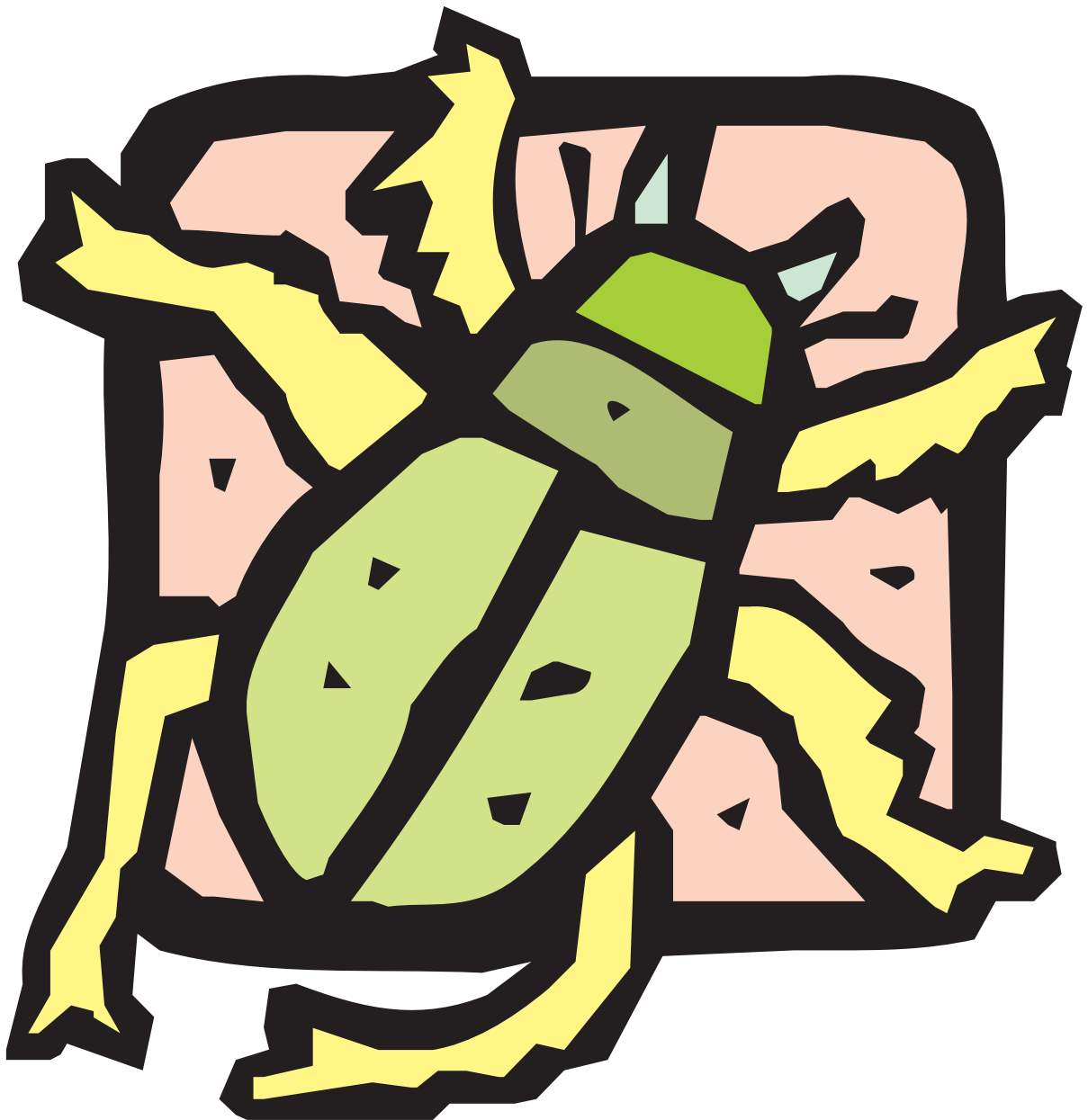


Countdown Chapter 9

***Entomology and the
Environment***



Countdown Chapter 9

Entomology and the Environment

Contents

Entomology

What Makes an Insect an Insect?	1
Parts of an Insect	3

The Environment

Litter Walk.....	5	Pond Map Symbols	25
Being a “Waste-Wise” Shopper	7	Ponds and Their Different Uses	27
Exploring the Diversity of Nature	9	Birds and Beaks: Activity I.....	29
Exploring a Web of Life	11	Birds and Beaks: Activity II.....	31
Touch and Feel Hike.....	13	Feeding our Fine-Feathered Friends	33
Nature Grab Bag.....	13	Make a Bird Feeder	35
Outdoor Fun!	15	Birds and Their Habitats.....	37
Leaf Scavenger Hunt	17	Fish Found in Ohio.....	39
Seeds of Trees	19	Fishing in the Grocery Store	41
So Much of My House Comes from a Tree! ..	21	Fish Part Identification	43
Leaves or Bark Rubbing Stationery	23	Casting Contest	43

Entomology

Word Scramble

In this activity you will:

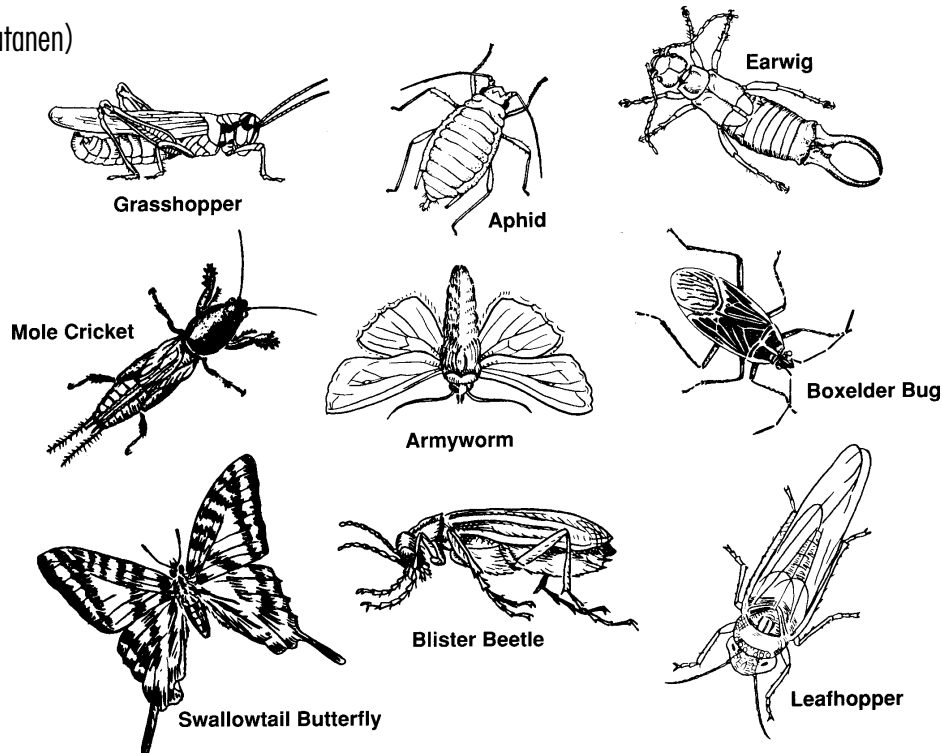
- learn what differentiates insects from all other animals.

What Makes an Insect an Insect?

Using the group of words below, unscramble the words in parentheses to complete the sentences.

abdomen antennae arthropod head
phyla protection thorax three

1. The Animal Kingdom is divided into large groups called _____ which have similar characteristics. (hlayp)
2. Insects have no backbone or an outer skeleton and are known as invertebrates. They are included in the Phylum _____. (rapodhrot)
3. The skeleton on the outside of the insect's body provides it with _____ from predators and threats from the environment. (tncorptioe)
4. Insects have three body regions: the _____, the _____, and the _____. (ehad, axothr, modbena)
5. All insects have _____ pairs of legs. One pair is attached to each segment of the thorax. (heret)
6. Insects have two _____ on the front of the head which serve as organs of touch and sometimes taste, smell, and hearing. (enatanen)



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Entomology

What Makes an Insect an Insect?

Using the group of words below, unscramble the words in parentheses to complete the sentences.

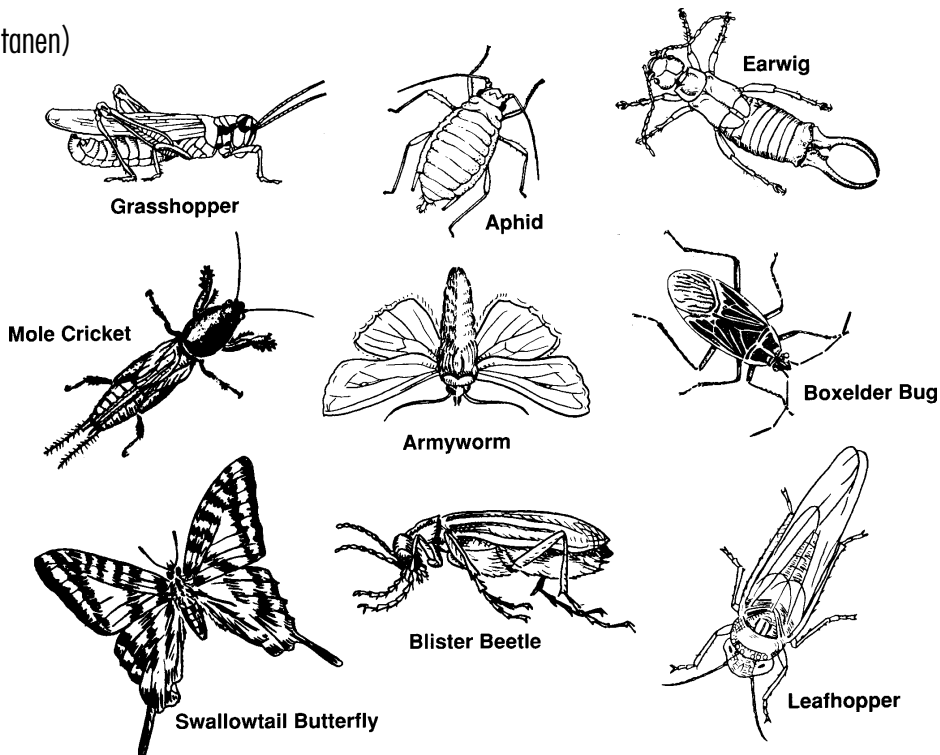
abdomen antennae arthropod head
phyla protection thorax three

Word Scramble—Key

In this activity you will:

- learn what differentiates insects from all other animals.

