

Environmental Science Requirement 3 Merit Badge Workbook

This workbook has been put together to help scouts in successfully completing requirement 3 of Environmental Science Merit Badge. It is meant to be **used with, Boy Scouts of America, Environmental Science Merit Badge Pamphlet and not alone.** This is your original. Feel free to make copies for Each Scout taking this merit badge



**By Arthur Boduroglu
Ecology Director
Baiting Hollow Scout Camp
Suffolk County Council, BSA**

Name: _____ Troop: _____
 Date: _____ Site: _____

Requirement 3

Do ONE activity in EACH of the following categories. Use the activities in this workbook as the bases for planning and carrying out your projects

Step 1: Carefully read each of the activity before making your selection.

Step 2: Put a check mark next to the activity in which you selected.

Requirement 3	1	2
a. Ecology	- Activity 1 * How Does the Environmental Affect Living Things? (WB 2) (MBP 17)	- Activity 3 The Greenhouse Effect (WB 7) (MBP 41)
b. Air Pollution	- Activity 4 Air Pollution (WB 9) (MBP 43)	- Activity 5 * Acid Rain (WB 11) (MBP 45)
c. Water Pollution	- Activity 6 * Thermal Pollution (WB 15) (MBP 51)	- Activity 7 Cleaning Up Oil Spills (WB 17) (MBP 55)
d. Land Pollution	- Activity 2 Soil Erosion (WB 4) (MBP 27)	- Activity 9 * Oil Pollution on Land (WB 21) (MBP 64)
e. Endangered Species	- Activity 11 Endangered Species (WB 26) (MBP 77)	- Activity 12 * How Does an Endangered Species Recover? (WB 29) (MBP 81)
f. Resource Recovery	- Activity 8 Biodegradable Packing Materials (WB 19) (MBP 62)	- Activity 10 * Recycling Programs WB 24) (MBP 71)

*** Activities that cannot be complete at summer camp.**

Name: _____ Troop: _____
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*Activity 1 – How Does the Environmental Affect Living Things?
(MBP 17)*

Conduct an experiment to find out how living things respond to changes in their environments. Discuss your observations with your counselor.

You have learned that the nonliving parts of the environment have important Effects on living things. In this experiment for requirement 3a (1), you will learn how light affects earthworms.

Materials

- Cardboard shoe box with lid
- 10 earthworms (or mealworms)
- Lamp with 100-watt light bulb
- Scissors
- Notebook
- Pen or pencil

Procedures

1. Cut the shoebox lid in half. Put half of the lid on the shoebox so that it shades one side of the box.
2. Place the lamp next to the middle of the shoebox, close enough that it shines on the uncovered part of the box.
3. Place 10 earthworms (or mealworms) on the centerline of the bottom of The shoebox so that the worms are half in the dark and half in the light.
4. Observe the worms for 5 minutes. Note their behavior in your notebook.
5. When your experiment is over, take the worms outside and return them to the soil.

Observations

Minutes	Number of Worms in the	
	Lighted Part	Shaded Part
0		
1		
2		
3		
4		
5		

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Activity 2 – Soil Erosion
(MBP 27)

Conduct an experiment to illustrate soil erosion by water. Take photographs or make a drawing of the soil before and after your experiment, and make a poster showing your results. Present your poster to your patrol or troop.

In this experiment for requirement 3d (1), you can find out how soil erosion happens and learn of one way to prevent soil erosion.

