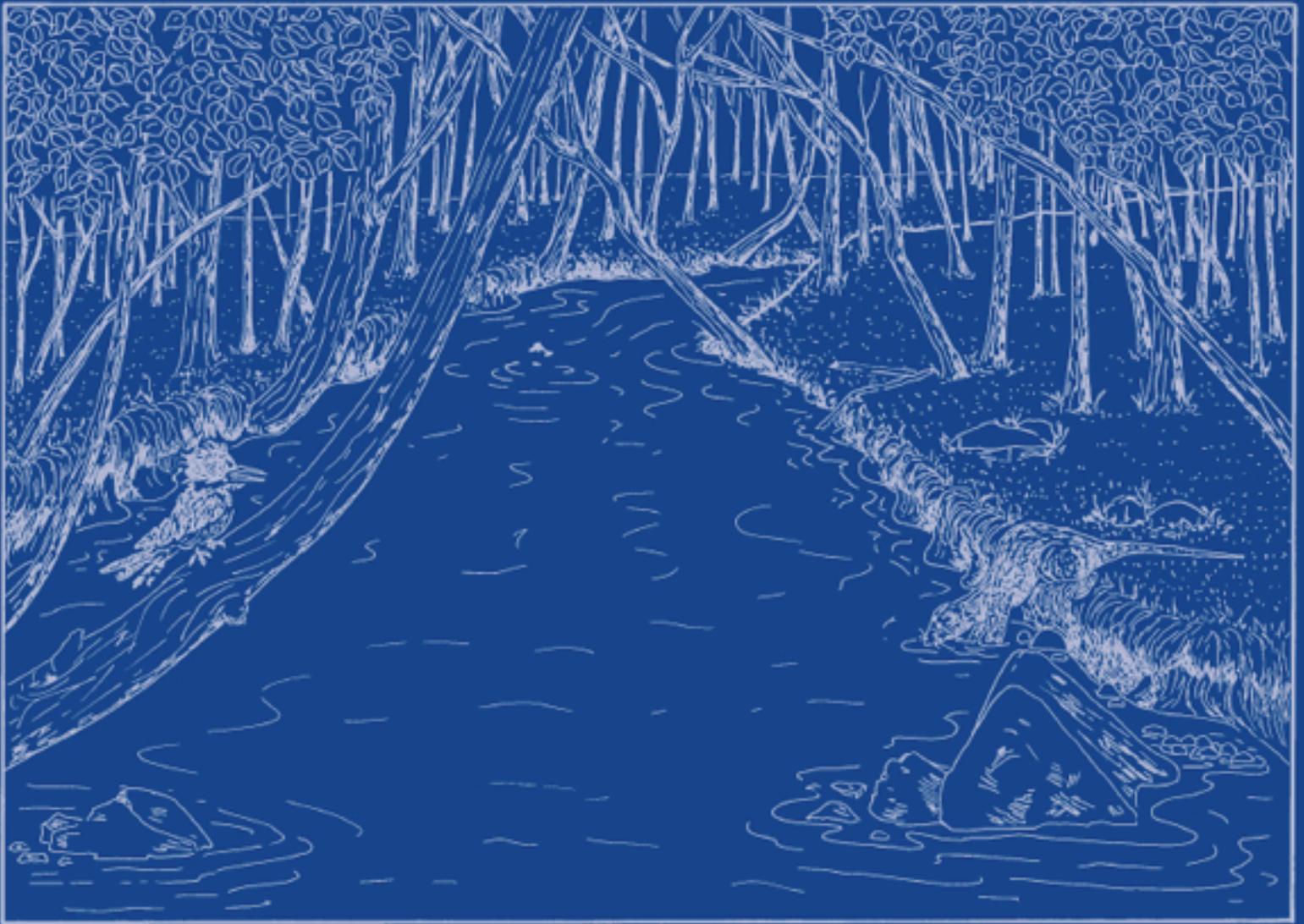


PARKS AND PROTECTED AREAS

Communities and Connections



This publication is part of a series of field study programs produced by the Environmental Education Program of Parks and Protected Areas in Kananaskis Country and Fish Creek Provincial Park. These publications have been written to address the goals of Alberta Community Development and increase students' environmental awareness, understanding, interaction, and responsibility for the natural world in which they live.

The publications are developed in a close working relationship with teachers, community educators and program writers. Programs focus on the areas of environmental education, science, social studies, and language arts. They are also developed to emphasize elements of environmental literacy, lifestyle, and citizenship.

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Communities and Connections

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1.0 OVERVIEW

1.1 AT A GLANCE

TOPIC	Communities and Interrelationships
PROGRAM LEVEL	Focus on Grade 3 (with modifications, Grades 2-4)
TIME REQUIRED	varies
STAFF REQUIRED	Kananaskis Country Environmental Education recommends an adult:student ratio of 1:6 for outdoor activities for this age group
BEST SEASON	Outdoor activities: early fall or late spring Indoor activities: any time
SUGGESTED LOCATIONS	If you plan to come to Kananaskis Country, please feel free to call the Environmental Education office at 678-5508 for advice on where to conduct your field study.



1.2 PROGRAM SUMMARY

A community is a place where plants and animals live and meet their needs. To meet their needs, all plants and animals interact with each other and their surroundings in different ways.

An interrelationship occurs when the lives of two living things somehow touch one another. An interrelationship can be of a very direct nature, such as shown in a predator-prey relationship. Alternatively, an interrelationship can be very indirect and difficult to understand, such as the relationship between humans living in Alberta and the equatorial rainforest that grows many thousands of miles from our home. Every creature on this planet depends on other living and non-living things for its continued existence; no organism can live without affecting or being affected by its environment.

This activity guide contains a variety of indoor and outdoor activities that are designed to help educators teach about Communities and Interrelationships. The guide also contains a variety of activity techniques that you may find useful for the study of topics in many other content areas.

This program, *Communities and Connections: An Activity Guide* can be used on a "stand-alone" basis, or combined with one of the other programs in this unit (*The Un-Vacant Lot and Where Forest meets Prairie*) to form an integrated unit of study. *The Un-Vacant Lot* is a field study that allows students to explore a vacant lot community somewhere near their school, while *Where Forest meets Prairie* is a field examination of the Montane community at Bow Valley Provincial Park in Kananaskis Country. Classes travelling through the Bow River Valley may also take advantage of the more site-specific program *Canmore - A Walk through Time*.

*When we try to pick up anything by itself, we
find it hitched to everything else in the universe.*

John Muir

1.3 CURRICULUM TIE-INS

These materials can be used to assist in fulfilling curriculum requirements in the following subject areas:

Subject	Topic Area - Curriculum Tie-In
Social Studies (grade 3)	<u>Topic B</u> <ul style="list-style-type: none">• Communities Need Each Other
	<u>Topic C</u> <ul style="list-style-type: none">• Special Communities
Science (Division I)	<ul style="list-style-type: none">• Properties of Objects• Living Things• Plants and Animals• Environment
Language Arts	<ul style="list-style-type: none">• reading, listening, using descriptive language, poetry, story-writing
MATH	<ul style="list-style-type: none">• varies according to activity

2.0 ACTIVITY GUIDE

2.1 OUTDOOR ACTIVITIES

2.1.1 BEFORE YOUR HIKE: SOME THOUGHTS ABOUT BEARS AND TICKS

Many students who venture into the wilderness will be unfamiliar with the natural surroundings, and may harbour fears about some element of the environment. Presented below is some information which may be useful in addressing their concerns or fears.

Bears

Incidents involving bears and humans are rare, and generally occur in one of three cases: with a bear that has become used to the presence of humans, such as a “garbage bear”; when a hiker comes between a mother bear and her cubs; or when a bear is startled or taken by surprise by a hiker.

Any bear that you see in Kananaskis Country is a wild bear, one that is not accustomed to the presence of humans. Tell the students that bears naturally fear humans, and will usually run away if given the opportunity.

It is very unlikely that your group will come close to any wild animals, due to the considerable noise that most school groups make while they are travelling. Most knowledgeable hikers make noise by shouting or singing when travelling through the woods, especially near dense bush or close to running water. Recent research has shown that there has never been a documented case of a bear attacking a group larger than seven people - there certainly is safety in numbers!

For further information, contact Kananaskis Country at 675-5508 for a video on bears called *The Bear Facts*. The video is designed for use by both teacher and students, and is a good means of education regarding these hazards.

Ticks

Rocky Mountain ticks or wood ticks are blood-sucking parasites. They are active in the spring from when the snow begins to melt up to about late June. Wood ticks do not drop from trees as their name suggests. In fact, ticks are usually found on blades of grass waiting for suitable hosts such as sheep, deer, cattle, and humans.

Adult ticks are small, approximately 5 to 6 mm in length, and have a flat, reddish body. They can attack almost anywhere on the host. On humans, the nape of the neck is a common attachment point. Ticks painlessly insert their mouthparts through the host's skin and then secrete an adhesive substance that glues the tick to their host.

Both male and female ticks suck blood. The females can draw enough blood to expand their bodies up to 100 times their original weight. A fully engorged female resembles a large brownish-grey kernel of corn.

To reduce the possibility of picking up ticks, tuck your pants inside your socks. Repellents containing DEET can be sprayed or rubbed onto clothing likely to come in contact with grass or low shrubs. Don't sit or lie down in meadow areas where elk and other animals have been grazing. Stay off rocky areas where bighorn sheep and mountain goats are likely to have been feeding.

After an outing, you should carefully inspect yourself and your companions, especially around the head and neck.

If a tick has attached itself to your skin, the whole body, including the mouthparts, must be removed. Grasp it firmly near the head with tweezers or fingers and pull steadily so that the mouthparts do not break off in your skin. Some find it helpful to touch the tick with a few drops of gasoline, turpentine or ammonia, a hot needle, or the tip of a freshly-extinguished match to encourage the mouthparts to relax. Once the tick is removed, treat the bite area with an antiseptic to avoid scratching it. If the tick is attached too firmly to be removed without breaking it, or if following removal you experience a fever, headache, or any swelling around the area of a bite, see a doctor.

2.1.2 FOCUSING AND EXPLORATION ACTIVITIES

The exploration of a natural area can be a very overwhelming experience for a student. Presented below are some methods and techniques to help your students practice their observation skills and to focus their senses in a natural environment, thereby avoiding sensory overload.