1. The Animal Kingdom is divided into large groups called phyla which have similar characteristics. (hlayp)
2. Insects have no backbone or an outer skeleton and are known as invertebrates. They are included in the Phylum arthropod. (rapodhrot)
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Entomology

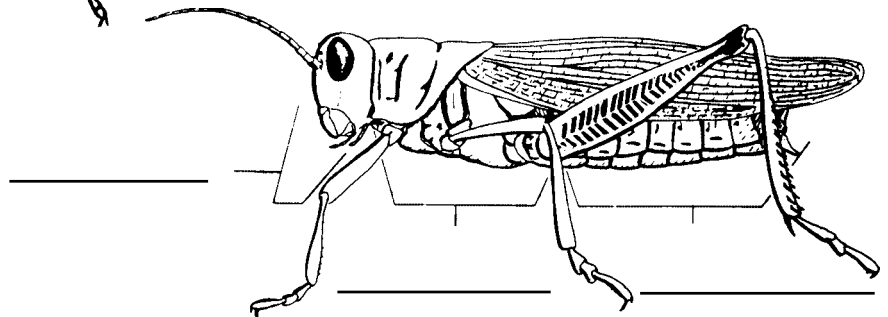
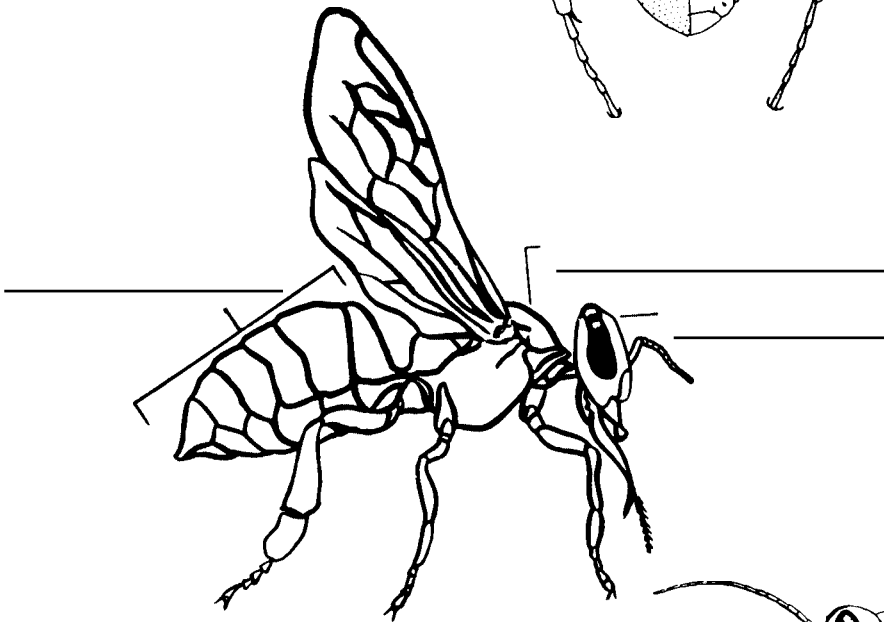
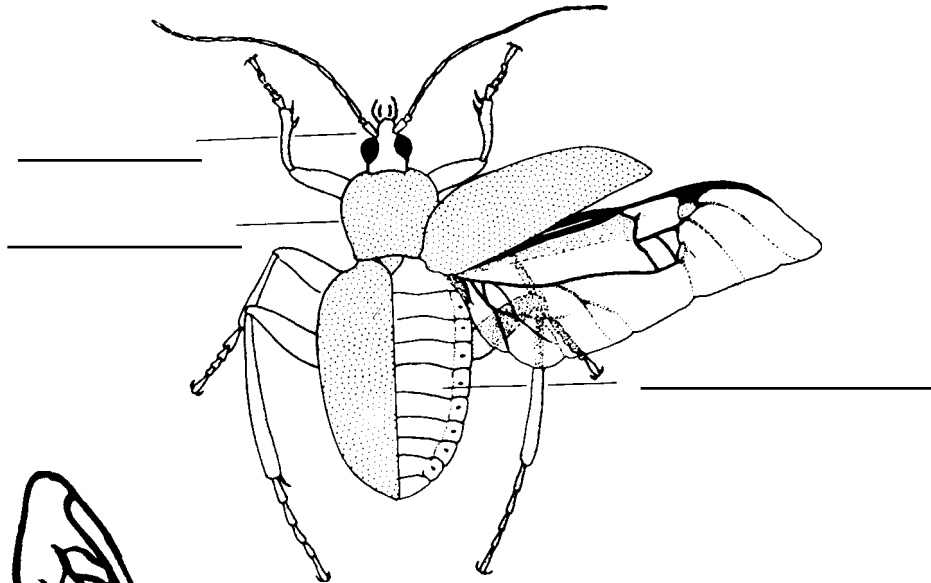
Parts of an Insect

Learn about the three main body regions of insects: the head (which holds the eyes, mouth parts, and antenna or feelers), the thorax (to which the legs and wings are attached), and the abdomen (which contains the organs of digestion and reproduction). On the three insect pictures below, locate and identify the head, thorax, and abdomen regions by writing their names on the respective line.

Identification

In this activity you will:

- learn what differentiates insects from all other animals.



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Entomology

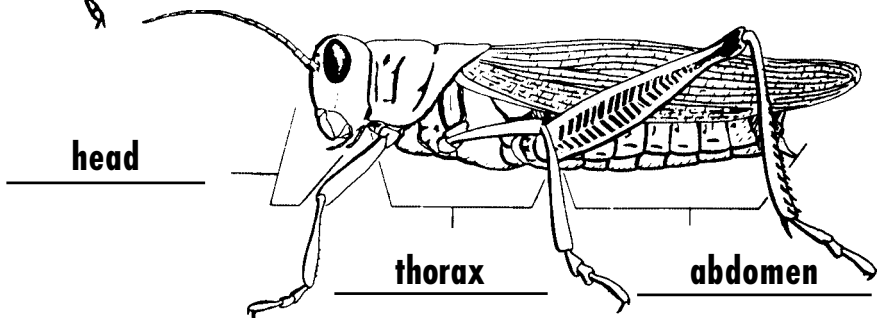
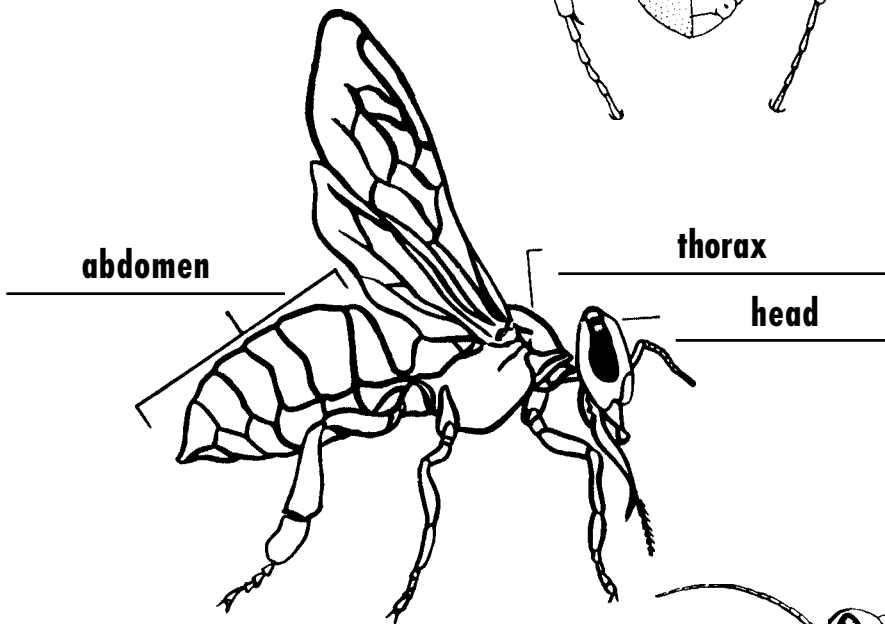
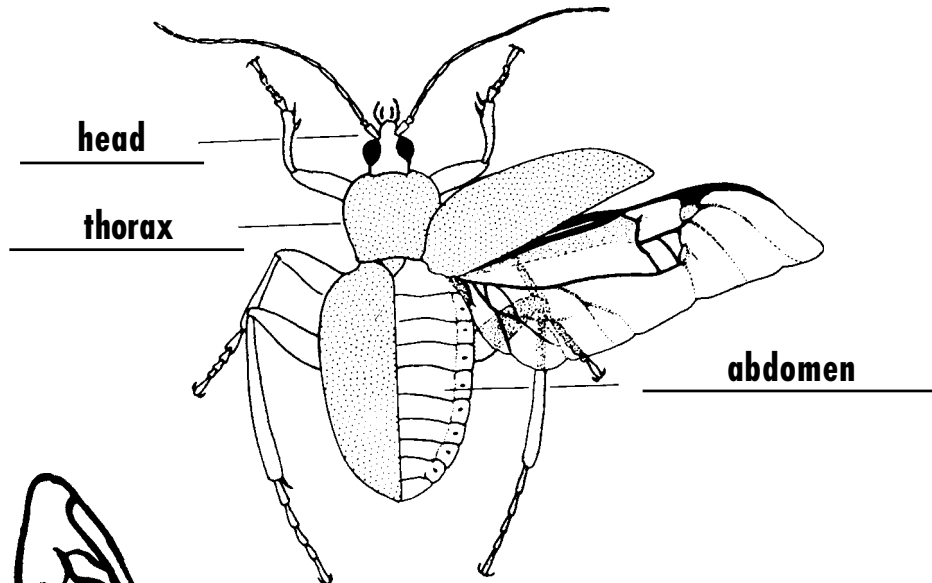
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Identification—Key

In this activity you will:

- learn what differentiates insects from all other animals.