Materials

- Three long, thin boxes; can be
- made out of wood, cardboard
- pizza
- boxes, or old pieces of plastic
- or
- metal pipe
- Plastic bags
- Garden soil
- Soil with grass growing in it;
- can
- be sod or dug up from your
- yard
- Adhesive or duct tape
- Scissors
- Watering can
- Three bricks, large rocks, or
- books
- of the same size
- Three pans, jars, or clear
- plastic
- cups
- Measuring cups
- Cut-up strips of newspaper
- Bucket
- Shovel or garden trowel
- Ruler
- Notebook
- Pen or pencil

Procedures

1. Get permission before you dig up any soil for this experiment.
2. Place cut-up strips of newspaper into a bucket and fill with water. Stir occasionally. Leave the newspaper in the water until it falls apart and becomes slurry of paper and water. This may take a few days.
3. Build three long, thin boxes out of the materials listed. If you use cardboard, line the boxes with plastic bags and cover any seams with adhesive or duct tape to prevent leaking.
4. At one end of each box, cut a large V-shaped notch about half as deep as the end wall of the box. Label the boxes 1, 2, and 3.

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5. Fill boxes 1 and 2 with garden soil so that the surface of the soil is about half an inch below the top edges of the boxes.

6. Fill box 3 with soil that has grass growing on it. Make the soil surface about half an inch below the top edge of the box.

7. Drain the water from the bucket of newspaper slurry. Take a handful of slurry, squeeze out more water, and spread this on top of the soil in box 2. Continue to do this until the surface of the soil in box 2 is covered with newspaper slurry. Let it sit overnight.

8. The following day, line up the three boxes in a row. Place a brick, large rock, or book under the uncut end of each box. Place a collecting pan, jar, or cup under the lower end of each box below the cutout V.

9. Fill the watering can with a measured amount of tap water. Standing at the Higher end of box 1, sprinkle the water on the soil surface until the can is Empty. Wait about 3 minutes until the water stops running from the V notch, Then observe the water that collects in the pan, jar, or cup. Measure the amount of water and note its color. Record the data in your notebook.

10. Repeat step 9 for boxes 2 and 3, using the same amount of water each time.

Observations

	Box 1	Box 2	Box 3
Amount of Water Entering the Box			
Amount of Water Collected			
Color of the Water After 3 Minutes			

1. Was there a difference in the path the water took in each of the three boxes?

2. How much water ended up in each collecting pan after 3 minutes? What was the color of the water in each collecting pan?

3. Was there a difference in the color and the amount of water in each collecting pan after 3 minutes?

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Activity 3 – The Greenhouse Effect
(MBP 41)

Conduct an experiment illustrating the greenhouse effect. Keep a journal of your data and observations. Discuss your conclusions with your counselor.

For requirement 3a (2), you can show how the atmosphere traps the Sun's energy and Earth's surface.

Materials

- Table lamp with 100-watt light bulb
- Two thermometers
- Two clear plastic 2-liter soda pop bottles
- Garden soil or potting soil
- Clear plastic wrap
- Rubber band
- Watch with a second hand
- Measuring cup
- Scissors

Procedures

1. Using scissors cut the tops of both bottles about 4 inches from the top. Label one bottle "A" and the other bottle "B".
2. Pour 2 cups of soil into each bottle.
3. Place a thermometer inside each bottle. Make sure the thermometers are placed at the same distance above the soil in each bottle.
4. Cover the top of bottle B with clear plastic wrap and secure it with a rubber band.
5. Place the lamp on a table, removing the lampshade to expose the light bulb. Position each bottle exactly 1 inch from the exposed bulb. Be sure to turn the bottle so that the thermometers face away from the light bulb. (You may need to shade the thermometers from direct light to get accurate readings of air temperatures.)
6. In your notebook, record the temperature in each bottle.
7. Turn on the lamp.
8. Using a watch, wait 3 minutes, and then record the temperatures again. Record the temperatures in each bottle every 3 minutes for 15 minutes.

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Date: _____ Site: _____

Activity 4 – Air Pollution (MBP 43)

Perform an experiment to test for particulates that contribute to air pollution. Discuss your findings with your counselor.

In this experiment for requirement 3b (1), you can observe some of the particulates that pollute air.

