ENVIRONMENT MODULE: **ENVIRONMENTAL FARM PLAN**

Everyone can help make the world a safer place to live. Especially you! This is because you know the area surrounding your home better than anyone. When you take responsibility for your own space, the environment becomes healthier for everyone. Farmers are no different. They care about their environment and making the place where they live and work as safe as possible.

WHAT WILL WE LEARN?

In this module we will do some exercises that will help you understand what farm planning is all about. We will let you map your own yard or a neighbor's yard to get you thinking about EFP's (Environmental Farm Plans). Most people, farmers included, try to take good care of their yard or farmyard. Farmers just have a lot more things to consider when they are planning their farmsites. Even if good habits are in place, writing down details about the land helps them keep track of how the environment changes. By doing the following exercises you will gain an appreciation for the farmer and the many things he/she needs to consider when taking care of his/her environment.

WHO CAN HELP?

Many of the farmers in your area have probably completed the Environmental Farm Plan workshop. Search out one of these people for their assistance.

WHAT DO YOU NEED?

1. pencil
2. pencil crayons or markers
3. computer with internet access (optional)

LET'S GET EDUCATED!

Before we start learning about Environmental Farm Planning, let's do a fun activity that will help us see what a farmer or acreage owner has to consider when planning his/her yard.

LET'S HAVE SOME FUN!

The first thing we are going to do is make a map of your yard. If you live in town and have a lot with a house on it, you may want to ask someone that has an acreage or a farm if you can map their yard instead. This will allow you to learn a little more about Environmental Farm Planning.

1. Using the pictures and lists below, identify which of the items you have in your yard.
2. Once you have identified the items you have in your yard, you have two choices.
   a. You can freehand draw each of these items onto the map grid on the next page or
   b. You can photo copy the page, cut out the items and glue them onto the map. You will have to freehand draw those items on the written list that you have in your yard.
3. A map is most beneficial if it is as close to the real thing as possible. When you place your items on the map try to put them where they belong in relation to other items in the yard.
4. You should also identify directions on your map. On each of the four sides of the map place the four compass points N (for north), S (for south), E (for east), and W (for west).

WHAT IS IN YOUR YARD?


_animal pen


_barn


_compost

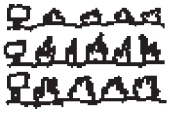

_dugout


_fence


_fuel tank


_garage


_garbage cans


_garden


_grain bin


_greenhouse


_hay/straw bales


_house


_pond


_recycle bin

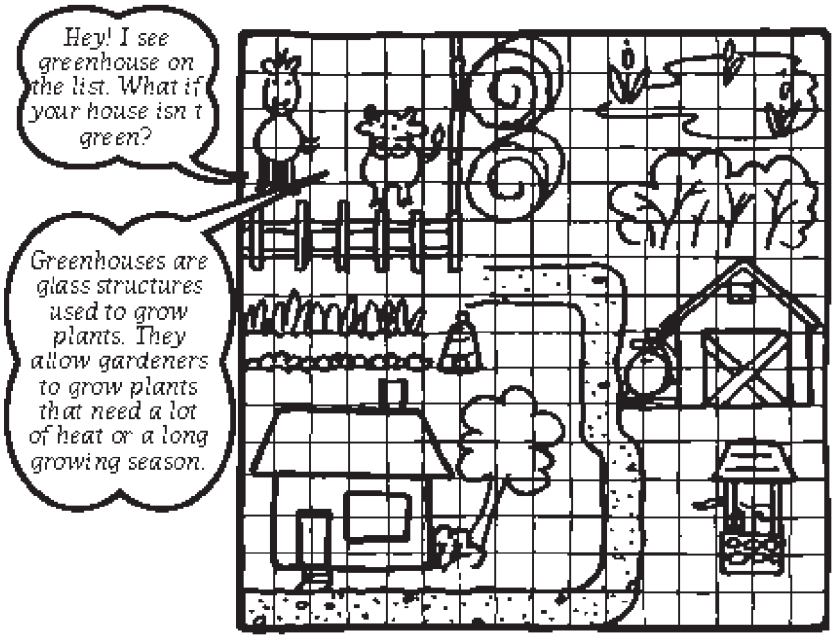

_road


_septic tank


_silo


_trees/bushes


_water well



Extras

_ birdbath
_ birdhouse
_ bus shelter
_ chemical storage
_ clothesline
_ doghouse
_ driveway
_ fishpond
_ flowerbed
_ mailbox
_ parking spot
_ picnic table
_ planter
_ power line
_ propane tank
_ sidewalk
_ storage shed

Draw a Map of Your Yard

Use a pencil to draw a map of your yard.

