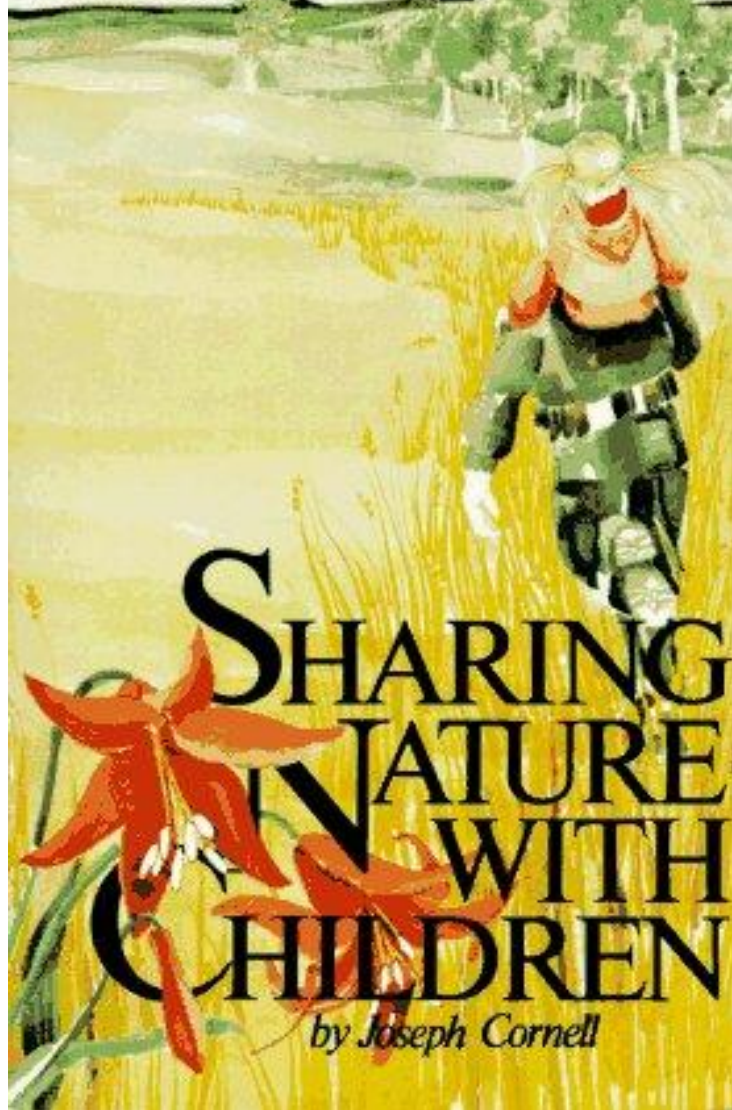


*The Classic Parents' and Teachers'
Nature Awareness
Guidebook*



*A Parents' and Teachers'
Nature-awareness
Guidebook*

Ananda
Publications

SHARING NATURE WITH CHILDREN

*by Joseph Bharat Cornell
Edited by George Beinhorn*



QH
53
C81
1979

Contents



Introduction

Foreword	6
Preface	8
How To Be an Effective Nature Guide (A Few Suggestions for Good Teaching)	10
Choosing the Right Game for the Time and Place . . .	14

Activities

<i>Section I:</i> Close-Up With Nature	17
<i>Section II:</i> How Much Can You See?	35
<i>Section III:</i> Nature's Balance	49
<i>Section IV:</i> Learning is Fun	63
<i>Section V:</i> Play and Discovery	85
<i>Section VI:</i> Spotting and Attracting Animals	98
<i>Section VII:</i> Adventures	109

Appendices

1. Animal Lobbyists	131
2. Animal Game Clue Sheets	133

Indices

1. Attitudes and Qualities	139
2. Concepts	140
3. Environment	141
4. Mood	142

© 1979 by Joseph Bharat Cornell
All rights reserved
First printing, January 1979
Second printing, December 1979
Third printing, January 1983
Fourth printing, October 1983
ISBN 0-916124-14-2
Library of Congress Card Catalog No. 78-74650

TO
*Those who experience
nature's inspiring, transforming
moments, and who desire to share with others,
their love for the natural world.*

AND
*S.K., who by simply living his life,
has given me a greater
understanding of my own.*

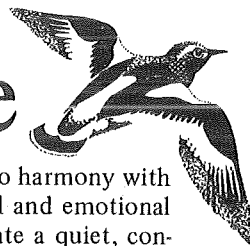
THE UNUTTERABLE BEAUTY of a blossom. The grace of a high-flying bird. The roar of wind in the trees: At one time or another in our lives, nature touches you . . . and me . . . and all of us in some personal, special way. Her immense mystery opens to us a little of its stunning purity, reminding us of a Life that is greater than the little affairs of man.

I have never underestimated the value of such moments of touching and entering into nature. I have seen through my own experience and that of many others, that we can nourish that deeper awareness until it becomes a true and vital understanding of our place in this world.

I collected and developed the games in this book during years of working with children as a nature-awareness instructor. I wanted to help children to have the high inspirations that nature offers; because nature is our Mother, and her lessons are especially valuable for the growing child. And so that is what this book is all about: using nature to stimulate joyful, enlightening insights and experiences — for ourselves, as well as for our children and child-friends.

Some people have scientific, logical minds, while others are more sensitively attuned to beauty and harmony; and still others are moved most deeply by the eternal philosophical truths. The 42 games presented in this book will open up nature to children—and adults—of all temperaments. Each of the games creates a situation, or an experience, in which nature is the teacher. Each game is a mouth through which nature speaks — sometimes in the language of the scientist, sometimes in that of the artist or mystic.

Preface



The first group of games brings us into harmony with our natural surroundings on the physical and emotional level. Later on there are games that create a quiet, contemplative mood. (Don't think for a minute that the "quiet" games are boring; I've seen players experience such calm, intense alertness that their memories of the games stayed with them for years, giving fresh inspiration every time those memories were brought to mind.)

Some of the games give us an inside view of the way nature works — the principles of ecological systems, for example — but not in a boring, textbook way. While we play the games, we act out dynamically, and feel directly, the natural cycles and processes. Children understand and remember concepts best when they learn from direct personal experience.

Still other games tune our finer feelings to the special qualities of nature — her peace and beauty; her energy and grandeur; her mystery and wonder. We commune with nature directly by touch, smell, taste, sight, and sound.

Some of the games are purely fun. The natural exuberance of childhood is in its element in the woods or in tall grass, or under a starlit summer sky. As adults, we cherish our memories of such childhood scenes, because they touch something deep inside us.

I happily offer these nature-awareness games to you and your child-friends. Use them sensitively and with joy and you're sure to experience a beautiful new attunement and exchange of energy with nature's intelligence and goodness.

*Joseph Cornell
Nevada City, California
November 13, 1978*

How to Be An Effective Nature—Guide



(A Few Suggestions for Good Teaching)

BEFORE WE BEGIN exploring nature with children, let's think for a moment about our role as teacher/guides. What are the basic rules for giving children — and ourselves — a joyous, rewarding good time?

I would like to share with you five tenets of outdoor teaching that have helped me work with children's lively energies — channeling them away from mischief, and toward more constructive, and ultimately satisfying, pursuits. Underlying these principles are basic attitudes of respect for children and reverence for nature — attitudes to which they will surely respond.

1. Teach less, and share more. Besides telling children the bare facts of nature (“This is a mountain hemlock tree.”), I like to tell them about my inner feelings in the presence of that hemlock tree. I tell them about my awe and respect for the way a hemlock can survive in sub-alpine conditions — where water is scarce in summer, and mostly frozen in winter; where harsh winter winds twist and bend and kill its branches. And I tell them I always wonder how the roots of the hemlock ever manage to find enough nutrients to survive, in these solid-rock crevices.

Children respond to my observations much more freely than they respond to textbook explanations. Take the case of a hemlock tree that grew near a camp where I worked. This particular hemlock sits between two huge boulders, so it has had to send its roots down twenty-

five feet to reach the rocky soil below. At the time, it was at least two hundred years old, and only eight feet tall. The children would frequently make a detour on their hikes just to empty their canteens by its roots. Several of them returned to the camp year after year, watching the tree's stubborn struggle for life in its harsh environment. In fact, as soon as they arrived at camp, they would run out to see how it had fared through the dry autumn and cold winter. Their loving concern awakened in me an even deeper respect for the mountain hemlock.

I believe it is important for an adult to share his inner self with the child. Only by sharing our deeper thoughts and feelings do we communicate to, and inspire in others, a love and respect for the earth. When we share our own ideas and feelings, it encourages a child to explore, respectfully, his own feelings and perceptions. A wonderful mutual trust and friendship develops between the adult and the child.

2. *Be receptive.* Receptivity means listening, and being aware. It is one of the most richly rewarding attitudes you can cultivate while working with children. The outdoors brings out a spontaneous enthusiasm in the child that you can skilfully direct toward learning.

Be sensitive: every question, every comment, every joyful exclamation is an opportunity to communicate. Respond to the child's present mood and feelings. Expand your child's interests by teaching along the grain of his own curiosity. When you respect his thoughts, you'll find your time with him flowing easily and happily.

Be alert also to what nature is doing around you at the present moment. Something exciting or interesting is almost always happening. Your lesson plan will be written for you minute by minute if you tune in with sensitive attention.

3. *Focus the child's attention without delay.* Set the tone of the outing right at the start. Involve everyone as much as you can, by asking questions and pointing out interesting sights and sounds. Some children are not used to watching nature closely, so find things that interest them, and lead them bit by bit into the spirit of keen observation. Let them feel that their findings are interesting to you, too.

4. *Look and experience first; talk later.* At times nature's spectacles will seize the child in rapt attention: a newly-emerged dragonfly pumping blood into tender unfolding wings, a lone deer grazing in a forest clearing. But even if those special sights are lacking, the child can have an experience of wonder by just watching quite ordinary things with close attention. Children have a marvelous capacity for absorbing themselves in whatever they're looking at. Your child will gain a far better understanding of things outside himself by becoming one with them than he will from second-hand talk. Children seldom forget a direct experience.

Don't feel badly about not knowing names. The names of plants and animals are only superficial labels for what those things really *are*. Just as your own essence isn't captured by your name, or even by your physical and personality traits, there is also much more to an oak tree,

for example, than a name and a list of facts about it. You can gain a deeper appreciation of an oak tree by watching how the tree's mood shifts with changes in lighting at different times of day. Observe the tree from unusual perspectives. Feel and smell its bark and leaves. Quietly sit on or under its branches, and be aware of all the forms of life that live in and around the tree and depend on it.

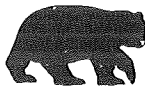
Look. Ask questions. Guess. Have fun! As your children begin to develop an attunement with nature, your relationship with them will evolve from one of teacher and fellow-student to one of fellow-adventurer.