Materials

- Two air pollution collectors of at least 4 square inches (clear pieces of plastic, white 3" x 5" cards, or the sticky sides of bumper stickers)
- Petroleum jelly
- Magnifying glass
- Clear plastic sheet, marked off in a grid of 1-inch squares

Procedures

1. Cover both air pollution collectors with a thin film of petroleum jelly. (If you use a sticky collector, such as the sticky side of a bumper sticker, you won't need petroleum jelly.)
2. Place one collector in an urban environment, such as near a busy street. Place the other collector in a rural environment, such as in a field, a large park, or a forested area.
3. Protect each collector from the weather by placing a cover above it or placing it underneath an overhanging roof or tree limb.
4. Leave both collectors in place for one week.
5. Retrieve the collectors. Using a magnifying glass, look at the surface of each collector to identify any particulates.
6. Place the clear plastic grid over one collector. Count the number of particulates in four of the squares. Find the average number of particulates in a square and record this number.
7. Repeat step 6 for the other collector.

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Activity 5 – Acid Rain
(MBP 45)

Conduct a study to test the effects of acid rain on plants. Discuss your findings with your counselor.

Sulfur oxides and nitrogen oxides are chemicals that react with water vapor in the air to form sulfuric acid and nitric acid. Rain containing these acids falls on plants and bodies of water. In this experiment for requirement 3b (2), you can find out how acid rain affects land plants.

Materials

- Five small potted plants of the same species and size
- Distilled water (pH 7)
- Five small spray bottles
- White vinegar (pH 2)
- Magnifying glass
- Safety goggles
- Apron
- Ruler
- Set of measuring cups
- Labels and marking pen

Procedures

1. Use the labels and marking pen to number 1, 2, 3, 4, and 5.
2. Measure the height of each plant, and record the heights in your notebook. Count the number of leaves on each plant and record these data as well.
3. Use a magnifying glass to examine each plant. Draw each plant in your Notebook and color in any areas that show damage.
4. For the rest of this activity, put on goggles and an apron to protect your eyes and clothing. Use a measuring cup to pour 1 cup of distilled water into each of four spray bottles. Mark these as bottles 1, 2, 3, and 4.
5. Use a measuring cup to pour 1 cup of vinegar into another spray bottle. Mark this as bottle 5. This bottle, containing undiluted vinegar, has a pH of 2.
6. Measure 2 teaspoons of vinegar and pour into bottle 2. This bottle now has a pH of approximately 5.
7. Measure 3 teaspoons of vinegar and pour into bottle 3. This bottle now has a pH of approximately 4.
8. Measure 4 teaspoons of vinegar and pour into bottle 4. This bottle now has a pH of approximately 3. Bottle 1, containing distilled water only, has a pH of 7.
9. Place all five plants in a sunny location. Water each one with the same amount of water. Do not over water the plants.

Name: _____ Troop: _____
 Date: _____ Site: _____

10. Spray plant 1 with bottle 1, plant 2 with bottle 2, plant 3 with bottle 3, plant 4 with bottle 4, and plant 5 with bottle 5. Make sure you spray the soil in each pot, because plants absorb water through their roots, not through their leaves. Use the same number of sprays on each plant each time.
11. Wait one day and examine each plant and count the number of leaves. Record these data in your notebook.
12. Repeat steps 10 and 11 every day for five days.

Observations

DAY1			
Plant	Data		
1	Height		
	# of Leaves		
	Comments		
2	Height		
	# of Leaves		
	Comments		
3	Height		
	# of Leaves		
	Comments		
4	Height		
	# of Leaves		
	Comments		
5	Height		
	# of Leaves		
	Comments		

Name: _____ Troop: _____

Date: _____ Site: _____

Plant	Data	Day 2	Day 3	Day 4	Day 5
1	Height				
	Number of Leaves				
	Comments				
2	Height				
	Number of Leaves				
	Comments				
3	Height				
	Number of Leaves				
	Comments				
4	Height				
	Number of Leaves				
	Comments				
5	Height				
	Number of Leaves				
	Comments				

1. Did you see any changes in the leaves of plant 1 during the experiment?
In 2, 3, 4, or 5?

2. If you saw changes, what kinds of changes did you see?

Name: _____ Troop: _____

Date: _____ Site: _____

3. Normal rainwater has a pH of about 5.6. Did any of the plants in the Experiment receives treatment that compared to normal rain?

