Frog in the Bog
Teacher Pre- and Post-Visit Guide
"In the end, we will protect only what we love. We will love only what we understand. We will understand only what we are taught."

Senegalese poet and naturalist Baba Dioum
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FUNDING PROVIDED BY:
Dear Teacher,

You hold in your hands the blueprint for a great experience for you and your students. Contained in this packet are activities and background materials to help prepare for your trip to Dunes Learning Center.

By making use of these materials, you can make this whole experience a rich part of your curriculum. Curriculum standards in science, social studies, language arts and mathematics are supported by the activities included in all Dunes Learning Center programs.

The suggested lessons to prepare for your visit included in this packet will require about six hours of class time. You can spread that out over the month between now and when you visit the Learning Center. Post-visit lessons, depending on your pre-visit choices, will take about three hours or more. Your students may get interested in projects that could extend into several weeks. The order in which the activities are placed is important, as concepts and skills build upon each other.

You will notice in the “Teaching Suggestions” portion of many activities that there are suggested questions you may want to ask your students, followed by words or phrases in parentheses. The parenthetical remarks are intended as possible responses students may provide. If a question doesn’t make sense to your students, having these possible responses may help you rephrase the question or clarify it for them.

As a learning center, we are especially interested in how we might improve any aspect of the materials or support we provide. We encourage you to send us any comments you have regarding this packet as you work through it.

If you have questions, please call Dunes Learning Center at (219) 395-9555, extension 3 and ask for the Education Director. We want your trip to Dunes Learning Center and its integration into your curriculum to be one of the highlights of your school year.

Sincerely,

The Dunes Learning Center Program Staff
About the Journal

The journal has several objectives ranging from scientific to aesthetic, from team data collection to personal response.

First and foremost, the journal should be a personal space for students to record data, feelings, ideas, questions and observations through drawing or writing. This means that you should discuss, with your students, the issue of privacy related to the journal. In some classrooms, this works best by having the student share only when and what he or she chooses to share. In other classrooms, the teacher is the only person allowed to look into another student’s journal. Your agreement with students on this issue will have a profound effect on their spontaneous enthusiasm for recording their personal responses.

You can download an electronic copy of the student journal from our web site at www.duneslearningcenter.org/documents. We can also email you a copy. We recommend using light colored or white paper stock for front and back covers(colors can bleed when wet). Pages are formatted to allow you to punch holes along the top. Using loose-leaf metal rings or heavy string to hold each journal together may allow pages to be added or removed.

Students can use their journals as a data resource for compiling a total picture of Indiana Dunes National Lakeshore ecosystems

In this packet are student pages you can print and add to the student journal. If a pre-visit activity utilizes a page in the student journal, the pre-visit activity will list the journal under “Materials needed.” If you wish, you may add the additional pre-visit pages to the student journal before or after your visit to Indiana Dunes National Lakeshore. If you choose to add pages before your visit, please make sure the students use colored pencils or crayons for this work. Moisture damages watercolors and markers and it is possible for the journals to get wet during your visit.

During your stay at Dunes Learning Center, students will be given specific times to work in their journals. When they have personal journal time, they may work in their journals, writing and drawing as they wish. At other times, they will be working on pages with specific questions or investigations to carry out.

After you return to school, students can use their journals as a data resource for compiling a total picture of Indiana Dunes National Lakeshore ecosystems, correlating their predictions and results, developing stories, poems, books, skits, videos and presentations for parents and other students. The post-visit activities provided in this packet can help you wrap up their Dunes Learning Center experience. Post-visit pages may be added to the back of the student journal, and can help complete an Indiana Dunes portfolio of student work.
Pre-Visit Activity 1: Choose an Organism (*Required*)

**Quick summary:** Students choose an organism of Indiana Dunes National Lakeshore to research prior to their visit. They learn what to look for, where to look, and an interesting fact about their organism.

**Rationale:** Students need personal commitment to their education. Focused research helps empower them to make sense of their experiences and establish connections with the land. This activity corresponds to the “Dance of the Dunes” that students will experience almost immediately upon arrival at Dunes Learning Center. They will also use this information to develop some predictions about the ecosystems they will encounter.