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The Environment

Litter Walk

Litter is a problem through much of the United States. It can be categorized by human sources and type of litter. Take a walk as a club. List the litter you find. Using the information below, note from where you think the litter came and whether it is recyclable. (Don't leave that litter behind!) Use this activity as a service project for your club—just collect and properly dispose of the litter you find.

Type	Examples
Paper	newspaper, bags, boxes, wrappers, diapers, cups
Glass	bottles, broken glass
Metal	cans, nails, auto parts, old appliances
Cloth	rags, old clothes
Plastics	jugs, bottles
Polystyrene	foam cups, foam boxes
Rubber	tires
Miscellaneous	wood, food, any other

Listing

In this activity you will:

- learn about the litter found in the outdoors.

Record your findings using this table.

Date _____

<i>Item Seen</i>	<i>Type of Litter</i>	<i>Probable Source</i>	<i>Recyclable</i>

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The Environment

Being a “Waste-Wise” Shopper

Identification

In this activity you will:

- learn about the amount of packaging that is included in some of the food and household products bought at the grocery store.

Packaging has five purposes:

1. **contain** to hold the product
2. **inform** to provide information such as the brand name or content information
3. **protect** to prevent spoilage, leakage, breakage, theft, tampering, and to seal out contaminants
4. **transport** to easily and safely move the product from manufacturer to retailer to consumer
5. **display** to attractively display and use as a method of marketing the product

Although packaging can be an important part of the product, often products include excessive packaging, which can increase the cost as well as the amount of waste produced.

Collect several grocery store advertisement flyers (usually found in the weekend newspaper) and/or several magazines that include pictures of food and household products. Ask each participant to cut out ten pictures of food or household products that fit into the following three categories:

1. **Minimal Packaging**—Either no packaging is used (such as fresh fruit and vegetables) or the only packaging is for safety purposes (medicines in glass containers, certain liquids and foods).
2. **Recyclable**—Items are packaged in recyclable or reusable container (plastic liter bottles, plastic milk jugs, steel soup cans).
3. **Substantial Packaging**—Items are excessively, and possibly unnecessarily, packaged. (The product is wrapped several times in containers beyond what is necessary for safety or to provide product information or is wrapped in small, individual serving packages that could be purchased in slightly larger quantities, but with less packaging.)

After the pictures have been separated into the above categories, tape or glue each on separate poster boards that are labeled with the category names.

Discuss the items on each poster board.

- How did you know that the products belonged to the specific categories?
- Do you have any items that may not fit into one of the categories? If so, to what category would they belong?
- Does the packaging increase or decrease the price of the product?
- Could the amount of packaging be reduced on any of the products?
- What are some of the items you throw in your trash that are examples of excess packaging?
- How can you be a better “waste-wise” shopper when purchasing food or household items?

Give prizes to the individuals who found a food or household item that has the most packaging or who had the best idea for reducing the amount of packaging.

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The Environment

Exploring the Diversity of Nature

Observation

In this activity you will:

- learn about the biological diversity that exists in different habitats.
- learn to identify plants and animals.

You will need:

- one Hula-Hoop for every three to five people.
- paper and pencils for each person.

Dependent on the group's knowledge of natural surroundings, it may be necessary to utilize a number of wildlife guide books.

Prior to the club meeting, locate different habitats in which your group can explore. Examples of such habitats are: beach, grassy field, wooded area, pond edge, wetland, ecotone area between woods and grassy field, parking lot, neighborhood garden, etc. Also, an adult advisor should become familiar with and be able to define the following terms:

- *biological diversity or biodiversity*—the full range of variety and variability of living organisms within a specific habitat. This includes the species richness and the relative abundance of each species (number of individuals for each species found).
- *species richness*—the number of different species found within a specific habitat.

Give each group a Hula-Hoop, pencils, and paper. Travel to the first habitat and have each group place their Hula-Hoops on the ground at different spots in the habitat. Instruct each group to try to count, draw, and possibly identify the different plant and animal species that are located within the circumference of the Hula-Hoop. In addition, they will want to count how many of each species they are able to find. For example, how many individual grass plants (not blades of grass) or how many ants are within the Hula-Hoop? You may also encourage them to dig into the ground an inch or so to look beyond the plants and animals on the surface. They should carefully examine any plants to see if there are any animals living or feeding on the plant matter.

After five to ten minutes, ask each group for a summary of what they found. How many different species and how many of each species did they find? Share and describe some of their drawings. Comparing the different groups, did they find the same or different flora and/or fauna in each of their Hula-Hoops?

Move on to the next habitat and repeat the process. Ask the same questions, but also ask the groups to compare and contrast the first and second habitats. What flora and fauna were the same? What was different about the two habitats? For a species found in both habitats, which habitat had more individuals?

Continue this process with the additional habitats, and encourage them to think about the species diversity and richness they have discovered. After all habitats have been visited, close the program with a summary discussion on the number of species that were found, the number of individuals of each species, and the differences between each of the habitats.

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The Environment

Exploring a Web of Life

You will need:

- markers
- index cards
- tape
- string

Use the markers to write the following wildlife names on the index cards (one name per card): grass, flower, plant seeds, crane-fly, ovenbird, owl, mouse, rabbit, squirrel, snake, fox, deer, wolf. Choose as many wildlife names as needed according to the size of group. Names of animals or plants also can be selected for this activity, and you may wish to select wildlife indigenous to the natural area that surrounds you: coniferous or deciduous woods, wetland, pond, etc.

Turn the cards face down on the ground. Ask each participant to select one card. Their card will identify the part of the food web which they will play. Have them wear the card like a name badge so they can be easily identified.

Review with the group the functions that each one of them has in a food web. Ask where their plant or animal would fit into the food web. Discussion can be as simple as from where each of the plants and animals receive energy and nutrients, to identification of which plants and animals are producers (plants), consumers (crane-fly, mouse, squirrel, deer, rabbit, etc.), or predators (ovenbird, snake, owl, fox, wolf, etc.).

Select one participant to begin the food web. Ask all the members what of the remaining wildlife would eat or be eaten by the first student selected. For example, if the first person is representing the squirrel, then those who are portraying the plant seeds and owl would be the next to join the food web. When the owl and plant seeds members join the food web, they are to be connected to the squirrel with long pieces of string. Select subsequent members of the food web by what eats or is eaten by the members who have already joined the food web. Continue to join the new members to the food web with the string.

After all wildlife has been included in the food web, briefly summarize the importance of each food web member. Discuss how the diversity of wildlife is important to the existence of many species. What would happen if one of the food web members was removed, such as a squirrel? Members should note that two consequences would occur. First, the animals who depend on the squirrel for food will not be able to prey upon the squirrel population. Greater predatory pressure would be placed on the other animals the owl eats, and/or the owl would have to move to another habitat to find food. Second, the squirrel would not be in the food web to feed on the plant seeds. If no other animals fed on the plant seeds, there would no longer be a natural control for the reproduction of these plants, which could result in a population explosion.

Observation

In this activity you will:

- learn about natural food webs and the importance of individual plant and animal species within a food web.
- explore the functions of different animals and plants in an ecosystem.

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The Environment

Touch and Feel Hike

Make a copy of the following list for each person (or groups of two to three people). Instruct each person or group to touch and feel, not take, any of the objects found. They are to look for:

- the hairiest leaf
- the smoothest rock
- the roughest twig
- something warm
- something bumpy
- the softest leaf
- the roughest rock
- something cool
- something dry
- something crunchy

Ask questions like:

What did you find that was dry?

Why was it dry?

How might it be different tonight?

How might it be next summer/winter?

How did it get there?

Does it belong there?

Did people have anything to do with it being there? Has it always been the way it is?

Observation

In this activity you will:

- learn how the natural environment is made of many textures.

“Leaves of three, let it be!”

Before this activity, teach your group to beware of poison ivy. Poison ivy can appear as a plant or thick vine growing up trees and around fences. Its leaves are arranged in groups of three (“leaves of three, let it be”) and usually have a shiny surface. The plant has white berries, is toxic year round, and is especially harmful if breathed while being burned.



Nature Grab Bag

Collect about 15 nature items such as pine cones, nuts, shells, leaves, rocks, etc., and place each in a small paper sack. Pass the sacks around the group and let each person try to identify the objects by feeling inside the bag, and without looking. After each member has attempted to identify the contents of the bag, remove the items and briefly discuss each item.

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The Environment

Outdoor Fun!