4. Explain why you drew a picture of the damaged areas on the plants' leaves before you began your experiment.

Conclusions

Use your data and observations to explain how acid rain affects land plants.

Name: _____ Troop: _____
Date: _____ Site: _____

*Activity 6 – Thermal Pollution
(MBP 51)*

Conduct an experiment to show how living things react to thermal pollution.
Discuss your observations with your counselor.

Thermal pollution occurs when a source of heat raises water temperature above normal. In this experiment for requirement 3c (1), you can find out if goldfish are sensitive to thermal pollution.

Materials

- 10-gallon aquarium, large plastic
- dishpan, or other large container
- Two thermometers
- Aquarium heater
- Tap water
- 10 goldfish
- Goldfish food
- Ruler
- Marking pen

Procedures

1. Set up the aquarium tank or other large container away from direct sunlight. Fill it with tap water. Leave it at room temperature for at least one day.
2. On day 2, add 10 goldfish. (Float the plastic bag containing the fish on top of The water for 20 minutes. Then open the bag and gently pour the goldfish into The tank or container.)
3. On day 3, use a ruler and marking pen to draw a line down the middle of the Tank or container. Mark one end “A” and the other “B”. Place a thermometer At each end. Place an aquarium heater at one end so that it is not touching a Thermometer.
4. Feed the goldfish at the centerline that you marked in step 3.
5. After the fish have eaten, count how many goldfish are swimming in each half Of the tank or container and record this number in your notebook. Read the Water temperature at A and B and record these numbers in your notebook.
6. Turn the heater on. Wait 5 minutes. Record the water temperature at A and B. Record the number of fish swimming in each side of the tank or container.
7. Wait another 5 minutes. Record the water temperatures and the number of fish In each side.
8. Repeat step 7 every 5 minutes for 30 minutes. Make sure you turn off the Heater when you are done.

Name: _____ Troop: _____
Date: _____ Site: _____

Minutes	SIDE A		SIDE B	
	Temperature	Number of Fish	Temperature	Number of Fish
0				
5				
10				
15				
20				
25				
30				

1. Why did you record the number of goldfish in each half of the tank or container at the beginning of the experiment?

2. What happened to the water temperature in the half nearest the heater?

3. How do goldfish respond to rising water temperatures?

Conclusions

Using your data, explain how thermal pollution may affect organisms that live in water. How would thermal pollution affect water plants or other organisms that cannot move away from the source of the heat?

Name: _____ Troop: _____
Date: _____ Site: _____

Activity 7 – Cleaning Up Oil Spills (MBP 55)

In 1989, an oil tanker called the Exxon Valdez struck Bligh Reef, spilling its cargo of crude oil into Alaska's Prince William Sound. The 11 million gallons of spilled oil coated more than 1,000 miles of shoreline, killing at least 300,000 birds, 5,000 sea otters, 300 harbor seals, 20 whales, and countless numbers of fish and aquatic organisms. Because most of the dead animals sank, no one knows the full effect of this devastating oil spill.

In this experiment for Requirement 3c (2), you will examine several methods that are used to clean up oil spills at sea.

Materials

- Four aluminum pie pans
- Motor oil, such as 10W30
- Tap water
- Plastic straws
- Piece of cotton string, 12 inches long
- Paper towels
- Strips of newspaper
- Cotton balls
- Scraps of fabric
- Liquid dishwashing detergent
- Four plastic spoons
- Measuring cups and spoons
- Labels and marking pen

Procedures

1. Label the pie plates A, B, C, and 0.
Pour 1 cup of tap water into each plate.
2. Add 1 tablespoon of oil to the water in each pie plate.
3. In pan a, use a plastic spoon to stir the oil into the water. Then, using a straw, try to blow the oil into one part of the pan.
4. In pan B, use a clean spoon to stir the oil. With a piece of string, try to collect the oil and contain it in one area.
5. Stir the oil in pan C with a clean spoon. Using a paper trowel, try to absorb the oil. Then use strips of newspaper, cotton balls, and fabric scraps to try to absorb the oil.
6. Use the last plastic spoon to stir the oil in pan 0. Add 1 teaspoon of liquid dishwashing detergent to the water in the pan.
7. At the end of your experiment, collect the remaining oil and take it to a gas station or oil recycling center for proper disposal.