**Disciplines included:** Science, Language Arts

**Approximate time required:** Instructional time: about 5 to 10 minutes; student research time: 30 to 60 minutes

**Materials needed:**
- Student journal pages 2 & 3: Choose an Organism
- Books and/or Field Guides about plants, animals and the land
- Audio tapes of bird songs and night sounds
- Colored pencils or crayons

**Preparation:** The first list includes organisms that can be observed (or signs of them observed) during all parts of the year. The second list includes organisms that are common in the National Lakeshore, but may only be observed or during certain seasons.

Decide how much time to allow for research. This activity can overlap with the “Preparation for Ecosystem Investigations”. If there is time, students can use additional library or classroom resources including books, tapes or computers and could even visit a local nature center.

**Teaching suggestions:**
- Ask your students what kinds of organisms they expect to see in the Indiana Dunes National Lakeshore.
- Tell them that each of them is going to become the class expert on an organism that lives in the National Lakeshore. Direct them to page 2 of their journals. Let them know it is all right for more than one person to choose the same organism, but encourage variety. Students can work together or separately.
- Show them the resources that you have, both from the pre-visit kit and others you have collected.
- Give them a deadline for finishing their research and then give them time to complete the work before visiting the Learning Center.
**Pre-Visit Activity 2: Preparation for Ecosystem Investigations (Required)**

**Quick summary:** Students are introduced to some ecosystems of Indiana Dunes National Lakeshore through videos and reading, and make predictions about the data they will collect during their visit.

**Rationale:** As scientists, students make predictions about places before they go to observe. This helps them compare and analyze their data later. Here, they make qualitative predictions (drawings) and quantitative predictions (filling in chart).

**Disciplines addressed:** Science, Art (See Appendix A for standards met by Ecosystems Investigations)

**Approximate time required:** one hour to an hour and fifteen minutes

**Materials needed:**
- Movie: *Child of the Northwest Wind* (11 min)
- Book: *Chicago Wilderness: An Atlas of Biodiversity*
- Soil Sample Viewer
- Student Journal: *Hypotheses*
- Computer and LCD Projector
- Scratch paper and colored pencils/crayons (to include in the student journals) OR butcher paper with markers (to post around the classroom)

Decide how your students will be divided into trail groups for activities in the National Lakeshore (groups of thirteen or fewer students work best). They should work in these groups for steps 1-4 of this in-class activity. For steps 5-9, subdivide each trail group into three to five students. (If you have not done so already, record Trail Groups of up to 13 students in your “web workbook”).

**Background on Ecosystems of Indiana Dunes National Lakeshore**
The diverse communities of the National Lakeshore provide a rich classroom for environmental learning. A little background about these communities may better prepare you and your students for your experiences. You will find this information most pertinent to share with your students following the video, *Child of the Northwest Wind*.

References below are from *Chicago Wilderness: An Atlas of Biodiversity*, by Jerry Sullivan (CW), which is included in your pre-visit kit. There are several additional books in your pre-visit kit that you may use to show graphics, charts, and give descriptions of the ecosystems found in the National Lakeshore.
In our daily lives, most of us ignore our interactions with the living organisms on the planet. We are also quite unaware of our interactions with the land. Despite our lack of awareness, these interactions occur continuously. Spending a few days specifically observing these interactions makes us more aware of their presence. Plants and animals (including humans) do interact with each other and with the land on which they live. “A specific biological community and its physical environment interacting in an exchange of matter and energy” is defined as an ecosystem.

Ecosystems are complex living communities. They are shaped by the soil, rock, water, the shape of the land surface, climate, weather, prevailing winds, location relative to other major land forms (such as large bodies of water, mountain ranges, deserts, large forests or open prairies), as well as the living creatures themselves. The interaction of microorganisms, fungi, plants, and animals with the physical environment and each other makes each ecosystem a dynamic system, subject to changes in relative population size of different species.