5. *A sense of joy should permeate the experience*, whether in the form of gaiety or calm attentiveness. Children are naturally drawn to learning if you can keep the spirit of the occasion happy and enthusiastic. Remember that your own enthusiasm is contagious, and that it is perhaps your greatest asset as a teacher.

Choosing the Right Game for the Time and Place

THE NATURE GAMES in this book will teach children many kinds of lessons—some obvious, some quite subtle. You may want to use certain games because of the personal qualities they develop in the child, or because of the concepts they teach. You can also choose games to complement the mood of your group, or to create a desirable change in attitude or energy. To make it easy for you to tell quickly what each game is like, I have included with each activity a quick-reference chart, like the one on the opposite page. This includes:

A. Basic mood of each game is indicated by one of three animal symbols:



Calm/Reflective

Bears are very curious, and lead solitary, quiet lives. In the religion of the Plains Indians, the bear is the symbol of introspection.



Active/Observational

The crow is an extremely alert and intelligent rascal, who's likely to be found keenly observing anything that's going on.




Energetic/Playful

The otter spends his days frolicking; the only animal that plays (constantly!) throughout adult life, he is nature's embodiment of exuberant fun.

- B. The concepts, attitudes and qualities it teaches
- C. When and where to play
- D. Number of players needed
- E. Best age range
- F. Special materials needed, if any

At the end of the book, you will find all the games indexed in four ways: according to the attitudes and qualities they encourage in children; according to the concepts they teach; according to the environment in which they can best be used; and according to the mood they express. I hope that this system will enable you to make the best, most creative use of these games and activities.



- A.
- B. Attracting birds, empathy, patience
- C. Day and night/thicket, forest
- D. 1-3 per group
- E. 7 years and up
- F. Drab blanket, stick



SECTION 1

CLOSE-UP WITH NATURE

In Ohio some years back, a naturalist at an outdoor education camp led a group of children on a very special hike. I was a participant rather than a leader that day, and I still enjoy my memories of the outing. Our guide created dramatic, contrasting experiences for us that ensured that all of us would have deep, new, personal contacts with the natural world.

Most of the children had never been in an evergreen forest in their lives, and we were going to one of the few pine forests in southern Ohio. (This stand of pines was planted many years ago as part of an arboretum, a place where trees are scientifically studied.) The children were excited, and our naturalist-guide channeled their high energy skillfully to create a moving experience of the forest.

She first took us to a Christmas-tree farm, where she announced with a flourishing sweep of an arm and a twinkle in her eye, "This is the pine forest." Groans and disappointed shuffling of feet — the trees were barely taller than the children.

She then blindfolded all of us and led us through a sunny deciduous forest. Pretty soon we heard a stream and she said, "There's a narrow bridge here, so you'll have to cross one at a time." The first child started across, then shrieked with nervous laughter. The rest of us waited uneasily, not knowing what was ahead.

My turn came and I groped my way forward, taking a first cautious step onto the bridge. *Aha!* No wonder there were squeals — the bridge swayed dizzily from side to side, and bounced up and down at the same time. Between the creaks and groans of ropes and wood, I heard water rushing along far below. At the other side I was greeted by a flutter of small hands; the naturalist had let the children take off their blindfolds to watch me cross. I now removed my own blindfold and saw a safely-built suspension bridge, its handrails polished from much use.

We replaced our blindfolds and struck out on

the trail again. After awhile the sound of our footsteps changed; we heard no more crackling leaves, only a soft, muffled crunching as we walked. Then there was a dark shadow all around us and we sensed a deep quiet — fewer bird sounds, and no rustling of leaves in the wind. A child broke the silence: "Where are we?"

The naturalist said, "Lie down on your backs and try to feel what is special about this place."

We lay for a long time experiencing the deep, restful quiet. Finally, the naturalist told us to take off our blindfolds. Shooting skyward were countless magnificent pine trees. My spirits rose with them, and I was overwhelmed with admiration and awe — I had never seen a forest this way before. The children were completely stunned. Finally, we sat up and looked around at each other, quietly sharing our amazement with appropriate expressions. On our own we wandered through the forest, touching the trees, and gazing up into the forest cathedral.

It takes a happy combination of setting and receptivity to have a really deep experience like this. That's what the games in this chapter are for: to bring us that fresh and mysterious contact with other members of the natural world.



- A.
- B. Aesthetic appreciation, visual awareness
- C. Day/forest floor
- D. 1 or more
- E. 7 years and up
- F. None

THE FOREST looks fresh and interesting, when you see it from a brand-new angle. In this game, the children lie still on the forest floor, absorbed in watching and listening to swaying trees, fluttering birds, and the rushing

wind. Through holes in its leafy ceiling, silent clouds peek into the children's woody room. Animals may come very close because the children are quiet and hidden.

Have everyone lie down and begin thinking of himself as part of the earth, looking skyward. Cover each child's body with leaves, sticks and pine needles — clear up to the sides of his head. Leave only the face exposed, and use enough leaves and sticks to give him a feeling of being down inside the earth. Now place leaves (pine needles work best) over the children's faces, patchwork-fashion. Make sure the leaves are free of dirt, and tell the children to close their eyes as you arrange this final bit of covering.

Tell the children you'll give a signal when it's time to come back; this will help them stay under the leaves longer without getting restless. You should give the signal before they become restless. Surprisingly, I've found that twenty minutes is usually not too long.

In a large group, work quickly and have the children help bury each other. Work in one direction, away from those covered first. Then when the first-covered emerge,

you can steer them away from the others who are still enjoying the forest quiet. Any individuals or pairs who are likely to talk and disturb those around them can be buried some distance away from the others.

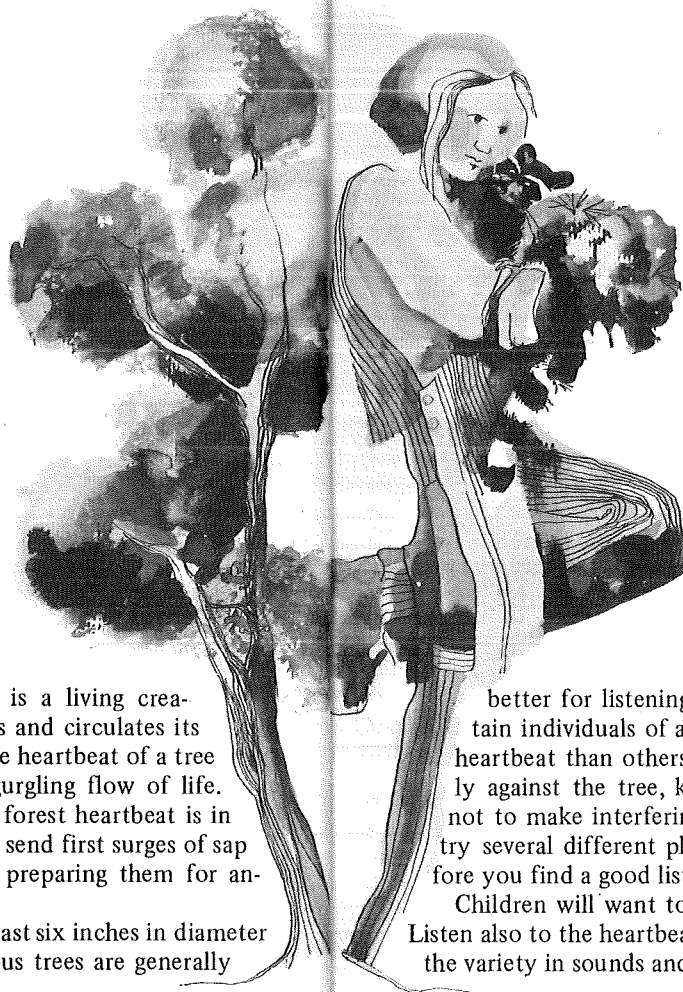
Children will be much more agreeable to the idea of being covered with soil and leaves if they've been digging or crawling on the forest floor just before the game begins. It's important also to say something in advance about the bugs that may crawl over them.

Play this down! You may want to let the children first handle various bugs, allowing the bugs to crawl over them. This is often a lot of fun — the children lose their early-learned prejudices against insects, and begin to appreciate these fascinating little creatures. Encourage them to stay calm while lying under the leaves and being crawled upon; ask them just to feel what the bug is doing, so that they can tell the others about it afterwards.

Earth Windows gives an experience of the forest through the forest's own eyes.



Earth Windows



- A.
- B. Empathy, tree physiology
- C. Day/forest
- D. 1 or more
- E. 4 years and up
- F. Stethoscope

A TREE is a living creature. It eats, rests, breathes and circulates its “blood” much as we do. The heartbeat of a tree is a wonderful crackling, gurgling flow of life. The best time to hear the forest heartbeat is in early spring, when the trees send first surges of sap upward to their branches, preparing them for another season of growth.

Choose a tree that is at least six inches in diameter and has thin bark. Deciduous trees are generally

better for listening to than conifers, and certain individuals of a species may have a louder heartbeat than others. Press a stethoscope firmly against the tree, keeping it motionless so as not to make interfering noises. You may have to try several different places on the tree trunk before you find a good listening spot.

Children will want to hear their own heartbeat. Listen also to the heartbeats of mammals and birds—the variety in sounds and rhythms is fascinating.

Heartbeat of a Tree

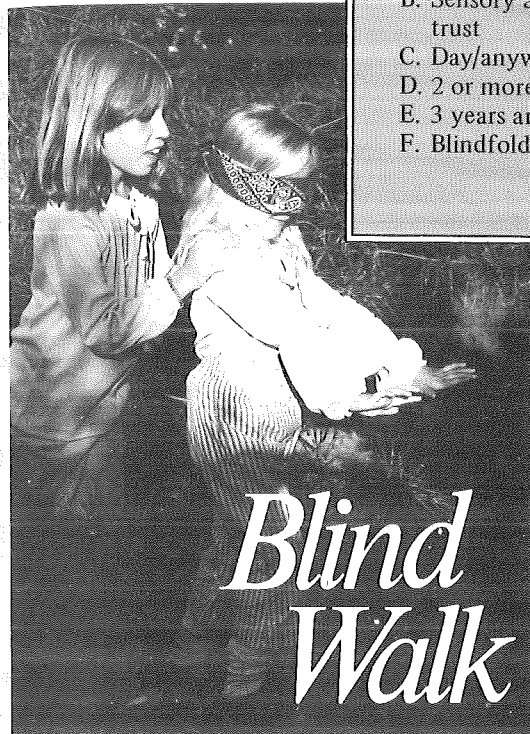
An Introduction to the Blind Activities

THE GAMES in this section stimulate children's imaginations as perhaps no other games in this book can.

Blindfolded activities dislodge our thoughts from self-preoccupation, and free our awareness to embrace more of the world around us. Vision is the sense we depend on most. Deprived of sight, we must fall back on our less-used senses of hearing, touch, and smell. Our attention is powerfully focused on these senses, and our perceptions through them are intensified. The babbling of our minds slows down, overwhelmed by the information that our fully-awake senses are giving us.