The Observation Game

The Observation Game shows students that, when they take the time to really look, amazing things can appear before their eyes. Have the class surround an object of interest - a stump, perhaps, or a tree trunk, bush, or fallen log - and have them observe as much as they can for thirty seconds. Then have them turn so that their backs are to the object and quiz them about its details: what colours did they see, what types of insects, what was the shape of the leaves, etc. You may decide to let them have a second chance at observing the object and then quiz them again.

Viewing Tube

To construct a viewing tube, cut a length of paper towel holder into 15 cm lengths. A loop of string inserted through a hole in one end of the viewing tube and tied around the student's neck makes it available at all times.

A viewing tube is an excellent way to allow the entire class to examine the same item simultaneously - simply ask the students to use their viewing tubes to look at the object in question. Viewing tubes can be used to look at birds, trees or clouds. An interesting application is to ask the students to look at different levels with you: first the grass or forest litter, then the shrubs, then the treetops. Have the students describe their visual impressions as you all observe the same area.

Trust Walk

Take your students on a "trust walk". Divide them into pairs. Then blindfold one person in each group, and have the "sighted" partner slowly lead that person around an area, explaining to them what it is they are touching and feeling. This exercise shows students just how much they rely on the sense of sight, and allows them to learn that a lot of information may be conveyed by the other senses. The importance of language and the art of communication can also be introduced into the discussion.

Sniff and Tell

Another important sense to explore is smell. Challenge the students to discover as many different smells as they can in the study area. There are two ways to enhance the smell of leaves and flowers: one way is to provide each student or pair of students with a water-dropper. Adding moisture to most vegetation brings out its natural smell (hence the strong earthy smells after a rain). Another way to release the fragrance from a leaf is to gently rub the leaf or petal between thumb and forefinger. Remind students to put their noses close to the object in order to smell it.

One variation "Sniff and Tell" is an Onion Trail walk; rub onion on tree trunks (about 1 m off the ground) around your school campus. Students must use their sense of smell to find the trail.

Two notes of caution here: ask the student not to break off any of the vegetation, and check your area for Poison Ivy before this activity. Poison Ivy is a low plant whose waxy leaves grow in triplets. No Poison Ivy has been reported in Kananaskis Country.

Walking Lightly Upon the Earth

Divide the students into pairs along a path, with approximately 5 m between every pair. Ask one of the pair to choose a tree within eyesight, and then ask them to walk to this point and back to the path again, all the time followed by their partner. Remind the student that there are many fragile plants growing along the way, and ask them to make as little impact as possible as they walk. Have the second member of the pair comment on the progress of the first student and to mention those plants that were touched or bent by the feet of the first. Then allow the two students to exchange roles. Students will find that it is impossible to walk in the woods without having some impact.

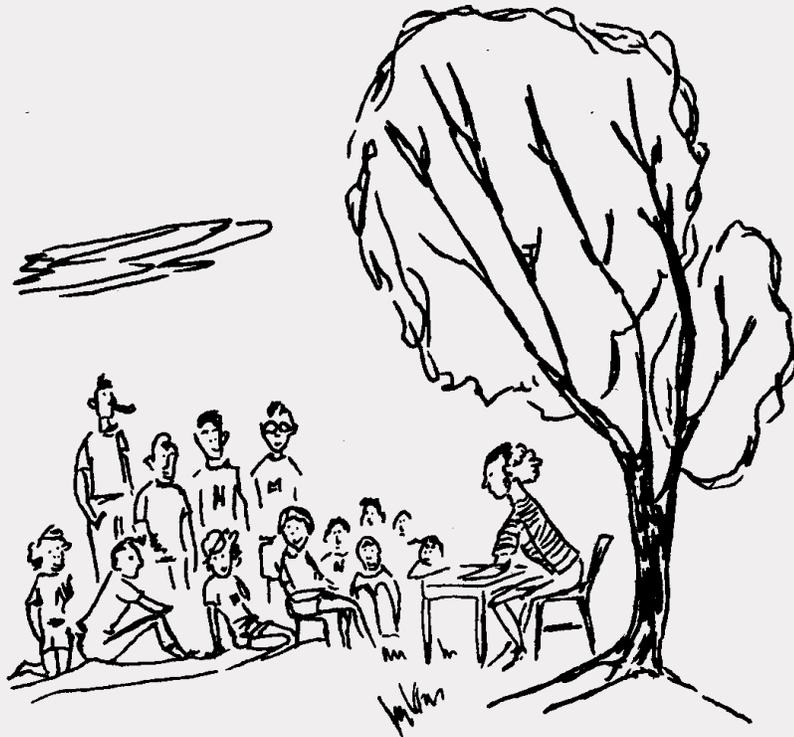
When this activity is completed, you may wish to tell the students that the "woodcraft" they have been practising can be applied to moving quietly through the woods. Ask students which felt better: walking normally, or walking lightly? Walking lightly will probably be preferred. This activity can lead into a discussion of the importance of "living lightly upon the earth": for example, by minimizing our impact through recycling, reducing our use of non-renewable resources, or reusing materials instead of throwing them away.



Guided Imagery

One way to focus students onto a specific topic is to prepare a guided imagery exercise. For example, an excellent way for students to think about trees is to have them sit around the base of a tree with their eyes closed. Read a prepared "mini-story" about the growth of a tree or its life story, and let the imagination of the students do the rest.

"Imagine that you are a tiny little seedling that has just grown from a seed and is pushing through the soil toward the light above. Imagine how dazzling the light is when your head finally breaks the surface! You feel the strong sunlight beating down on you, and you raise your leaves towards its warmth. You can feel the part of you still in contact with the soil absorbing water and strength from the soil below you, and slowly - so slowly that no one looking at you could even tell - you begin to grow! You can feel the sap flowing through your body and every part of you seems to be stretching and straining as your whole body becomes taller and taller. You can feel the energy striking your leaves and passing into every part of you, and you can feel yourself growing so much that soon you know you will be every bit as strong and as tall as a grown-up tree."

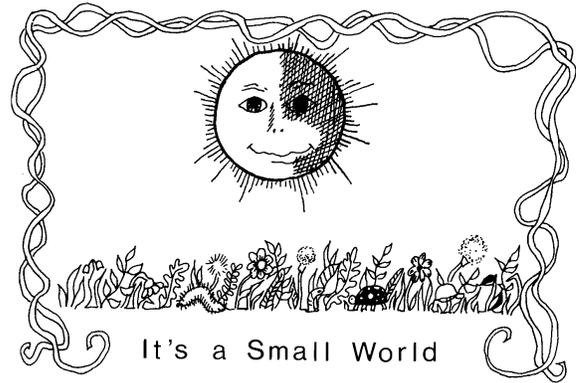


2.1.3 OTHER OUTDOOR ACTIVITIES

1. IT'S A SMALL WORLD

Each student requires:

- one 3 m length of string
- a dozen toothpicks
- magnifying glass (optional)



- a. Students will focus on a small area on the forest floor, and discover what amazing things may be found beneath their feet as they walk. Take the students to an area where the vegetation is varied: bushes, trees, tufts of grass, rocks, etc.
- b. Tell the students that the natural world always has surprises to offer, and that the students are going to go on an expedition through a natural area that contains a whole host of surprises.
- c. Distribute the materials listed above to each student. They can then find a spot in their area and, using the string as a pathway, mark points of interest along the pathway with their toothpicks.
- d. You may wish to model this for your students. Get down on your hands and knees and look closely at the variety of things that are on the ground: pixie-cup lichens, insects, fungi, flowers, etc. Tell the students a story of the trail as it evolves. This is an exercise in imagination!
- e. Give the students between ten and twenty minutes to prepare their mini-trails, offering more time if it is necessary. Encourage students to narrate their trails to you, to other adult volunteers, or to their peers.
- f. You may wish to have the students do further studies:
 - draw a picture or write a description of their favourite "toothpick stop"
 - describe the feel of the soils and/or plants along the pathways

Discussion

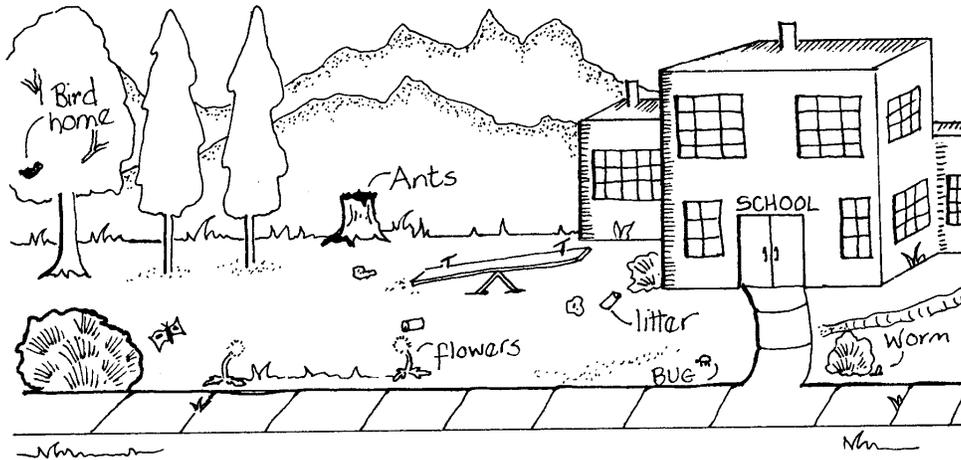
Ask the students:

- **did you see any insects in this community (note: an insect is an animal)?**
- **give an example of interrelationships in this community**

2. WILDLIFE INVENTORY

Have your students take a wildlife inventory of the school grounds. Draw a map of the school grounds showing buildings, streets, and boundaries, and have the students place trees, shrubs, and all “wild” areas on their maps.

You may wish to ask the students to look for the items listed on the student worksheet (next page) and to include them on their maps.



3. PLANT COMMUNITIES ON THE SCHOOL GROUNDS

Look at different communities found on the school grounds (examples may include a shady tree area, an open sandy area, a lawn, a ditch, a low bushy area, a grown up weedy area).

Divide the class into groups. Assign each group to visit a different community and collect the following information:

- **How many different kinds of plants are in your community? (Count the number of different kinds). Draw pictures of them.**
- **How many different kinds of insects are in your community? (Count the number of different kinds). Draw pictures of them.**
- **Write a list of words that describe your community.**

When they are finished, groups can report their findings to the class. Make a large map of the school grounds and have the students fill in the map with details of the area that they studied, drawing the plants and animals that they found there. Discuss why certain plants and animals are found in each community.

