

4

OUTDOORS

Health and Safety	4-1
What to Do If Lost	4-1
Fun on Hikes	4-2
Fun With Hiking Games	4-4
Fun With Plants	4-6
Fun With Trees	4-9
Fun With Soil	4-12
Fun With Water and Aquatic Life	4-14
Fun With Insects	4-17
Fun With Birds	4-20
Fun With Animals	4-23
Fun With the Night Sky	4-25
Fun With Weather	4-27
Family Camping	4-30
Outdoor Cooking	4-32
Outdoor Cooking Recipes	4-36
Fun With Campfires	4-39

Outdoor activities are an important part of Cub Scouting. Boys learn to appreciate and care for the beautiful environment all around them as they hike, explore, and investigate the world. The Cub Scouting outdoor program is a foundation for the outdoor adventure boys will continue to experience when they move on to a Boy Scout troop.

All Tiger Cubs, Cub Scouts, and Webelos Scouts should have opportunities to enjoy the outdoors. Remember: You don't need to go far to share the wonder of nature with children. There are many opportunities for everyone to have outdoor experiences—even just in the neighborhood. Also remember that Cub Scouts with special needs can often enjoy outdoor activities with only minor modifications to the activity.

Health and Safety

The health and safety of boys, leaders, and families must be one of the first considerations in planning any outdoor activity. Try to anticipate and eliminate hazards—or at least warn against them. Most accidents can be prevented. See the *Cub Scout Leader Book* for outdoor safety rules, Safe Swim Defense (swimming), and Safety Afloat (boating).

Also, follow these tips when planning and conducting an outdoor activity:

- Always get permission from parents or guardians for activities that are held away from the regular den and pack meeting places. Better yet, take the families with you!
- Be sure to have enough adult leaders for the activity planned. Always follow the policy of two-deep leadership (see page 1–12).
- Check out the site before the activity. Find out about gathering places, restroom facilities, and safe drinking water. Look for hazards such as poison ivy.
- If applicable, get permission from the owner to use the property.
- Use the buddy system to prevent anyone from getting lost. Coach the boys in advance about what they should do if they get lost (see below).
- **Carry a first aid kit and know how to use it. Know basic emergency first aid procedures.**
- File a Local Tour Permit Application with your local council service center two weeks before any pack trip of fewer than 500 miles. Webelos dens should file a Local Tour Permit Application for Webelos overnight campouts.
- Have adequate and safe transportation.
- When leaving the site, take everything you brought with you. Leave the site in its natural condition.

What to Do if Lost

Have boys learn the following suggestions, which are part of the Hug-a-Tree and Survive Program and are recommended by the National Association for Search and Rescue. They could save a life.

1. **“Hug a tree.”** As soon as you realize you are lost, stop walking and “hug” a tree. That is, *stay put*. The closer you are to the place you were last seen, the more quickly you will be found.
2. **Carry shelter.** It's easy to carry along a shelter that folds up and fits into your pocket—that is, a big plastic leaf or trash bag. Cut or tear a hole in the closed end for your head to fit through and slip it on like a poncho. (But be sure to keep your face uncovered so that you can breathe!)
3. **Save body energy.** If the weather starts to cool off, curl up like an animal in the cold, conserving your body heat and energy. Snuggle against your tree or anything else that will shield you from the wind.
4. **Make yourself BIG** so that searchers in helicopters can see you easily. If possible, find your tree to hug near a clearing. If you spot a search plane or helicopter, stretch out on the ground face up and make slow, sweeping motions with your arms as if you are making a snow angel. Also, always carry a whistle when you go hiking so you can make a BIG noise to attract the attention of rescuers. Blow your whistle, shout, or pound rocks together.
5. **Remember that people are searching for you.** The longer you are lost, the more people will join the search. If you hear people, *don't be frightened*. They're exchanging information over wide areas and doing their best to find you. Searchers won't give up. They will find you.

Fun on Hikes

When did you last watch a colony of ants scurrying about as they worked hard? Or investigate a hollow tree? Or travel an unbeaten path? These are just a few things that you and the boys can do when you go hiking. The fun lies in observing everything around you as you hike, and while observing, talking about what you see. Enjoy nature—but *don't remove growing things from their natural habitats.*

You can hike in your own neighborhood or a nearby park, or you can travel to an out-of-the-way location. Or go to a nature center. Many nature centers include wheelchair-accessible trails so all boys can participate.



Your outdoor adventure could be a visit to a nature center.

There are many types of nature hikes, some of which include nature activities. Several nature hikes are described here. See the *Cub Scout Leader Book* for other types of hikes and for hiking safety rules.

Note: Always use the buddy system on hikes for safety and to prevent anyone from getting lost. Buddies should remain together at all times.

SEASONS HIKE

Materials: Pencils and crayons, notebooks for data collection, field guides

Choose a hiking area that you can hike in each season of the year. Each season, boys make a list of things they see along the way. Have them draw a particular area along the trail and how it changes. Which things remained the same each season? How many things changed as the seasons changed? (It's a good idea to collect and keep the boys' notebooks between seasons.)

WEB OF LIFE HIKE

Materials: Pencil, paper

Animals, plants, and habitats rely on each other and form a "web of life." The soil nourishes the tree; the tree shelters the animal; the animal dies and adds nutrients to the soil. Everything in nature is affected by the many other things living around it.

Boys draw 12 small circles on paper where the numbers would be on a clock face. In each circle they draw or write the name of something they see along the hike. Encourage them to include different types of things: rocks, animals, plants, river, etc. Then have them draw a line from one circle to everything it affects or is affected by it. Continue doing the same with the other 11 circles. They have now created a web of life for this area. Was there anything that didn't have lines and didn't affect anything else? What would happen if you covered up one of the circles and it was gone from your area? How many other things would its absence affect?

TRACKS AND SIGNS HIKE

Be a keen observer whenever you are out in nature. Look for all types of signs of animals and birds. Identify bird and animal tracks. Make plaster casts (see page 2-26 for how to make casts of animal tracks).

MICRO HIKE

Materials: Strings 3 to 5 feet long

Lay strings out along an area to study. Boys cover the string trail inch by inch on their stomachs, with their eyes no higher than 1 foot off the ground. They may see such wonders as grass blades bent by dew-drops, colorful beetles sprinkled with flower pollen, powerful-jawed eight-eyed spiders, and more. Ask questions to stimulate their imaginations: "What kind of world are you traveling through?" "Who are your nearest neighbors?" "Are they friendly?" "Do they work hard?" "What would life be like for that beetle—how would it spend its day?"

NATURE SAFARI HIKE

Materials: Field guides, pencils, paper

This hike will help boys learn to identify animals. See how many different species each boy can see on this local safari.

SENSE OF TOUCH HIKE

This hike will illustrate the many textures of nature. Make sure that boys are instructed to *examine* the objects they find, not take them. Examples of what the boys may look for:

The hairiest leaf	Something cool
The softest leaf	Something dry
The smoothest rock	Something warm
The roughest rock	Something bumpy
The roughest twig	

Ask questions such as: "What did you find that was dry? Why was it dry?" "How might it be different tonight? 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?"

NATURE BABIES HIKE

Look for "nature babies"—birds, ferns, leaves, snails, insects, etc. How are the babies protected? How are they fed? Do not touch baby birds or animals. Look only from a little distance. Most babies that seem abandoned by their parents really aren't. Mother or father may be nearby.

HEADS-TAILS HIKE

Materials: Coin

Toss a coin each time you reach a crossroads. Turn left if the coin turns up heads, right if the coin is tails.

NATURE NOISES HIKE

This is a great way to help boys notice and enjoy the sounds around them. Stop along the hike at different points. Boys sit or stand very still and listen. As they hear a new sound, they raise their hand as a signal. They can "collect" different sounds on their fingers, holding up a finger for each sound they hear. Can you count to 10 in between sounds? Listen for birds, animals, wind in the trees, falling leaves, or rushing water.

COUNT THE COLORS HIKE

Materials: Crayons, paper, pencils

Each boy selects five crayons and colors an area of each on a piece of paper. Take the paper on a hike and write each object found that matches the colors. Write them under the colored area on the paper. Ask boys how many colors they can see without moving from where they are.