There are many different ecosystems in the Indiana Dunes National Lakeshore. Each ecosystem is quite unique and distinct from the others. Each of these ecosystems also has a rare community of plants and animals interacting with the land, since most of the land in this region has been converted to other human uses. We will be visiting and studying five ecosystems in detail: open beach, foredune, oak savanna, wetland and eastern deciduous forest.

On the open beach, within the waves’ reach, where there has been little time for plants to take hold, there are still large areas of bare sand. The most common plant is a stiff beach grass called Marram Grass. Plants and animals that live here must be adapted to grow in sand, dry conditions, unbroken winds and harsh, bright sunlight. Summer temperatures at the sand surface can be over 120° F., so only animals that burrow under the sand live here.

Sand dunes are formed by wind. As the sand blows, it is caught by plants and begins to pile up into a small dune. As the dune grows, sand tends to blow off of the portion of the dune that faces the wind, and to settle onto the more sheltered face of the dune. This movement of sand causes the dune to become taller, and can cause the dune to shift its position as well.

The dunes closest to the water are called foredunes. The plants there must also tolerate extremes of heat, cold and dryness, but the plants slow the wind-driven movement of the sand, allowing the dune to build over time. The movement of the sand is not stopped however, and wind action causes the position of these dunes to change over time. Occasional large storms from the north can send waves up into the foredunes. [Diagram p. 48 & photo p. 49: CW]

The oaks of the savanna keep the soil surface from getting intensely hot. Thus they help create an open woodland environment where a greater number of different kinds of plants can grow. The oaks can grow there because a small amount of dead plant parts have remained on top of the sand. These dead plant parts hold moisture and allow plant roots to get nutrients not available from the sand. [Diagram PP 24-26: CW]
The **eastern deciduous forest** has many different kinds of trees, most of which drop their leaves in winter. The soil there is made of much smaller particles than the sand. These smaller particles hold water longer than sand, and also provide some of the minerals plants need. The many leaves of the tall trees make the forest shady and cool and protect the soil from heavy rains, high winds and drying sun. [Text p. 29: CW]

The **wetland along the Cowles’ Bog trail** is similar to the forest in the way the taller trees protect the soil and smaller plants. However, the Bog holds much more water – all year long. The diverse numbers of plants that grow here thrive in a very wet environment. As plants die, they decay in the water, adding more nutrients and minerals and encouraging more plants to grow. [Photo p. 35: CW]

These five ecosystems illustrate the diversity of the Indiana Dunes National Lakeshore. It’s not made up of just one kind of ecosystem -- there are many different ecosystems within the Park. That’s diversity!

**Teaching suggestions:**

1. Show your students the “Hypotheses” page in the Student Journal. Ask them about the questions and solicit their ideas. What do they think each of ecosystems will be like? Discuss their ideas briefly.

2. Tell students to look for these ecosystems while viewing *Child of the Northwest Wind*.

3. Review the five ecosystems. What did the movie show about each one? Make a chart on the board with the name of each ecosystem at the top. List as many characteristics as students can think of for each ecosystem. Add to their descriptions with characteristics from the “Background on Ecosystems of Indiana Dunes National Lakeshore,” above and from the books included in your kit.

4. Use the Soil Sample Viewer to show students the succession of soil from different ecosystems.

5. Ask each student to draw one of the ecosystems. (Allow about five minutes.)

6. Move students into small groups. Have students show each other their drawings and talk about why they chose that ecosystem to draw.

7. Let them discuss their hypotheses. Each student should record his or her own predictions in their journals.  
   **Wind speed:** Which ecosystem will be the windiest? Which ecosystem will have the least wind?  
   **Temperature:** Which ecosystem will have the highest air temperature? Which ecosystem will have the greatest difference between air temperature and soil surface temperature?  
   **How Long Does a Puddle Last:** Which ecosystem will have soil that absorbs water the fastest? Which ecosystem would have the longest lasting puddles?  
   **Plants & Animals:** Which place do you think will have the greatest number of different kinds of animals living in it or visiting it?