Name: _____ Troop: _____
Date: _____ Site: _____

Observations

1. What happens when you use a straw to blow the oil away?

2. What cleanup method does using a piece of string represent?

3. Which of the materials used in pan C worked the best to absorb the oil?
Would this be a useful tool in actual oil spills at sea?

4. What happened when you added liquid dishwashing detergent to pan D?
Can you explain why?

Six Methods of Oil Spill Cleanup

Oil spills can be cleaned up through (1) Bioremediation, which uses fertilizers to increase the population of oil-eating microbes, or by using a floating barrier called a (2) Boom to contain and absorb an oil spill. Another less desirable method involves (3) Burning the oil to reduce large amounts of oil to a tarry residue. Burning oil produces smoke that is poisonous to humans and animals. (4) Chemical dispersants help “scatter” oil into larger volumes of water but dispersants must be “mixed” with the oil, which requires good wave action. (5) Hot-water washing works best on heavily oiled beaches but it “cooks” all plant and animal life in its path, leaving beaches sterile. (6) Skimmers collect oil from the surface and is one of the most environmentally sound methods of oil collection.

Conclusions Scientists have tried many methods to clean up oil spills. In this experiment, you explored several. Explain which treatment worked best to clean up your oil spill. Would this treatment work in an actual spill at sea? Don't overlook the organisms that oil spills affect. Is your treatment better or worse for them than the effects of the spill itself? If you were in charge of cleaning up an oil spill at sea, which method would you recommend?

Name: _____ Troop: _____
Date: _____ Site: _____

Activity 8 – Biodegradable Packing Materials
(MBP 62)

Perform an experiment on packaging materials to find out which ones are Biodegradable. Discuss your conclusions with your counselor.

Packing materials such as shredded newspaper or foam peanuts sometimes end up as litter along roadsides, or take up space in landfills. In this experiment for requirement 3f(1), you can find out which packing materials are biodegradable.

Materials

- Sand
- Garden soil
- Small shovel or garden trowel
- Strips of newspaper
- Foam packing peanuts
- Popped popcorn
- Small piece of plastic bubble wrap
- Labels and marking pen
- Tap water
- Four plastic bags and twist ties
- Ruler
- Measuring cup
- Magnifying glass
- Sheets of newspaper

Procedures

1. Label the plastic bags 1, 2, 3, and 4.
2. Pour a cup of sand into each plastic bag. Then add a cup of garden soil to each Bag. Carefully mix the sand and soil by squeezing the mixture in each bag.
3. In bag 1, place six small strips of newspaper.
4. In bag 2, place six foam-packing peanuts.
5. In bag 3, place six pieces of popped popcorn.
6. In bag 4, place a small piece of plastic bubble wrap.
7. Fill each bag almost to the with garden soil. (Leave enough space to allow the bag to be closed with a twist tie.)
8. Pour half a cup of tap water into each plastic bag.
9. Close each bag with a twist tie. Place all four bags in a sunny window.
10. After two days, open the plastic bags stir the soil, add half a cup of tap water, and reclose the bags.
11. Wait three days, then empty each bag onto a sheet of newspaper and look for the packing materials in each. Use a magnifying glass to examine each material.

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Activity 9 – Oil Pollution on Land
(MBP 64)

Perform an experiment to determine the effect of an oil spill on land. Share your journal and discuss your conclusions with your counselor.