Using the group of words below, fill in the blanks to complete the sentences.

copperhead	pocket knife
poison ivy	bandana
insect repellent	field guides
canteen	first aid
backpack	raisins

Fill in the Blanks

In this activity you will:

- learn about some basics of outdoor fun.

1. _____ helps to keep away insects when you are in a wooded area.
2. When hiking on a hot day or a long trip, you should carry a _____ to provide you with a supply of water.
3. A _____ kit should contain a few adhesive bandages (such as Band-Aids®), some antiseptic and adhesive tape, a needle and thread, burn ointment, a few aspirins, and some cotton.
4. When using a _____, you should never cut toward you or use it for prying or as a screwdriver.
5. The rattlesnake, massasauga, and _____ are the only poisonous snakes in Ohio.
6. _____ is a climbing vine that grows with its leaves arranged in groups of three and has a shiny surface pebbled with sickly-looking warts.
7. Books called _____ are excellent resources for identifying birds, trees, insects, and flowers and learning more about the flora and fauna you find while in nature.
8. A small box of _____ makes an excellent snack for long hikes.
9. Bring along a large _____ to protect your neck and face from the sun or to use as a sling.
10. Use a small _____ to carry your outdoor equipment.

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The Environment

Outdoor Fun!

Using the group of words below, fill in the blanks to complete the sentences.

copperhead	pocket knife
poison ivy	bandana
insect repellent	field guides
canteen	first aid
backpack	raisins

Fill in the Blanks—Key

In this activity you will:

- learn about some basics of outdoor fun.

1. **Insect repellent** helps to keep away insects when you are in a wooded area.
2. When hiking on a hot day or a long trip, you should carry a **canteen** to provide you with a supply of water.
3. A **first aid** kit should contain a few adhesive bandages (such as Band-Aids®), some antiseptic and adhesive tape, a needle and thread, burn ointment, a few aspirins, and some cotton.
4. When using a **pocket knife**, you should never cut toward you or use it for prying or as a screwdriver.
5. The rattlesnake, massasauga, and **copperhead** are the only poisonous snakes in Ohio.
6. **Poison ivy** is a climbing vine that grows with its leaves arranged in groups of three and has a shiny surface pebbled with sickly-looking warts.
7. Books called **field guides** are excellent resources for identifying birds, trees, insects, and flowers and learning more about the flora and fauna you find while in nature.
8. A small box of **raisins** makes an excellent snack for long hikes.
9. Bring along a large **bandana** to protect your neck and face from the sun or to use as a sling.
10. Use a small **backpack** to carry your outdoor equipment.

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The Environment

Leaf Scavenger Hunt

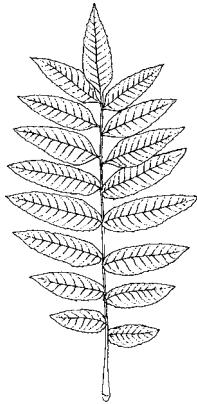
Identification

In this activity you will:

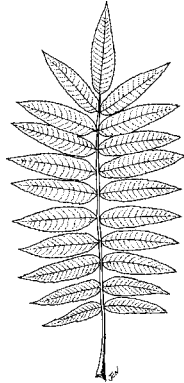
- learn to tell the difference between the different type of leaf shapes.
- learn to understand the terms used to describe the different type of leaf shapes.

To complete this activity, you will need to be close to an area that has a lot of different tree species (a wooded or residential area with a variety of tree plantings). Divide the group into teams of two to three people. Each team should have a copy of the leaf guide and terms below. Have each team find sets of leaves that match each of the descriptions and drawings. Set a limit of about ten minutes. Teams should collect only those leaves which have fallen to the ground instead of removing them from a tree.

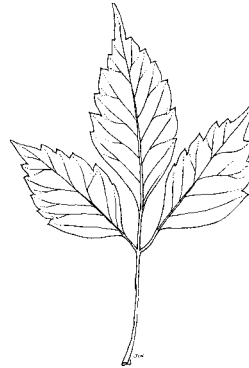
Alternate Branching—
Leaves are located on the twig at alternating intervals.



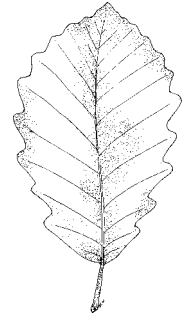
Opposite Branching—
Leaves grow in pairs at opposite sides of the same point on the twig.



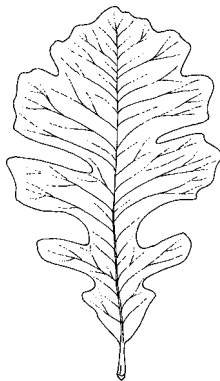
Compound Leaves—The leaf is divided into several different *leaflets* that are attached to the leaf stalk.



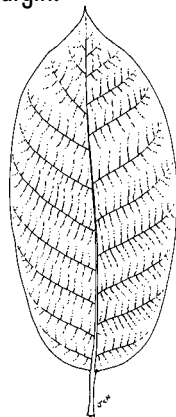
Simple Leaves—Only one blade is attached. Its stalk is attached to a twig or branch. The leaf is not divided into separate *leaflets*.



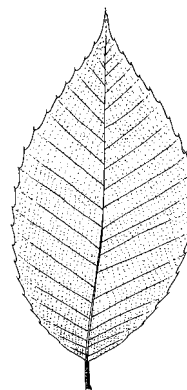
Lobed Leaves—The edge of these leaves is deeply cut, forming lobes.



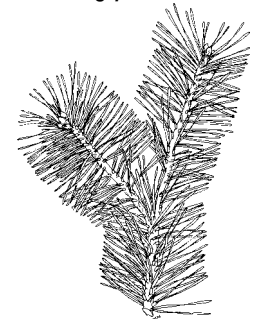
Leaf outline is smooth—
There are no teeth or lobes on leaf margin.



Toothed Leaves—The edge of the leaf is jagged with teeth-like indentations.

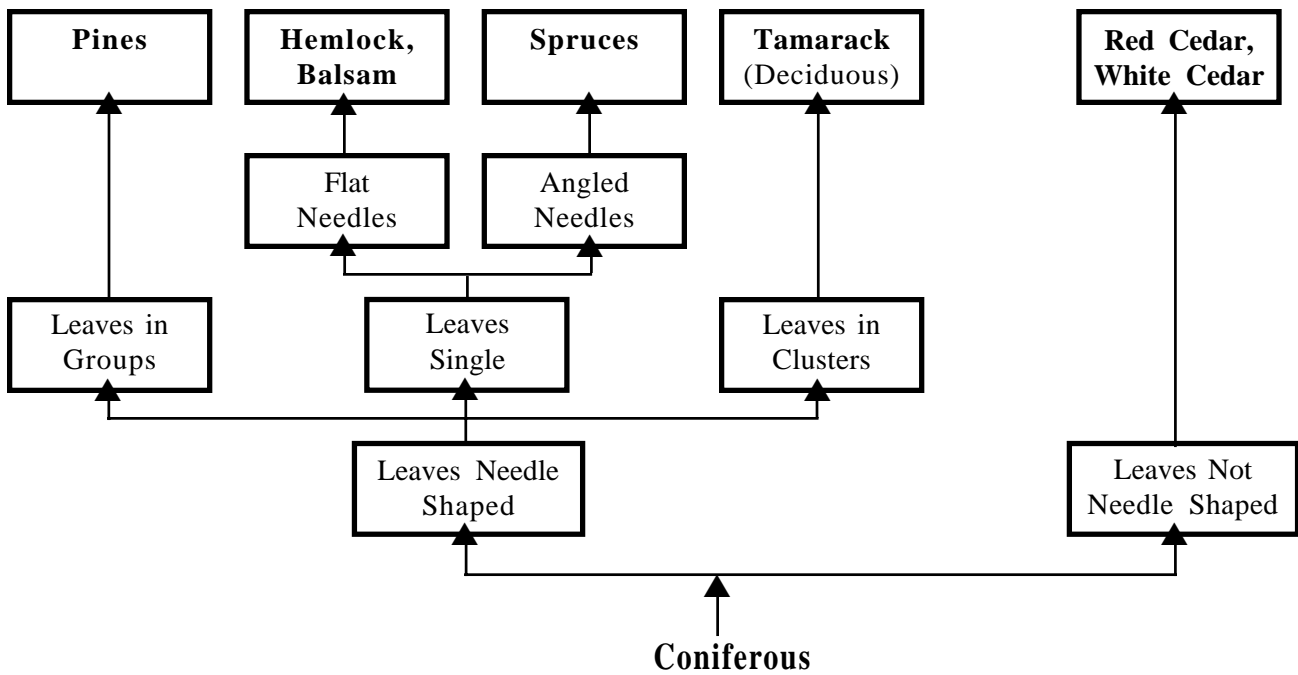


Needle-Shaped Leaves—
Trees such as pine, spruce, and fir have needle-shaped leaves and these leaves are attached to the branches either singly or in bundles.