I vividly remember my first blindfolded experience. I was led down a path to a creek, which I entered up to my knees, splashing around and feeling the current. My guide asked me if I'd like to float downstream. Well, in we went! At first we floated cautiously, but soon I was able to relax and give myself to the current, drifting along wherever it led. I was delighted by the crosscurrents that turned and twisted my body, while gurglings, roarings, swishings and bubblings composed the most wonderful music. I had never known a creek to be such a marvelous thing!

(Caution: Unless you and your guide are familiar with the particular stream, and water safety procedures, it would be best to start your blind experiences with one of the activities in this chapter.)



- A.
- B. Sensory awareness, trust
- C. Day/anywhere
- D. 2 or more
- E. 3 years and up
- F. Blindfolds

IT'S VERY SIMPLE to organize and lead a blind walk. Form pairs, with mixed adults and children, or children together. Each pair decides who'll be the leader first, and who'll be blindfolded. The leader guides his partner along any route that looks attractive — being very careful to watch for logs, low branches, and so on. The leader also guides his blind partner's hands to interesting objects, and brings him within range of interesting sounds and smells.

Meet a Tree



- A.
- B. Empathy, olfactory and tactile awareness
- C. Day/forest
- D. 2 or more
- E. 4 years and up
- F. Blindfolds

THIS GAME is for groups of at least two. Pair off. Blindfold your partner and lead him through the forest to any tree that attracts you. (How far will depend on your partner's age and ability to orientate himself. For all but very young children, a distance of 20-30 yards usually isn't too far.)

Help the "blind" child to explore his tree and to feel its uniqueness. I find that specific suggestions are best. For example, if you tell children to "*Feel the tree*," they won't respond with as much interest as if you say "*Rub your cheek on the bark*." Instead of "*Explore your tree*," be specific: "*Is this tree still alive? . . . Can you put your arms around it? . . . Is the tree older than you are? . . . Can you find plants growing on it? . . . Animal signs? . . . Lichens? . . . Insects?*"

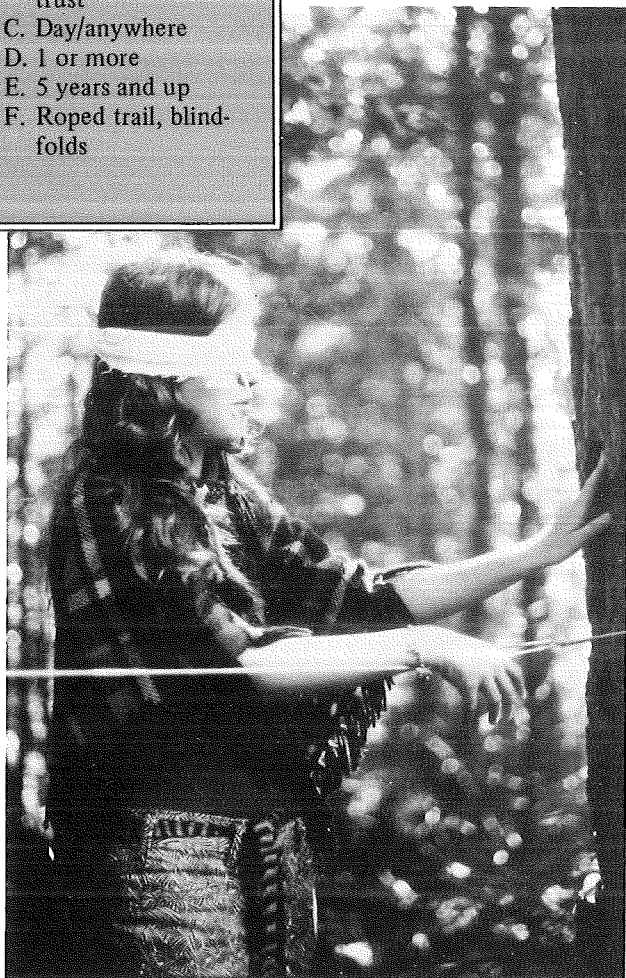
When your partner is finished exploring, lead him back to where you began, but take an indirect route. (This part of the game has its fun side, with the guides leading their partners over imaginary logs and through thickets that might easily be avoided.) Now, remove the blindfold and let the child try to find the tree with his eyes open. Suddenly, as the child searches for *his* tree, what was a forest becomes a collection of very individual trees.

A tree can be an unforgettable experience in the child's life. Many times children have come back to me a year after we played Meet a Tree, and have literally dragged me out to the forest to say, "See! Here's my tree!"





- A.
- B. Sensory awareness, trust
- C. Day/anywhere
- D. 1 or more
- E. 5 years and up
- F. Roped trail, blind-folds



Blind Trail

A BLIND TRAIL is a rope-guided caravan whose travelers roam through lands full of strange sounds, mysterious smells, and interesting textures. Most travellers can hardly wait to retrace their steps through this enchanted land with eyes open.

To make your blind trail exciting, find an area that offers a variety of experiences. An example of a good Blind Trail might be: Follow a shady forest path; climb over a moss-covered log; emerge into a sunlit clearing humming with summer bees; dive again into the forest (this time crawling beneath a dense canopy of six-foot pine saplings), and feel and hear the smooth, dry needles crackle under your hands and knees. The odor of damp vegetation and a chorus of startled ducks announce your arrival at what can only be a pond.

A really good Blind Trail takes a fair amount of time to set up; but even a quickly-improvised one can be worthwhile. The important elements to keep in mind are: variety, theme, and mystery. For example, you can create a varied experience of touch, hearing, and smell; or arrange for contrasts within one sense — a rough and a smooth rock; tender new leaves and dry, crackly, dead ones; or a rich, moist odor and a sweet spring fragrance. (Tie a knot in the line to indicate that there's an inter-

esting smell nearby.) Another way to add variety is to make the rope go up and down by attaching it to interesting objects on the ground and overhead.

A specific theme helps to link the various experiences together in the children's minds, especially if you tell them that there will be a special theme. Some possible themes are: tree identification; exploring an animal habitat; or contrasting local climates. (A local climate is a well-defined area—like the sun-shaded north side of a hill—with its own unique conditions of temperature, moisture, and vegetation.) It's easy to include an element of mystery: anything unfamiliar is mysterious. For instance, a string leading away from the main line and descending into a deep hole in a tree is a very good mystery experience.

Before laying out the trail, decide which side of the rope the children will walk on. (Be sure to tell them to stay on that side.) Keep safety in mind and make sure there aren't any poisonous plants or animals in the area.

A calm, receptive mind greatly enhances the child's enjoyment of the trail, so it's very helpful to precede the blind-trail experience with a story or some other quiet activity. Before you start the game, you might guide the children's hands over a tree trunk. Ask them to hug the tree and see how big around it is, and how it feels. Offer them a leaf to smell. Give them some idea of how to explore the trail, so they won't just run through it. Encourage them to be silent as they explore.

The Blind Trail is one of my favorite games. It develops the spirit of receptivity that is needed for every kind of nature experience.



- A.
- B. Concentration, empathy
- C. Day and night/anywhere
- D. 1 or more
- E. 4 years and up
- F. None

Role- Playing

BE A DANDELION PARACHUTE, freely drifting. Or a tree; feel your highest branches swaying with the wind's ebb and flow. Become a coyote pup gamboling across a flower-covered clearing; a bear in its winter cave.

Role-playing gets you into the moods, qualities, and behavior of nature's life-forms, grafting them into yourself and letting you feel your own heart's and mind's responses to them.

Being a human—John the executive or Sally the short-stop—sometimes gets to be confining. Our enjoyment and appreciation of life depends on our ability to sense the feelings of other creatures, escaping our self-definitions (job title and so on) to taste the joy of self-forgetful empathy with others.

Choose an animal, plant, tree, rock, or mountain—anything—and pretend you *are* that. Coordinate your body and imagination to experience the existence, move-

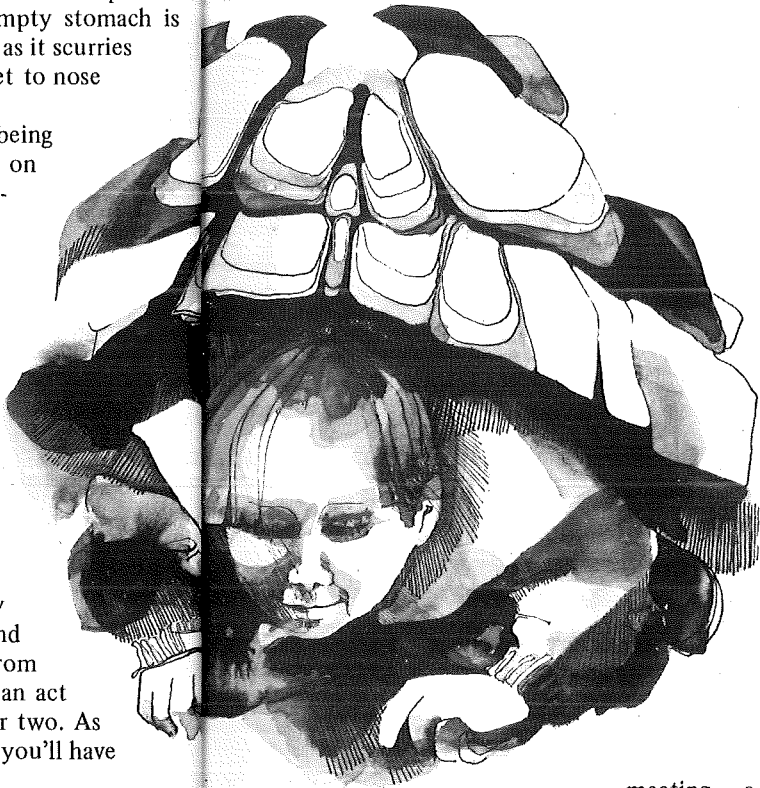
ments and feelings of that other form of creation. The warm summer breeze blows across your dragonfly wings as you dance among the water reeds. The snow is soft and cold under your fox-paws; your thick fur is protection against the icy wind, but your empty stomach is growling. You hungrily watch a mouse as it scurries across the snow, stopping every few feet to nose in the frozen grasses.

The more you can put your whole being into pretending, the more you'll take on the character and feelings of your subject. The more deeply you can concentrate, the more oneness and sympathetic understanding you'll feel.

Simple scenes like the dandelion parachute or the swaying tree are best for beginners at role-playing. Group practice is good, too—you'll feel less self-conscious when everyone is doing the same thing around you. Try being a snake or a banana slug inching along; or act out the life-cycle of a beech tree: first the seed in the ground, then the gaining of strength and stature as you become a mighty adult tree, then the rotting and falling, and finally the merging back into the soil from whence you drew your first life. You can act out the whole life cycle in a minute or two. As you gain confidence and concentration you'll have fun with more complicated images:

A flock of green-winged teal (ducks) passes just over the marsh grass, then twists and turns upwards. Each teal is attuned to the leader, and the flock moves as if it were one bird. You descend gracefully onto the smooth water.