WILDLIFE INVENTORY

STUDENT'S WORKSHEET

Community Explored: _____

Evidence of pollution:

noise litter smoke trampled ground any others?

I see these animals or animal signs:

birds insects bird's nests tunnels in the ground

a wild animal (write what kind) _____

Which areas of your community seem to attract the greatest number of insects and animals?

What can you do to make your school grounds a better place for plants and animals?

How do the plants and animals help you?

What if there were no plants or animals on your school grounds?

4. SNOW TIME

If you go skiing or walking in the woods during the winter ask students to look for the following:

- Can they see some of the community members in the winter time? What do they do for food? for shelter?
- Can they see places that would serve as shelter for an animal?
- Do they see any signs of animals? (Tracks, browsing, droppings) Where?
- Which area, the forest or the field, do you think animals prefer in winter? Why?

When you return to class, discuss what happens to different plants and animals in the winter. Do they have different needs in the winter? Do people have different needs in winter, as compared to summer?

5. THE TREES AND YOUR COMMUNITY

Have students describe some part of the community in which they live. Then, take the class outside and gather them around a tree. If you do this activity indoors, collect and mount on poster board several pictures of trees. Have students point out and discuss similarities between their community and the tree's community.



6. "IN A MOMENT" WINTER FIELD STUDY

During winter ski trips or outings, have students work individually or in pairs to find examples of the things listed below. Write the items on index cards as individual items or as a list of several to be found within a certain time limit.

- a) food for you
- b) shelter for an animal
- c) something that keeps plants warm
- d) food for a bird

- e) food for a squirrel
- f) something an insect ate
- g) an animal's home

This "scavenger hunt" can be used to spur discussion on interrelationships, connections, and communities.



7. HABITAT CARDS

Give each student, or small group of students, a card with a habitat statement. Example of cards would be:

- find a plant that is food for birds;
- find a place that would be an animal's home.

Take students to an open area on the school grounds that will satisfy what is written on the card.

This activity can be done inside, using old magazines or the library. Allow students time to find an example that would satisfy their card's statement.

When they have an example, let them draw it on poster board. Each student should place the card next to the drawing and tell the rest of the class why they chose the object.

8. SHADY SPOTS

Divide your class into groups of three or four. Have each group place a 30 cm by 30 cm piece of cardboard or wood over a patch of grass or other small plants found on the school grounds. Securely anchor the cardboard. Check the spots every two days. Have students keep a record using crayons and paper to designate colour changes that occur on each day. Remember to take the patch off at the end of the school week.

Discuss why the colour changes:

- **Does the grass look healthy?**
- **Is it still growing?**
- **What effect does sunlight have on plants?**
- **Do plants need sunlight?**
- **Do we need sunlight?**

9. AIR CARE

Test the air by making an air test screen. Explain to the class that sometimes there are things you can't see that are affecting you - and being affected by you!

Tape light coloured material (cotton, linen) or a fine mesh screen tightly over a box. Rub vaseline over the screen or cloth.

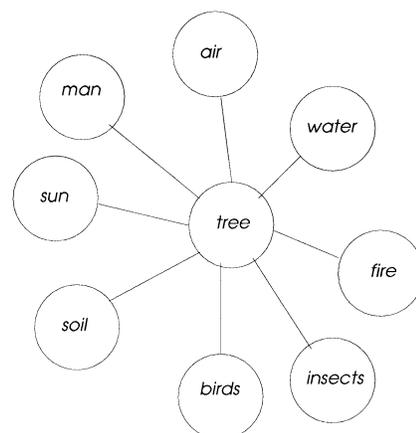
Have students make 3 or 4 test screens and place them in several locations — near a highway, a home, a park. Students could place their screens in various locations on the school grounds. Wait for a few days and check the screens. Compare them in class.

Do a report or chart on your findings. Is one "dirtier" than the others? Can you guess why? Ask the students: "How do you depend on the air you breathe? What can you do to keep the air clean?"

10. INTERACTIONS AMONG LIVING THINGS

Have your students identify different objects and think of the interaction among those objects. Each student should pick some natural thing, then compose a list of other things that interact with this chosen object. Example: tree — sun, air, water, soil, birds, insects, fire, humans.

Have the class discuss their lists. Students should feel free to challenge any items. The class can construct a mural to be displayed in the classroom or some other part of the school, using the diagram format shown.



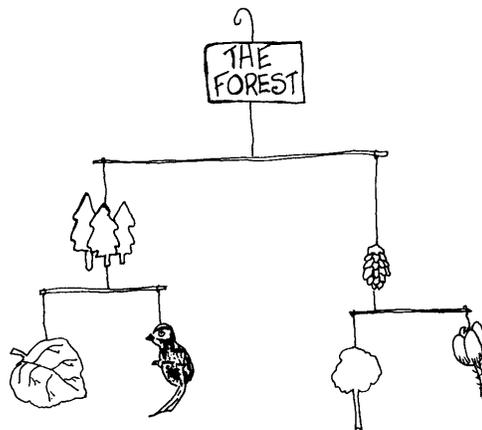
2.2 INDOOR ACTIVITIES

Note: many of these activities are best carried out as extension activities after some form of outdoor study or visit to a natural community.

1. COMMUNITY MOBILES

Gather together used coat hangers or twigs from outside to use as support sticks, and heavy nylon thread in 15 to 20 cm lengths. Each student will need 3 pieces of support sticks and approximately a dozen lengths of thread. Pass out construction paper or poster board to be used to make the mobile objects; alternatively, you may want to use items gathered in a scavenger hunt in a community that you have been studying. The steps below describe how to make their mobiles; you may wish to demonstrate the difficult steps for the class beforehand.

1. Lay items for the mobile onto a flat surface the way you would like to see them arranged.
2. Glue the bottom two objects to lengths of string and then tie them to the ends of their support sticks. A drop of glue will help hold the string.
3. Next, attach a second piece of string to the support stick at its balance point, so that the stick will hang at an approximately horizontal position.
4. Continue upwards until you come to the top of the entire mobile.



2. WHO NEEDS ME?

After a field study have students choose some living thing on which other living things depend. The students should write a short story telling how the dependent organisms would feel and react if the thing on which they depended was destroyed. Read the stories in class.



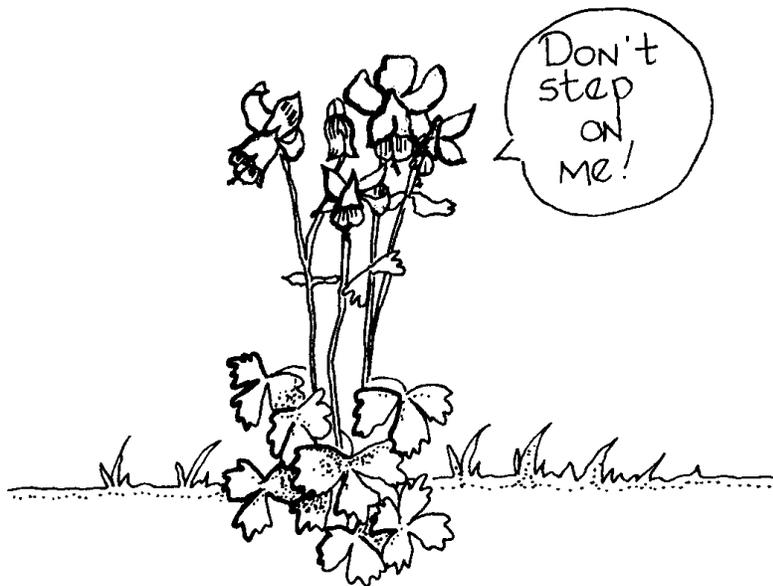
3. SHOW ME

Instruct students to make drawings or collages that will show any of the following: the interrelationship of plants and animals; change; human's influence on their environment; a good change or a bad change. Old magazines can be used to obtain materials for collages.

4. TAKING THE PLACE OF . . .

Have your students play the roles of bees, flowers, mice, owls, trees, grass, soil, and air. Instruct the students to act like the thing they are playing, except that they are able to talk. Make up one of the following situations for the play acting: the day the sun didn't shine; the day the food ran out; the day people littered the area; the day careless people started a forest fire.

Going further with this, make up a class play and present the play to another class, or the school in general.



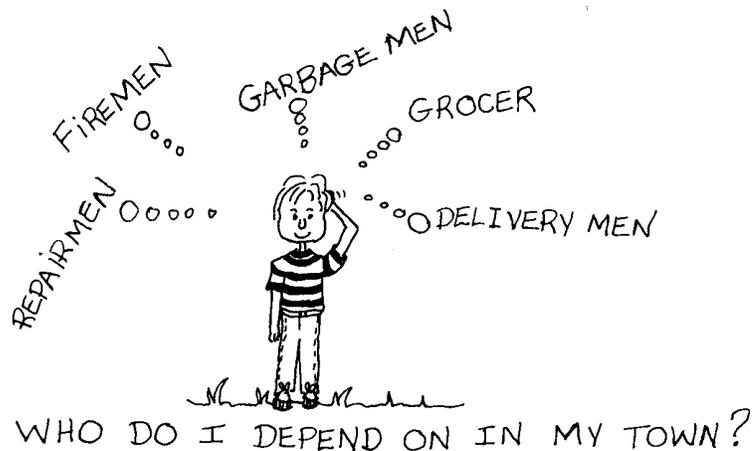
5. FOUR SEASONS

Divide your class into four groups. Have each group make a collage poster, from drawings, that could depict one of the four seasons. Think about the communities you have studied and how each one would look at the different times of year. This activity can lead into a discussion of the scientific causes of the seasons.

6. OUR TOWN

Start this activity by asking the class to tell what their parents or guardians do for a living. Some students may not be sure what their parents do; you may choose to assign standard roles (fireman, police woman, etc.) to students whose parents have more difficult-to-understand occupations (i.e., insurance adjuster, podiatrist). When every student has an "occupation", have them sit in a large circle on the floor. They are to pretend they are one of their parents and share what job they have with the class. You may choose to give each student a sign to indicate what they are.

Give a ball of yarn to one student. Have them loop the yarn around a finger and toss the yarn to someone who depends on them or on whom they depend. The person must state the occupation of the person to whom they toss the yarn and why they are interrelated. Anyone can challenge the yarn tosses. The ball of yarn can be tossed to the same person more than once.



Discuss how you depend on people in your community. Look at the web you have created.