8. When students have finished, ask the following question of the whole class and let them work for a few minutes with their group. Have them write their ideas on a piece of paper.

9. Ask what kind of evidence they might look for, if they don’t see the animals themselves?
Pre-Visit Activity 3: Time Traveling

Quick Summary: Class discussion provides an introduction into the different groups of people who have lived in the Indiana dunes region and how each group valued the land.

Rationale: When they visit the National Lakeshore, students will learn how different groups of people have lived and worked in this area and how each group used and valued the land around them. Students need to recognize the different values each group of people had about the environment.

Disciplines included: History, Social Studies (See Appendix for standards met by Walk Through Time)

Approximate time required: 20-30 minutes of discussion and journal work.

Materials needed:
• Student Journal: Walk Through Time
• Chalkboard or large piece of paper
• Book: The Indiana Dunes Story
• Large pieces of paper for drawing
• Markers or crayons

Teaching Suggestions:
1. As background reading for yourself, read chapters 4 & 5 in The Indiana Dunes Story found in your pre-visit kit.
2. Ask students to name some groups of people who might have lived in the Indiana Dunes area before now. Write their list of suggestions on the board. Then ask the students to open their journals to the Walk Through Time page which lists five time periods from the 1700’s to the present and the types of people who lived in the area. Compare the students’ list to this page.
3. Briefly discuss each of these groups of people and how they lived. What tools did they use? How did they make a living or survive in the dunes?
4. Ask the students to break into small groups and give each group a larger piece of paper, markers or crayons. Have each group draw a picture of the dunes from the point of view of a different historical group – Potawatomi Indians, European fur traders, early farmers, industrialists and the National Park Service. After the students finish their drawings, have them share their work with the other groups and explain them.
5. In conclusion, ask the students what values each group of people might have had about the land and environment. Define value for them if necessary as what something is worth to someone, how important it is to them and how they use it. Ask how the value of the dunes has changed over time.
Pre-Visit Activity 4: Exploring Artifacts

Quick summary: Students explore some hands-on materials in preparation for encounters with creatures, plants and environments of the National Lakeshore.

Rationale: These are brief encounters to familiarize students with organisms and situations at the National Lakeshore using some hands-on materials. These activities give the students a preview of the hands-on exploration they will be immersed in during their Dunes Learning Center experience.

Disciplines included: Science, Critical thinking

Approximate time required: 20 minutes

Materials needed:

- Mammal skins
- Zebra mussel shells
- Sand, magnet and lenses from plastic boxes
- Crinoids

Preparation: If you have a table or counter space, make these into learning stations that students can visit on their own. Or, circulate the materials around the classroom, with students working in small groups.

Teaching suggestions:

1. Quite a few mammals live in the National Lakeshore. Some of them live in only one or two of the ecosystems we will visit. Others can be found everywhere. Challenge your students to design an animal that could be comfortable in all the conditions at the National Lakeshore.

2. Zebra mussels are one species of many that have been introduced to the Great Lakes and the surrounding land. Have students look carefully at these because they may be able to find more on the beach. Zebra Mussels are one of the “Management Dilemmas” your students may be exploring during their Dunes Learning Center experience.

3. The sand that makes up the dunes along Lake Michigan is composed of many different minerals. Looking at the sand with a magnifier will reveal many colors and shapes. A strong magnet held just over the sand will separate the iron bearing particles. How many different minerals can students find in this sand sample?

4. There are many different kinds of rocks along the Lake Michigan shore. Some were brought hundreds of miles by the glaciers that carved out the lake basin. Others are from nearby rock formations, some of which are deep under the lake. Some of these rocks reveal evidence of a much different body of water, long, long ago. Tiny fossils provide evidence that a shallow salt sea once covered this area. The crinoid fossils included in the kit are from the stalk of an aquatic animal that looks a bit like a flower.
It attaches itself to the sea floor and its upper flower-like part has waving “arms” that collect floating food. The stalk is made up of a stack of disks like the one included. Crinoids have been around for about 500 million years. Challenge students to find crinoids when they visit the beach.