In a different vein: Hold a public hearing on whether to build a dam on a certain river. Lobbyists come to the



meeting — a farmer, a fisherman, a trout, a salmon, a deer, a cottonwood tree, a water-strider, a kingfisher, a mosquito, and any others who should be consulted.

Set a supportive and non-critical atmosphere in the role-playing sessions. Let the child develop at his own pace without fear of comparisons or competition.



SECTION

2

HOW MUCH I CAN YOU SEE?

In a new environment children automatically set right out to prove themselves. They run down steep hills, and try to climb over, under, and through favored obstacles like creeks, logs, cliffs and big rocks. The games in this chapter enlist this kind of adventurous spirit to help make children more sensitively aware of their environment.

Even a simple day-hike can be turned into an adventure, with some learning and increased awareness on the side. After we've hiked out from camp to our turnaround point, I'll frequently ask the group if they think they can find the way back. (On the way out I'll have given them help by pointing to landmarks and asking them to look back the way we've come.) There's always a brief period of shock and confusion when they find out it's up to them to lead us back.

After much consultation and some friendly argument, a leader and a direction are chosen. Often I'm accused of turning over the leadership because I don't know the way back myself. But they nearly always find the way back without any help from me . . . even if it takes all night.

We were out on a night hike once, when we heard a great horned owl calling from a distance. We decided to see if we could get close to the owl: but every time we approached, it flew deeper into the forest. Around midnight, when we still hadn't caught up with the owl, we conceded that it was time to go back to camp. I asked the boys which was the best route home, and seven fingers pointed to directions spread around a 230-degree arc of the compass!

There was no chance of rain, and it wasn't very cold for a high-sierran night, so I said they could try to find the way back without my help. The oldest boy took the lead, and I brought up the rear. But it soon became obvious that our leader didn't know the way. His status in the group prevented the others from expressing their doubts; but when we wound up back where we'd started, he was quickly deposed and another boy took over the lead. One after another the leaders were chosen, then hopefully exchanged, as we wandered around in the forest night. Finally the boys swallowed their pride and admitted that they couldn't possibly find their way back in the dark.

I sensed that most of them wanted to sleep out and keep trying in the morning. Even though we didn't have sleeping bags or warm coats, we decided to get through the night as best we could, buddling together for warmth. We put the ones who were dressed lightest in the middle, and the rest of us piled on and around them.

This worked fine for about thirty minutes, when the ones who were being crushed on the bottom began squirming their way out of the pile. The boys on the outside then seized their chance for a little warmth and wriggled into the middle. Those on top were cold, and those on the bottom were crushed; only while temporarily in the middle of the constantly-shifting downward cycle could any of us stay comfortable and warm.

Four hours of squirming later, a dull gray light in the East promised an end to the struggle. We got up and stomped and danced to stay warm while we waited for the sun.

In daylight it was easy for the group to get their bearings and find the way home. We arrived at camp bleary-eyed, but victorious and proud. A year later the same boys begged me for another overnight bivouac.

You won't necessarily have an experience like this — unless you want to. But the games in this chapter are similar in their ability to make children keenly interested in being as observant of nature as possible.



- A.
- B. Auditory awareness
- C. Day and night/anywhere
- D. 1 or more
- E. 3 years and up
- F. None

Sounds

IN a forest, meadow, marsh, or park, a group of children lie down on their backs with both fists held up in the air. Every time someone hears a new bird song he lifts one finger. Who has the best hearing? This is a wonderful way to make children aware of the sounds (and the stillness) of nature. For fun, see if you can count to ten without hearing a bird song. Vary



the game by listening for general animal sounds—or for any sounds at all, like wind in the grass, falling leaves, rushing water.

TO get children to concentrate more deeply on any natural setting, ask them how many different colors and shades of colors they can see in front of them without moving from where they are standing.



- A.
- B. Visual awareness
- C. Day/anywhere
- D. 1 or more
- E. 4 years and up
- F. None

Colors

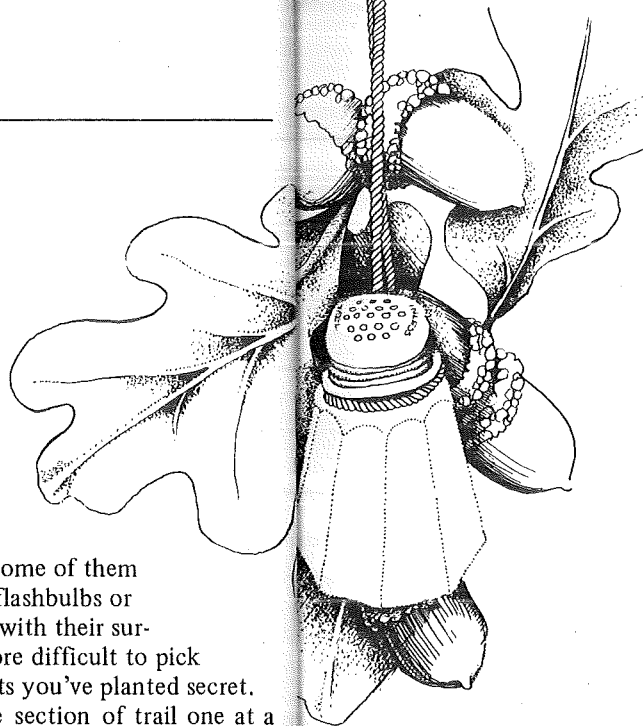
THIS GAME is played primarily to introduce the concepts of camouflage (protective coloration) and adaptation.


Choose a 40- to 50-foot section of trail and place along it 10 to 15 man-made objects. Some of them should stand out brightly, like flashbulbs or balloons. Others should blend with their surroundings, and therefore be more difficult to pick out. Keep the number of objects you've planted secret.

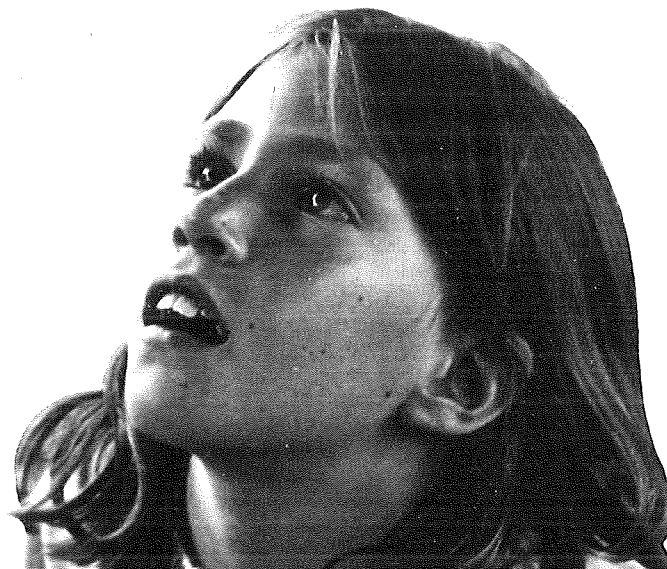
The children walk over the section of trail one at a time, with intervals between them, trying to spot (but not pick up) as many of the objects as they can. When they reach the end of the trail, they whisper in your ear how many they saw. If no one saw all of them, tell everyone how many were seen, but that "There are still more!" Then let them start over.

End the game with a discussion of the ways camouflage coloration helps animals. Then go on a search for small camouflaged animals (insects, spiders, etc.).

Unnature Trail



- 
- A.
 - B. Camouflage, visual awareness
 - C. Day/forest, thicket
 - D. 1-12
 - E. 5-13 years
 - F. Man-made litter





- A.
- B. Concentration, exploring sensory awareness
- C. Day/forest, thicket
- D. 2-7 (per leader)
- E. 6 years and up
- F. Blindfolds

TAKE your children to a secluded, secret spot. After blindfolding them, arrange them in a line, caterpillar-fashion, with each child placing his hands on the shoulders of the child ahead of him. Tell them that as you lead them along they are to listen to,

smell, and feel their surroundings as completely as they can. Make frequent stops along the way at points of interest, such as unusual trees and rocks, or to smell a fragrant flower or bush. The more variety there is along the route, the better. To add variety, walk on and off trails, follow a dry stream bed, or go in and out of sunny forest clearings.

When you have gone as far as you think is appropriate, remove the blindfolds. The children must now try to find their way back along the route to the starting point. Sometimes, before they start back I'll ask them to draw a picture or map of what they think the course and the areas we passed through look like. This helps them to translate into pictures the sounds, smells, and touches they've experienced. The sound of ducks might indicate a pond or marsh; fragrance would mean flowers. As much as possible, allow the children to find the way back on their own.

Caution: blind caterpillars more than six segments long quickly become entangled and hard to manage.



- A.
- B. Exploring, orientating, sensory awareness
- C. Day/anywhere
- D. 2 or more
- E. 6 years and up
- F. Blindfolds

THIS is a shorter version of Caterpillar Walk. Blindfold your child (or children) and tell him you are going to lead him to a spot not too far away. Ask him to explore his surroundings with his hands until he knows the spot well. When he is satisfied, lead him back—still blindfolded—to the starting point. Take the blindfold off and ask him to find the spot he explored with his hands.


Caterpillar Walk & Back Home

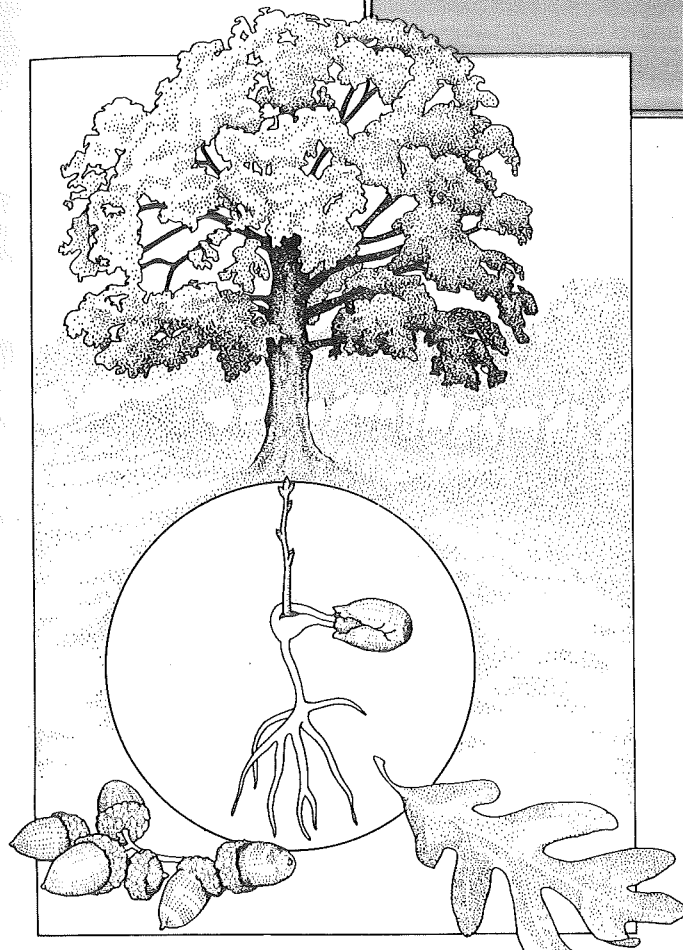
THIS is a good game for getting children interested in rocks, plants, and animals. Before assembling the children to play, secretly gather from the immediate area about 10 common natural objects, such as rocks, seeds, conifer cones, plant parts, and some signs of animal activity. Lay the objects out on a handkerchief and cover them with another handkerchief. Call the children close around you and tell them, "*Under this cloth are 10 natural objects that you'll be able to find nearby. I will lift the handkerchief for 25 seconds so you can take a good look and try to remember everything you see.*"

After looking at the objects, the children spread out and collect identical items, keeping their findings to themselves. After five minutes of searching, call them back. Dramatically pull out the objects from under the handkerchief, one at a time, telling interesting stories about each one. As each object is presented, ask the children if they found one just like it.