Shut down one of the industries or businesses in town and have everyone in that industry drop their yarn. Ask the students to tell you if they felt the string slacken. What happens to our community? Conclude the discussion with the thought that in some way most members of a community are interrelated with all the others.

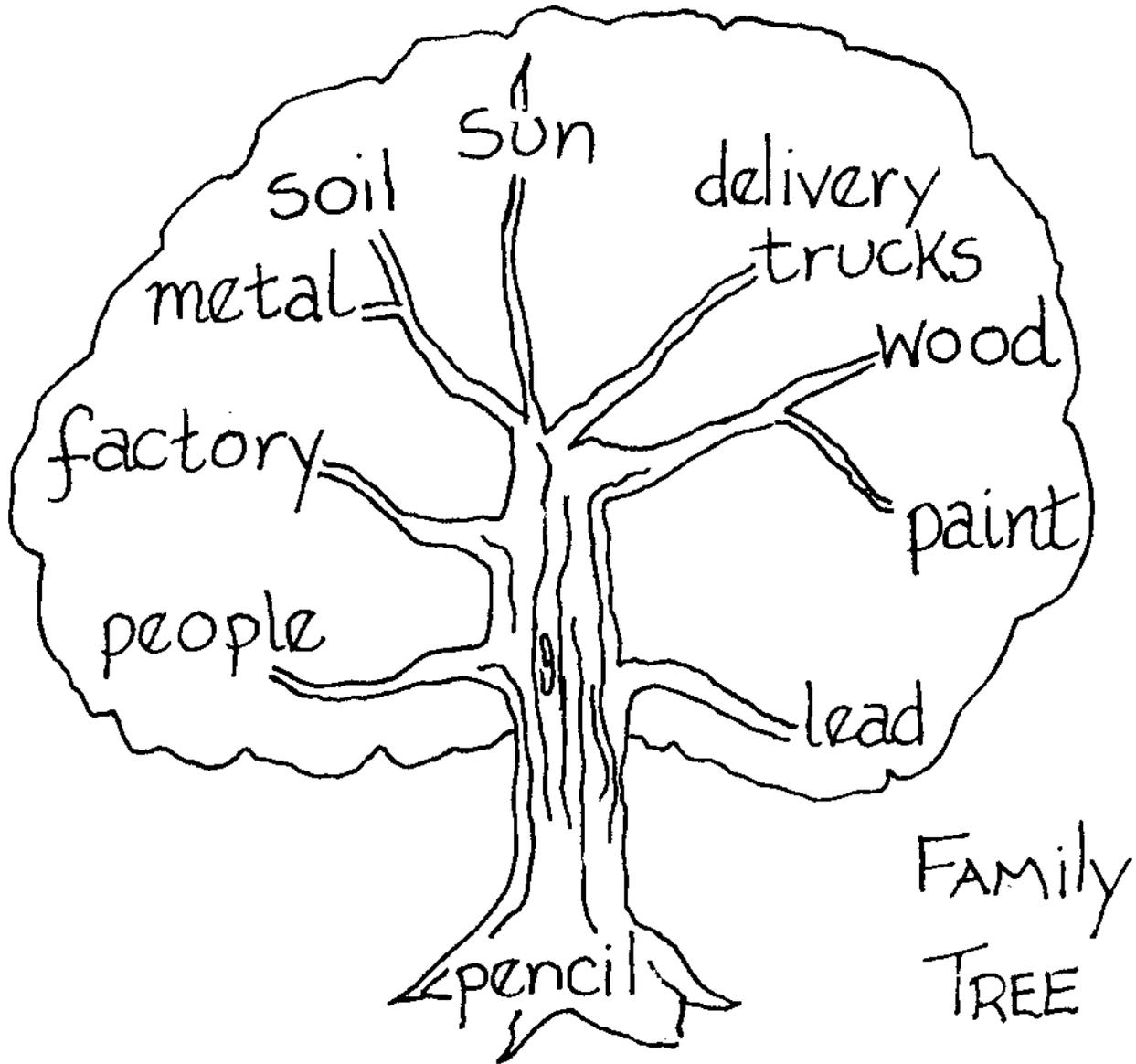
7. FAMILY TREE

On the chalkboard draw a tree with one main trunk and several connecting branches.

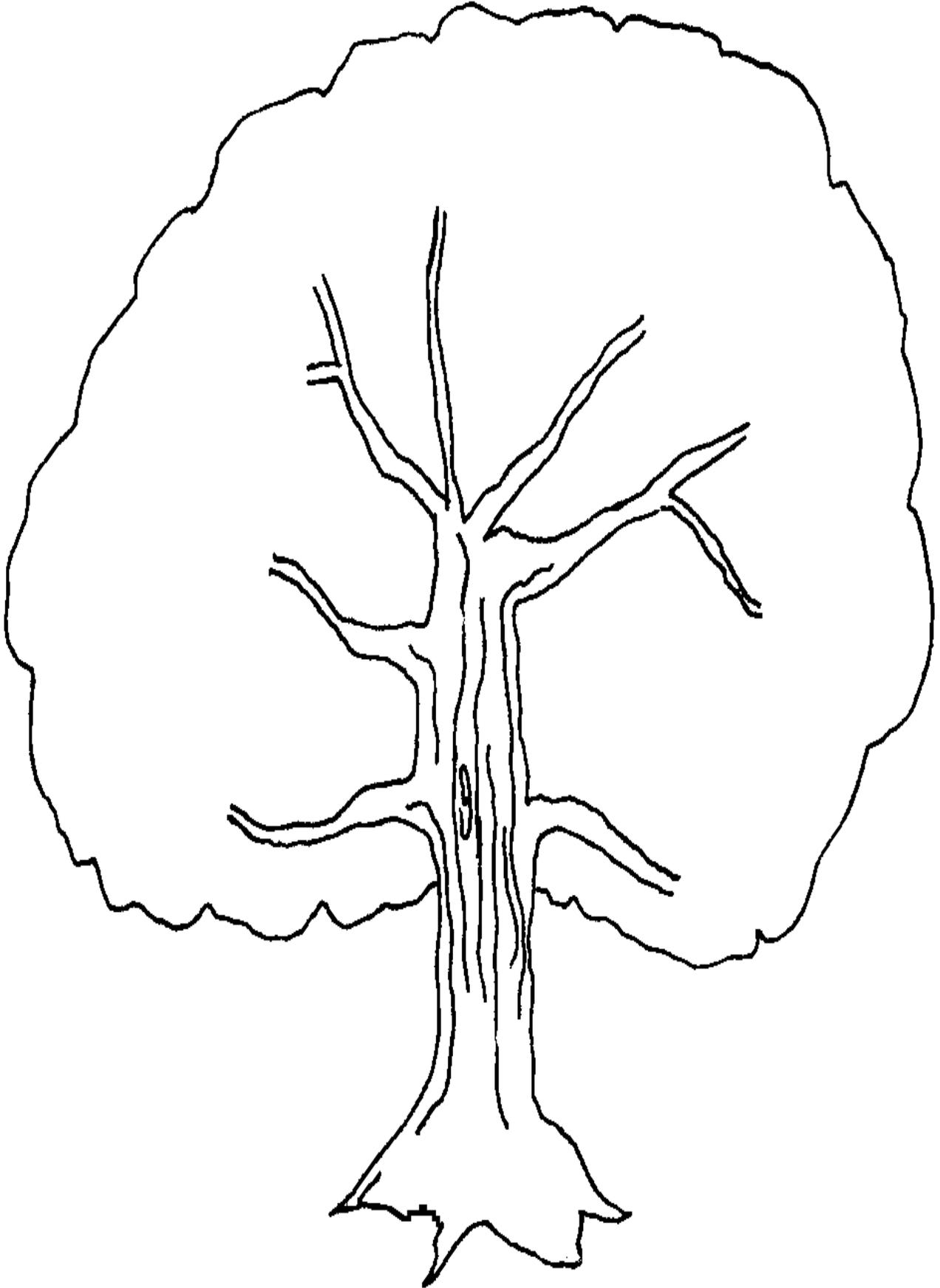
With the entire class, construct a the family tree for a human-made object such as a pencil. A family tree tells where someone, or in this case *something*, comes from. The tip of each branch represents an ancestor or a component. (Students might want to do a family tree

showing their parents, grandparents, and great-grandparents.)

Have everyone contribute as you construct the family tree for a pencil, brick, paper plate, etc. Include all the things that go into making a pencil. An example is provided below that may be shown to students.



FAMILY TREE



8. CAMP OUT

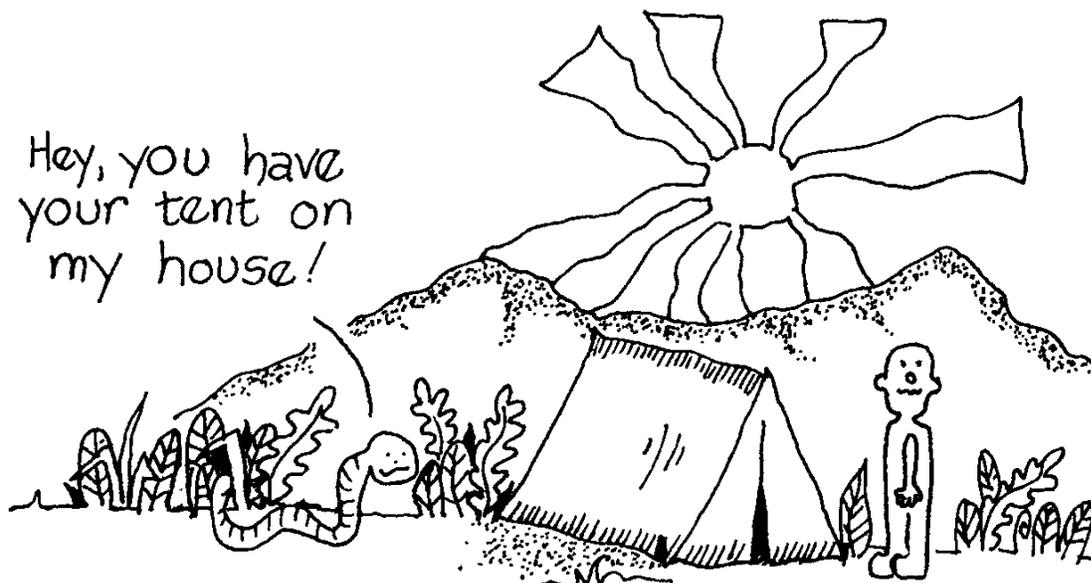
Go on an imaginary camping trip in which, to your surprise, no wildlife is seen. Discuss what a camping trip without animals would be like:

- no birds to wake you in the morning
- no fish to catch for dinner
- no squirrels to watch
- no ants to discover your sugar, etc.