INCH HIKE

Materials: Small rulers

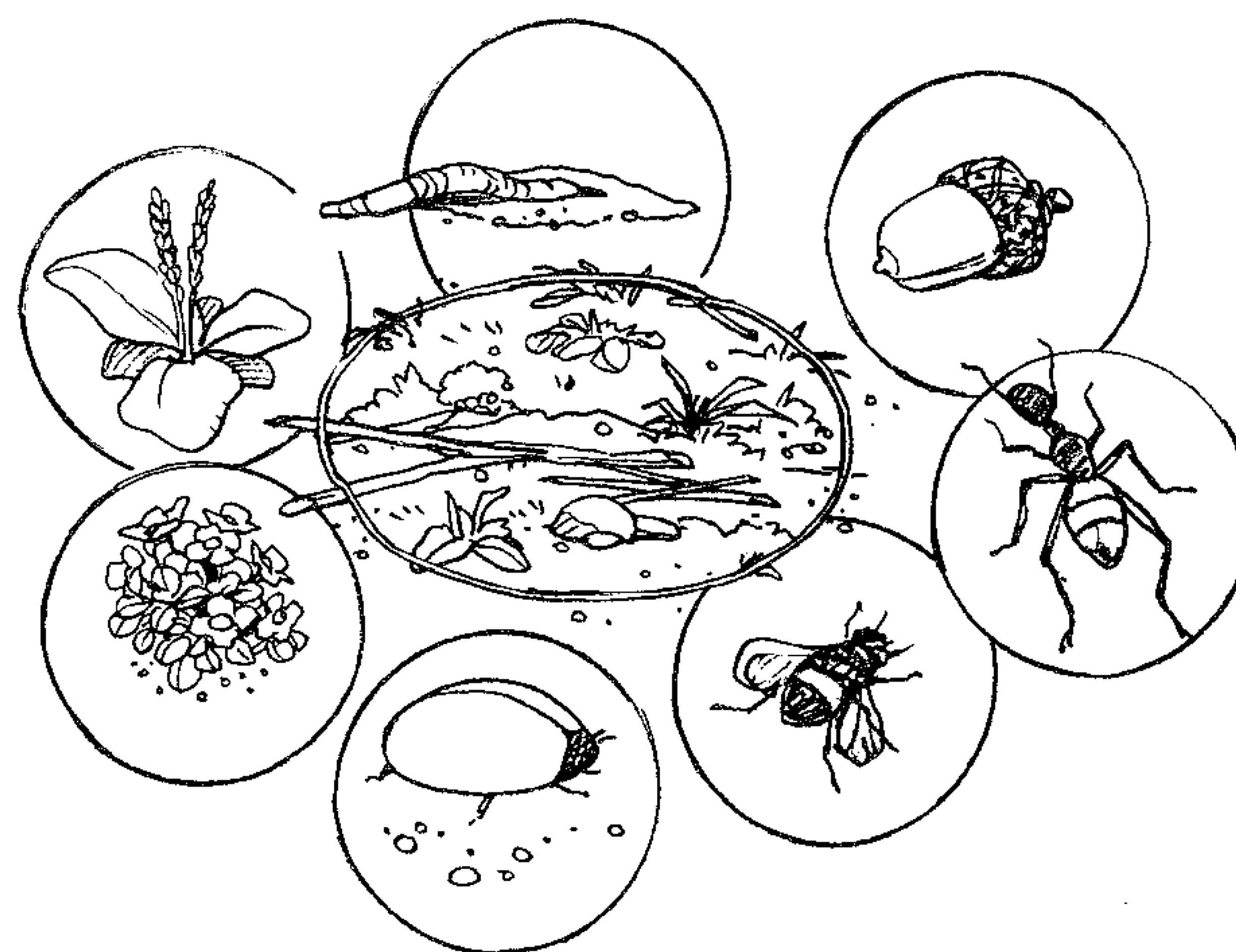
Find as many objects as possible that are 1 inch high, long, etc. Use the small rulers to measure. This helps boys notice the small things that they might otherwise overlook.

A-B-C HIKE

Materials: Pencils, paper

Write the letters of the alphabet vertically on a piece of paper. On the hike, find an object, sound, or smell in nature for each letter and write it down.

STRING-ALONG HIKE



Materials: 36-inch piece of string

Take the piece of string on your hike. Every now and then, place the string in a circle on the ground. See how many different things you can find enclosed in the circle. Then stretch the string in a line and see how many different things touch it.

SURPRISE BREAKFAST HIKE

Materials: Breakfast fixings for everyone

Make arrangements ahead of time with the parents of your boys to go on a "surprise" hike. Pick the boys up at their homes and head out on an early-morning hike, cooking (or providing) breakfast outdoors.

NIGHT HIKE

In areas where it is safe to walk at night, try a hike after dark. See how different things look, smell, and sound at night. Don't use flashlights, as they will lessen your ability to see and reduce your awareness of what is happening in the dark. Carry flashlights for emergency use only.

SILENT HIKE

This hike can be difficult to accomplish but powerful in helping boys appreciate the world around them. Calm the boys by having them sit alone and a few feet apart for a short period of time. On the den leader's signal, the group begins to move along the trail tapping shoulders and pointing to share the sights and sounds of the hike. *No talking!*

Fun With Hiking Games

While out on a hike you might want to stop to have a rest, enjoy lunch, or play a game. Here are some ideas for activities while taking a hiking break.

KNOW YOUR ROCK

Materials: Tape, pencil, rocks found on your hike

Each boy finds a fist-sized rock, remembering where he found it so he can return it after the game. All sit in a circle with eyes shut, holding their rocks. Tell them to "get to know" their rocks by its feel, texture, smell, etc. After a few minutes, collect the rocks, mix them up, and redistribute them. The boys pass the rocks around the circle and try to identify their own rock with their eyes still shut. To help prevent any disagreements, affix a small piece of tape to each rock with the owner's initials. Be sure to remember to remove the tape when you leave the rock behind!

KNOW YOUR LEAF

Materials: Leaves

This is similar to Know Your Rock. With eyes open, each boy gets to know a leaf by its shape, size, color, veins, etc. Then put all leaves in a pile and let one boy at a time try to find his, explaining to the group how he did it and what he looked for.

GRAB BAG

Materials: 15 nature items, 15 small paper bags

Collect 15 nature items, such as pinecones, nuts, shells, etc., and place each in small paper bag. Pass the bags around the circle of boys and let them try to identify the object by feeling the outside of the bag.

NATURE PHOTOGRAPHER

Boys work in buddy pairs, with one boy acting as the "camera" and the other as the "photographer." The photographer guides the camera, who has his eyes closed, to an interesting nature picture. When

the photographer is ready to "take the picture," he taps on the camera's shoulder to signal him to open and close his eyes. The photographer can "adjust" his camera to take closeups and wide-angle shots and to use interesting angles and perspectives. The camera and photographer should talk as little as possible to enjoy this experience. The photographer should also remember to guide his camera safely. After several pictures have been taken, it will be time for the photographer and camera to switch positions and begin again.

NATURE KIM'S GAME

Materials: Nature items, towel or jacket

Gather nature items such as pinecones, leaves, twigs, rocks, etc. Place them in an area for the boys to study. After a few minutes, cover the items with the towel or jacket and have the boys try to remember all the now-hidden items.

CAMOUFLAGE TRAIL

Materials: 15 or 20 human-made objects

This game can open doors to a discussion about how an animal's color can help protect it. Along an area of trail place 15 or 20 human-made objects. Some objects should stand out and be bright colors. Some should blend in with the surroundings. Keep the number of objects a secret. Boys walk along the section of trail, spotting as many objects as they can. When they reach the end, they whisper to you how many they saw. Invite them to go back and see whether they can spot any that they missed.