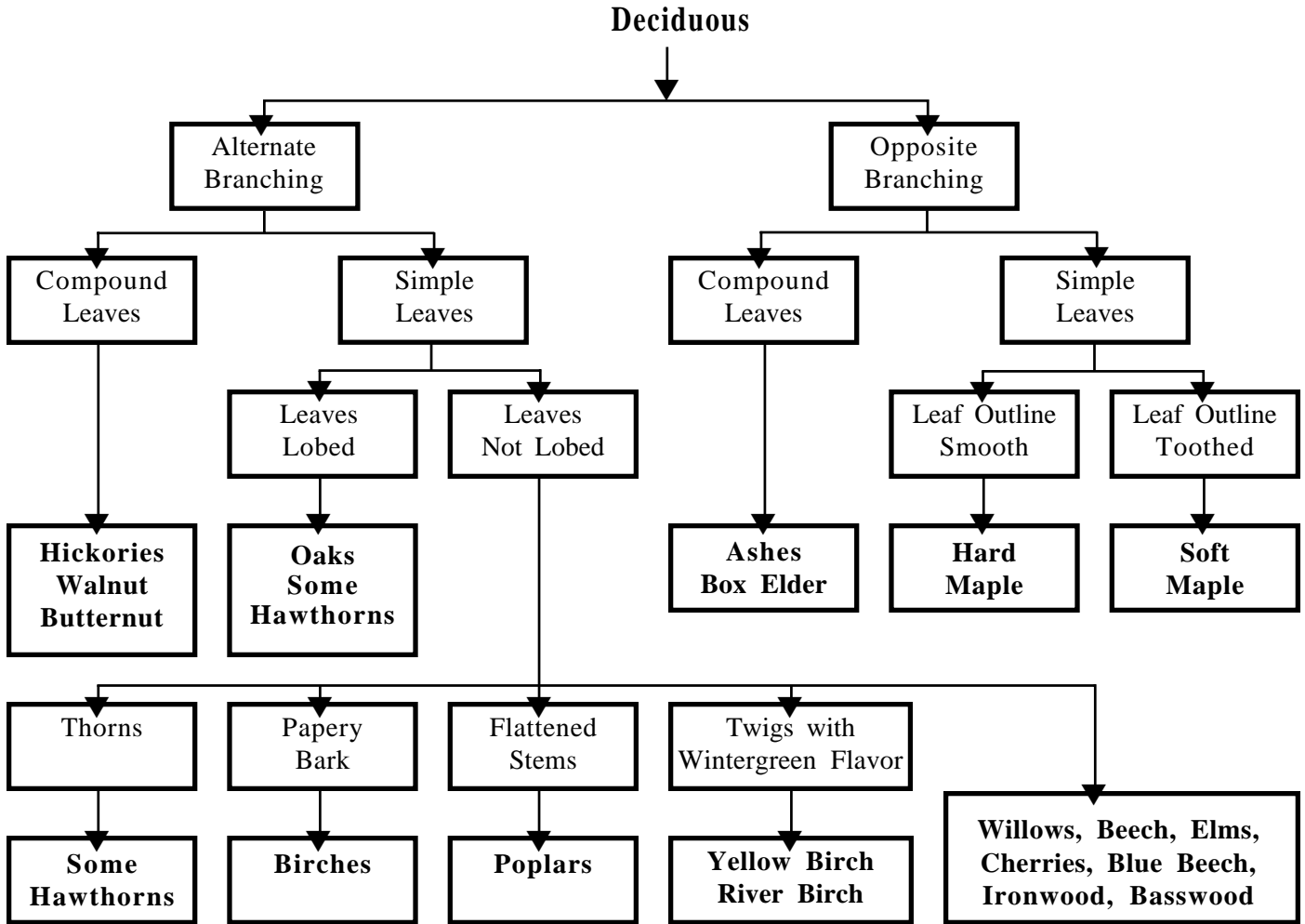


Once you have collected and shared your leaves with the group, use the Tree Road Map on page 18 to determine what kind of tree your leaves came from.

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What kind is your tree?
Tree Road Map
 Read The Signs and
 Follow The Arrows!



The Environment

Seeds of Trees

A picture of the seed plus a brief description of the tree will be given. Write in the tree name on the line provided.

Identification

In this activity you will:

- learn to identify some of the different types of tree seeds found in your backyard or a wooded area.



This tree has 3- to 5-lobed leaves. Its wood is hard and close-grained and is used for cabinetwork. Its sap is a main source of delicious syrup. _____



Deer love to eat the acorns produced by this tree and its wood is used to make fine furniture. _____



This coniferous evergreen tree has slender elongated needles and is valuable as timber or as an ornamental tree. _____



A tree with hard strong heavy dark brown wood and oily edible nuts. _____



This plant can be either a shrub or a tree and it produces a nut that has been compared to the eye of a buck deer. _____



A tall tree with star-shaped, toothed leaves which may be five- or seven-lobed. _____



This medium sized tree has three patterns of leaves: 3 "finger," a "thumb-and-mitten" outline, or a smooth egg-shaped leaf. Its roots are often used to make a soothing, medicinal tea. _____



Large thorns can be found on this tree. Its leathery seed pods grow to a foot or more in length and contain 12 to 14 dark brown seeds that are separated by a sweet, succulent pulp. _____



The nuts (seeds) from this tree may be dried, roasted, and ground for use as a coffee substitute, and are also used to provide flavoring to chewing gum. _____

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The Environment

Seeds of Trees

A picture of the seed plus a brief description of the tree will be given. Write in the tree name on the line provided.

Identification—Key

In this activity you will:

- learn to identify some of the different types of tree seeds found in your backyard or a wooded area.



This tree has 3- to 5-lobed leaves. Its wood is hard and close-

grained and is used for cabinetwork. Its sap is a main source of delicious syrup.

Sugar Maple



Deer love to eat the acorns produced by this tree and its wood is used to make fine furniture.

Red Oak



This coniferous evergreen tree has slender elongated needles and is valuable as timber or as an ornamental tree.

Pine



A tree with hard strong heavy dark brown wood and oily edible nuts.

Black Walnut



This plant can be either a shrub or a tree and it produces a nut that has been compared to the eye of a buck deer.

Buckeye



A tall tree with star-shaped, toothed leaves which may be five- or seven-lobed.

Sweetgum



This medium sized tree has three patterns of leaves: 3 "finger," a "thumb-and-mitten" outline, or a smooth egg-shaped leaf. Its roots are often used to make a soothing, medicinal tea.

Sassafras



Large thorns can be found on this tree. Its leathery seed pods grow to a foot or more in length and contain 12 to 14 dark brown seeds that are separated by a sweet, succulent pulp.

Honey Locust



The nuts (seeds) from this tree may be dried, roasted, and ground for use as a coffee substitute, and are also used to provide flavoring to chewing gum.

American Beech

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The Environment

So Much of My House Comes from a Tree!

For the next meeting, members should make a list of everything in their homes they believe is made from wood or a product of trees. Be certain to include items that contain chemicals manufactured from trees, such as medications, dye, varnish, paint, soap, ink, waxes, crayons, shoe polish, and chewing gum. Share the findings with the group.

Identification

In this activity you will:

- learn what items in your home are products of trees.

These items in my house came from a tree.

<i>These items in my house came from a tree.</i>

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The Environment

Leaves or Bark Rubbing Stationery

Identification

In this activity you will:

- learn how the leaves and bark of trees differ from one species to another.

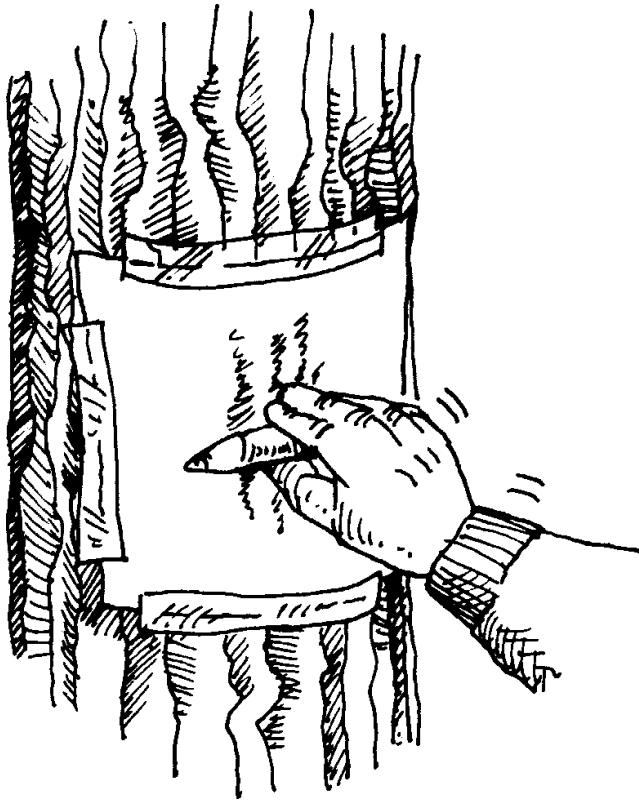
Trees differ in many ways, including the texture of their leaves and bark.

Visit an area with different species of trees. This could be your backyard, a school yard, or a local park. Identifying the different species will help, but it is not a must.

Ask each member to find an interesting patch of bark and use masking tape to tape a piece of colored construction paper over it. Or, gather a number of leaves from one of the trees and place them on a flat surface. Tape the paper over the arrangement of leaves.

Holding a crayon with its flat side against the tree (or flat on the arrangement of leaves), rub up and down over the paper, pressing firmly. Keep coloring until an interesting pattern emerges. Remove the tape and inspect the bark or leaf rubbing. Try different trees and look at the variety of patterns obtained.

Use the paper with bark or leaf rubbing as stationery. Hold up each of the bark or leaf rubbings and ask if the members of your group can identify the tree species by the bark or leaf shape. Also, have the members write a letter that explains how they made their stationery.



