community Benefit: _____ houses worth of oxygen

Goal: Students will calculate annual resource savings and benefits from specific conservation practices when practiced by individuals and communities.
EE Standards: Strand 1 – Questioning and Analysis Skills. Guideline E – Learners are able to describe data and organize information to search for relationships and patterns concerning the environment and environmental topics.
 References to National Education Standards: English Language Arts 35-36; Geography 47, 107-111; Mathematics 54-56, 60-62.

Answers (savings per household)
 1 4.992 2 262.800 3 36 4 730
Community Savings depend on number of households in your community.

THE NETWORK WORKS!



Never forget that you are part of a great **habitat network!**
You depend on your habitat every day for your **food, water, air and shelter.**

And the network depends on **you!**

When you help conserve soil, water, energy, air, plants and wildlife,
you help keep the network working!

MORE HABITAT FUN

HERE ARE SOME MORE FUN ACTIVITIES TO
HELP YOU KEEP LEARNING ABOUT HABITATS
AND NATURAL RESOURCES!



Wildlife Watch - Identify and locate three distinctly different types of wildlife near you and their habitat. Try to find where each type of animal gets the resources it needs. How are their habitats similar? How are they different? How do they compare in size?

Armchair Traveller - Obtain detailed maps from different areas in our country or around the world. Try to find areas that are very different from where you live. Try to imagine how people get the resources they need in each place. You may wish to review the map you made in "MAP-A-MATIC" and think how a habitat map of those far-off places might compare.

Resource Recipe - Create a habitat for earthworms, pill bugs, millipedes or snails! Use this resource recipe:

1. Place an inch of small rocks in the bottom of a large (1-gallon) jar or small aquarium.
2. Add several inches of loose soil.
3. Cover the soil with dead leaves or bark for shelter.
4. Sprinkle or mist the leaves with water to keep them damp.
5. Wrap a piece of black paper around the jar or aquarium so the worms will make their tunnels against the glass.
6. Collect a few worms, pill bugs, millipedes, and/or snails and place them in the jar or aquarium. Cover the top with mesh screen to let air circulate.
7. Keep the jar or aquarium in a shady, cool place. Keep the soil damp but not water logged. Add bits of leaves and lettuce every few days for food.
8. After a week, remove the paper and see the tunnels the worms have made.
9. You can keep your habitat going for several months with regular feeding and watering. Keep notes about the results of your habitat watch.
10. When you're done, return the worms and bugs to their original habitat.

Available from your local conservation district, state natural resources agency and the

National Association of Conservation Districts

408 East Main P.O. Box 855 League City, TX 77574-0855

1-800-825-5547, ext. 32 www.nacdn.org



NOTE TO EDUCATORS: Each activity was developed with an educational goal in mind that should be adapted to the needs of the grade level you are teaching. Also, each activity is correlated to environmental education standards established by the **North American Association of Environmental Education**, as outlined in the book **Excellence in EE - Guidelines for Learning (K-12)**. Note that each guideline includes references to national education standards that form the basis for the state standards you follow. The goal and standards are listed at the bottom of each activity.

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