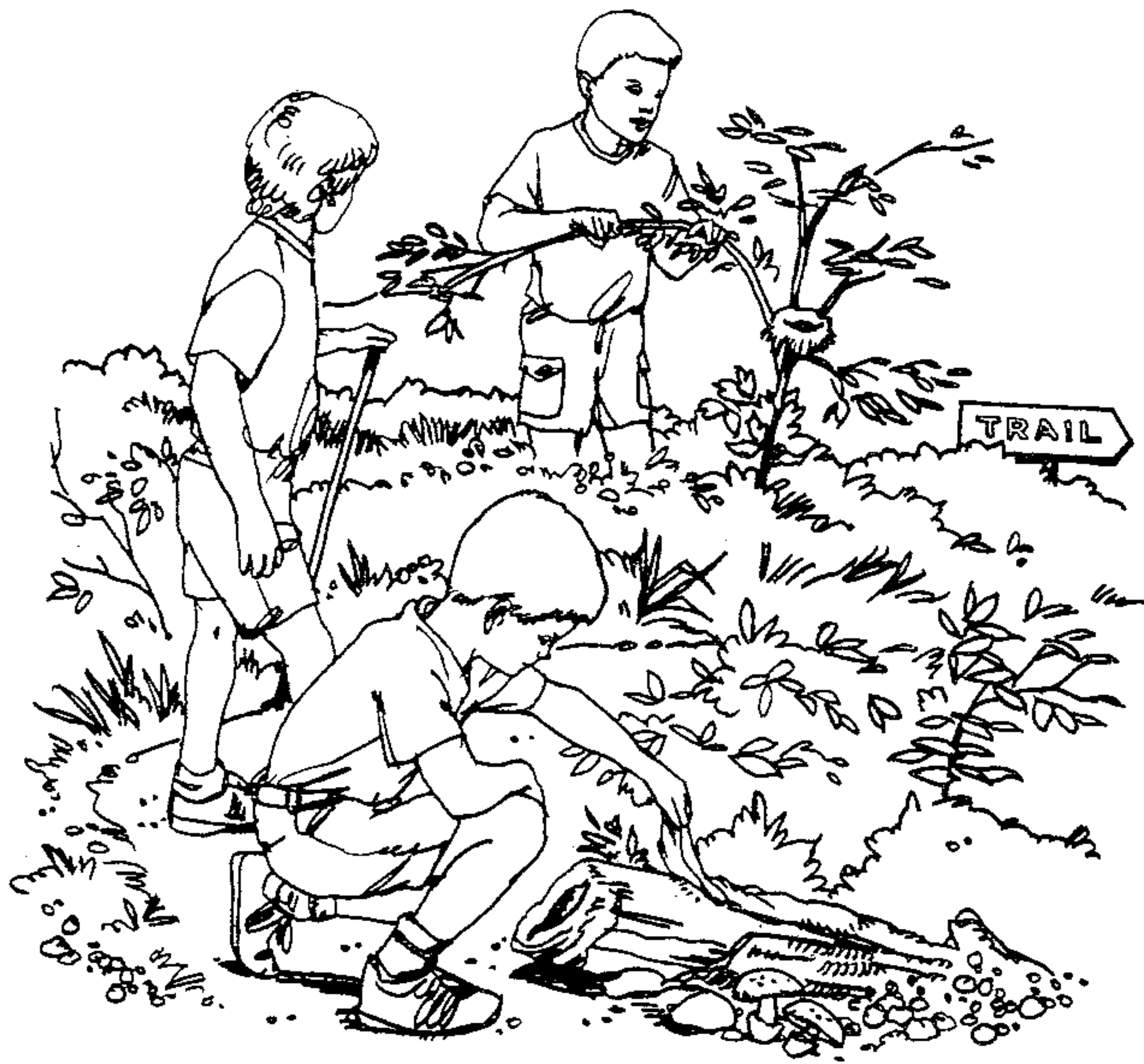
NATURE SCAVENGER HUNT

This hunt is intended to test the boys' knowledge of nature in an exciting competition. It is run like any scavenger hunt, with each group of boys having a list of nature objects and finding as many as possible in a time limit (10 to 20 minutes). Set boundaries for the hunt and list 20 to 50 objects from nature that boys can find within the area. They should be common enough that a Cub Scout can identify most of them. Make sure that boys are marking these items off their list and leaving the items themselves undisturbed.

Your list will reflect nature items that can be found in your locale, but here are some common suggestions:

Anthill	Oak leaf	Maple leaf
Dandelion	Insect	Cocoon
Spider web	Animal track	Bird's nest
Needle from an evergreen	Barrel cactus	Acorn

NATURE STATIONS



Materials:

- Station cards for each station
- Scorecard for each group of boys
- Pencils
- Chart to mark groups' scores and winner
- Small prize for winning group
- Treats

Make up your own nature trail using the features available in your area. If it is a wooded site, tree and leaf identification are possible. If the site has a stream, include a station on spotting marine life or water insects. Prepare the trail in advance with five to 10 stations. At each station the group is to find something, identify something, or otherwise show knowledge of nature lore. Remind the boys that they should not disturb the plants and animals they see.

This is a competition to test nature skills. It is not a race. Groups of boys start at intervals of about 5 minutes. At each station they find a message that tells them what to do. They have a scorecard on which they write their findings and then move on to the next station. It will help to have an adult at each station to provide help and make sure boys replace the message where they found it.

The sample nature trail below is suitable for a small wooded park.

Station 1: "Look for the biggest tree you can see from here. What direction is it? Write the direction on your scorecard. Go northwest to a picnic table and look under it."

Station 2: "Within 15 paces of this spot, you'll see five different kinds of trees. Write down the names of two of them. Go south 50 paces and find a small mound of pebbles."

Station 3: "Within 20 feet of here, there is a clump of wildflowers. Write down the name of the flower. Go east until you come to a tree with a split trunk. Look around its base."

Station 4: "Somewhere in this tree is a nest with young birds. Spot it, but do not disturb the nest or birds. Try to identify the name of the birds from the shape of the nest and write down what kind of birds you think they are. Go north toward the entrance of the park. Near the gate, look for two rocks, one on top of the other."

Station 5: "Within five paces of this spot is an insect's home. Don't disturb it, but find it and write down the name of the insect. [Could be an ant colony, beehive, wasps' nest, etc.] Go southeast until you come to a seesaw. Look under one of the seats."

Station 6: "Ten paces due east of this spot is an animal track. What kind of animal made the track?" [If there isn't a real animal track, use a plaster cast of a cat's track.] "Go due east until you come to a weedy patch. Look along its edge."

Station 7: "Pick up a fallen leaf or bit of grass and toss it in the air. What is the wind direction? Write it on your card. Go north 30 paces and look under the pile of rocks."

Station 8: "Look around you. There is a wooded area, a small pond, and a grassy lawn. Remember that animals need different kinds of places to live. Which of the following animals do you think live near here?: Deer, bee, squirrel, rabbit, lion, muskrat, dragonfly, chipmunk, elephant, bear, skunk, frog, mouse, leopard, cricket. Write down the animals that you think live around here. Then go southwest until you come to a drinking fountain. Look around its base."

Station 9: "Within 10 yards of the fountain is a bush whose berries and seeds are important food for some birds. Pace off the distance from the fountain. Write down the number of paces. For an extra point, write down the name of the bush. Then return to Station 1 and turn in your scorecard."

Have judges ready to check scorecards and post each groups ranking on a chart. Give an inexpensive prize to the winning group, with treats for everybody.

Fun With Plants

The wonder of how things grow can be an amazing thing to share with a child. Cub Scouts and Webelos Scouts can enjoy watching fast-growing plants and measuring their progress. They can feel the sense of accomplishment in growing vegetables in their own garden and marvel at the simple sprouting of a seed.

GERMINATING SEEDS

Materials: Glass or jar; blotting paper or toilet tissue; sawdust; seeds, grains of corn, beans, peas; water

To watch how seeds germinate and begin to grow, line the glass or jar with the blotting paper or toilet tissue. Fill the glass with sawdust. Put the seeds, grains of corn, beans, peas, etc., between the paper and the glass. Water thoroughly and place the glass in a light place. Through the glass you can observe how the seeds germinate and grow from day to day.

TRAVELING SEEDS

Materials: Posterboard, marking pen, glue, seeds

Seeds can be distributed in many ways to start new plants. Make a chart that shows how seeds are spread. Divide posterboard into six sections and label the sections for each method of dispersal below. Collect seed samples and glue down actual seeds as you find them. How do you think each seed came to be in each location?

Helicopters: These winged seeds spiral down from trees such as maples, elms, and ashes.

Hitchhikers: Seeds of this type have burs that can hook on to animals (or your pants leg!) and travel with them. The beggar-tick, cocklebur, and Spanish needle are examples.

Parachutists: On a breezy day you can see these seeds floating through the air. Look for dandelions, milkweeds, and thistles.

Delectables: Birds and animals spread some seeds by eating them; the seeds then go through the animal's digestive tract. Apples, cherries, and berries are examples of this type.

Floaters: Some plants produce pods that when ripe will open and allow the seeds to spread. Some drop to the ground or are blown a short distance. Look for lotus, marigold, and sweet william.

Missiles: This type of seed shoots out of its pod. Exploding pods include impatiens, witch hazel, and wood sorrel.

ARE YOU A SEED SPREADER?

Materials: Potting soil, tray, kitchen knife, mud from your shoe

When you are out for a walk, you might be a seed spreader. Scrape the mud from your shoes into a tray of potting soil. Keep it watered and see whether any plants grow. Make a tray from different parts of an outdoor area and see what might be the same or different.