You will probably decide that wildlife is an essential part of the enjoyment of a camping trip. Make your class aware that a human is the “guest” while camping. Although wildlife might cause people some inconveniences, at times humans can also upset things for the wildlife. Can they think of ways people disturb wildlife? (Noise, trash, fires, pollution, tree cutting)

The students might pretend they are a raccoon, squirrel, mouse, or other animal living near the campsite and tell or act out the animal’s side of the camping trip.

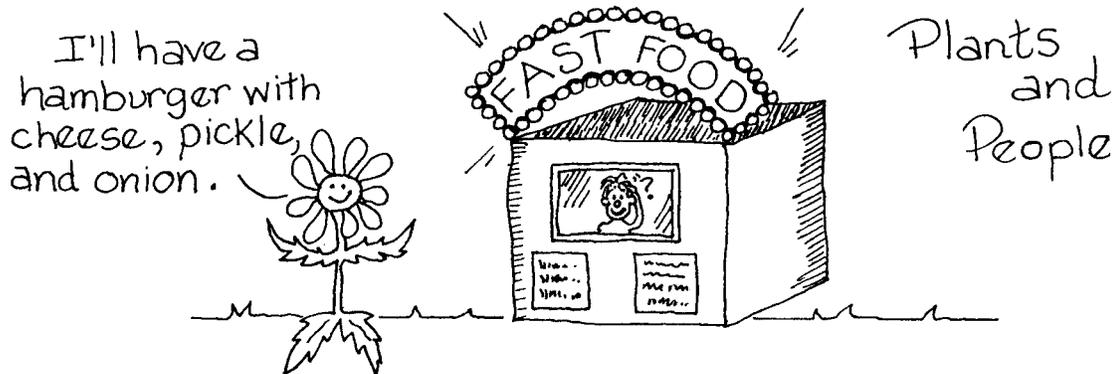
As a follow up have students draw a large tent on poster paper and fill the tent with the names or pictures of things they would take on an overnight camping trip. Most students are enthusiastic about camping; you may choose to devote some class time to reports on a special camping trip they once had.



9. PLANTS AND PEOPLE

Discuss with the class how our food needs differ from those of a plant by asking students the following questions:

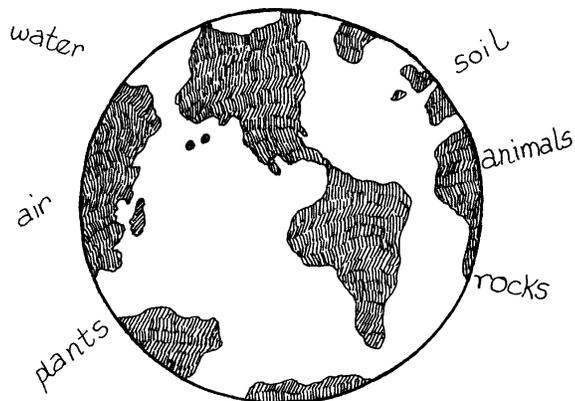
- **What did you eat and drink yesterday?**
- **What does a plant eat?**
- **Do you feed a plant?**
- **Does a plant make its own food?**



10. EARTH GAME

Draw a large circle about 2 meters in diameter on the ground or on the floor. Label it "Our Planet Earth". Let students make cardboard circles about 15 cm in diameter. On these circles draw or print elements needed for life on Earth (some suggestions are listed below). Let students take turns tossing their circles into the larger circle. When everyone has had a turn, collect those circles that fell outside of the larger circle. Ask the students to tell what would happen to our Earth if this element were suddenly removed. Include the following on smaller circles.

- air
- soil
- plants (types)
- rocks
- minerals
- animals (types)
- water



Write a thank-you note or make a present to give to the Earth. Do something for the air, soil, water, or light that shows that you care.

11. CHANGING ECOLOGY

In the classroom have students make notepads, about 10 cm by 12 cm, with poster board covers that have been labelled, "How We Change the Environment". Covers can be made with some scene illustrating a change made by humans, such as a home being built, sidewalks, bulldozers clearing land, forest fires, etc. Let students record each change to the natural environment that they observe as they come and go to school. This might be by sketches, short notes or both. Allow time for students to work on these books and discuss the notes. Be sure to talk about the consequences of each change. Make a class mural, "How we are changing our Environment", using the information from their notebooks.

12. THE SQUIRREL GAME

Play the squirrel game with your class. Photocopy master copies of the game and chance cards for small groups to play. Glue them to cardboard for durability. After the game, talk about the forest community. Who does the squirrel depend on, and who depends on the squirrel?



13. DREAM HOUSE

Let students choose words from each of the three columns below to describe the kind of place in which they would like to live. They may choose as many of the words as they want, but they should describe only one location. Add words to the list if you wish.

Have each student write a paragraph or story that describes the place in which they would like to live. Ask the students: "Does your house and your living style impact on the environment? Discuss ways in which they can reduce their impact.

building

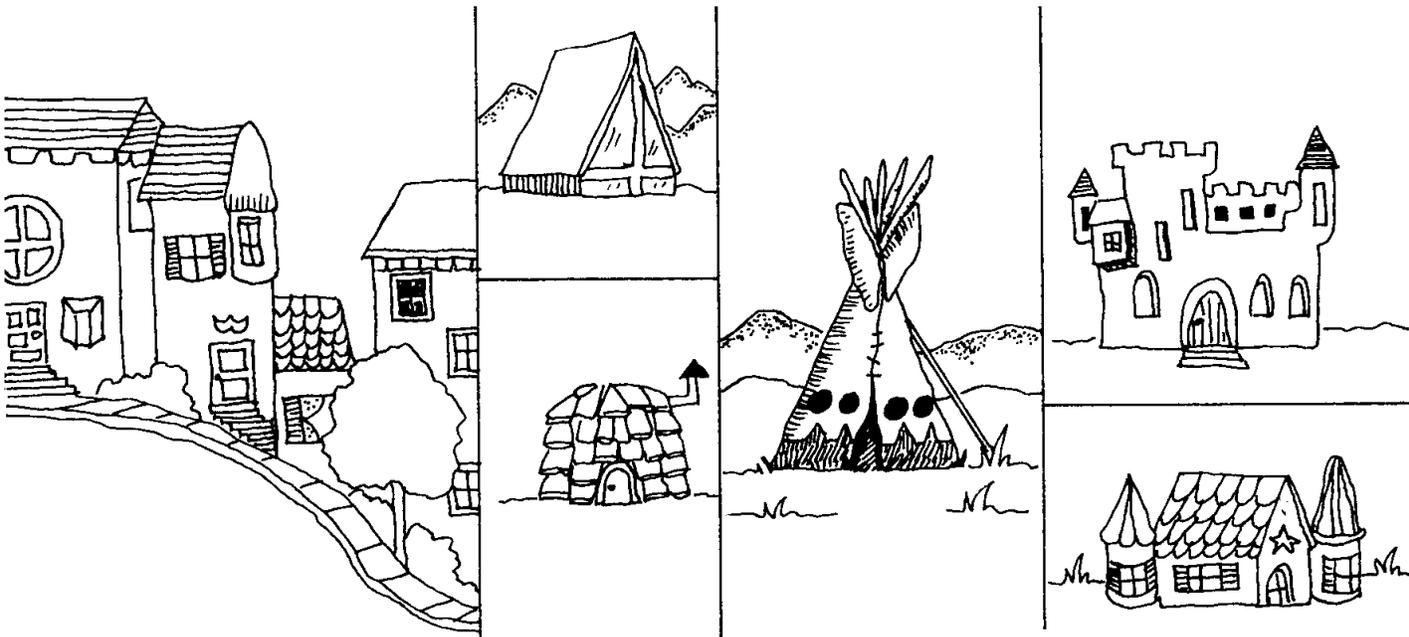
cabin
apartment
tent
dormitory
trailer
mansion
duplex
castle
house
tipi
forest
A-frame house

location

town
mountains
beach
city
river bank
farm
suburbs
hill top
foothills

I use the following in my home:

toaster
garbage disposal
electric dishwasher
wall-to-wall carpet
outdoor toilet
electric oven
house plants
gas heater
television
books
wood stove
stereo



14.

HUMANS AND THE LAND

Have the students look for pictures in magazines, newspapers, etc. which show:

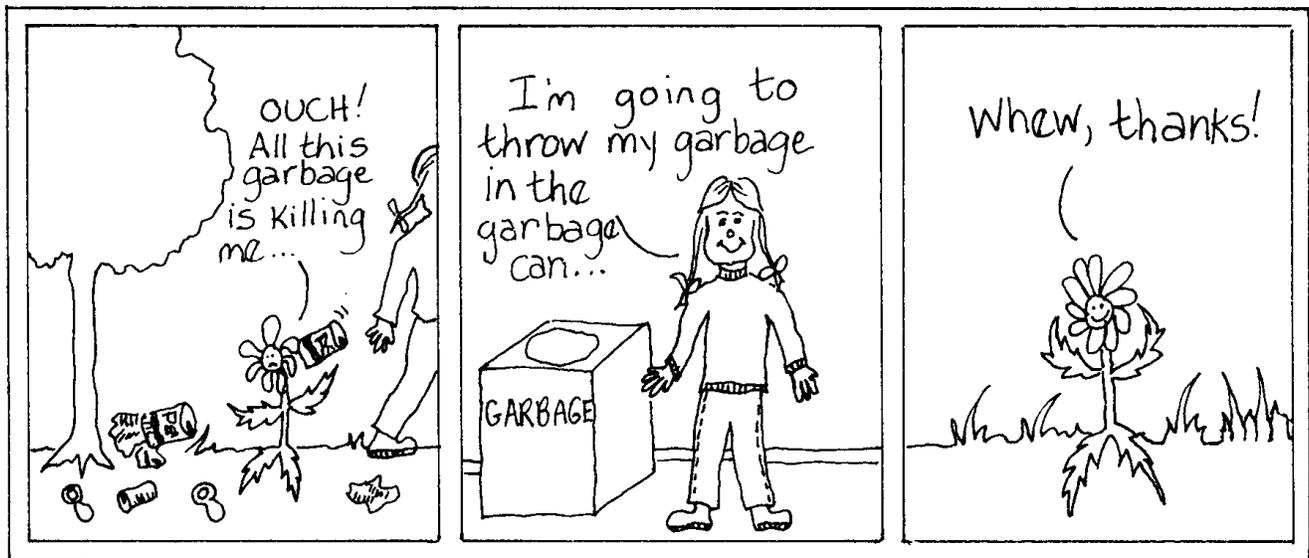
- natural land
- land changed by people

Sort the pictures into categories showing the ways in which land is used. Ask students:

- **Which one do you like the most? The least?**
- **Since what happens to the land depends on you, what can you do to cause the least harm?**

15. IT'S NOT FUNNY!

Have your students make a cartoon strip showing sensible ways to use our natural resources. Have students think of things in the environment that they enjoy and use (examples might include air, sun, soil, plants, animals, water). What would happen if those things disappeared? Can we help take care of these things? Post cartoons on a bulletin board for everyone to see.