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The Environment

Pond Map Symbols

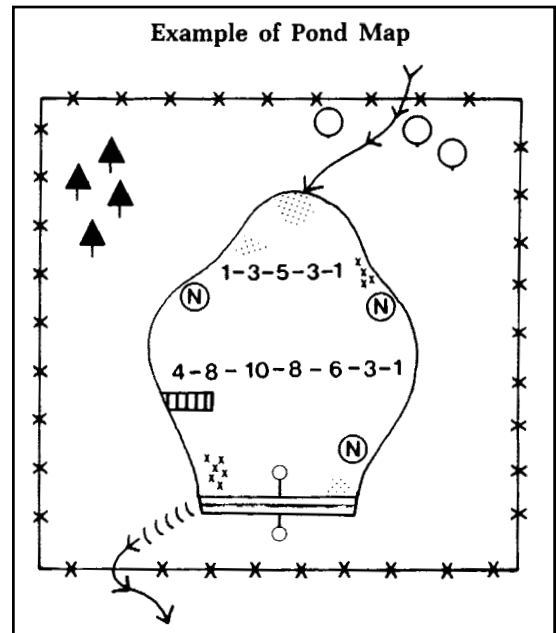
Write the letter of the description next to the appropriate map symbol. See the pond map for examples of how these symbols are used.

- | | |
|------------------------------|--|
| A. Creek or stream | |
| B. Underwater mass | |
| C. Spillway | |
| D. Spring | |
| E. Trees (on bank) | |
| F. Fence | |
| G. Pond shore line | |
| H. Pier or boat dock | |
| I. Water depth (in feet) | |
| J. Drain pipe | |
| K. Dam | |
| L. Gully or water inlet | |
| M. Fish nesting area | |
| N. Shrubs or brush (on bank) | |
| O. Shoreline plants | |

Matching

In this activity you will:

- learn about the different topographic symbols that can be used to make a pond map.



Additional Activity




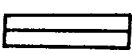

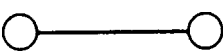








Contact the Ohio Department of Natural Resources to obtain copies of topographical maps of areas in proximity to the location where your club meets. Use these maps to find privately-owned ponds and compare the symbols with the symbols above.

Developed by: Tina Milenovic, Extension Associate, 4-H Youth Development

The Environment

Pond Map Symbols

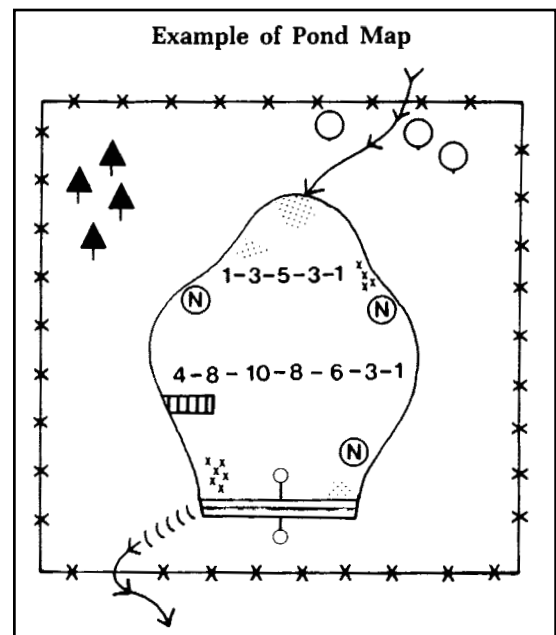
Write the letter of the description next to the appropriate map symbol. See the pond map for examples of how these symbols are used.

- | | | |
|------------------------------|--------------|---|
| A. Creek or stream | <u> F </u> |  |
| B. Underwater mass | <u> O </u> |  |
| C. Spillway | <u> G </u> |  |
| D. Spring | <u> K </u> |  |
| E. Trees (on bank) | <u> B </u> |  |
| F. Fence | <u> J </u> |  |
| G. Pond shore line | <u> C </u> |  |
| H. Pier or boat dock | <u> M </u> |  |
| I. Water depth (in feet) | <u> N </u> |  |
| J. Drain pipe | <u> E </u> |  |
| K. Dam | <u> D </u> |  |
| L. Gully or water inlet | <u> I </u> | 1-4-6-ETC. |
| M. Fish nesting area | <u> H </u> |  |
| N. Shrubs or brush (on bank) | <u> L </u> |  |
| O. Shoreline plants | <u> A </u> |  |

Matching—Key

In this activity you will:

- learn about the different topographic symbols that can be used to make a pond map.



Additional Activity

Contact the Ohio Department of Natural Resources to obtain copies of topographical maps of areas in proximity to the location where your club meets. Use these maps to find privately-owned ponds and compare the symbols with the symbols above.

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The Environment

Ponds and Their Different Uses

You will need markers or crayons and drawing paper (construction paper or notebook paper).


If you had a pond, how would you use it? Would you use it for swimming, boating, or fishing? How about raising fish to attract wildlife? If you live on a farm, how about using the pond to water livestock or to irrigate field crops?

Using the paper and markers or crayons, draw a picture of a pond. See page 26 for examples of pond map symbols. Include your ideas of how you would use the pond. Compare your drawing with the drawings made by the other members of your club.

Drawing

In this activity you will:

- learn the many uses for ponds.



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The Environment

Birds and Beaks

Experiment

In this activity you will:

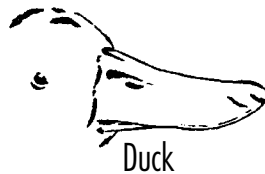
- learn about the types of bird beaks (sometimes known as bills).
- discover how the shape and size of the beak is related to the type of food the bird eats.

Activity I

For this activity, you will need a large, clear area (such as an auditorium floor). Around on the floor, spread "food" represented by various small objects such as BB pellets, marbles, miniature marshmallows, dried beans or peas, dry macaroni, popcorn, two-inch pieces of yarn, bottle caps, etc.

Each participant is given a different kind of "beak" represented by plastic spoons, chopsticks, clothespins, knitting needles, tweezers, ice cream sticks, etc. Using the "beak," each person is to pick up the food and place it in a paper cup which represents the bird's mouth. No sweeping of food into the cup is allowed. After three to five minutes, have the participants spread out the food, trade beaks with another person, and repeat. Repeat until each person has tried a different "beak."

Discuss the activity. Which bird beaks were easiest to use to gather food? Which were hardest? Which foods could be gathered easiest by each beak? What can you state about the relationship between a bird's beak and its food?



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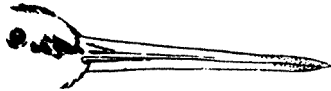
The Environment

Birds and Beaks

Activity II

The shape and size of a bird's beak indicate how the bird obtains and eats its food. Draw a line from one column to the other to match each of the bird beaks below with the types of food they eat.

Long, slender bill (shorebirds, snipes)



Strong hooked beak (owls, hawks)



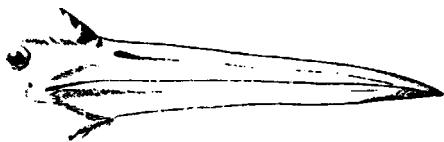
Large, spooned bill (ducks)



Straight and chisel like (woodpeckers)



Long, sharp-edged bills (herons, bitterns)



Thick, cone shaped (finches, sparrows)



Matching

In this activity you will:

- learn about the types of bird beaks (sometimes known as bills).
- discover how the shape and size of the beak is related to the type of food the bird eats.

Drilling to find insects

Aquatic plants, algae, and insects

Probing for grubs and worms in the mud

Fish

Flesh-eating

Seeds and insects

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The Environment

Birds and Beaks

Matching—Key

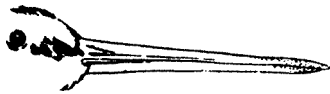
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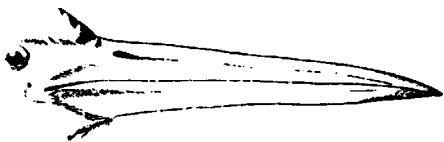
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Drilling to find insects

Aquatic plants, algae, and insects

Probing for grubs and worms in the mud

Fish

Flesh-eating

Seeds and insects

Developed by: Tina Milenovic, Extension Associate, 4-H Youth Development

The Environment

Feeding our Fine-Feathered Friends

Fill in the Blanks

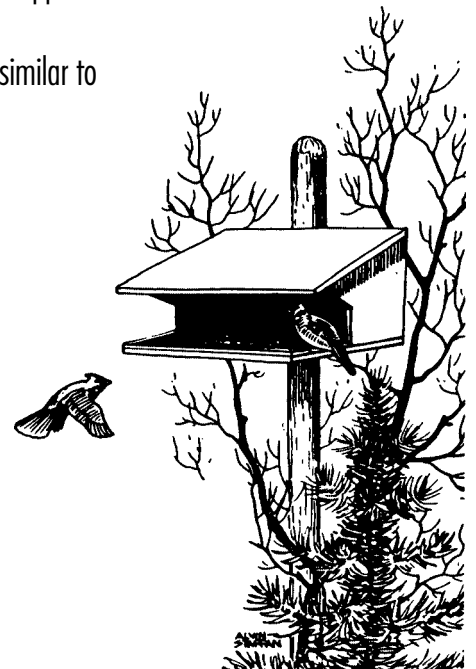
In this activity you will:

- learn about feeding the birds that visit your yard and home.
- test your bird feeding knowledge.

Fill in the blanks using the following one or two word phrases.

seed eaters grit suet metal guards fall trees
shrubs insects clean do not summer sugar water

1. Bird feeding should be started in the early _____ and continued until the beginning of _____.
2. During the summer months, birds _____ need food from the bird feeder because of the amount of natural food that is available in the wild.
3. _____ is a great bird feeder food as it is made from beef and is a good source of protein and fat.
4. Feeders should be placed close to _____ or _____ so the birds can fly into them for protection and shelter.
5. _____ on trees keep cats and squirrels away from bird nests and feeding stations.
6. About 5 percent of a bird feed mixture should be _____ which is needed by the bird's digestive system.
7. Birds that usually eat _____ must be fed animal food such as suet or chopped meat.
8. Hummingbirds will eat from containers of _____ which is similar to flower nectar.
9. Cardinals, chickadees, and titmice are examples of birds that are _____.
10. Bird feeders should be kept very _____ to prevent the spread of diseases and to keep the birds from getting ill.