ENVIRONMENTAL PROBLEMS

Now that you have taken a trip around your yard, let's learn a little more about farm planning. As you go through the following information look back at your map and see if there may be problems with the location of certain items in your yard. Some of these items may be able to be moved or relocated to have them in a more environmentally friendly location. There may also be reasons why the yard is arranged the way it is.

When doing an Environmental Farm Plan on a yard that already exists, a farmer must be able to identify where he/she may be able to make changes, or where potential problems may arise. He/she needs to be able to see what changes he/she can make to lessen or eliminate potential problems.

ENVIRONMENTALLY FRIENDLY PLANS

Now let's become environmental experts as we talk about some of the things that make the land around your home healthy.

A healthy ecosystem occurs when plants, animals, and humans exist together without hurting the environment. To create a yard that is environmently friendly farmers need to think about a number of different things.

They need to consider water sources, soil and wastewater management, The Riparian Zone, pesticide safety, pest management, fertilizers, petroleum and energy efficiency.

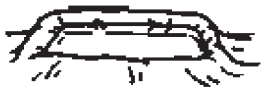
It's a lot to think about, but once you have read the following story (filling in words where the pictures appear) you will understand more about what makes a healthy ecosystem.

A HEALTHY ECOSYSTEM

Environment Friendly Farm Practices

Look at the pictures and guess the words needed to fill in the blanks.

Keep  away from  ,riparian areas,

and  • Put  around 

to   from reaching the  •  erosion!

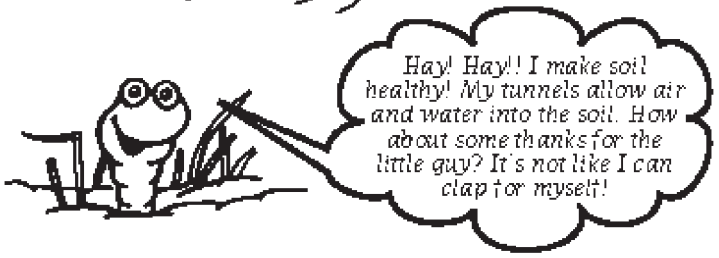
 harvested plant stalks in the  •  directly

into  •  rows of  to stop soil from

 away •  add oxygen to the air •  and

 use  for  -ter • Store  in a 

place • Take  to a licensed  •



What do you do to keep your ecosystem healthy? .....

SOLUTIONS!

A HEALTHY ECOSYSTEM!

Keep **livestock** away from **water sources**, riparian areas, and **wetlands**. Put **fences** around **dugouts** to **stop manure** from reaching the **water**. **Stop** erosion! **Leave** (leaf) harvested plant stalks in the **field**. **Seed** directly into **stubble**. Plant rows of **trees** to stop soil from **blowing** away. **Trees** add oxygen to the air. **Birds** and **wildlife** use **trees** for **shelter**. Store **pesticides** in a **locked** place. Take **garbage** to a licensed **landfill**.

MORE! MORE! MORE!

LOOKING FOR MORE FUN WITH THE ENVIRONMENT? (optional)

Try one or more of the following:

1. **Soil Conservation . . . It's In Our Hands Placemat** – this is available through Alberta Agriculture, Food and Rural Development, Conservation and Development Branch.
   a. **Suggestions For Use:**
      i. Order these placemats, give them to other members of your club to help them to start thinking about the environment and how it relates to them.
      ii. Your club could use them for your Achievement Day/Awards Supper.
      iii. To create more awareness in your community approach one of your local restaurants to see if they would use them on their tables.
2. **The game called Cows, Fish, Cattledogs And Kids** is available from Cows and Fish Program Manager, Lethbridge. Contact this organization (further information listed below), to find out how you could use this game in your club.
3. **Cows, Fish, Cattledogs & Kids Activity Sheet** also available from Cows and Fish Program Manager, Lethbridge. It might be fun to order enough of them for all the members in your club.