SEED COLLECTIONS

Materials:

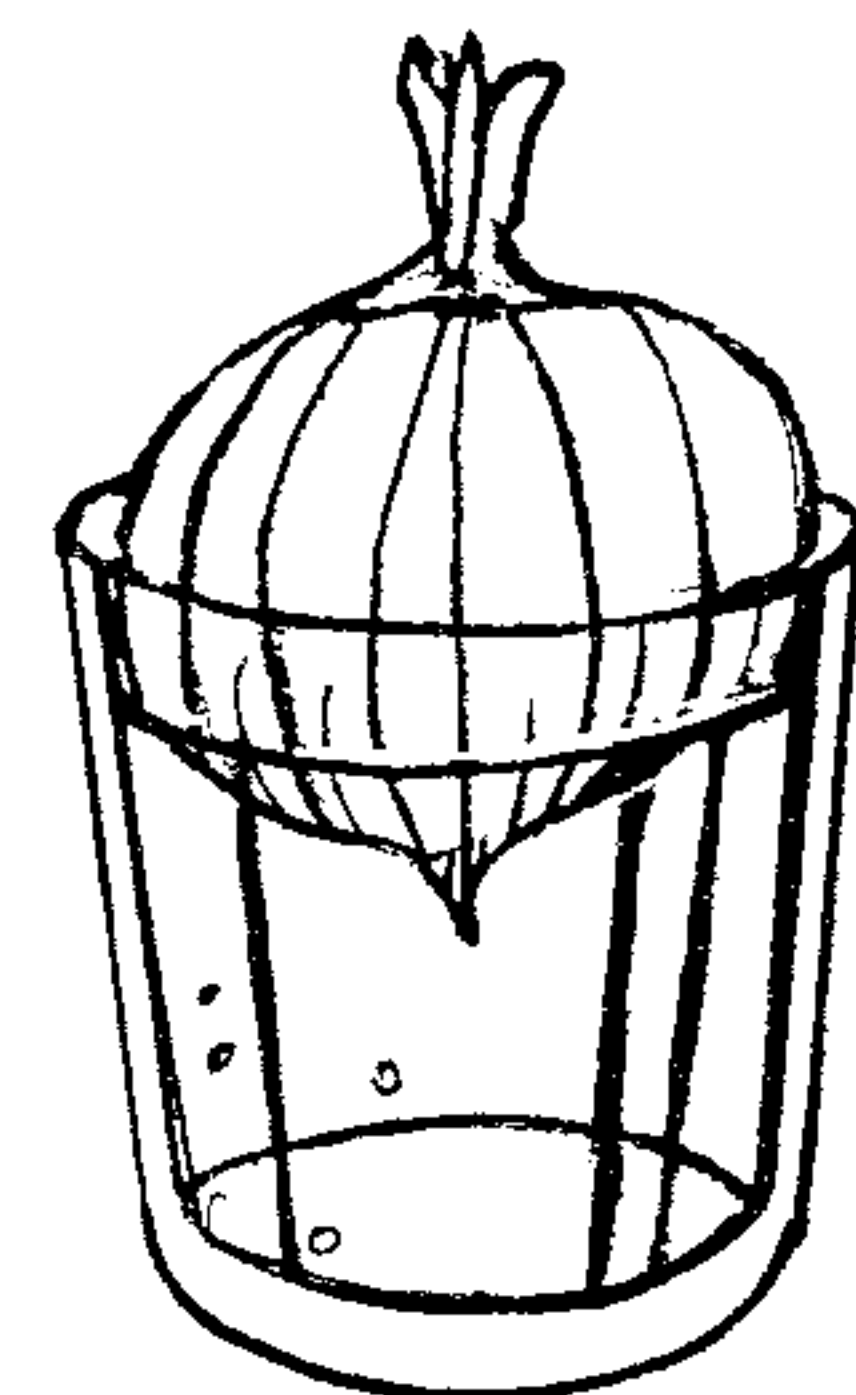
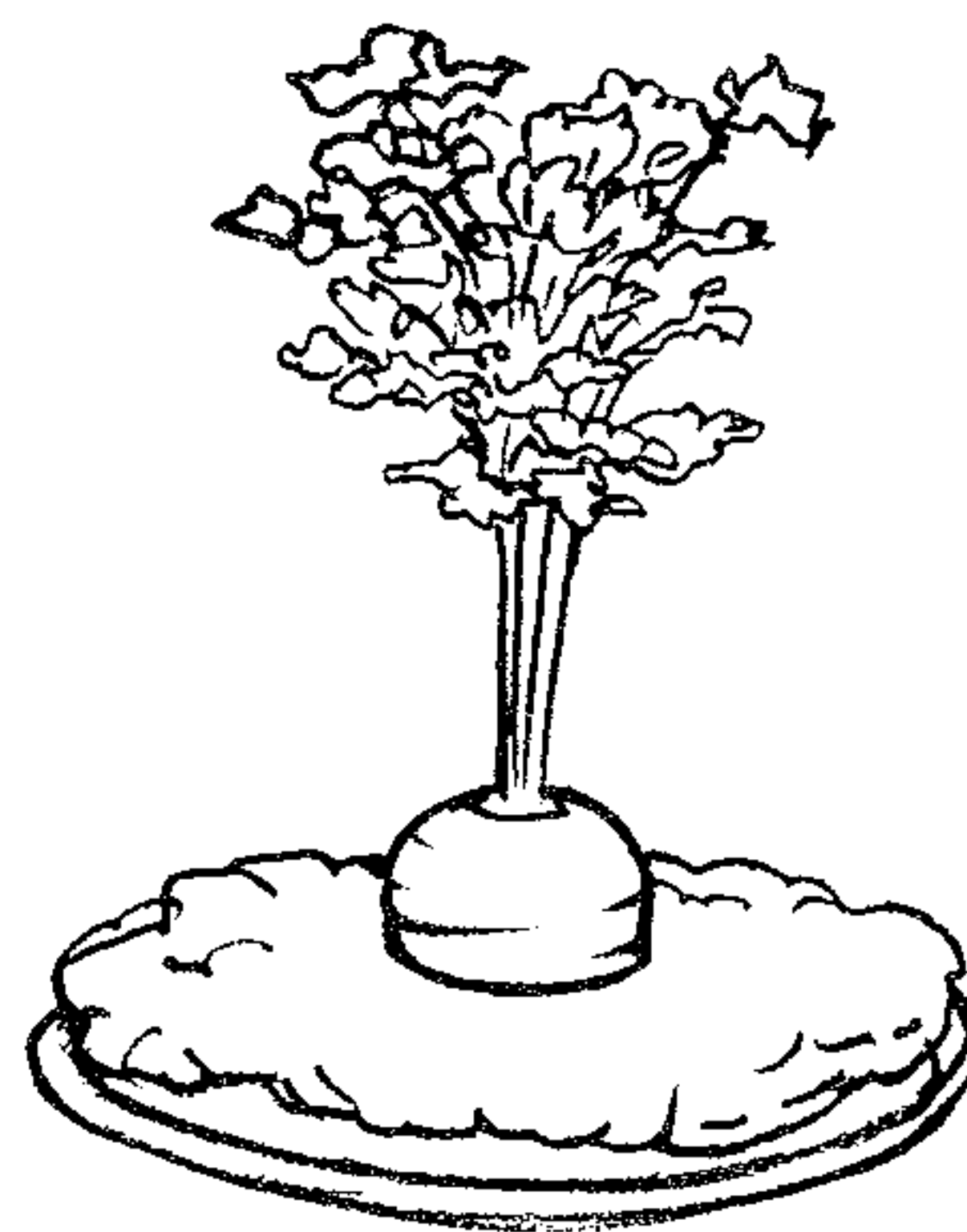
Seeds	Egg cartons
Self-stick labels	String tags
Collecting containers (small clear jars or boxes)	Marking pen

Collecting tree, flower, vegetable, and plant seeds can be an interesting hobby. Seeds come in a variety of sizes, shapes, and colors. To add interest to the collection, also gather seed pods, such as pinecones.

Store your seeds in small clear plastic bottles, plastic coin tubes, or square and rectangular plastic boxes. Use egg cartons for larger seeds. Label each jar or box with a self-sticking label. Use tags with strings to label pinecones or other larger items.

Catalogue your collection by categories, such as trees, flowers, vegetables, etc., or group the items by the way they are dispersed, such as winged seed helicopters, burred hitchhikers, etc. (see "Traveling Seeds" above).

ENERGY STORAGE SYSTEMS



Materials:

Carrot with greens	Knife
Cotton	Plate
Water	Onion
Jar or glass	

Plants store food in the roots, stems, and leaves. The plant may use this reserve of food later for a variety of reasons, such as to help the plant survive the winter or to help it form seeds and fruits. You can show how the stored food can be used to start the plant growing again by conducting this experiment.

Cut the top off of a carrot that still has leaves and place it on a plate of wet cotton. Keep the cotton wet. Watch as new roots and leaves form from the food stored in the carrot.

Take an onion and rest it on the top of a jar or glass filled with enough water so that the bottom of the onion is in the water. Soon, roots will grow from the bottom, and a shoot will erupt from the top. At the same time, the layers in the onion will begin to shrivel as the food in them is used up for the new growth.