What happens to the oil that leaks out of engines onto asphalt parking lots? When it rains, that oil is washed onto the soil, where it seeps down toward plant roots. In this experiment for requirement 3d (2), you can find out how oil pollution on land affects plants.

Materials

- Four small plants in pots
- Measuring cups and spoons
- Aged tap water (water that has been collected and allowed to sit for 24 hours)
- Oil, such as 10W30 motor oil (Do not use waste oil.)
- Labels and marking pen
- Ruler
- Magnifying glass

Procedures

1. Label each small plant A, B, C, or D.
2. On day 1, place the four plants in a sunny window. Water each plant with the same amount of aged tap water.
3. Examine each plant. In your notebook, record their heights, number of leaves, and any other important characteristics you observe.
4. Pour 1 teaspoon of motor oil on the soil of plant B, making sure not to get any oil on the leaves. Pour 2 teaspoons of oil on the soil of plant C. Pour 3 Teaspoons of oil on the soil of plant D. Do not put any oil on the soil of plant A.
5. On day 2, water each plant with half a cup of aged tap water. Do not overwater the plants.
6. Examine each plant daily for the next three days. Write your observations in your notebook. On the last day, again measure the height of each plant and record the number of leaves. Also record in your notebook any color changes that you see.
7. At the end of your experiment, dispose of the soil contaminated with oil. Contact your local environmental protection agency or hazardous waste agency To find out where to take the soil for proper disposal.

Name: _____ Troop: _____
Date: _____ Site: _____

Observations

Plant	Data	DAY 1	DAY 2	DAY 3	DAY 4	DAY 5
A	Height					
	# of Leaves					
	Comments					
B	Height					
	# of Leaves					
	Comments					
C	Height					
	# of Leaves					
	Comments					
D	Height					
	# of Leaves					
	Comments					

1. Why was it necessary not to put any oil on the soil of plant A?

2. Why water the plants after pouring oil on the soil? What environmental Conditions did this action imitate?

3. What kinds of effects did you expect to see in the plants that were treated with oil? Did those effects appear?

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Date: _____ Site: _____

Activity 10 – Recycling Programs
(MBP 71)

Find out if your local community has a recycling program in effect. If it does, find out what items are recycled, and who pays for recycling. If your community does not have a recycling program, write questions for and conduct a survey on recycling. Include questions about attitudes toward recycling, what should be recycled, and your community's willingness to support a recycling program. Discuss your findings with your counselor.

Many people want to reduce the amount of solid wastes they produce. Some Communities already have programs to recycle certain materials. In this activity for requirement 3f (2), you can find out about recycling programs in your own community.

Materials

- Telephone
- Local phone book
- Writing paper or computer printer
- paper
- Pen or pencil

1. in your local telephone book, look up your town, village, city, or county in the section labeled “Government.” Find the phone number for the service Department, water and sewage department, refuse collection department, or, in some places, the recycling department. Call the correct department and ask about local recycling effects. Find out if your community has a recycling Program.

2. If your community does have a recycling program, ask the following questions:

- a. What items are recycled?
- b. How are recyclable items recovered from other solid wastes?
- c. Who pays for recycling? Does the community receive any payment for the items recycled?
- d. What percentage of the community participates in the recycling program?
- e. Is the recycling program required by law?

If the government office has any written materials about the recycling program, ask that copies be sent to you. Organize your findings and be prepared to answer questions about your community’s recycling efforts.

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3. If your community does not have a government-supported recycling program, prepare a list of questions and survey local residents to find out what your neighbors and family members think about recycling. Among the questions you could ask are the following:
- a. Do you think it is important to recycle items such as aluminum cans?
Newspapers, plastic, and glass?
 - b. How much of the trash that your family throws out is made up of materials that could be recycled?
 - c. Does your family currently recycle anything? If you do, which items do you recycle?
How do you recycle them?
 - d. Would you like to see a community-wide recycling program?
 - e. Would you be willing to help pay for such a program?
4. When you have finished your survey, compile the results and be prepared to answer questions about your findings.