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The Environment

Feeding our Fine-Feathered Friends

Fill in the Blanks—Key

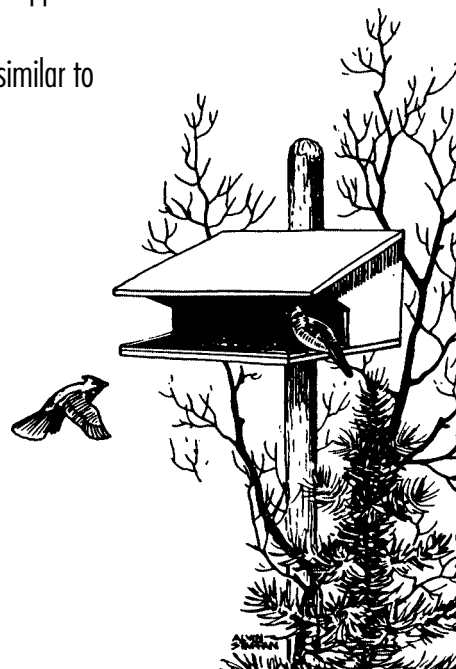
In this activity you will:

- learn about feeding the birds that visit your yard and home.
- test your bird feeding knowledge.

Fill in the blanks using the following one or two word phrases.

seed eaters grit suet metal guards fall trees
shrubs insects clean do not summer sugar water

1. Bird feeding should be started in the early fall and continued until the beginning of summer.
2. During the summer months, birds do not need food from the bird feeder because of the amount of natural food that is available in the wild.
3. Suet is a great bird feeder food as it is made from beef and is a good source of protein and fat.
4. Feeders should be placed close to trees or shrubs so the birds can fly into them for protection and shelter.
5. Metal guards on trees keep cats and squirrels away from bird nests and feeding stations.
6. About 5 percent of a bird feed mixture should be grit which is needed by the bird's digestive system.
7. Birds that usually eat insects must be fed animal food such as suet or chopped meat.
8. Hummingbirds will eat from containers of sugar water which is similar to flower nectar.
9. Cardinals, chickadees, and titmice are examples of birds that are seed eaters.
10. Bird feeders should be kept very clean to prevent the spread of diseases and to keep the birds from getting ill.



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The Environment

Make a Bird Feeder

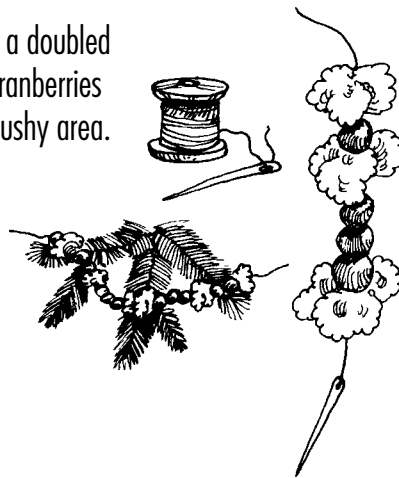
Crafts

In this activity you will:

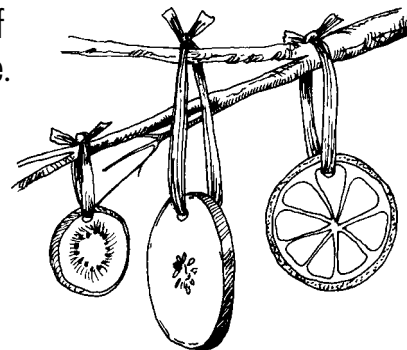
- make some simple bird feeders.

Make ornaments and garlands from different fruits and nuts to help feed the birds in your yard.

1. A tasty and healthy garland for birds can be made by using a doubled length of heavy cotton thread and a needle. String whole cranberries and popped corn.



2. Slice an apple, a kiwi fruit, and an orange crosswise, so each slice has a pretty pattern. Make the slices about 1/4-inch thick. Put a loop of raffia or cord through the edge of each slice and tie directly to a tree.



3. Gather pine cones that have fallen to the ground. Tie a piece of raffia or cord to one end of a pine cone. Using a spoon, spread peanut butter over the pine cone until almost entirely covered. Roll the covered pine cone in raisins or birdseed. (The raisins and birdseed will stick to the peanut butter on the pine cone.) Hang on a tree that is close to underbrush so the birds feel safe.



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The Environment

Birds and Their Habitats

Below is a list of Ohio birds. Place each listed bird in its appropriate habitat by writing the name in one of the boxes. Use a birding field guide to help determine the correct answers.

Matching

In this activity you will:

- learn about which birds live in certain habitats.

Downy Woodpecker

Canada Goose

Great Horned Owl

Meadowlark

Eastern Bluebird

Song Sparrow

Rufous-Sided Towhee

Wood Thrush

Blue-Winged Teal

Great Blue Heron

American Kestrel

American Woodcock

Common Loon

Red-breasted Merganser

Indigo Bunting

Sora Rail

<i>Large Ponds and Lakes</i>	<i>Wetlands</i>
<i>Woods and Forests</i>	<i>Open Fields</i>

Developed by: Tina Milenovic, Extension Associate, 4-H Youth Development

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Sora Rail

<p style="text-align: center;"><i>Large Ponds and Lakes</i></p> <p>Common Loon Red-breasted Merganser</p>	<p style="text-align: center;"><i>Wetlands</i></p> <p>Canada Goose Great Blue Heron Sora Rail Blue-Winged Teal</p>
<p style="text-align: center;"><i>Woods and Forests</i></p> <p>Downy Woodpecker Great Horned Owl Rufous-Sided Towhee Indigo Bunting Wood Thrush</p>	<p style="text-align: center;"><i>Open Fields</i></p> <p>Eastern Bluebird Song Sparrow American Kestrel Meadowlark American Woodcock</p>

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The Environment

Fish Found in Ohio

Ohio has more than 250 different species of fish, many of which make favorable catches-of-the-day!

Find the names of fish that inhabit the waters of Ohio.

smallmouth bass
channel catfish
saugeye
brown bullhead

largemouth bass
walleye
great lakes muskellunge
white crappie

longear sunfish
yellow perch
sauger
black crappie

bluegill
northern pike
carp
rock bass

pumpkinseed
grass pickerel
redhorse sucker
white bass

Word Search

In this activity you will:

- learn the names of some Ohio species of fish.

B I L O N M T E R S A U G E Y E W E L L B Q R Y
F G A R E D H O R S E S U C K E R I G M I U N T
L K R Y C I S E W E M F I S M R O A R Y N P O L
P T I E H M M B S S N L M E J F G R A S E Y R G
I L P L A B A Y X G J K V Y R E P H S B I W T E
I O N L N T L P B F R S C A E J L A S F P C H P
R N I O N L L R C F E H J C H A B L P E P I E M
M G O W E R M A B J G K V W D H C J I U A K R M
B E L P L Y O C K V U L Y P T B C D C F R A N K
P A X E C I U L P E A M V U H C M O K P C A P R
E R I R A H T O U B S M O I R L D F E N K B I J
I S F C T J H T Y R S M W L B E I T R L C D K F
P U T H F Y B W M L E S U T E P L K E M A V E O
P N U N I B A T D G O C F S R W X S L E L O M C
A F P B S U S I R M P L N G K V A S H T B P L M
R I I T H O S A P L M I N G R E F L I S H G R E
C S E N B L L U E R K E D Y E L L O L W P I N T
E H O R A G E N Y P A T H C P U U L R E P L E H
T M I T N R C A M S P O T G B O N E U R Y U S S
I T O A M A S U H Y N O T N A N T I Q N U E E P
H T A L B B P L E C H A W I R H E P L P G I N F
W H I T E B A S S O R O C K B A S S L I Y E P L
L K I E H T E A P M R V Y T K R U S T F I H S J
K W V M B C H A T B L U E G I L L P L O S W A X