HOW PLANTS ABSORB WATER

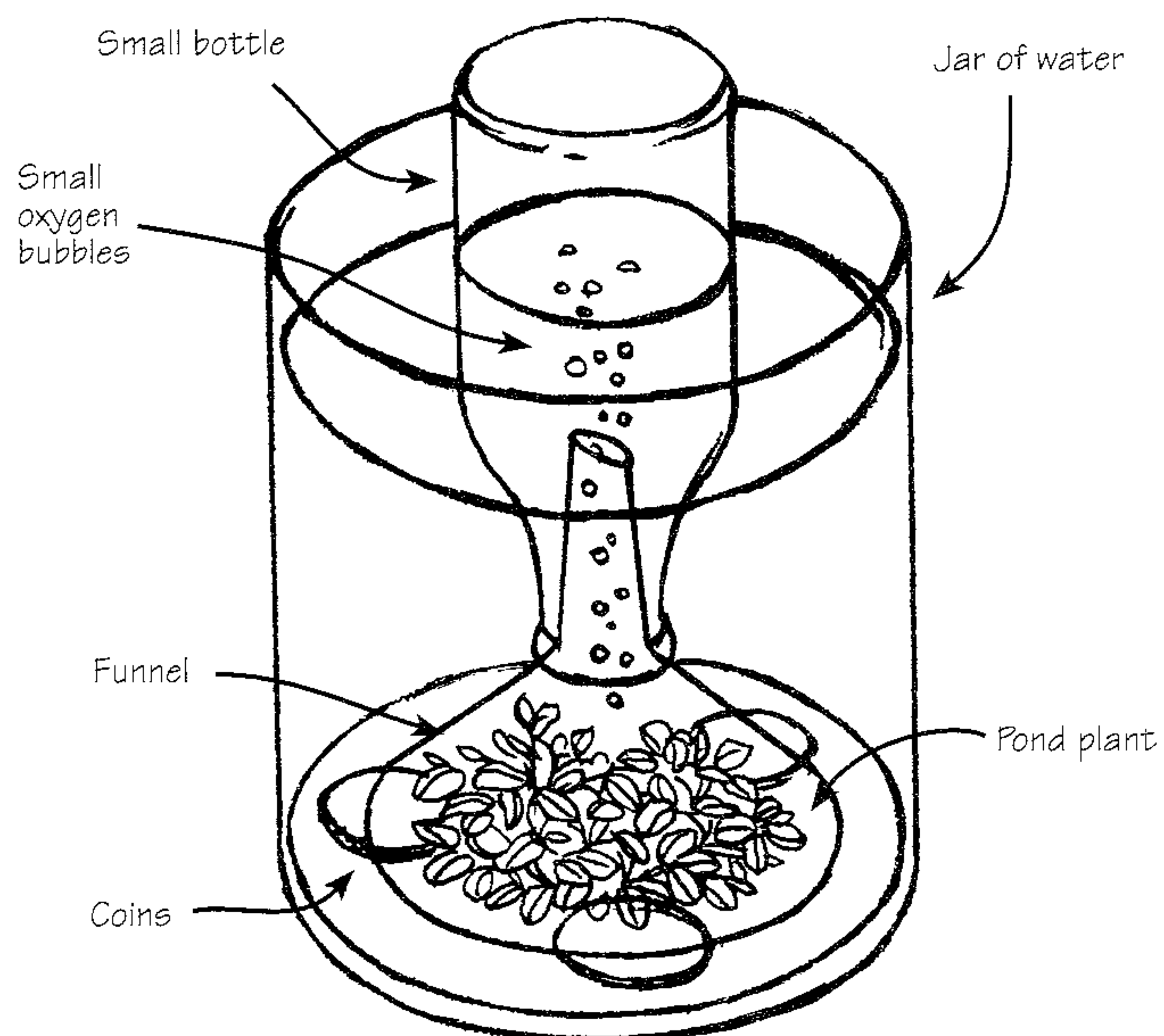
Materials:

Small jar	Water
Food coloring	Spoon
Celery stalk with leaves	Knife

Fill the jar with water. Add about six drops of food coloring and stir. Make a fresh cut on the end of the celery stalk and place the stalk in the jar of colored water. Observe the celery after a few hours, and then cut across the bottom and top of the celery. Observe the cut ends. Compare how the end looked before and after the experiment.

You can also slice the celery lengthwise halfway up the stalk and place each end in water jars with different colors.

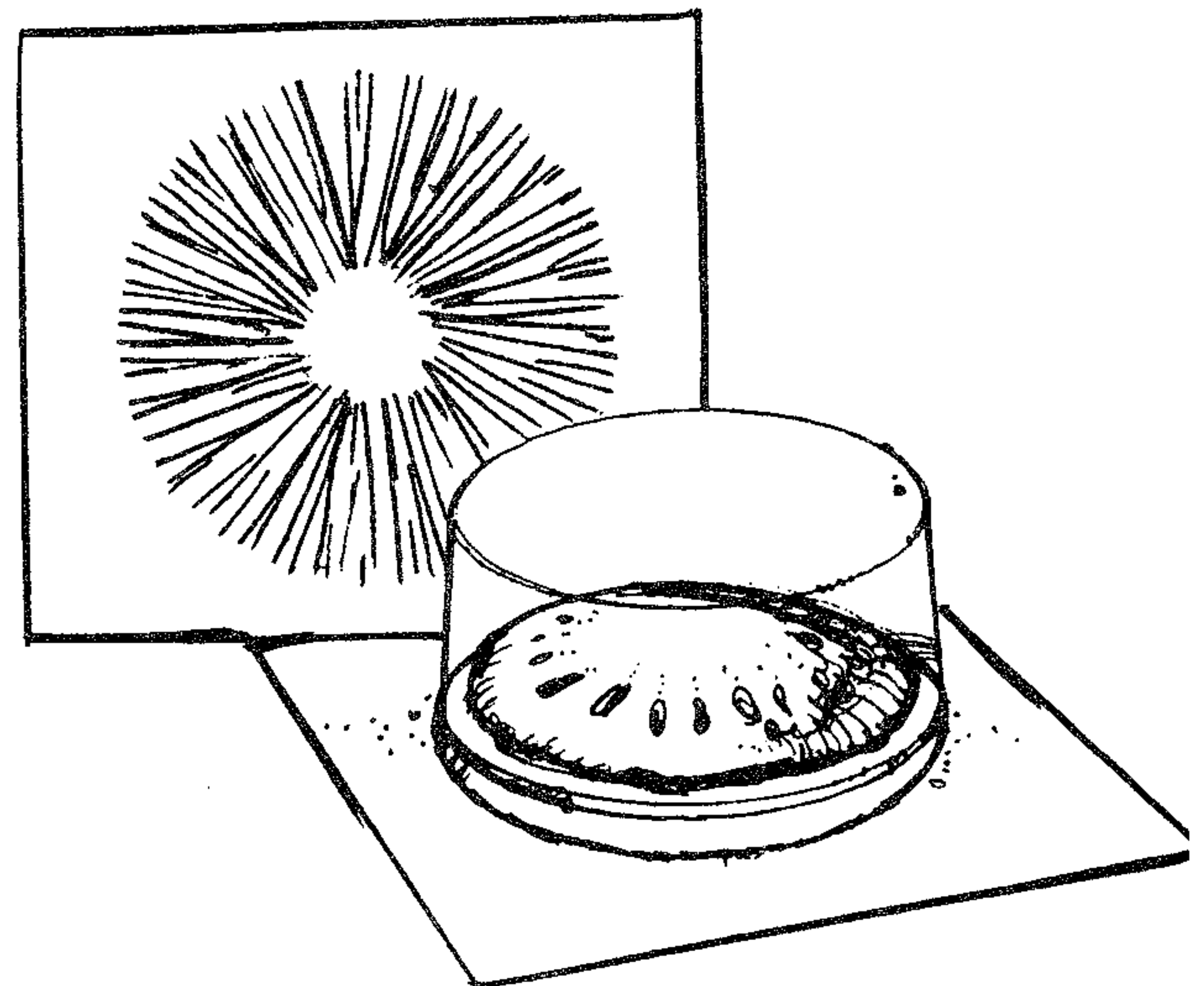
OXYGEN MAKERS



Materials: Small jar of water, funnel, bottle to go over funnel, coins, small pond plant

Place the pond plant in the jar of water under the funnel, as shown. The funnel should be sitting on the coins so that it is raised off the bottom of the jar. Fill the small bottle completely with water so no air pockets are remaining. (You may want to set up this experiment under water in a sink.) Set the experiment in bright light and watch to see whether bubbles begin forming. The bubbles that are forming are the important gas *oxygen*. All green leaves give off oxygen, which we need to stay alive. This is one of the many reasons plants are so important. If you move the experiment to a shady place, will the bubbles appear more or less quickly?