Observations

1. Does your community have a recycling program? What items are collected? How are these materials collected? What does the program cost, and who benefits?-

2. If your community does not have a recycling program, does your survey show that people would support such a program? Do people in your community already recycle? What kinds of materials do they recycle? Would they be willing to pay for such a program?

Conclusions

Whether or not your community has a formal recycling program, many people already are recycling. According to your research, what kinds of materials are recycled in your community? What other items could be recycled? Why is it important to recycle items made from nonrenewable resources such as aluminum?

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Date: _____ Site: _____

Activity 11 – Endangered Species
(MBP 77)

Do research on one endangered species found in your state. Find out what its natural habitat is, why it is endangered, what is being done to preserve it, and how many individual organisms are left in the wild. Prepare a 100-word report about the organism, including a drawing. Present your report to your patrol or troop.

Endangered species can be found in every state and in most countries around the world.

Material

- Telephone book and telephone
- Writing paper
- Stamps and envelopes
- Pen or pencil
- Camera and film (optional)
- Drawing paper and colored pencils

Procedures

1. In the local telephone book, look up your state's department of fish and game, wildlife, parks and recreation, or its environmental protection agency. Call the number listed and ask how you would find out what species are endangered or threatened in your area.
2. If you cannot find a local agency that can answer your questions, write a letter to the U.S. Environmental Protection Agency, 401 M Street SW, Washington, DC 20460, <http://www.epa.gov>. or to The Nature Conservancy, 1815 North Lynn Street, Arlington, VA 22209, <http://www.nature.org> The World Wildlife Fund, 1250 24 Street NW, Washington, DC 20037, has information about endangered and threatened species in several countries.
3. 3. When you have found out what species are endangered or threatened in your area, choose one to study.
4. 4. Go to the library or use a computer to access the Internet to find information about your chosen species. Use at least four different references in your search for information.
5. 5. Find out the natural habitat of the species, why it is endangered, what is being done to preserve it, and how many individual organisms of the species are estimated to still live in the wild?

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6. Prepare a 100-word report on your endangered species. Include a photograph you have taken of the species (at a zoo), a photograph from a computer source, or a drawing you have made.
6. 7. Present your report to your patrol or troop. (Or, show your report to your camp councilor or merit badge class.)

Observations answer the following questions below.

1. How many species in your state are listed as endangered?

2. What is the biggest threat to the species you studied?

3. Is the species you studied now protected by law? If so, has this protection helped the species to survive?

4. What else needs to be done to protect the species?

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Date: _____ Site: _____

Activity 12 – How Does an Endangered Species Recover?
(MBP 81)

Do research on one species that was endangered or threatened but which has now recovered. Find out how the organism recovered, and what its new status is. Write a 100-word report on the species and discuss it with your counselor.

Sometimes a commitment of time, money, and other resources can bring an Endangered or threaten species back from the edge of extinction. In this activity for requirement 3e (2), you can research one such species and find out how it recovered.

Materials

- Access to a library, encyclopedia,
- or computer resources
- Writing paper
- Stamps and envelopes
- Pen or pencil
- Drawing paper and colored pencils
- Camera and film (optional)

Procedures

1. Using the library, an encyclopedia, or a computer, do research on endangered species that have recovered. For information, you can write to the World Wildlife Fund, 1250 24th Street NW, Washington, and DC 20037; or The Nature Conservancy, 1815 North Lynn Street, Arlington, VA 22209.
2. Choose one species that has recovered from near-extinction and do research to find out how it recovered. Find out what the status of the species is today.
3. Write a 100-word report on the species.
4. Include in your report a drawing or photograph of the species.
5. Discuss your report with your counselor.

Observations

1. Why was the species endangered or threatened? How many individuals were left when it was named an endangered species?
2. How did this species recover? Did it require human help to recover?
3. How is the species doing now? Is there a possibility that the species may not continue to recover?
4. What are most important in the recovery of this species?