16. TERRARIUM

Demonstrate a terrarium community. You can make a terrarium in small or large glass containers. The materials you need are:

- a container that light rays can penetrate
- gravel or sand
- charcoal
- soil with some humus (decayed plant material)
- small plants and tree seedlings (dig up soil with the roots and keep in a plastic bag until ready to use)
- small saucer of water
- a pretty rock or two
- a cover for the terrarium (plastic or glass)
- some grass seeds
- a small thermometer to keep in a corner of the terrarium
- small animals (ants, snail, slug, beetles)

To put it together:

- Put in a five to eight centimetre layer of gravel (for drainage of excess water).
- Add small pieces of charcoal to keep the soil aerated and to absorb gases (you could have the students break commercial charcoal briquettes into small pieces).
- Add 5 to 8 centimetres of topsoil (a good place to obtain topsoil is under bushes where humus has accumulated).
- Add a small water dish as a drinking place for animals, and for humidity.
- Add plants (leave room for growth; you may want to plant a few seeds)
- Add the small bugs or insects
- Place the glass or plastic over the top.
- Place the terrarium in indirect sunlight; do not place it on a radiator or other heat source (either of these can cause an overheated terrarium).

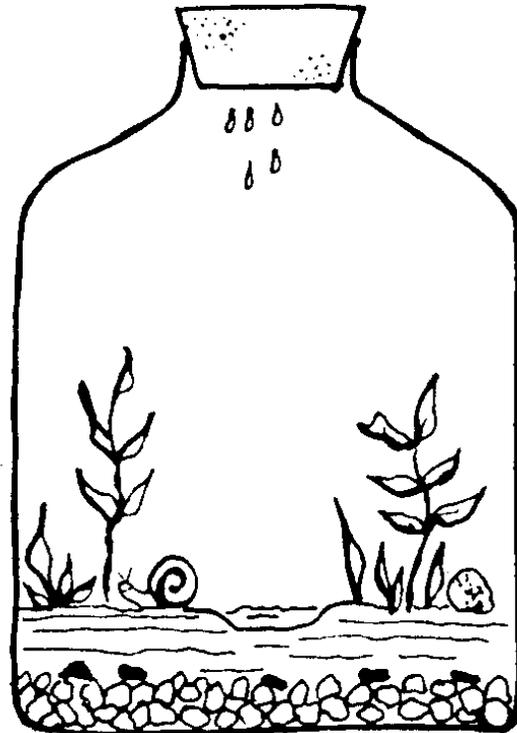
Maintaining the terrarium

If the terrarium is too dry and a “rain” doesn’t fall from the cover, sprinkle more water in. The terrarium is too wet if you have mold; leave the top off for a day, or leave a space in the top covering. Leave dead plants and animals to decay.

You must limit the number of animals, or the terrarium community will not be able to support itself. The closed terrarium should be a good example of how soil, plants, and animals depend upon each other. The “mini-world” in your terrarium is self-supporting.

Once you have your terrarium, begin daily observations of the activity. Have students keep a diary of day-to-day events. Ask students:

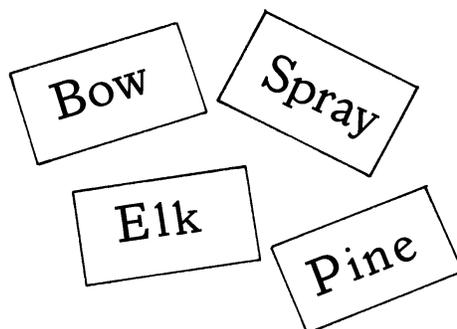
- Why is the terrarium like a “mini-world”?
- What do the plants need in order to survive?
- Where do plants get food for their growth? (Light and carbon dioxide from the air, water from the soil).
- Could the plants survive without the air, water, and soil?
- Where do the animals get their food?
- What else do they need to survive? (air, water, light)
- What do people need to survive?
- What will happen if our air and water become polluted?



17. LOCAL CARDS

On 8 by 13 centimetre index cards, have the students print words which describe a local area: e.g., names of plants, animals, rivers, mountains, schools, streets. Use these cards for:

- alphabetizing
- placing cards into community groups
- placing of cards into a chain of who needs who, and telling why
- choosing a card and then drawing a picture of that word
- students pick a card; if the student can name one thing that the card depends on, or depends on the object named on the card, he can keep that card and draw again from the cards. The student accumulating the most cards wins
- practising pronunciation, sentence making, syllables, spelling



18. 100 YEAR CHANGE

Show slides, pictures, or maps that depict local places and events near the turn of the century. Have students describe the things they see, list the changes that have taken place since then, and describe what it was like to live then. Compare the community in the picture or slide to our community today. Ask the students: "How has the surrounding environment changed since then?" Discuss advantages or disadvantages of living then and now.

Draw pictures of your town, city, or community 100 years ago, today, and what you think it will look like 100 years in the future.

19. THE DEPENDENCE WEB

Have your students brainstorm about all of the services they are dependent upon for their lifestyle. Then classify these services into:

- ESSENTIAL SERVICES — services that supply things absolutely necessary for life
- NON-ESSENTIAL SERVICES — those services that provide non-essential things.

Ask the students:

- **What things can we do without?**
- **What would happen if we didn't have the essential services? The non-essential services?**

This same process can be used with students to discriminate between things that are needed (food, water, shelter) and things that are non-essential, or luxury, items (cars, televisions, etc.).

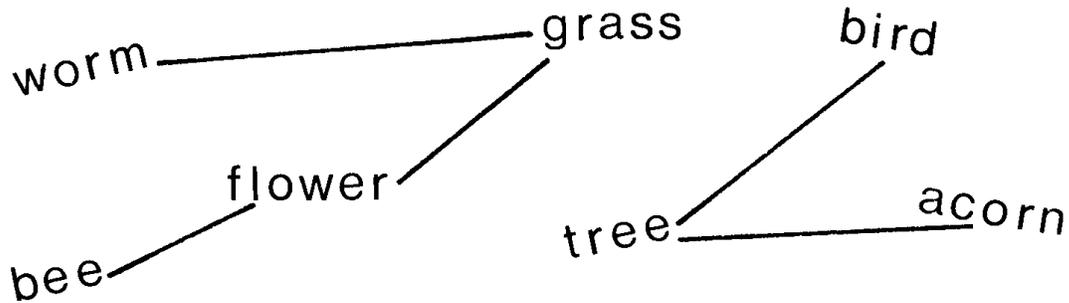
20. PICTURE TELLING

Instruct students to collect any ten photos from old magazines. Don't tell them what they are for, but ask them to make the photos as different as possible. Next, have them write or tell a story that includes all of the photos. Encourage students to think about how the different pictures could be related to one another. If there are living things in the photos, ask the students: "Do they all use some of the same things? Do they all need some of the same things to live? What places do they live in?"

You could ask students to paste their ten photos on a poster board, with lines drawn between them to show how they are interrelated (remember, a photo can have more than one interrelationship).

21. WEB OF LIFE

Have the students make a list of a variety of living and non-living things. The names of all the objects should be written on the chalkboard. With lines, connect those things that the students feel depend upon one another for survival. The resulting pattern may resemble a web — the web of life.



Make a bulletin board display of a “web”.

22. STORIES WITH MISSING WORDS

Write a short nature story about interrelationship with some nouns and verbs left out. Give a copy of the story to each student with the following instructions:

Use the information you have learned about communities and interrelationships to fill in the blanks in this story. After the students have filled in the blanks, go over the stories and discuss the nouns and verbs that were used. Also, discuss how people build their vocabularies by experience.

23. TRUE — FALSE CHASE

Divide your class into two large teams. Line up each team so that they face each other and are about 3 meters apart. Designate one team as “TRUE” and one team as “FALSE”. Approximately 6 to 9 meters behind each team establish a goal line with string or stakes. The teacher should call out a True - False question related to communities or interrelationships. If the answer is true, the False team must turn and run toward their goal line, while the True team tries to tag members of the other team. If the answer is false, the True team must turn and run toward their goal line, while the False team tries to tag members of the other team. A captured person must join the other team. Alternating between true and false questions helps keep the teams at similar numbers.

This can also be done as a culminating activity outside after a half-day or full-day field activity.

24. IS IT HARMFUL?

Have students think of situations where people are harming the environment. Try to think of things they've seen or know about that might be harmful to wild plants and animals. Some examples would be:

- someone driving their vehicle over fragile environments
- carving initials in a tree
- picking up baby birds
- removing plants from the environment

Students should make drawings or cut out photos showing these activities and describing what is happening. Paste pictures on cardboard.

Collect the cards. Divide the class into groups of four. Hand out one card to each group and have them discuss (or present poems, skits, etc.):

- **What is happening in these drawings?**
- **Is it harmful to wildlife? If so, how?**
- **Is it appropriate or inappropriate behaviour? why?**
- **Is the person doing it having fun?**

Ask each group to report on how they feel about what is happening in the activity shown in the picture, and their recommendation for an alternative activity the people could do that wouldn't be harmful.

25. NATURE SHOW AND TELL

Have your students collect one "natural" thing from the natural environment on the way to school. These things could be rocks, leaves, seeds, etc. Whenever possible, the object should be something the student has never seen before. Each student holds up their object for the class to see, then the rest of the class tells what they know about this object.

A variation on this activity is to place the objects around the room. Place a sheet of paper by each one. Let students roam the room looking at the items. If a student knows something about the object, they should write what they know on the paper for that object. Read the papers to the class. Then ask the students: "What have you learned about the object?"