Developed by: Dennis Elliott, Extension Specialist, 4-H Youth Development

The Environment

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smallmouth bass

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longear sunfish

bluegill

pumpkinseed

channel catfish

walleye

yellow perch

northern pike

grass pickerel

saugeye

great lakes muskellunge

sauger

carp

redhorse sucker

brown bullhead

white crappie

black crappie

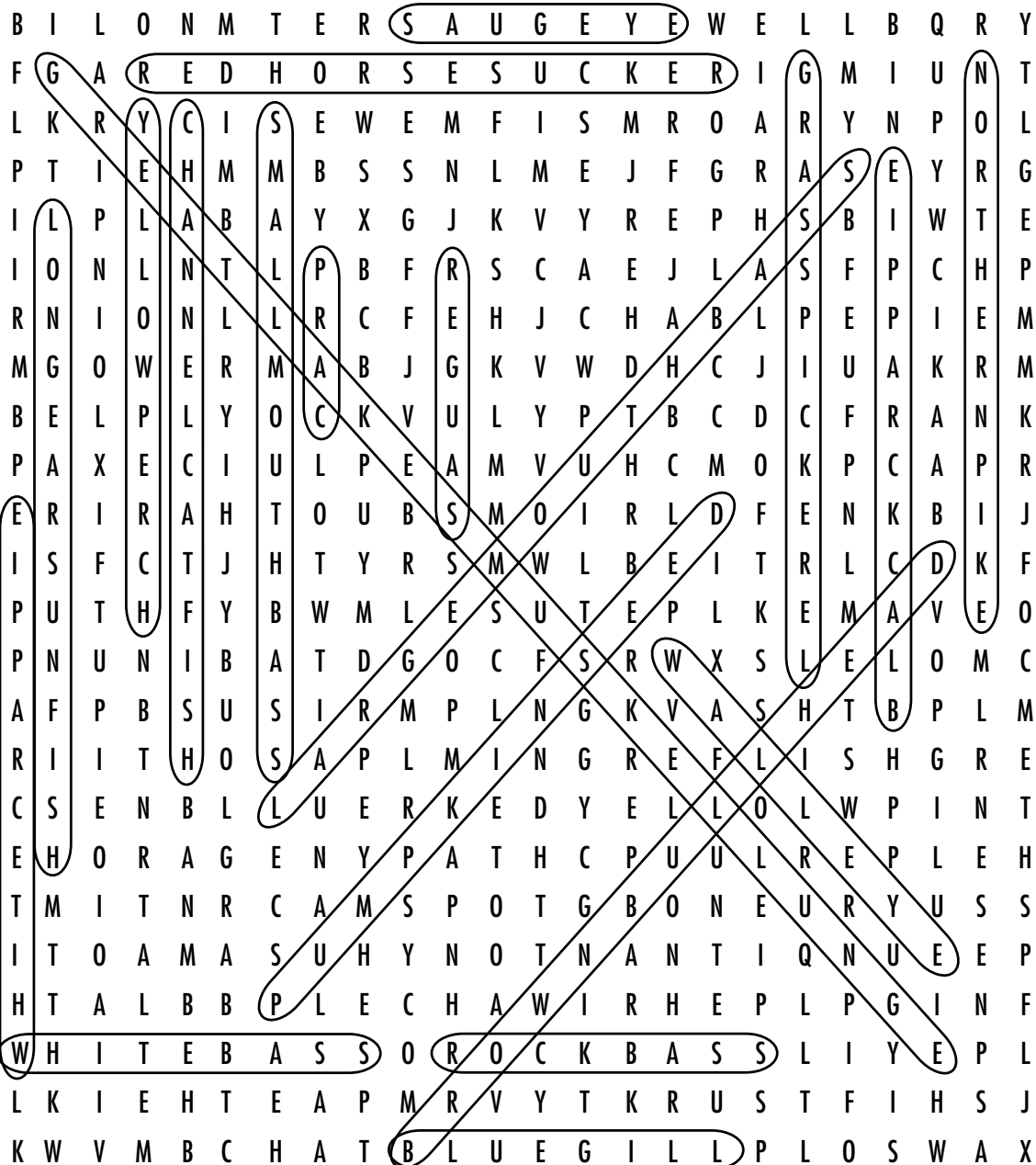
rock bass

white bass

Word Search—Key

In this activity you will:

- learn the names of some Ohio species of fish.



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The Environment

Fishing in the Grocery Store

For your next club meeting, ask the members to visit a grocery store and make a list of the kinds of fish that can be found in the seafood section. Encourage them to buy some of the fish and prepare and bring it to the next meeting.

At the next gathering, have a taste-testing party. Discuss the types of fish found at the grocery store. Ask which of the fish on their lists are fresh water (found in lakes, ponds, or streams) or sea-water (found in the oceans or gulfs). Also ask which of the fish can be found in Ohio.

Listing
In this activity you will:
<ul style="list-style-type: none">• learn about the variety of fish that can be found at a grocery store.

Fish Found at the Grocery Store

1. _____
2. _____
3. _____
4. _____
5. _____
6. _____
7. _____
8. _____
9. _____
10. _____

Developed by: Dennis Elliott, Extension Specialist, 4-H Youth Development

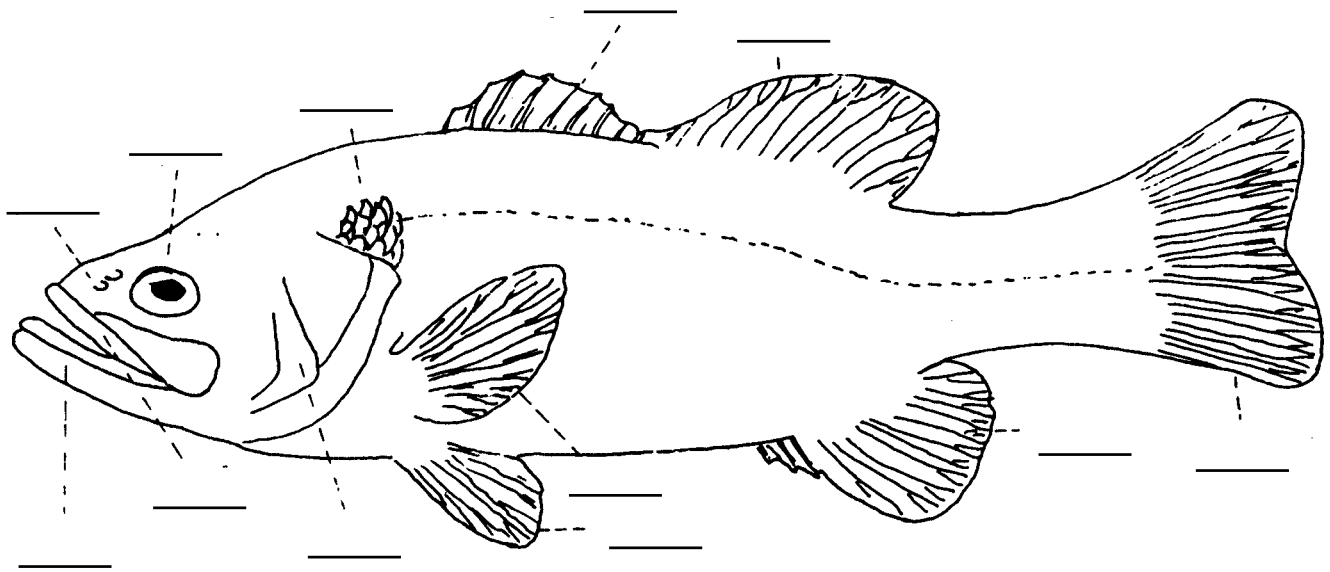
The Environment

Fish Part Identification

Match the parts in the picture with the names of the parts listed below. Write the corresponding letter on the line provided.

- | | | | |
|-----------------|--------------------|---------------------|---------------|
| A. Anal Fin | D. Caudal Fin | G. Upper Jaw | J. Lower Jaw |
| B. Scales | E. Gill Cover | H. Nostrils | K. Eye |
| C. Pectoral Fin | F. Soft Dorsal Fin | I. Spiny Dorsal Fin | L. Pelvic Fin |

Matching
In this activity you will:
<ul style="list-style-type: none"> learn about the parts of a fish.



Casting Contest

Learn how to bait cast for fish. In an open field, place Hula-Hoops or old tires to use as targets. Members should bring their own fishing poles or borrow some for the event. (Check with a local public park or lake to borrow poles.) Remove all hooks from the lures. Tie plugs to the fishing lines and compete to see who can hit the target by casting their line.

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Fishing in Ohio

Fish Part Identification

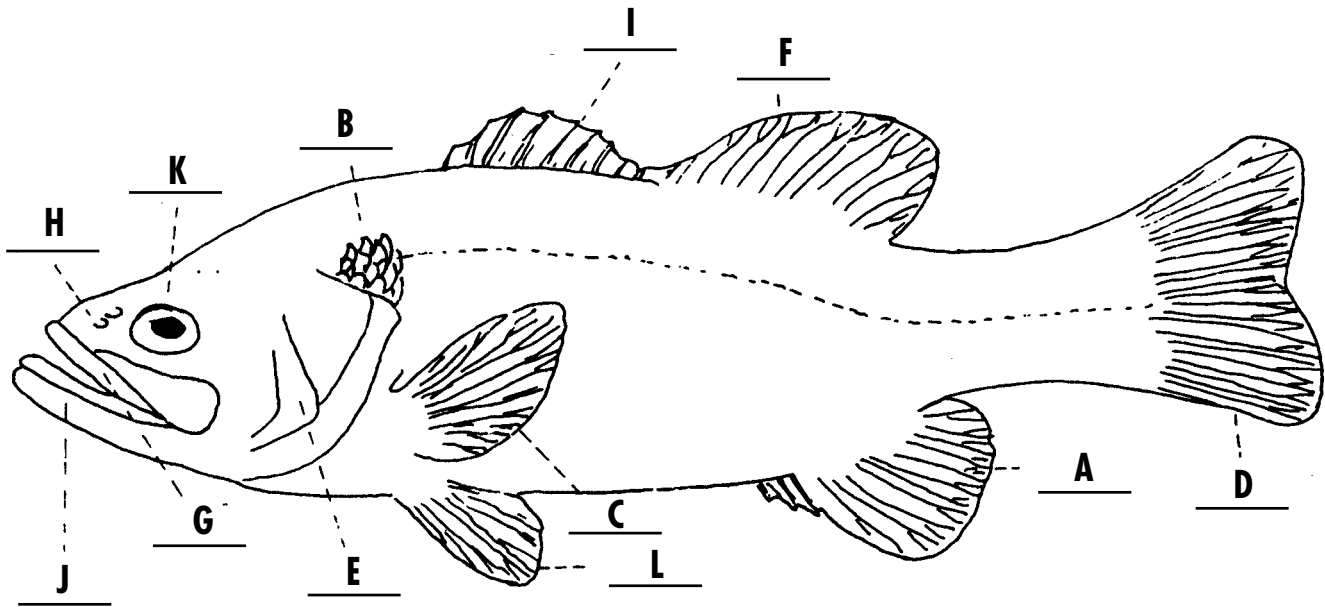
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