**Challenge your students to design an animal that could be comfortable in all the conditions at the National Lakeshore.**
Post-Visit Activity 1: Analysis of Ecosystem Investigations

Quick summary: Students have completed investigations of some ecosystems of Indiana Dunes National Lakeshore through videos, reading, predicting and hands on study. The predictions they made can now be analyzed by comparing them with the actual data they collected. This activity is particularly important if your schedule does not include the “Ecosystem Wrap-up.”

Rationale: Students require guidance to make connections and develop a broad picture of the incredible diversity of ecosystems at Indiana Dunes National Lakeshore. In this activity, they have time to reflect, discuss and compare their findings.

Disciplines included: science, critical thinking

Approximate time required: 60 to 75 minutes

Materials needed:
- Student Journals: completed Hypotheses page
- Student Journals: completed Ecosystem Investigations chart
- Student Journals: completed Ecosystems Notes

Preparation: Make sure each student has the data filled in on their Ecosystem Investigations chart. This can be done by posting the master chart for your group, or having students work together to fill in any missing data. Choose questions from “Teaching suggestions #2” (next page) to assign students. If one parameter (such as sky condition) remained the same throughout, skip that question. You may copy the page and cut questions apart to provide assigned question to each group.

Teaching suggestions:

1. Prior to visiting the Indiana Dunes National Lakeshore, your students made predictions based on these questions. They recorded their predictions on the Hypotheses page of their journals. Have your students look at this page now.
   - **Wind speed:** Which ecosystem will be the windiest? Which ecosystem will have the least wind?
   - **Temperature:** Which ecosystem will have the highest air temperature? Which ecosystem will have the greatest difference between air temperature and soil surface temperature?
   - **How Long Does a Puddle Last:** Which ecosystem will have soil that absorbs water the fastest? Which ecosystem would have the longest lasting puddles?
   - **Plants & Animals:** Which place do you think will have the greatest number of different kinds of animals living in it or visiting it?

2. Assign small groups of students to work through the charts in their journals and compare their predictions with their actual data. Have them use questions like the following list. Assign each
group one question to discuss. Have them develop a graph, drawing, model or skit to show their explanation to the rest of the class. If one parameter (such as sky condition) remained the same throughout, skip that question. Tell students that the suggested answers in parentheses do not include all possibilities. Give them about 15 to 20 minutes to complete the assignment.

- **How did the sky conditions change throughout your investigations?** (may have increased or decreased clouds, precipitation stops or starts)

- **Where was the windiest place?** Why do you think it was windiest? (could be time of day, vegetation, landforms, how close you were to the lake)

- **Where was the air warmest?** Why was it warmer? (could be wind, amount of shade, how close you were to the lake, sky conditions, time of day)

- **Where was the soil surface warmest?** Why? (could be amount of shade, color, plants, moisture, sky conditions, time of day, season)

- **Where was the underground soil the warmest?** Why? (moisture, soil type, season, plants)

- **Where was the water warmest?** Why? (season, time of day, recent weather, vegetation, currents)

- **Where did the puddle last the longest?** Look at your soil sample notes. Do you recall any clues about why this soil kept the water sitting so long? (particle size, dead plant material)

- **Which place had the greatest diversity of plants and animals?** Why do you think that is so? (soil, moisture, micro habitats, food or water or shelter available, time since last disturbance)

3. Have each group present their ideas.

4. In a whole class discussion, ask this question: **Were any of these ecosystems alike? How?** Challenge your students to develop a Venn diagram that shows how the ecosystems were the same or different. They could use 5 overlapping circles.

5. Ask students to make an entry in their journal, answering the following final question. Have them use a page that was not used before or give them a new sheet to add. **Why should Indiana Dunes National Lakeshore include/protect all of these Ecosystems?**

   **Optional extension:** Have students choose a location for an Ecosystem Investigation near the school. Compare this data to the data from the Indiana Dunes National Lakeshore.
Post-Visit Activity 2: Champions of Our Town

Quick summary: Students discuss ways to protect or enhance the ecosystems in their own community. They take on a project that can involve everyone.