The contact information is listed below. Don't hesitate to contact anyone in the list to have some more fun, either on your own or in a group, learning about the environment.

Many environmental groups are working on developing games and activities for children to help them learn more about the environment. These activities will help you gain an appreciation for what needs to be done to make the environment a more friendly place.

1. **Cows and Fish**: Program Manager, 2nd Floor, YPM Place, 530-8 Street South, Phone 403 381-5538, www.cowsandfish.org/education.html
   a. Cows, Fish, Cattledogs and Kids! Activity Sheet: www.cowsandfish.org/pdfs/cfcdk_activity_sheet.pdf
   b. Cows, Fish, Cattledogs and Kids! Game: www.cowswandfish.org/pdfs/cfcdk.pdf

2. **Parkland Conservation Farm Association:** www.parklandconservationfarm.com
   a. My Corner Of The Globe: in development, draft available.
3. **Alberta Agriculture, Food and Rural Development:** www.agric.gov.ab.ca
   a. Soil Conservation… It's In Our Hands! Placemat (get an image of this placemat)

As more and more research is done on farming practices and the environment, there are more things that people need to be aware of. Most farmers nowadays have to complete an Environmental Farm Plan workshop. The 4-H Branch has produced an EFP for senior members. If you would like to pursue this topic further, talk to your leader about the EFP project.

RESOURCES USED TO CREATE THIS MODULE

1. 'EFPs For Kids' - being created by the Parkland Conservation Farm, Box 974, Vegreville, AB, T9C 1S1. Phone 780 764-3927, email – aeep@parklandconservationfarm.com
2. Information provided by Therese Tompkins, Program Director, The Alberta Environmental Farm Plan Company, email – tompkins@albertaEFP.com

ENVIRONMENT MODULE: **FIELD CROPS**

Farming isn't done like this any more. Nowadays one combine can harvest enough wheat in 9 seconds to make 70 loaves of bread.

Did you know starch from wheat is used to make chewing gum and glue on stamps and envelopes.

WHAT WILL WE LEARN?

In this module you will learn to identify different field crops according to the seed they produce and/or the plant as it grows. In order to do this you will need to collect a variety of seed and plant samples. Seed samples should be easy to find no matter what time of year you complete this module. Plant samples may be a little more difficult. You should be able to go on line and find pictures of the various field crops or use agricultural magazines, seed catalogues etc. to find pictures.

WHO CAN HELP?

There are many grain farmers in the province. Ask one of them to assist you with this module. Many farmers have a large selection of magazine subscriptions related to crop production. You may be able to find some pictures that will help you identify different seeds and plants.

WHAT DO YOU NEED?

Follow the directions below and you will find out what you need as you go. By the time you have completed this module you will have a collection of items.

LET'S GET EDUCATED!

The ability of plants to produce sugars and starches is what makes them so important to the food chain of the world. A plant can store this food (sugars and starches) in its various parts - in roots (carrots, turnips, potatoes), in leaves and stems (alfalfa, grass, lettuce, cabbage), in fruit (apples, raspberries, cherries) and in seeds (wheat, peas, corn).

The food stored in the seed that would supply the germinating embryo with food for its initial growth, also supplies us with food and nutrients. Seed crops such as wheat, corn,

rice, barley and oats are important sources of food to people all over the world. Any seeds from these crops that are of poorer quality are important as animal feed. The main crops grown in Western Canada are classified into four general field crop types:

1. **Cereal Crops** – wheat, barley, oats, corn, winter wheat, triticale and rye. These are all bunch grasses. They all have many buds at the base of the stem and a bunch of stems all come from the same spot at soil level.
2. **Oilseeds** – sunflower, mustard, canola, flax, safflower. Oil is extracted from these seeds to provide edible and non-edible oil products.
3. **Pulses** – lentils, dry beans, field peas, soybeans and fababeans are examples. A pulse is a large seeded legume in which the seed is eaten. Legume seeds are second only to the cereals as a source of animal and human food.
4. **Forages** – alfalfa, brome grass, timothy, clover, pasture. All forages belong to one of two families – the legume family or the grass family.
   a. **Grasses** – plants that have fibrous roots-these are the roots that look like they are made up of little strings. The stems have joints and the long leaves have parallel veins – that's those little lines in them.
   b. **Legumes** – plants that can add nitrogen to the soil if they are inoculated with nitrogen-fixing bacteria. Legumes grow from the top. The leaves have high amounts of nutrients and the flowers have five petals and the seeds are in a pod.