Children have a lively curiosity about the kinds of things you'll show them—rocks, seeds, plants, and so on. When you repeat the game several times, it has a noticeable strengthening effect on the child's concentration and memory.

Duplication

- 
- A.
 - B. Memory, visual awareness
 - C. Day/anywhere
 - D. 2 or more
 - E. 5 years and up
 - F. 2 bandanas





- A.
- B. Observation of soil surface
- C. Day/anywhere
- D. 1 or more
- E. 4 years and up
- F. 3-5' strings, magnifying glasses

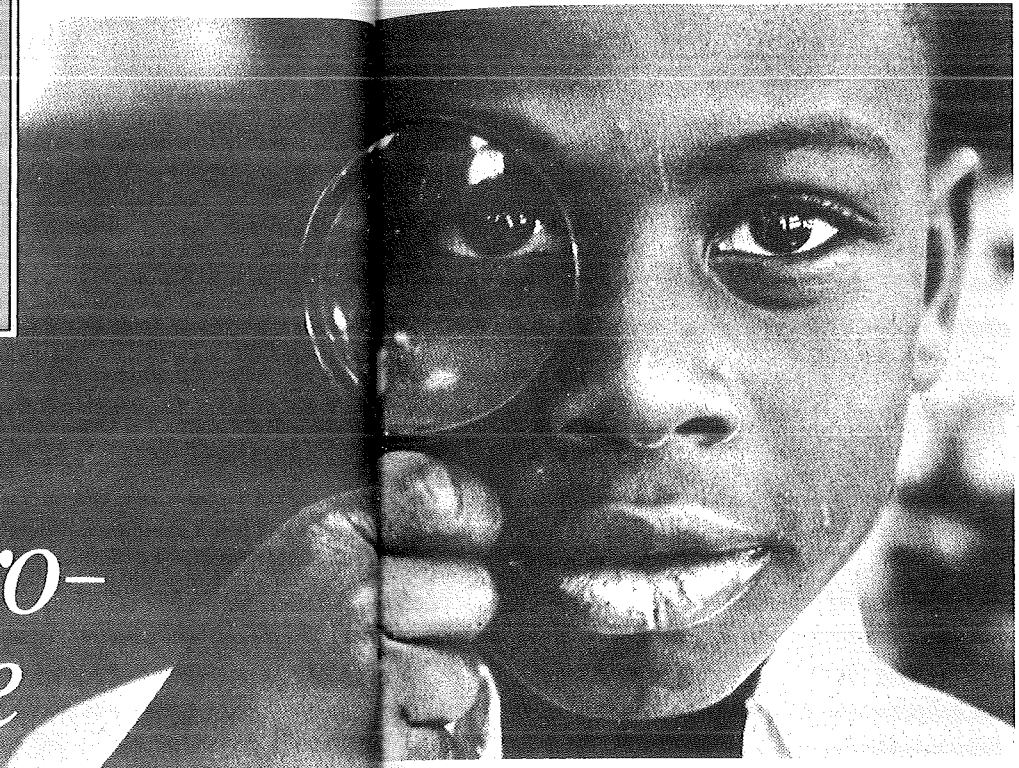
Micro-Hike

A MICRO-HIKE is a very short expedition guided by a string three to five feet long. The "hikers" cover the trail inch by inch on their bellies, viewing such natural wonders as grass blades bent by rainbow dewdrops, colorful beetles sprinkled with flower pollen, and powerful-jawed eight-eyed spiders. Because young children are particularly fond of tiny objects, their intense absorption in the world of the forest-in-miniature will amaze you.

Begin by asking the children to span their strings over the most interesting ground they can find. Give each

child a magical magnifying glass, to shrink himself down to the size of an ant. You may want to ask them questions to stimulate their imaginations: *"What kind of world are you travelling through right now? Who are your nearest neighbors? Are they friendly? Do they work hard? What is that spider going to do - eat you, or take you for a ride? What would it be like to be that metallic green beetle? How does he spend his day?"*

At the start, tell the children that they must keep their eyes no higher than one foot above the ground.





SECTION 3

NATURE'S BALANCE

Nowadays, children get lots of instruction in the textbook concepts of ecology. By contrast, the main emphasis in this book is on developing their heart and intuitive qualities. Yet feelings alone sometimes aren't enough, especially when those feelings aren't shared by others. Years ago I had an experience that first made me aware of this truth. It also caused me to want to balance my intuitive understanding of nature with a stronger scientific background.

At the back of the farm where I lived there was a small brush-covered slough (a piece of low, muddy, swampy land). I spent most of my free hours there, and another creature came there often, too — a redtail hawk. I'd find her roosting on one of the dead oaks, where she liked to

perch for the unobstructed view of the surrounding area. After several months she became so used to me that she'd stay on her perch even when I walked close by her.

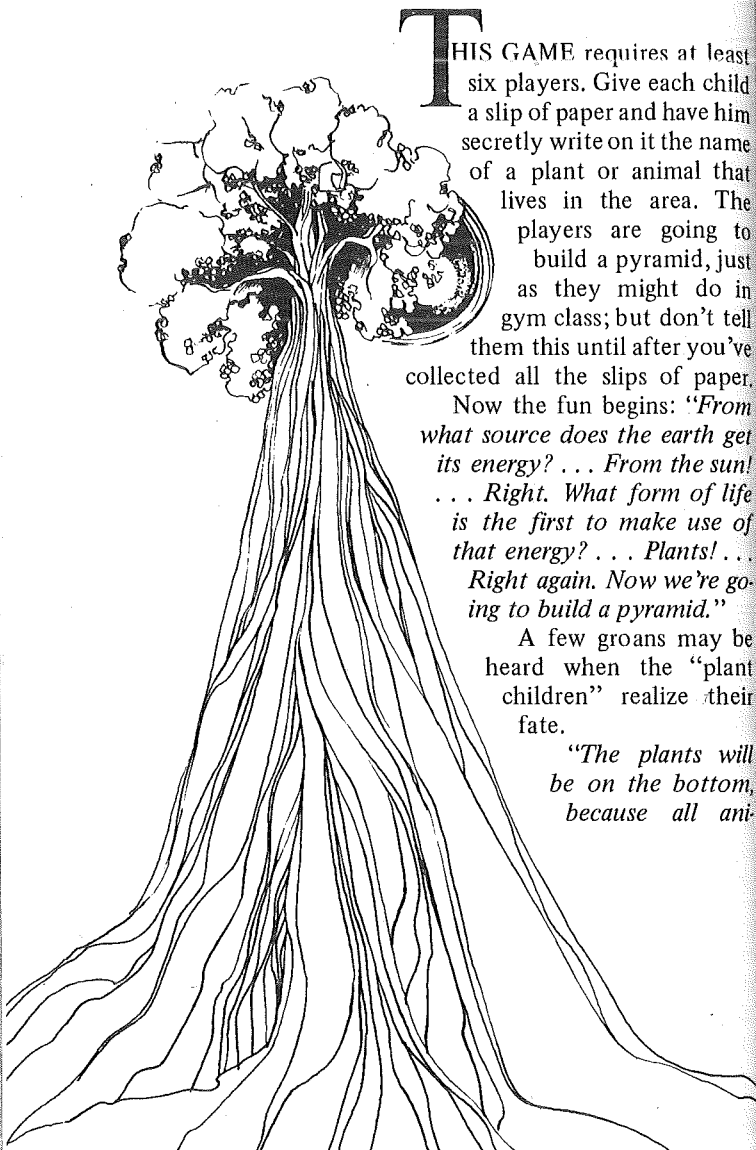
During the day I was in the habit of climbing to the farmhouse roof to look out over the almond orchards at the surrounding country. From there I could also see if the redtail was at her post, 150 yards away. As the months passed, a feeling of friendship developed between us.

One morning just after I'd returned from a few days' absence, I walked out to the slough to see if everything was okay. To my shock, I found that all of the oaks were downed and burning, and that a man was just getting set to fell the last tree—the hawk's favorite.

I tried to persuade him to leave the tree standing, but he said it wasn't doing any good so he

might as well cut it down and burn it. I said there wasn't any possibility of its falling on an almond tree, and because it was dead it wasn't using up any water or soil nutrients. But he wouldn't be moved, and the tree was on his land, so there wasn't much else I could do. After the oaks were cut down I rarely saw the redtail hawk again.

My heart had spoken out to the tree-cutter, but I didn't have the facts to support my feelings. I felt there must be some important reasons why dead trees are valuable; but at the time I didn't know any of those reasons. Later, I did find information that might have helped the man understand the possible negative consequences of chopping down those oaks. For instance, dead trees provide homes for many birds—like woodpeckers and nuthatches—that rid the land of harmful insect pests.



THIS GAME requires at least six players. Give each child a slip of paper and have him secretly write on it the name of a plant or animal that lives in the area. The players are going to build a pyramid, just as they might do in gym class; but don't tell them this until after you've collected all the slips of paper. Now the fun begins: "*From what source does the earth get its energy? . . . From the sun! . . . Right. What form of life is the first to make use of that energy? . . . Plants! . . . Right again. Now we're going to build a pyramid.*"

A few groans may be heard when the "plant children" realize their fate.

"The plants will be on the bottom, because all ani-

mals depend on them directly or indirectly for food. All the plants kneel down here on all fours, close together in a line. Now, as I read off the animals from the slips of paper, tell me whether they are plant-eaters or meat-eaters. All the plant-eaters (herbivores) stand in a line behind the plants. All the meat-eaters (carnivores) stand in another line behind the herbivores."