Rationale: The “Walk Through Time” activity provided models for students to think about and imitate. By applying what they learned about ecosystems, disturbance, land use and artistic inspiration, they can begin to make their own community a better place to live.

Disciplines included: social studies, science, art, language arts, possibly mathematics

Approximate time required: several days: one hour first day, additional time depends on project.

Materials needed:
- Student journals
- Other materials depend on project chosen

Preparation: Read over the teaching suggestions. Think about the limits that you want/need to impose on students -- time, distance, cost, materials, etc. With these decisions made, you’ll be ready to discuss students’ project ideas.

Teaching suggestions:

1. Ask students to recall their encounters with the characters from the “Walk Through Time.” Help the students review the different ways the characters used the land. Who valued the land most and why? Whose point of view of the land do the students agree with most and why?

2. Invite students to think of roles for themselves: What kind of work could you do in our community? List their ideas on the chalkboard. For now, list everything, whether achievable or not. If students have trouble getting started on this list, ask more specific questions, such as:

   What could we do that might reduce the negative effect of land use on an ecosystem? Remind them of the ecosystem you mapped before your trip. For example, if trash blows into a small wetland from the picnic area, maybe your class could sponsor a wetland clean-up day to pick up trash.

   What places in our community could we feature in artwork? Perhaps they know of an inspiring tree, or the shadows on the buildings make interesting shapes at certain times of day. Your class might develop art work for an art show, a series of community posters or a calendar illustrated with scenes featuring locations in your community.

   What ecosystems in our community could we investigate? How would data from a local ecosystem compare with the data we gathered at the Indiana Dunes National Lakeshore? What plants and animals
live in these local ecosystems? Students could use these results for a science fair project, Earth Day display or as the basis for art work.

What disturbances could we research or improve? What kinds of disturbances affect natural ecosystems in our community? What kinds of animal signs can we find in local ecosystems? If human caused disturbances have a negative effect, is there something we could do to change one of them? For example, if soil from a bare slope washes into a local stream each time it rains, students could plant a mixture of grass and wildflowers or prairie plants.

3. After your list has eight to ten items, go back over the list with your students. Make suggestions to them about which ideas represent possible projects for the class. Help them consider time, cost, and distance to the location, how to include everyone in the project and what kind of support they might need for their project.

Narrow the list to three choices. Have each student choose the project they would most like to accomplish, write the name of that project on a slip of paper and hand it in without showing it to anyone. Tally the results. The project with the most votes is the project everyone will do.

4. Discuss and plan the strategy needed to complete the project. Some of the steps you may need to include:
   - Information gathering or research
   - Fund raising or donation of supplies
   - Scheduling
   - Individual and group responsibilities
   - Advertising or publicity

5. As your students work on the project, be sure that the local newspaper knows about their work. They may want to do a feature article, publicize your event or even publish students' work.

6. Let the Learning Center know what your students are doing. We will feature your students' project on our web page and display items on the bulletin board in the dining hall.

Ask students to recall their encounters with the characters from the “Walk Through Time.”

Help the students review the different ways the characters used the land. Who valued the land most and why? Whose point of view of the land do the students agree with most and why?
Post-Visit Activity 3: Earth Day Every Day

Quick summary: Students write persuasive essays and give oral presentations on an environmental topic of their choosing.

Rationale: At Dunes Learning Center, the students engaged in practices to minimize their impacts on the landscape and the dunes region. Students practiced “Leave No Trace” principles on the Cowles Bog Hike, recorded Food Waste in the cafeteria, and may have created a solution for a management dilemma the National Lakeshore faces. This activity will build upon these experiences by persuading others to engage in practices that make every day Earth Day!

Disciplines included: English, language arts

Approximate time required: several days: one or two for researching and writing the persuasive essay and a third day for oral presentations.