MUSHROOM SPORE PRINTS

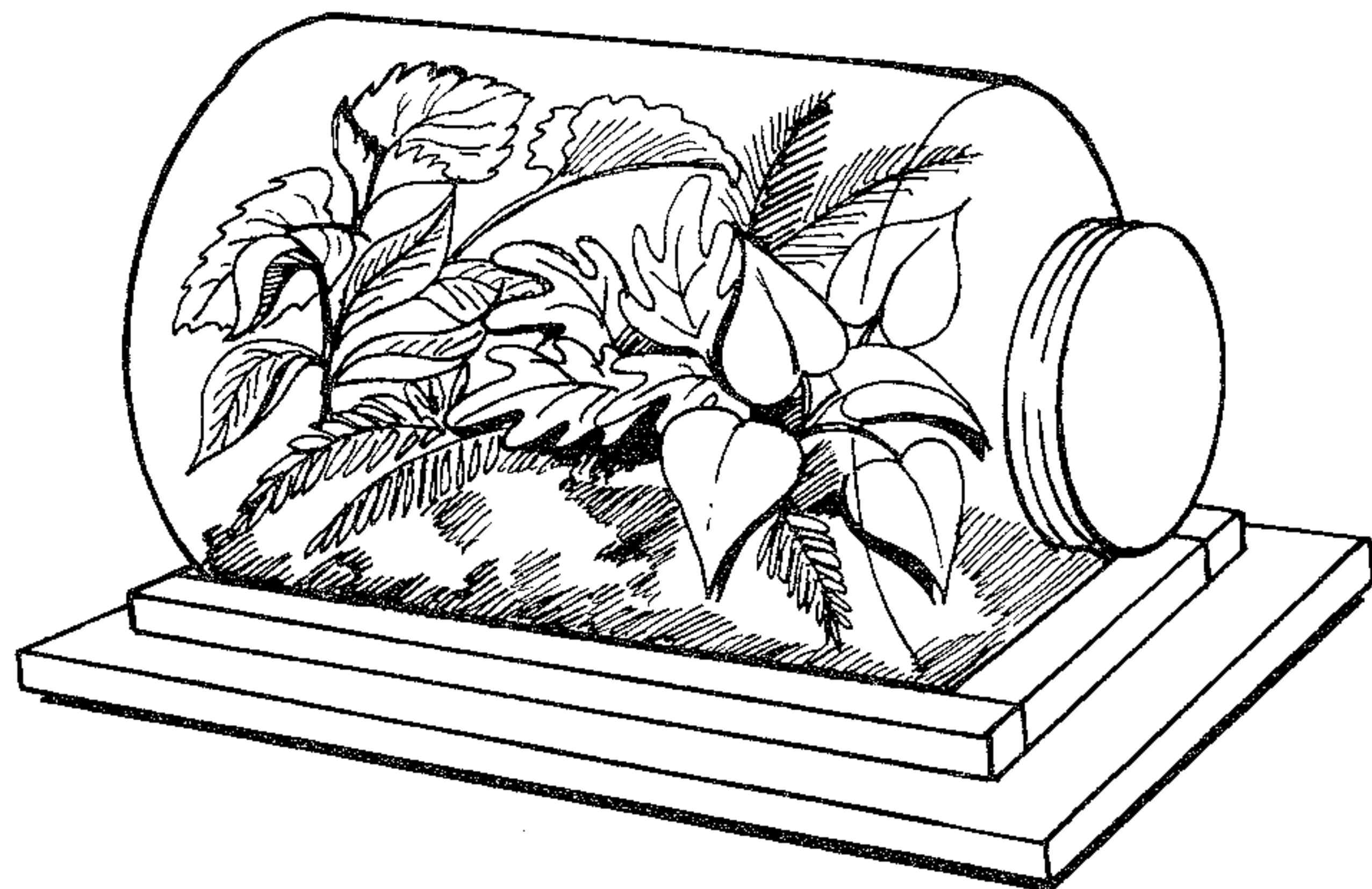


Materials: Mushroom with a flat cap, white paper, clear glass bowl, hair spray or clear contact paper

Early autumn is a good time to look for mushrooms in the woods. (*But never eat a mushroom that you find in the woods! Some are very poisonous.*) A mushroom sends out hundreds of tiny, fertile bodies called *spores*. Like flower seeds, spores are the way the mushroom reproduces. You can capture these spores on paper.

Choose a fresh mushroom with a flat cap. Put the mushroom cap, bottom down, on white paper and cover with a clear glass bowl overnight. Tiny spores will fall onto the paper, making a colorful pattern. Each species of mushroom makes a design of its own. You can set and preserve your print with a fixative, such as hair spray, or cover it with clear contact paper.

TERRARIUM FOR PLANTS



Materials:

Large wide-mouth glass jar with lid

Horticultural-grade gravel

Charcoal

Soil separator (piece of nylon or other synthetic material)

Terrarium soil

Plants (ferns, matted mosses, wild strawberry, violets, evergreen seedlings)

Spoon

Clean and dry the jar and lay it on its side. Spoon $\frac{3}{4}$ inch of gravel into the bottom for drainage. Sprinkle in enough charcoal to cover the gravel. This will absorb odors. Cut the soil separator to fit on top of the charcoal. This will keep soil out of the drainage material (the charcoal and the gravel). Spoon 1 inch of soil on top of the separator. Make a hole in the soil and add the largest plant. Scoop some soil around the base to hold it in place. Add the remaining plants in the same manner. Add more soil, so that the soil layer and drainage material fills about a quarter of the container. Tamp down the soil gently with your fingers. Spray the garden with water, but don't get the soil too wet. Put on the lid of the jar and place your terrarium in bright to medium light, but not in direct sunlight.

Check the terrarium the next day to be sure that the moisture balance is correct. It should have a light mist on the inside of the glass, and the soil should be medium dark. Too much water will cause a heavy mist and can be corrected by leaving the cover half open for a day. If there is too little water, there will be no mist at all. In this case, add a teaspoon of water every other day until the terrarium moisture is balanced.

To maintain the terrarium, give it a little fresh air every week or two by removing the top for 15 minutes at a time. Trim the plants when necessary.

MOSS GARDEN

Materials: Fish tank, gravel, decaying plant matter, soil, moss

You can create a miniature garden with mosses. Look around for soft, velvety moss. Look in dark corners and remove a small amount, leaving some to reproduce. (Some mosses are protected and should not be taken from their natural environment. You will want to find out which they are; your local library should be able to help you.)

Put clean gravel at the bottom of the fish tank. Then add a layer of decaying plant matter and cover it with a layer of soil. Arrange the gathered moss in the soil. You might add bark, lichen, rocks, or small statues for interest.

Try to re-create the shady conditions in which you found the mosses. Water your garden regularly, or you can cover your moss garden with a lid and let condensation do the trick.

INDOOR GARDEN IN A TRAY

Materials: Plastic tray, potting soil, vegetable seeds (e.g., radish, cress, lettuce)

Fill the tray half full with potting soil and dampen. Make lines across the soil for seed rows. Cover the seeds with a thin layer of soil. Leave the tray where it is warm and light. Keep the soil damp, and watch your indoor garden grow. Cut the cress with scissors and add to salads. You may have to thin the young lettuce and radish plants. Pull a few out and place them in a similar tray to finish growing.