There will nearly always be more children in the upper-level groups than in the supporting plant levels; it's a lot more fun to be a bear or mountain lion than it is to be a dandelion or a muskrat. Humility, alas, seldom stimulates the imagination. With so many tops and so few bottoms, it will be impossible to build a stable pyramid. Some of the predators will just have to forfeit their exalted status. Challenge the children to reconstruct their own pyramid into one that will easily support all its members. (Tell them the bigger children can change to plants if they wish.) Clearly, the higher up in the food chain, the fewer the number of animals there are. Demonstrate the importance of plants by pretending to pull one of them out of the pyramid.



- A.
- B. Balance of nature, food chain
- C. Day/clearing
- D. 6 or more
- E. 7 years and up
- F. Pencils and paper

Pyramid of Life

GIVE each child an imaginary deed to one square mile of land. On this virgin plot he will be free to create his own dream-forest, complete with as many trees, animals, mountains and rivers as he desires. Let their imaginations run wild. To encourage creativity you can give the children some suggestions:

"To make your forest beautiful and radiant, you might want to add things like waterfalls and windstorms,



- A.
- B. Aesthetic appreciation, balance of nature
- C. Day/forest
- D. 2 or more
- E. 7 years and up
- F. Pencils and index cards

or perpetual rainbows..."

Have them list the ingredients of their forest, then have them draw a picture of it. End by discussing with them whether their individual forests are able to maintain themselves year after year. For instance, see if they have chosen representatives of the food cycle: plant-eaters, plants, and decomposers (example: ants, mushrooms, bacteria). Don't let them forget subtle factors like soil and climate.

Recipe for a Forest



- A.
- B. Adaptation, habitat, interdependence
- C. Day/anywhere
- D. 3 or more
- E. 5 years and up
- F. Ball of string

Webbing

HERE IS A GAME that makes very clear the essential interrelationships among all the members of nature's community. Webbing vividly portrays how air, rocks, plants, and animals function together in a balanced web of life.

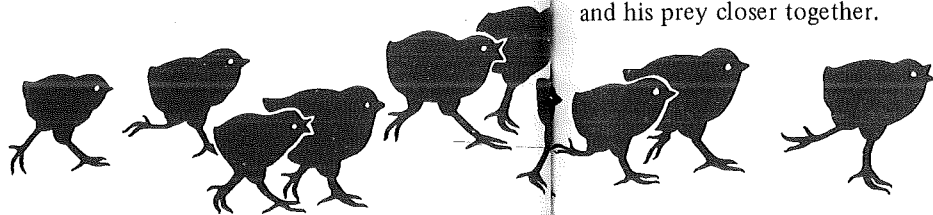

The children form a circle. The leader stands inside the circle near the edge, with a ball of string: "Who can name a plant that grows in this area? . . . Brodiaea . . . Good. Here, Miss Brodiaea, you hold the end of the string. Is there an animal living around here that might eat the brodiaea? . . . Rabbits! . . . Ah, a sumptuous meal. Mr. Rabbit, you take hold of the string here; you are connected to Miss Brodiaea by your dependence on her flowers for your lunch. Now, who needs Mr. Rabbit for his lunch?"

Continue connecting the children with string as their relationships to the rest of the group emerge. Bring in new elements and considerations, such as other animals, soil, water and so on, until the entire circle of children is strung together in a symbol of the web of life. You have created your own ecosystem.

To demonstrate how each individual is important to the whole community, take away by some plausible means one member of the web. For example, a fire or a logger kills a tree. When the tree falls, it tugs on the strings it holds; anyone who feels a tug in his string is in some way affected by the death of the tree. Now everyone who felt a tug from the tree gives a tug. The process continues until every individual is shown to be affected by the destruction of the tree.




Predator-

- A.
- B. Adaptation, food chain, predation
- C. Day/clearing
- D. 6 or more
- E. 5 years and up
- F. Bells, blindfolds

THIS GAME introduces food chains and the way they work in nature. In an open clearing, form a circle about 15 feet across. Blindfold two of the children and have them stand in the circle. Ask one of the children to name a predator that lives in the area, and ask the other child to name a prey. The predator tries to catch his prey by listening for him, then tracking him down and tagging him. If either animal goes too near the edge of the circle, the children tap him twice. Stress the need for silence while the game is in progress, and have the players make things more realistic by imitating the animals they've chosen to be. For variety, experiment with different numbers of predators and prey. Put bells on some of the animals, forcing them to modify their strategy of hunting or of avoiding capture. If your predator is not as bold as he could be, and interest is lagging, tighten up the circle, bringing the predator and his prey closer together.

Prey

- 
- A.
 - B. Adaptation, habitat, plant succession
 - C. Day/pond edge
 - D. 1 or more
 - E. 10 years and up
 - F. Pencils and paper

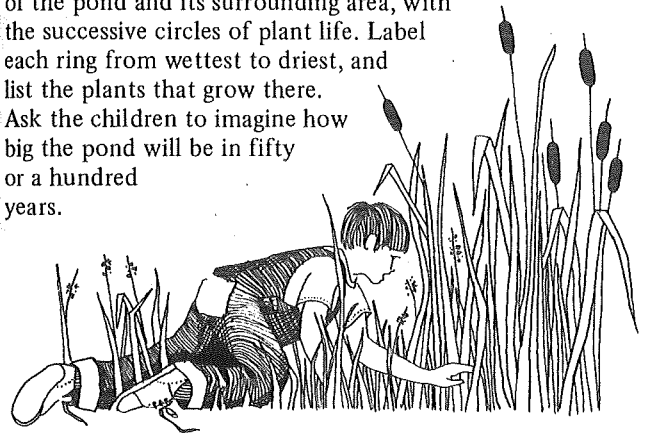
PLANT succession is the process by which soil and water conditions of an area gradually change, allowing new species to come in and eventually establish themselves, and forcing old species to migrate to more

favorable conditions. A very good place for observing plant succession is the area close around a pond, especially if there is a gentle slope running up away from the water.

As you move farther away from the center, the soil becomes drier and its composition changes. You will be able to observe several plant types in successive rings around the pond. To see the actual process of plant succession, you would have to watch the changes in and around a pond over a period of many years. This is because plant succession is the result of plants dying and slowly building up and drying out the soil. When the soil becomes drier, the plants that like wet soil are easily forced out by their dry-soil competitors. Over a long period a pond will actually shrink and disappear as the soil level builds

up higher and higher around it. The rings of plant life move gradually closer to the center of the pond as the wet area becomes smaller. You can see this process of plant migration happening by careful observation at any one of its points; it is rather like looking at one frame of a movie film. Have the children crawl from the outside rings toward the edge of the water. By crawling and closely examining the ground, they will get a feeling for the different soil conditions needed by the different types of plants in the rings. Ask the children to share their discoveries as they find them. One discovery might be coming across a new ring with its special kinds of trees, shrubs, plants and grasses, or wetter and stronger-smelling soil. When he reaches the water, have each child draw a map of the pond and its surrounding area, with the successive circles of plant life. Label each ring from wettest to driest, and list the plants that grow there. Ask the children to imagine how big the pond will be in fifty or a hundred years.

Plant Succession Crawl





SECTION

4

LEARNING I IS FUN

I try my best to make learning fun and exciting for children. One way I do this is to point out characteristics that animals and plants have in common with man. Before taking children to a pond, for instance, I'll talk with them for awhile about aquatic insects:

"What things do humans use to help them move and breathe in water?"

"Fins. Wet suits. Air tanks. Oars. Nets. Diving masks."

"Did you know that aquatic insects have the same needs, and use the same equipment, as man does? For example, there are diving beetles that use scuba tanks: they trap a silvery bubble of air under a thick layer of hair, then use it to breathe underwater. Some diving beetles even carry an air-bubble 'tank' along behind them. A beetle's breathing system is more efficient than our scuba tanks, though, because beetles don't need com-

pressed air, and they can fill their tanks with oxygen from the surrounding water. With his diving tank, a beetle can stay underwater for as long as thirty-six hours! Diving beetles also have waxy hairs that make them float—just like a wet suit. If they aren't swimming or holding onto something, they bob right up to the surface.

"Most aquatic insects use the breast stroke when they swim, although a few prefer the crawl. But there is one insect who likes the backstroke so much that he's been named the 'back swimmer.' He is shaped like a boat, with a keel running down his back and two long, oar-like legs at his sides.

"Then there is the black fly larva, who lives in the fast riffles of a stream. He moves along carefully while fastened to a safety rope. If the stream carries him away, he can crawl back along the rope to his original position. The black fly larva often reaches adult size while still underwater. To keep his wings from getting wet he rides up out of the water inside a bubble of air—like a submarine!"

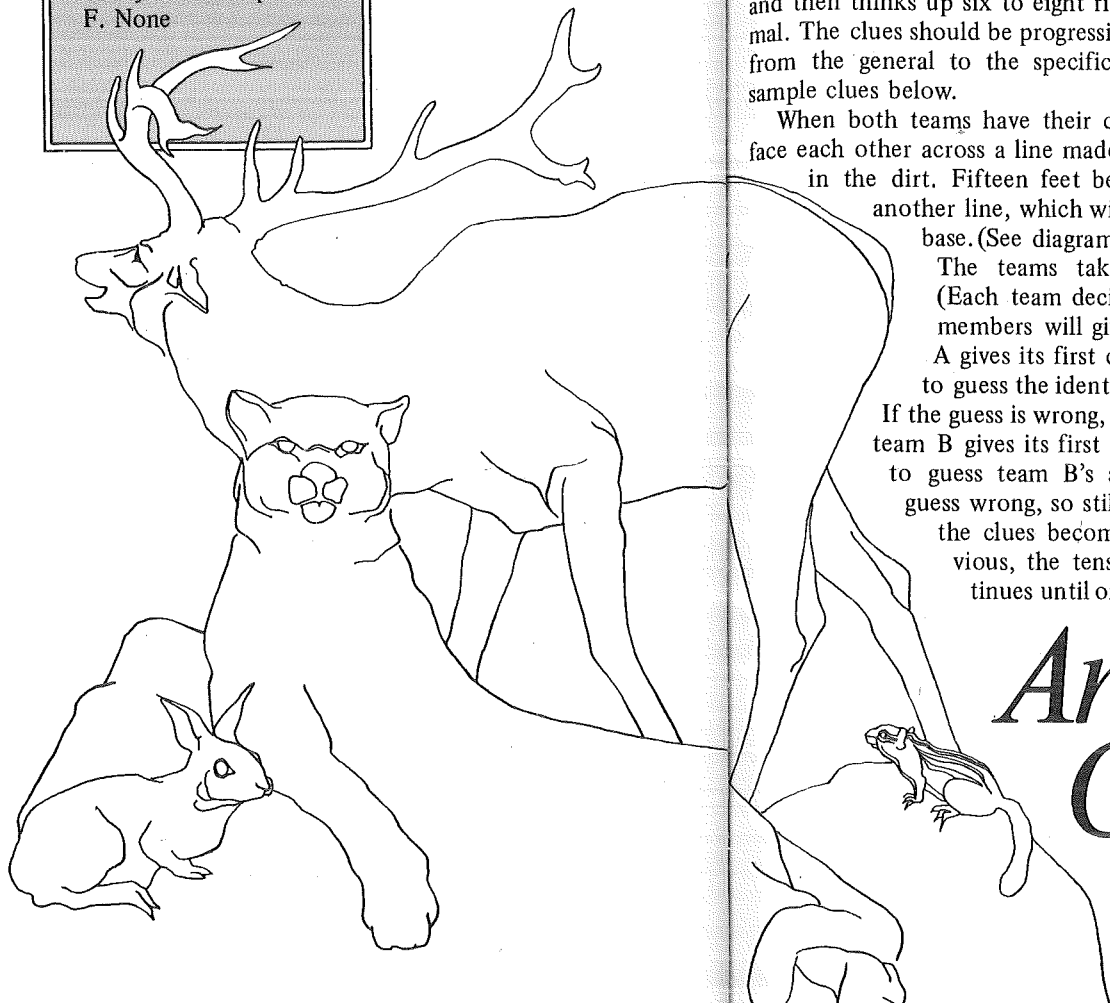
Children are captivated by bizarre tales of these underwater creatures. They're always excited by the chance to comb through aquatic vegetation for bugs with kitchen strainers. Once the search begins, I find myself bounding from one shriek of delight to another as they call to me to come and see their findings.