Test to see what the class has learned about the object by asking the following questions about those items that are living or were once living:

- Where is its home?
- In what community would this object be found?
- Who or what does it interact with?
- What does the object need to help it to survive?

26. MEET MY FRIEND, THE PLANT

Have the students think of plants they have seen on field studies, or take students outside and find a plant. It could be one they especially liked because of its size, shape, colour, or some other characteristic they remember. Pretend that the plant can speak and understand you.

- **Would you talk or listen?**
- **What would you say to the plant, or what would the plant say to you?**
- **What questions would you ask the plant?**

Write a short story or give a verbal report to the class about the conversation you had with the plant.



27. INTERVIEWS

Have a student choose one animal or plant from a field study and let the class interview it.

The student can say, "I am a flower, beaver, fish, tree, blade of grass, etc." Alternatively, you may choose to let the students work in pairs to aid them in answering the class' questions. A period of research might also be useful to allow students to prepare their answers.

Divide the rest of the class into small groups and think of questions to ask. For example:

- **Who are your neighbours?**
- **Do you like your neighbours?**
- **What is your favourite food?**
- **Where have you spent most of your life?**
- **Do you have any enemies?**
- **What is your favourite season?**
- **What do you do in the wintertime?**

28. COME TO MY COMMUNITY

Make a map of the natural communities you saw on a field study, showing major points of interest.

Divide students into 3 or 4 groups, each responsible for one of the communities studied. Design a bulletin board or mural about the communities. Let each group point out important places or community members' homes. Make signs saying "Welcome to my Community", or signs which tell about the unique and interesting areas. Think of reasons why your community is a very interesting area. Try to get classmates excited about "touring" your community.

Display the murals or bulletin boards, then let each group take the class on a guided tour of their community.

29. ADD-A-LINE STORIES

Form a circle in the classroom with your students. Have them create a story about one of the field studies by letting one person begin telling a story. The first person gets no more than two or three sentences, then the next person must add to the story. Each student in the circle can add up to three sentences. The story could be about what they have discovered or experienced, or could feature the adventures of one of the animals you observed during the field study.

If possible make a tape recording of the story and play it back later in the year.

30. HAIKU

Write a Haiku about an interrelationship or a community that you have studied.

Haiku poetry is a form of Japanese poetry. The art of Haiku is to capture in words the quick feeling you get when you focus your senses on something. Haiku poems do not have to rhyme. Haiku poems have only three lines. Each line as a specific number of syllables: Line one has 5 syllables. Line two has 7 syllables. Line three has 5 syllables. Read the poems in class. If you use the theme "communities" have students guess which community is being described.

Here is an example of a Haiku about a sound:

*Whistle of a bird
Passing over the forest
It touches my heart*

(5 syllables)

(7 syllables)

(5 syllables)

31. CREATE-A-COMMUNITY

Make up your own community. What will your essential needs be? What would you like to see in it if you were: a fish? a bee? a squirrel? a gopher? What other living things would you like to be interrelated with? Write a report or draw a picture of your community.



32. PREDICTION

Take each community studied and describe, in pictures or words, what you think it will look like in 20 years? 200 years?

Discuss your results. Do you like what you see in the future? Why or why not? Can you do anything to change the future forecast?

In many cases, students will feel anxious about what they think will occur to their chosen community. An excellent way to overcome feelings of powerlessness is to take action on the issue:

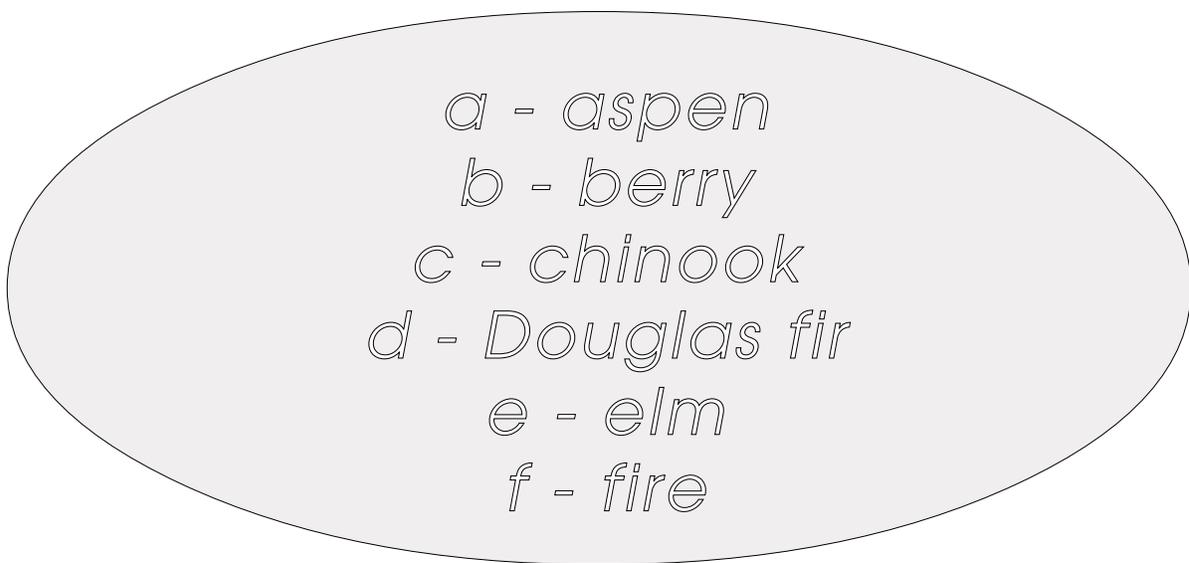
- Write a letter (as a class or individually) to a government figure that reflects students' concerns
- Undertake a school project
- Raise money through a bake sale or a raffle to give money to a nature conservancy organization that protects natural communities such as the one your class is concerned about

33. ALPHABET

After a field study have a sharing circle of words that relate to the area visited. Have students sit in a large circle and let one student start at the letter "A" (i.e., aspen). Go around the circle until the alphabet has been covered. Words should relate to things seen or done on the field study.

A variation of this exercise can be to use the student worksheet provided. Beside each letter of the alphabet, write down all the words that you can think of which begin with that letter, and have something to do with the area you visited.

Tell the students: "You score 3 points each time you write down a word starting with a different letter. You get 1 more point for each of the extra words you find."



34. WORD SQUARES

Use the word square sheet to reinforce vocabulary. Students should make sentences using the word in each square. Check their results or share them in class. Example:

<p><u>tree</u> The porcupine likes to eat the bark of a tree.</p>	<p><u>midden</u> A midden is the garbage dump of a squirrel where he leaves the remains of pine cones.</p>
------------------------------------------------------------------------------	-----------------------------------------------------------------------------------------------------------------------

Make up your own word squares using nouns and verbs.

WORKSHEET

The Alphabet Game

WORDS

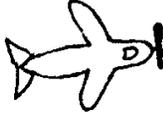
POINTS

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

TOTAL SCORE _____

35. REBUS

A rebus is a riddle in which names of things, etc. are represented by pictures standing for either syllables or the entire thing. For example:

The  flew over the 
on its way to the airport.

The  are homes for .

Write your own short story and make it into a rebus story for others to read. Try to include something that shows how living things interrelate.

3.0 COMMUNITIES AND CONNECTIONS; AN ACTIVITY GUIDE

Program Evaluation

Kananaskis Country Environmental Education materials have been developed to provide you with teacher-directed units of study. These are *living documents* that undergo changes on a continual basis.

The purpose of this questionnaire is to find out if these materials are meeting your teaching needs. Your comments are valuable to us. Please take a few minutes to complete this evaluation so that we may continue to improve your materials.

School name	Grade level taught	Your name <small>(optional)</small>
_____	_____	_____

★ How did you hear about the program?
 workshop administration in-service newsletter fellow teacher
 other (please specify) _____

★ Did you use all of the program? yes no
 If you answered **no**, which part did you **not** use and why?

★ On the bar line below how would you rate the program in the following categories:

	YES		NO
• appropriate for grade level (✓)		-----	
• clear instructions		-----	
• text easy to follow		-----	
• relevant to curriculum		-----	
• materials easy to use		-----	
• did you enjoy the material?		-----	
• did your students like the material?		-----	
• program of appropriate length		-----	

- ★ Approximately how long did it take you to complete these materials?
 1-2 weeks 3-4 weeks 5-6 weeks longer than one month
 program was spread over the year

- ★ Were you satisfied with how these materials fulfilled the curriculum objectives?
 yes no
If you **were not** satisfied, please elaborate:

- ★ Did you require any additional information to complete any part of the program?
 yes no
If **yes** please tell us what was required:

- ★ Would you use these materials next year?
 yes no
If you answered **no** please tell us why:

- ★ Any additional comments about the program in general?

Thank you for completing this questionnaire. Please place the completed questionnaire in an envelope and mail to:

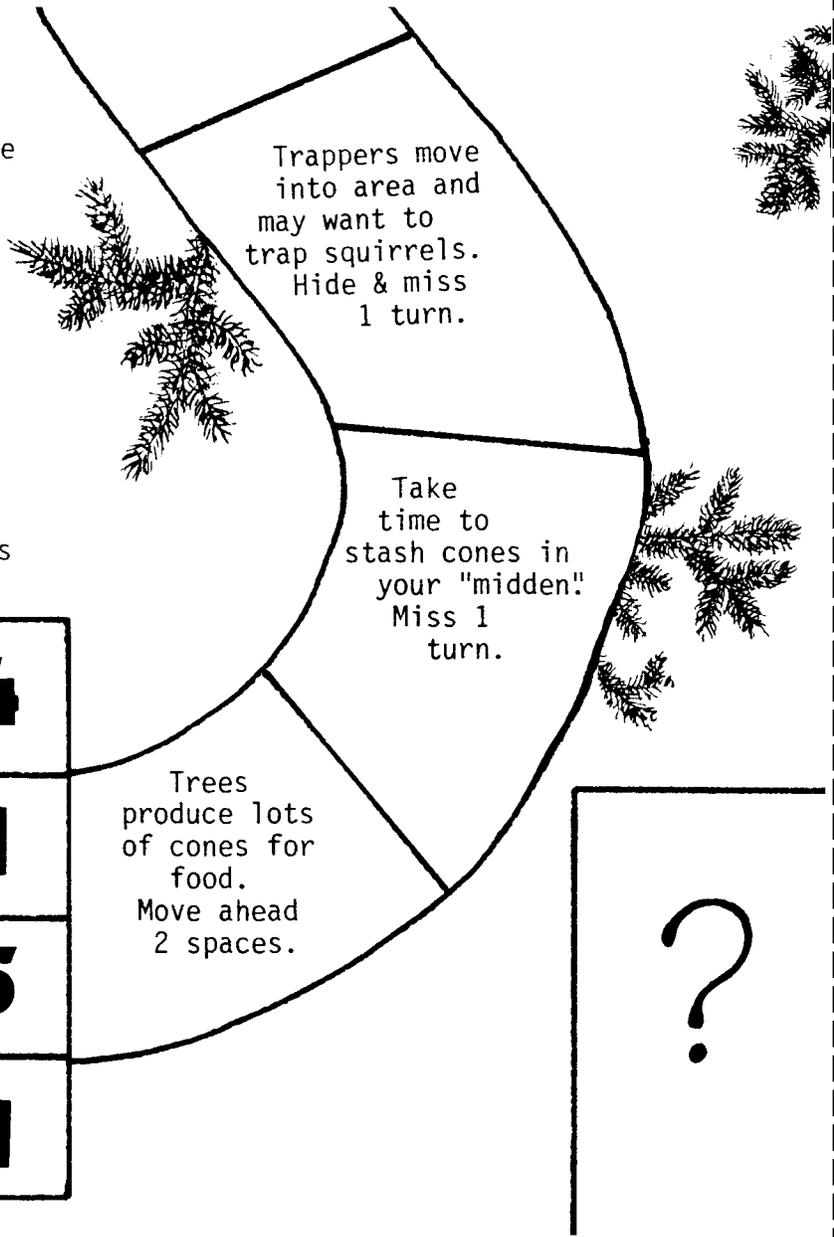
**Environmental Education Coordinator
Alberta Environment
Kananaskis Country
Suite 201, 800 Railway Avenue
Canmore, Alberta,
T1W 1P1
Phone: 403-678-5508**

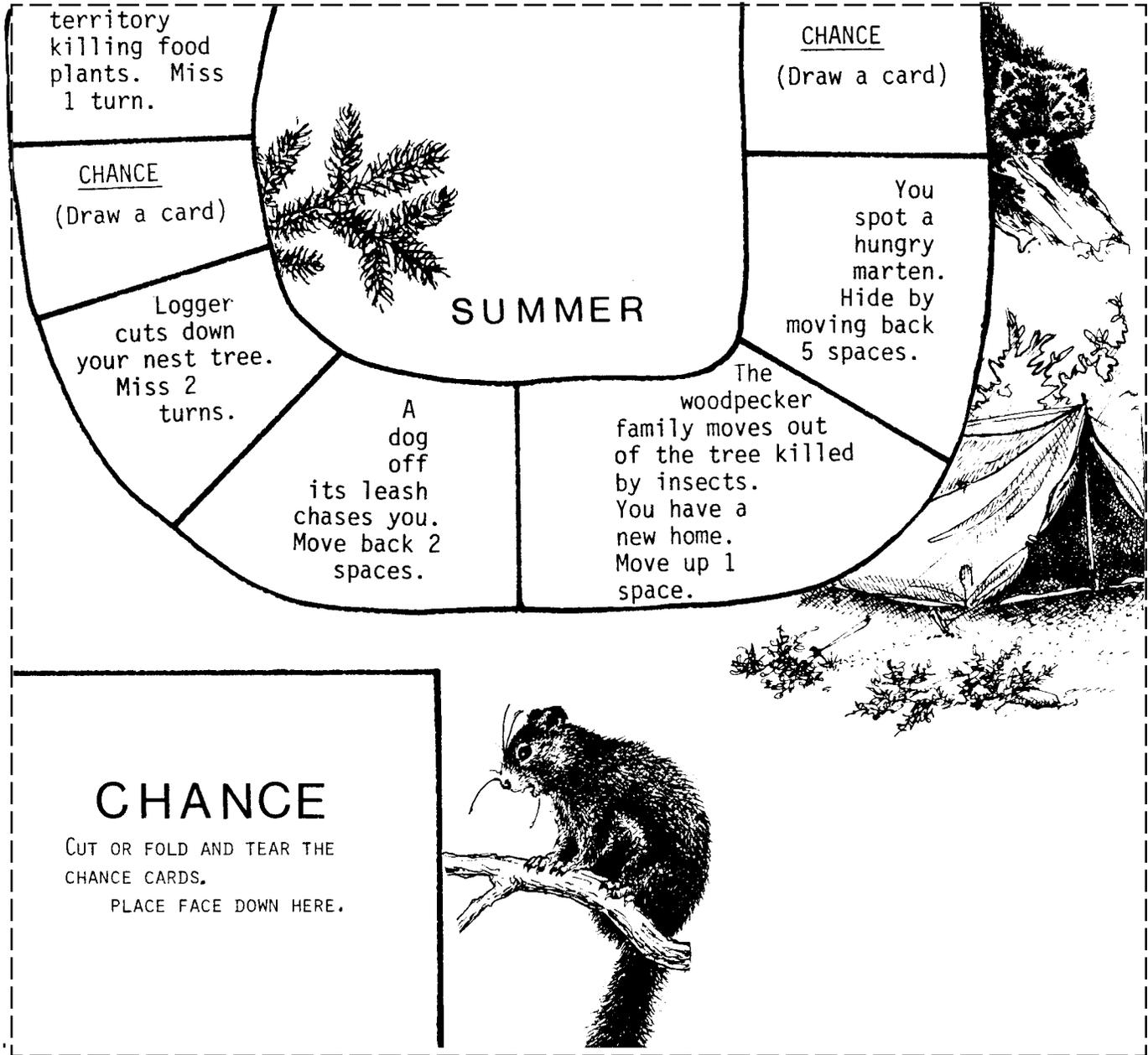
START

You are a Red Squirrel in the forest. Get 1 marker, such as a stone or dead spruce needle, for each player.

For each turn, toss or drop a pebble (sharp-sided ones work best) from a distance you decide before the game, onto the board below. Move forward the number of spaces that your pebble lands on. If it lands on a line, move the smallest number of spaces forward.

1	2	3	4
5	6	0	1
2	3	4	5
6	7		1





territory
killing food
plants. Miss
1 turn.

CHANCE
(Draw a card)

CHANCE
(Draw a card)

You
spot a
hungry
marten.
Hide by
moving back
5 spaces.

Logger
cuts down
your nest tree.
Miss 2
turns.

SUMMER

A
dog
off
its leash
chases you.
Move back 2
spaces.

The
woodpecker
family moves out
of the tree killed
by insects.
You have a
new home.
Move up 1
space.

CHANCE

CUT OR FOLD AND TEAR THE
CHANCE CARDS.
PLACE FACE DOWN HERE.



THE SQUIRREL



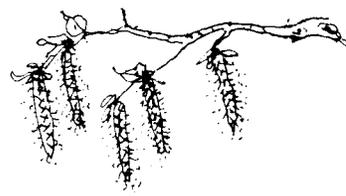
Kids
run through
your midden.
Take time to
rearrange.
Move back 2

Winter
temp.'s drop.
It's too cold to
come out of
your nest.
Wait 1 turn

SPRING

AUTUMN

CHANCE
(Draw a card)

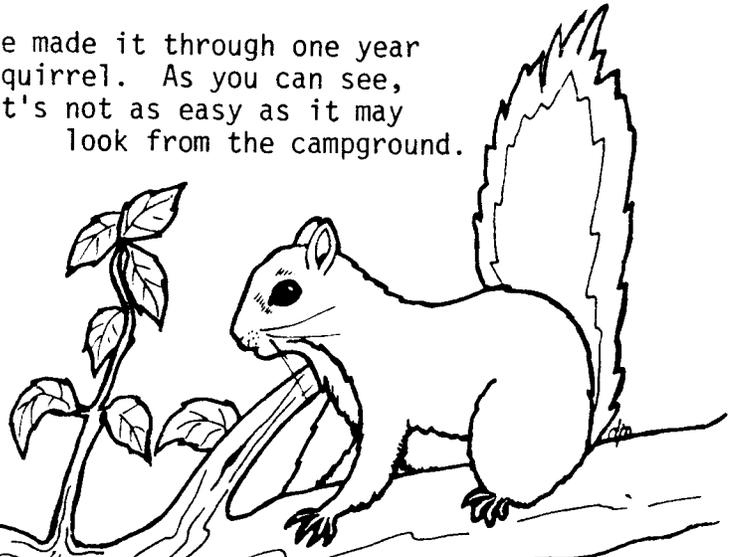


Find
lots of
mushrooms to
dry for food.
Move ahead
1 space.



GAME

You have made it through one year as a squirrel. As you can see, it's not as easy as it may look from the campground.



People collect a lot of your stored cones for Christmas decorations. Miss 1 turn.

Insects kill a big tree you get food from. A woodpecker makes a nest in it. Move back 1 space.

Poplar trees have lots of tasty flowers and leaf buds. Move ahead 3 spaces.

Take time to line nest with plants. Move back 3 spaces.

Beaver pond floods part of your

You can help by cleaning up your food scraps, so squirrels don't get food that's bad for them, by keeping your pets leashed, by walking around squirrel cone piles or middens - not through them, and by sharing this information with a friend.

F
I
N
I
S
H

***CHANCE
CARD***

You fall 30 m while jumping from tree to tree. You aren't hurt, but it puts you back one space

You have problems trying to keep jays, crows, and other squirrels out of your territory.
Miss one turn.

Your keen sense of smell leads you to a hoard of cones buried by another squirrel.
Move ahead four spaces.

It takes a lot of energy to feed your four hungry babies.
Miss one turn.

The evening has arrived.
This is a time when you are very active.
Move ahead three spaces.

You fall 30 m while jumping from tree to tree. You aren't hurt, but it puts you back one space

It is an excellent year for tasty berries. You have lots to eat.
Take an extra turn.

You fall 30 m while jumping from tree to tree. You aren't hurt, but it puts you back one space

Oh no! A pine marten has arrived in the forest and is hunting for squirrels to eat. To avoid him you hide in your nest.
Miss a turn

A thoughtless child shoots at you with a pellet gun. You are not hurt but are badly scared.
Miss a turn.

Hikers left a bag of delicious nuts on the hiking trail in your territory. They are delicious! Take another turn.

The pine trees are loaded with pine cones this year. Move three spaces forward.