NYLON NED

Materials:

Old nylon pantyhose

Foam cup

Sawdust

Grass seed

Rubber bands

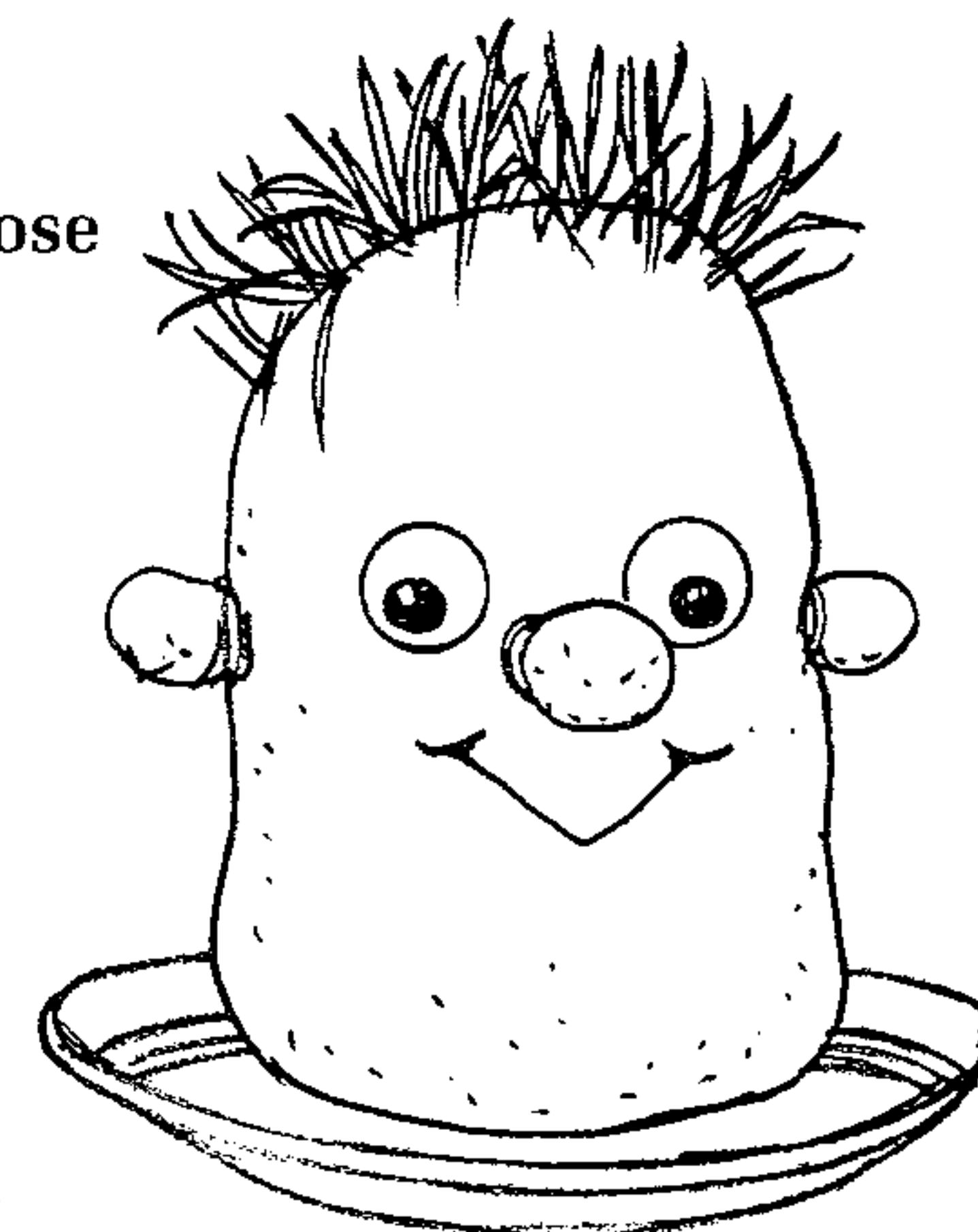
Scissors

Wiggle eyes

Craft foam

Waterproof glue

Small plate



Cut a 12-inch length of nylon pantyhose that includes the toe. Cut the bottom out of the foam cup and slip it inside the nylon, pushing it down to the toe. Fold the excess nylon over the top of the cup. Place about 2 t. grass seed in the bottom of the cup and spread out fairly evenly. Add sawdust on top to fill the cup, being careful not to disturb the grass seed. Unfold the extra ends of the nylon. While

pushing down on the top of the sawdust, pull up and remove the foam cup. Gather the ends of the nylon close to the sawdust and close with a rubber band. Cut off and discard the remaining stocking piece.

Turn the grass seed side up, and you are now ready to shape and decorate your Ned. Complete his face by cutting out pieces from craft foam and gluing them in place. Add wiggle eyes. You can create a nose and ears by carefully gathering up a small section of sawdust through the nylon and tying with a rubber band. Let the glue dry.

To grow his hair, soak Nylon Ned in water for a few minutes to dampen and then place him on a small plate. Water him daily to keep him damp. Make sure that you drain any excess water off the plate. Before you know it, Ned will need a haircut! Style with scissors.

THE BOY WITH GREEN HAIR

Materials:

Egg	Pin
Manicure scissors	Soil
Grass seed	Markers
Egg carton cup	Water

Gently puncture the pointed end of an egg with a pin. With manicure scissors, carefully cut away about one-quarter of the pointed end of the shell. Remove the egg contents. Rinse inside the shell and let it dry. Fill the shell with dirt and plant ordinary grass seed. Draw eyes, nose, mouth, and ears on the shell with permanent markers. Set the shell in an egg carton cup. Water every day, and soon the boy's green hair will begin to grow. In about a week, he will need a haircut.

THE GREAT PUMPKIN RACE

Materials: Pumpkin seeds, plant markers, prizes

Who can grow the heaviest, fattest, or most unusual pumpkin? Give each boy the same number of pumpkin seeds. Choose a starting day and a finishing day (pumpkins average 100 to 110 days to harvest). Everyone must plant the seeds on the same day. They can all be planted in one location, with plenty of space between hills, and markers labeled with the boys' names. Or each boy can plant his own at home.

Each boy is responsible for watering, weeding, and caring for his plant. As small pumpkins appear, they should be picked off the vines to allow all the growing energy to go into the biggest pumpkins.

On the ending date, boys display their best pumpkin. Give prizes for the heaviest, fattest, tallest, most unusually shaped, etc. Make sure all boys get a prize for their efforts.

Fun With Trees

Trees are one of the world's most important types of plants. Whether your Cub Scouts are identifying trees, leaves, and pinecones or just enjoying the wind rustling through the leaves, trees can be the source of an interesting outing.

THE SHAPE OF THINGS

Materials: Chart paper, pencils

Trees have distinctive silhouettes. Many times, you can identify a tree by its shape. In this simple classification game, you can find trees that have similar shapes. Some guidebooks include a tiny silhouette that may be helpful. You can use trees with or without leaves for this activity. It isn't necessary to know the names of many trees to participate.

Divide the chart paper into sections and draw a simple shape, such as a circle, oval, rectangle, or pyramid, in each section. Leave a few blank sections for the boys to create additional shapes as needed.

While on your outing, have boys look for trees that match the basic shapes. Write down their names or draw a picture of them in the coinciding section.

You can make this a cooperative activity by seeing whether the whole group can find a certain number of each shape. Or make it competitive by having teams compete to find the most.

TREE'S JOB DESCRIPTION

Materials: Paper, pencil

We use trees for many things in our lives, but what about the different roles trees play in nature? Write a "Want Ad" for a tree including all the things that a tree does in the natural world.

Look around at different trees for clues. Roots help hold the soil together and prevent erosion. They also help shelter burrowing animals. Look for other animal homes in trees, such as nests for birds and holes that squirrels and birds have made. You might find small holes made by insects. Leaves can also be homes for insects.

Many animals get their food from trees; nuts, fruits, twigs, bark, and leaves are all food sources. Leaves give off oxygen and add moisture to the air. When leaves fall and decompose, they enrich the soil, as does the entire tree when it dies and rots. Fallen trees have great jobs of providing homes and food. Look for new plants and fungi growing on fallen logs or stumps. Trees have a big job to fill.