A class of sixth-graders had just finished hunting for insects, when a water truck drove up to the tiny pond and lowered its hose into the water. When the driver started his pump, the children immediately realized that the insects would later be spread out on the road, and die. So several of them went up to the driver and pleaded with him to put a fine screen over the hose. The man was friendly; touched by the children's concern, he said he would be happy to install the screen. Afterwards the children introduced him to their aquatic friends.

It's fascinating to discover how different life forms live. The games in this chapter create an atmosphere of excitement that stimulates the child's curiosity and concentration.



- A.
- B. Animal classification,
animal ecology
- C. Day/clearing or road
- D. 4 or more
- E. 7 years and up
- F. None



THE ANIMAL GAME is an entertaining way to review zoology and animal ecology. Dramatic climaxes surprise the players again and again, and make for lots of excitement and laughter.

Form two equal teams. Each team chooses an animal and then thinks up six to eight riddle clues for that animal. The clues should be progressively easier, proceeding from the general to the specific. You'll find a list of sample clues below.

When both teams have their clues ready, have them face each other across a line made with sticks or drawn in the dirt. Fifteen feet behind each team draw another line, which will be that team's home base. (See diagram on the next page.)

The teams take turns giving clues. (Each team decides beforehand which members will give which clues.) Team A gives its first clue; then team B tries to guess the identity of team A's animal. If the guess is wrong, nothing happens. Now team B gives its first clue, and team A tries to guess team B's animal, but they also guess wrong, so still nothing happens. As the clues become more and more obvious, the tension mounts. This continues until one of the teams guesses

Animal Game

correctly. For example, team A says, "I have three toes," and team B guesses, "Are you a black-backed, three-toed woodpecker?"

The members of team A turn nervously toward home base, while team B hovers eagerly over them. One of team A's members says, "Yes!" and team A streaks for its home base with team B in hot pursuit.

Here are some sample clues that will give you an idea of the thought processes a child goes through in playing this game. Take a piece of paper and cover all the clues except the first. After you read the clue, try to guess the answer. Continue down the page until you've gone through all the clues. Check your final guess against the coded answer. To decipher the code, write down the letters that follow alphabetically the letters in the code. You'll find ten more sets of clues in Appendix II.

Example: C N F = D O G

1. I have four feet, and my body temperature stays the same.
2. I use my tail as a rudder.
3. My habitat is the forest.
4. My front teeth are constantly growing, so I gnaw a lot.
5. I store no food for the winter like my cousins do. My diet includes nuts, seeds, tree buds, insects, fungi, and some animal flesh.
6. Owls are one of the few animals that can catch me.
7. I go through the air, but I don't fly.
8. I have skin flaps that extend along each side of my body between my ankles and wrists.

E K X H M F R P T H Q Q D K

TEAM A'S HOME BASE

TEAMS	A	A	A	A	A	A	A
	B	B	B	B	B	B	B

TEAM B'S HOME BASE

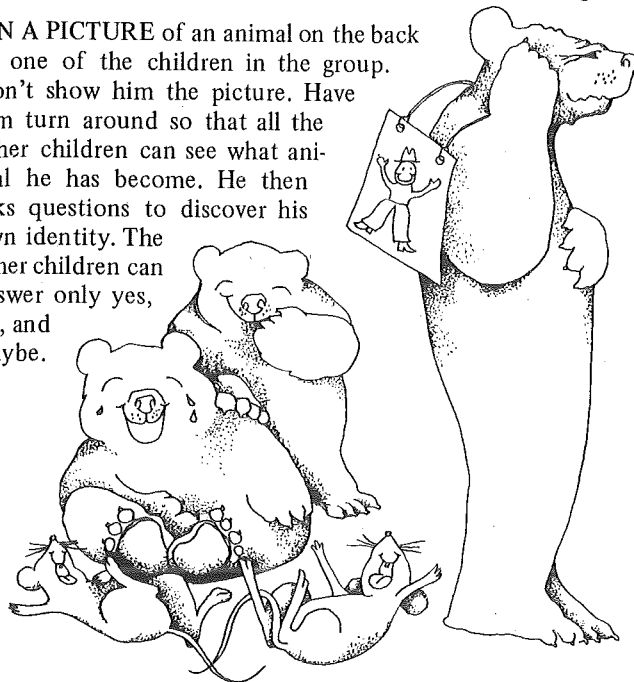


- A. Animal classification,
 - B. Animal ecology,
 - C. Day/anywhere
 - D. 2 or more
 - E. 6 years and up
 - F. Animal pictures,
- safety pins

What Animal Am I?

PIN A PICTURE of an animal on the back of one of the children in the group.

Don't show him the picture. Have him turn around so that all the other children can see what animal he has become. He then asks questions to discover his own identity. The other children can answer only yes, no, and maybe.





- A.
- B. Tree identification
- C. Day/clearing or road
- D. 6 or more
- E. 7 years and up
- F. Tree specimens

THIS GAME is a lot like Steal the Bacon, but it has been adapted to help children identify and remember the trees and shrubs in an area. As you explore the locale where you'll be playing the game, collect small samples of leaves, flowers, and seeds from the trees and bushes—you'll need about 7-10 specimens in all.

Form two equal teams and line them up facing each other, 30 feet apart. Put the plant specimens in a row on the ground between the two teams. The teams count off separately, so that each player has a number, and on each team there are players numbered one, two, three, etc.

When the teams are ready, call out the name of a tree or bush represented by one of the specimens lying between the teams, then call out a number. (To add surprise, call the numbers out of sequence.)

"The next plant is a beech tree, and the number is ... three!"

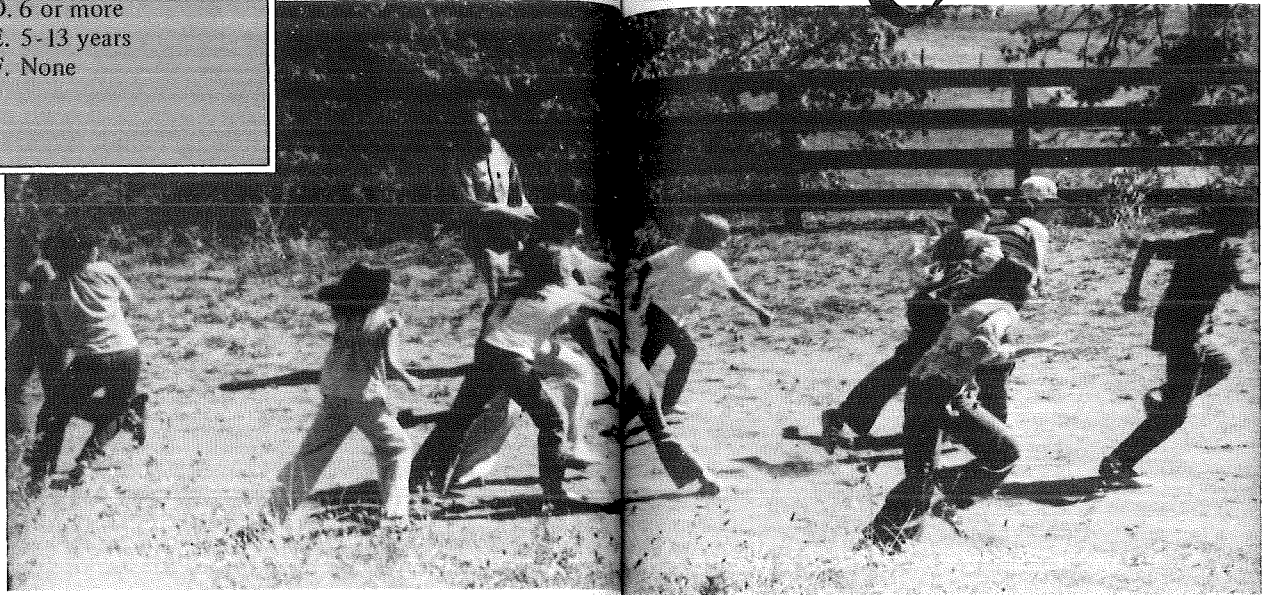
As soon as the "threes" hear their number called, they race to the specimens, trying to be first to find the beech twig. Every successful player earns two points for his team. Picking up the wrong specimen results in a loss of two points.

Identification Game



- A.
- B. Review of concepts, sensory awareness
- C. Day/clearing or road
- D. 6 or more
- E. 5-13 years
- F. None

Owls & Crows



THIS is an excellent game for reviewing newly-learned concepts. Divide the group into two equal teams, the Owls and the Crows. Line up the two teams facing each other, about two feet apart. About 15 feet behind each team, draw another line for Home Base. The leader makes a statement aloud, and if the statement is true the Owls chase the Crows, trying to catch them before they reach their Home Base. If the statement is false, the Crows chase the Owls. Anyone caught must join the other team.