Materials needed:
- “You have the power to change the world” page
- Computer lab or library; access to the internet for research

Preparation: Read over the teaching suggestions and the “You have the power to change the world” page. Set a timeline for student research, student writing, and a date for oral presentations.

Teaching suggestions:

1. Ask the students to recall ways in which they helped the environment while at Dunes Learning Center. Did they pick up litter on Cowles Bog beach? Did they earn the Karner Blue Butterfly award for zero food waste? Did they pack-out everything they packed-in on the Cowles Bog hike (including their own toilet paper?) Did they turn out lights when leaving their cabins?

2. Generate a list of simple actions all students can take to minimize their own negative impacts on the land, individually or in groups.

3. Read over the “You have the power to change the world” page with your students. Ask each student to become an expert on one of the six ideas listed, or have them generate their own topic.

4. The students’ task will be to convince others, through a persuasive essay, to engage in the activities listed. If possible, block off time in your school’s computer lab or library for students to research facts related to the earth-friendly actions that help support the case for why others should engage in these activities. Set a time line for student research and for writing their persuasive essays. Set a date for oral presentations to be given.
You have the power to change the world!

Just about everything you do has an effect on the environment. More and more youth all over the world are doing positive things for the environment. You can be sure that when millions of kids all start to do things for the environment, the entire world will notice. So what are you going to do?

Here are some ideas you can start with at your own home:

**Cut down your use of energy**

- Turn off electric lights and appliances when no one is in a room.
- Keep windows and doors closed when heating or cooling your house.
- Turn down the heat at night or when no one is at home.
- Decide what you want from the refrigerator before you open it.
- Encourage your family to use fluorescent or compact fluorescent light bulbs. They use less energy and last ten times longer than most incandescent bulbs.
- When you boil water on the stove, leave the lid on the pot.

**Watch your use of water**

- Take shorter showers (five minutes or less).
- Turn off the faucet while brushing your teeth and while washing dishes.
- Fill the dishwasher full before running.
- Turn off faucets all the way, and report any leaky faucets.
- Place a plastic jug filled with water in your toilet tank to reduce the amount of fresh water that goes down the drain each time you flush. Your parents can help you with this.
- Don't pour unknown chemicals or hazardous chemicals down the drain.

**Cut down your amount of trash.**

- You can do this by *Reducing, Reusing, and Recycling*.

**Don't litter!**

- Buy things with less packaging.
- Check the labels of products and try to buy things that are made from recycled materials.
- Avoid materials that *cannot* be recycled (aerosol cans, juice boxes, Lunchables, styrofoam, etc.).
- If only buying one or two things, carry them in your hands instead of getting a bag.
- Reuse shopping bags. Even better than that, use a cloth bag.
• Pack your lunch in a reusable container, and even put your sandwich and snacks in reusable containers.

• Reuse things creatively. Make things out of materials you might otherwise throw away. For example, make a flowerpot out of an old milk jug. Old clothes could make nice cleaning rags. Decorate an old shoebox and use it to store things or wrap presents in. Newspapers can be used as wrapping paper.

• Use all sides of paper before recycling it.

• Recycle anything you can’t reuse, such as: Aluminum (cans and foil), steel, tin, paper (newspaper, office paper, telephone books, magazines, etc.), cardboard, plastics, glass, and motor oil. If your town doesn’t pick up recyclables, have an adult help you look up where you can take them.

• Recycle your old clothes by giving them to a friend or a needy person. You can donate various items to Goodwill or any other place similar to that in your area.

Save plants and animals

• Don’t feed wild animals.

• Don’t buy products tested on animals.

• Treat all living things with respect.

• Don’t pick or trample on plants.

Transportation

• Carpool when possible.

• Combine several errands at once.

• Walk, bike, skate, or take the bus.

• Ask adults to keep their cars in shape to minimize polluting effects.

More ideas for eco-friendly living

• Plant a tree.

• Clean up a street or park (get permission first).

• Compost.

• Buy organic and locally grown foods.

• Try to buy foods in season.

• Join an environmental group.

• Don’t buy products from companies that are not environmentally responsible.