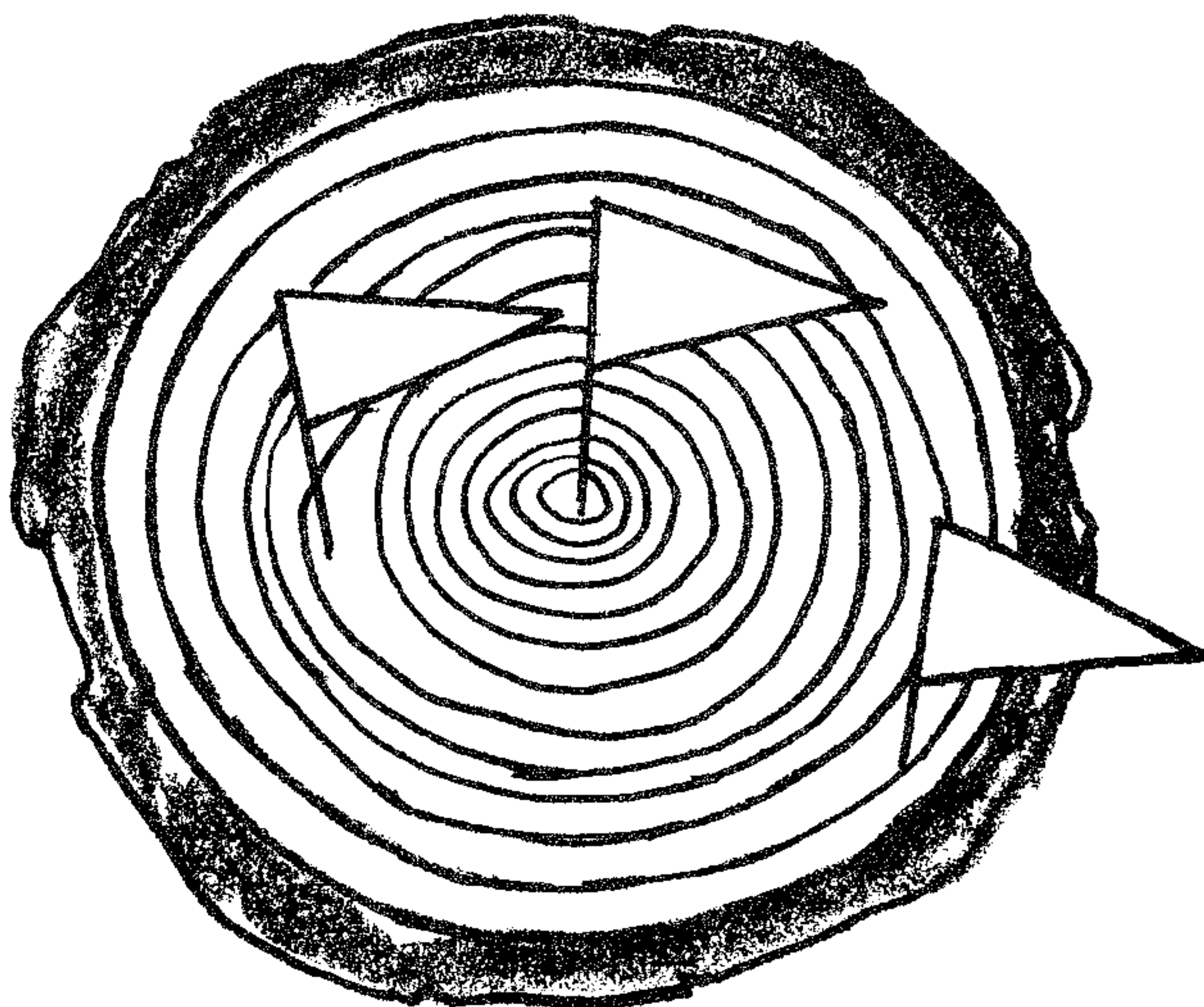
COUNTING TREE RINGS

Materials: Tree stump, paper, crayon

Find the stump of a tree that has just been cut down. Count the rings to see how old the tree is. Each ring represents a growth season of one year. A wide ring shows a good year of growth for the tree, with lots of rain and plenty of sunshine. A narrow ring shows the opposite: not enough rain and a poor growing season. When a tree is hurt by forest fire, its growth may be slowed down for several years.

To be able to count these rings at home, make a stump rubbing. Place the paper over the top of the stump and rub the crayon carefully across it. Try not to move the paper and you will be able to clearly see the annual growth rings of the tree.

HISTORY STUMP



Materials: Slice of a tree trunk, pins or nails, small strips of paper, pens

Have a large slice of a tree trunk that shows the rings (sanding the slice can help bring the rings out). Count the rings and calculate what year each ring represents. Boys write down important events and the date they happened on small strips of paper. Attach them to the corresponding rings on the stump with pins or small nails. You might like to mark the boys' birthdays or some dates from Scouting's history or the history of your pack along with other historical events.

LISTENING TO A TREE

Materials: Deciduous tree that is at least 6 inches in diameter and has thin bark, stethoscope

A tree is a living, growing thing. It eats, rests, and has circulation just as we do, as water comes in through the roots, moves through the trunk, and then

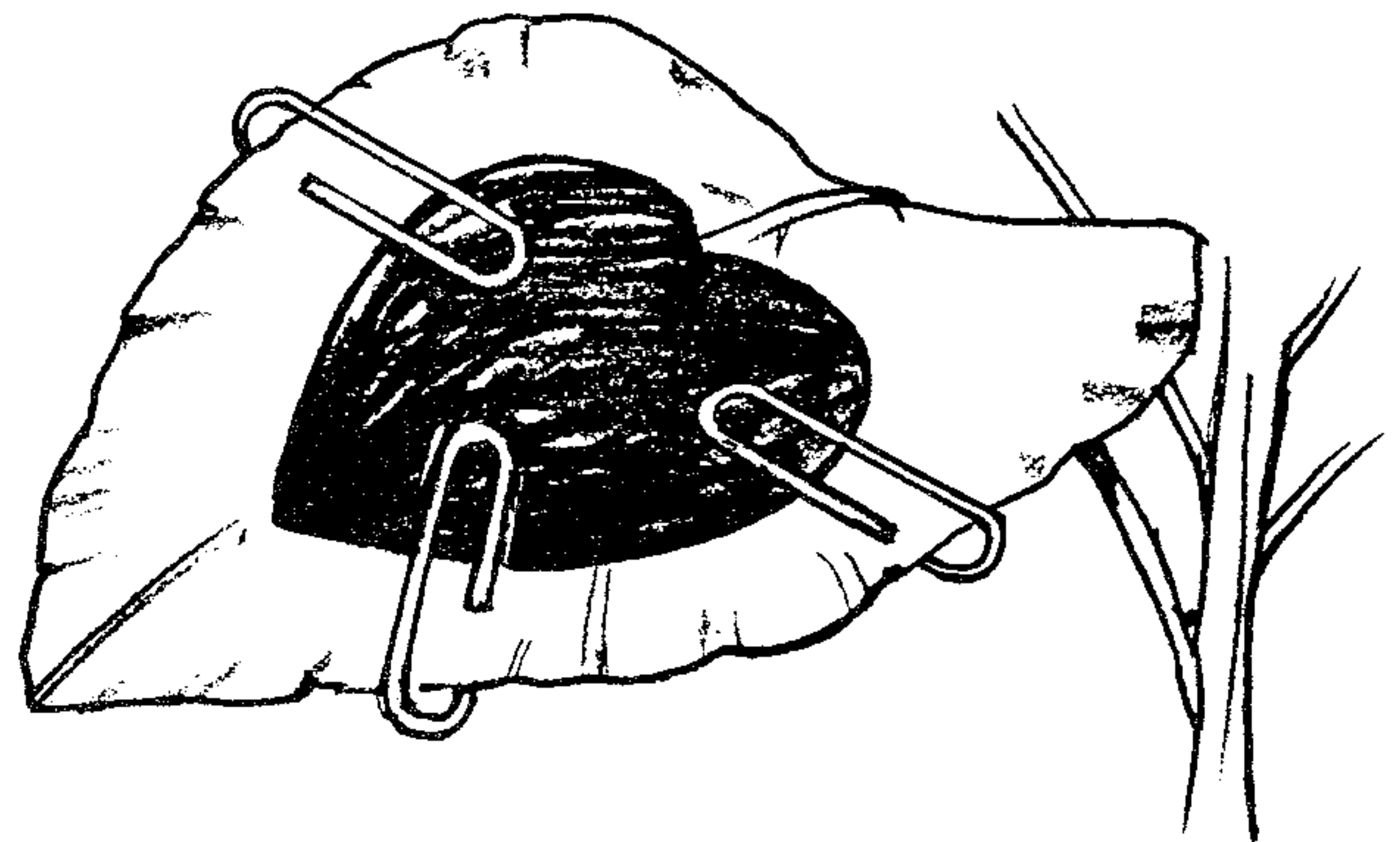
goes out the leaves. The heartbeat of a tree—the water and sap moving through it—is a wonderful sound. The best time to hear it is in early spring when the tree sends the first sap upward to its branches, preparing them for another season of growth. Some species of trees have a louder heartbeat than others. Press the stethoscope firmly against the tree, keeping it motionless so you won't hear any interfering noises. You may need to try several different places on the tree trunk before you find a good listening spot.

BREATHING TREES

Materials: Plastic bag, string, tree with big leaves

Place a plastic bag over one of the green leaves on a tree and tie it firmly around the stem. As water enters the tree through the roots and moves through the trunk, it heads down the branches and into the tree's leaves. Water then passes out through the leaf and appears as droplets of condensation inside the bag. This process is called *transpiration*. Up to 25 gallons of water can move through a medium-sized tree!

DO LEAVES NEED SUNLIGHT?



Materials: Tree with green leaves, heavy black construction paper, paper clips, scissors

Chlorophyll is the pigment that gives leaves their green color. Plants need it to produce food. Most of this food production happens in the leaves when sunlight shines on them. Without light, the plant won't be able to produce food.

Cut two hearts the same size from black construction paper. Place them on the top and bottom of a tree leaf that will be in full sun most of the day. Paper clip the hearts to the leaves such that no light will peek through.

After a week of sunny weather, remove the paper hearts and find out whether sunlight is needed to produce chlorophyll in leaves.