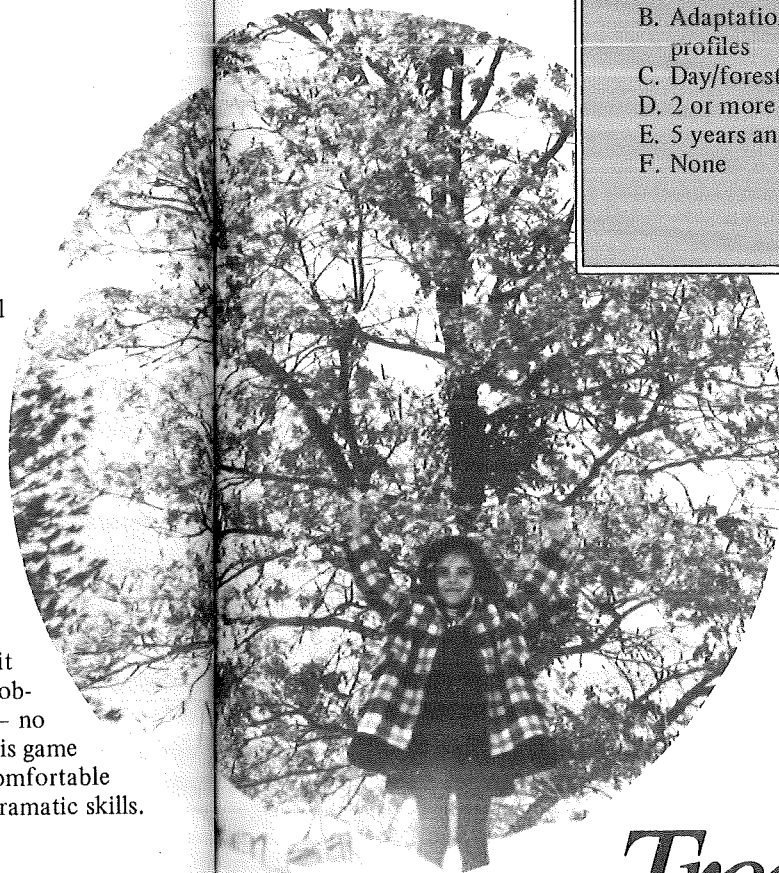
If the answer isn't obvious to the players, you'll get

some of the Owls and Crows running toward each other, and others running back to their Home Bases. During the pandemonium, the leader should remain silent and neutral. When the action has calmed down, he can reveal the correct answer.

Here are some sample statements: Sensory: *"The wind is coming from behind the Crows."* Conceptual: *"A deciduous tree keeps its leaves all year long."* Observational: (after showing them a leaf) *"The leaf had five points and five veins."* Identification: *"This seed comes from an oak tree."*

FIND A PLACE WHERE several different kinds of trees are growing. One child shapes his body to look like a particular species and the other children try to guess what kind of tree he is. A group can also play this game by dividing up into teams: a whole team can portray a tree, or the group can choose a member who most resembles the species they want to represent.

You can vary the game by impersonating animals, or you can leave it open, with the condition that the object must be something in nature — no sports cars or dump trucks, please! This game helps the members of a group feel comfortable with each other, and also develops dramatic skills.



- A.
- B. Adaptation, tree profiles
- C. Day/forest
- D. 2 or more
- E. 5 years and up
- F. None

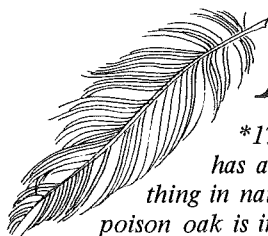
Tree Silhouettes



- A.
- B. Ecology, identification, observation
- C. Day/anywhere
- D. 3 or more
- E. 5-14 years
- F. Paper sacks, pencils, scavenger lists

SCAVENGER HUNTS are probably familiar to you from your own childhood. This one is adapted to finding natural objects. You should assign scavenger lists that require the child to think creatively or to look very closely. Given here is a scavenger list adapted from the one used at the Glen Helen Outdoor Education Center in Yellow Springs, Ohio.

Scavenger Hunt



**17. Everything in nature has a function. *21. Every thing in nature is important (even poison oak is important to the birds that eat its berries). *24. A sun trap is anything that captures the sun's heat (water, rocks, plants, animals).*

Scavenger List

Collect only things that you can return safely and without damage.

1. A feather
2. One seed dispersed by the wind
3. Exactly 100 of something
4. A maple leaf
5. A thorn
6. A bone
7. Three different kinds of seeds
8. One camouflaged animal or insect
9. Something round
10. Part of an egg
11. Something fuzzy
12. Something sharp
13. A piece of fur
14. Five pieces of man-made litter
15. Something perfectly straight
16. Something beautiful
17. Something that is of no use in nature*
18. A chewed leaf, (not by you!)
19. Something that makes a noise
20. Something white
21. Something important in nature*
22. Something that reminds you of yourself
23. Something soft
24. A sun trap*
25. A big smile

Wild Animal Scramble

CHILDREN show keen interest in animal classification—normally not a terribly exciting subject—when you introduce it through the Wild Animal Scramble.

Write the names of common animals on index cards. (Pictures are even better, if available, because they stimulate more interest and enable the players to give more accurate responses.) Pin one animal card or picture on the back of each player. At your signal, the players take turns asking questions to get clues to their own identities. Encourage them to question everyone in the group. The players can ask as many questions as they want, but answers are limited to yes, no, and maybe. (Sometimes, before starting, I've found it necessary to discuss with them the kinds of questions that will help to narrow down the possibilities.)

As soon as each player feels certain that he knows the name of his animal, have him write down his name and what he thinks he is. After everyone has finished, begin the "award ceremony." Call the players one at a time up onto a rock, stump or log, with their backs to the rest of the group. Then announce what the player's guess was. Encourage the audience to applaud correct guesses. Besides teaching the concept of animal classification, this game also helps bring out three important qualities:

1. Open-mindedness: avoiding preconceptions and snap judgments. *"Let's see, I live in the forest; I'm warm-blooded; I'm active at night, and I can fly. Well, that means I'm a bird."* (Actually, the correct answer might have been *"a flying squirrel."*)

2. Discrimination: using new information, and testing the validity of new information. Sometimes players are mistakenly given false answers to their questions. (a) *"I can swim, and I'm warm-blooded. (Then I have to be a bird or a mammal. What birds and mammals swim?)"* (b) *"A member of the rodent family? But I'm a predator. I think I can discount Jerry's answer, because no rodents are predators. Besides, I have dog-like tracks. I bet I'm a coyote or a fox. I'll ask Mary if I have a high-pitched howl."*

3. Concern for others: One of the features I like best about this game is the concern and encouragement the players show toward each other. Many players feel they haven't really finished the game until everyone else has guessed his animal correctly. Many times I've seen six or seven players gathered around the last one, encouraging him on to the end.

An Optional Variation. Listed below are starter questions that will help you narrow down the choice to a few animal groups (i.e., mammals, insects, mollusks, etc.). If you want to know more about the characteristics of individual animal groups, I recommend that you read a zoology text, or buy the inexpensive little booklet, *Zoology*, published by Golden Press, Inc., New York, NY 10022.

1. *"Am I a vertebrate (animal with a backbone)?"*

If the answer is yes, there are five possibilities: fishes,



- A.
- B. Animal classification, animal ecology
- C. Day and night/anywhere
- D. 4 or more
- E. 7 years and up
- F. Index cards, straight pins

amphibians, reptiles, birds, mammals.

To divide the vertebrates into still smaller groups, ask if the animal is cold- or warm-blooded. "Cold-blooded vertebrate" means the animal's body temperature changes to match changes in the temperature of the surrounding environment. Cold-blooded vertebrates are: fishes, amphibians, reptiles.

"Warm-blooded vertebrate" means the animal maintains the same body temperature, regardless of whether it is cold or hot outside. The warm-blooded vertebrates are: birds and mammals.

2. If the answer is no (not a vertebrate animal), it means the animal is an *invertebrate* (animal with no backbone). Here is a list of the more common invertebrates: *Annelids* (worms, leeches), *Echinoderms* (starfish, sand dollars), *Mollusks* (snails, clams), *Crustaceans* (crabs, crayfish), *Centipedes*, *Millipedes*, *Spiders*, *Insects*.

To divide the invertebrates into smaller categories, ask "Do I have jointed legs?" (Invertebrates with jointed legs are: *crustaceans*, *centipedes*, *millipedes*, *spiders*, *insects*. Invertebrates without jointed legs are: *annelids*, *echinoderms*, *mollusks*.)

Listed here are some questions that will help you narrow your choices even further: *Am I a predator?* . . . *Can I swim . . . Can I fly?* . . . *Do I live in the (ocean, desert, etc.)?* . . . *Do I have (2, 4, 6, 8, or more than 8) legs?* (You can only ask one question at a time!) . . . *Am I brightly colored?* . . . *Am I active at night?*




THE IDEA is to find your mate amid the herd of cavorting beasts and birds on Noah's Ark. Begin by counting the number of players in your group, then make a list of animals half as long as the list of players.

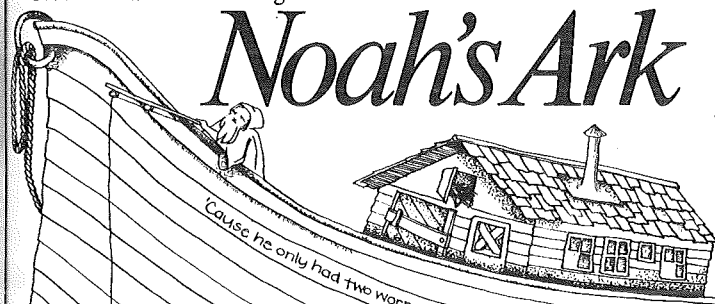
Write the name of each animal on two 3 x 5 cards. When you finish there should be as many cards in your hand as there are players in the group—one card for each player. If you have an odd number of players, write the name of one of the animals on three cards, making a threesome to accommodate the extra player.

Shuffle the cards and pass them out. Each child reads his card and becomes the animal whose name is on the card, keeping his identity a secret. Now collect the cards again.

On signal, the players all begin acting out the sounds, shapes, and typical movements of their animals, with the intention of attracting their mates. The action is hilarious when all the animals begin baying, croaking, screeching, whistling, strutting, flapping, leaping, and posing. They can make all the noise they want, but talking is prohibited—each animal must attract his mate solely by the authenticity of his behavior. The game ends in happy reunions and much laughter.



- A.
- B. Animal movement and behavior
- C. Day and night/anywhere
- D. 6 or more
- E. 5 years and up
- F. Index cards, pencil





- A.
- B. Animal characteristics, movement, and behavior
- C. Day and night/anywhere
- D. 3-6 in a group
- E. 7 years and up
- F. None

THIS GAME is for groups of four or five children. Ask each group to select an animal common to the area. Then tell them that each group will have to imitate the body of their animal. They are going to appear before an “animal expert” or “panel of experts” who will try to guess their identity on the basis of the movements and behavior they act out. No noise is allowed, except what they can make with props (optional) such as a tin can with rocks in it to mimic the rattle of a rattlesnake.

Give the groups about five minutes to work on their acts: *“Oh, no! A scorpion has eight legs – we’ll all have to be legs! . . . I can be the head, too, since I’m up front and my arms can be the pincers. . . . Okay, I’ll be the tail, but I don’t think I can hold it too long. You guys will have to bend forward and hold onto each other to make the body. Ready?”*