Let's look at some of these field crops in a little more detail.

1. CEREAL CROPS

a. Wheat

- Is the largest crop produced in Canada.
- Is exported all over the world.
- Has an excellent reputation for delivering high quality grain to our customers, which include Japan, European Economic Community, United States, Chile, etc.
- There are two varieties of wheat: durum and non- durum.
- Depending on quality, durum wheat is used to make pasta and non-durum is used for milling or for livestock feed.
- Has many uses. It is used in the production of different bread varieties, buns, frozen dough products, crackers, noodles, cake mixes, cookies, pastry products, cereals, pasta and special flours.

b. Barley

- Is a high yielding cereal grain.
- It takes less time to grow and therefore can be planted further north than some other crops.
- Is mainly a feed for livestock.

- Is also used in the malting and brewing industry.
- Can also be found in soups, health foods and in specialty products.

c. Oats

- Are used in oatmeal, other cereals and traditional baked goods.
- Are now used to make a variety of health foods.
- Are now being used in cosmetics.
- Are an excellent crop for livestock because they have a high protein level and essential minerals.
- Are a horses favorite food.

d. Rye

- Used in specialty foods such as rye bread.
- Is also used as a livestock feed.
- Usually seeded in the fall for harvest early the next summer.

2. OILSEEDS

a. Canola

- Is a major source of income for prairie farmers.
- The name comes from two words-Canadian and oil.
- The oil that is extracted from the seed has many uses.
- Is used in margarine, salad oil and cooking oil.
- Is used in cosmetic soaps, printer's ink and lubricants in the plastics industry.
- The meal that is left after the oil has been removed from the seed is a high protein animal feed.
- Can be recognized by its' bright yellow blossoms in summer.

b. Flax

- Oil from flax is used for food and industrial practices, such as the manufacture of paint.
- Some industrial uses are concrete preservatives, paint and linoleum.
- Flax oil is also being used for cooking.
- Can be recognized by its' purplish blue flowers in summer.

3. PULSES

As mentioned above pulse crops include - lentils, dry beans, field peas, soybeans and fababeans

- Pulse is a Latin word meaning dried edible seed of a legume.
- Pulses help build the quality and productivity of the soil.
- 75% of peas grown are marketed as livestock feed (the majority of this is exported).
- 25% of peas grown are marketed as human food (largest export market is India).
- 1/2 of the pigs in Alberta are fed peas.
- All lentils and dry beans are exported as human food.
- Pulses have high fibre and are low in fat content. They are very healthy for you, as well as, for diabetics and people with heart conditions.
- Pulses also provide an alternative for people with wheat allergies.

4. FORAGES

- Forages are any plants consumed by livestock. They include pasture and browse plants, baled hay, silage, alfalfa pellets and cubes, immature cereals, and grain residues. As well as being the basis of Canada's large livestock industry, forages are very important in soil conservation-they are used in crop rotation to improve soil structure and add nitrogen to the soil.
- There are three ways in which forages are harvested - hay, haylage or silage.
- Hay is normally packaged as – pellets, cubes, small square bales, large round bales, or loose hay stacks.
- Haylage is chopped into shorter pieces by a forage harvester. The main difference between hay and haylage is that the haylage has a higher moisture content – around 40%.
- Silage is also normally chopped using a forage harvestor. Silage is stored at about 60% moisture content.
- Recently, some new, innovative storing techniques are being developed using a combination of hay packaging and silage processing. Round bales are being wrapped up and bagged to ferment as silage.
- Alfalfa is considered the queen of forages and is the most widely grown forage legume in Canada. It is recognized around the world as premium forage for dairy cattle and horses.
- Canada is the world's largest exporter of alfalfa pellets and the second largest exporter of alfalfa cubes.

LET'S HAVE SOME FUN!

In this section of this module, you will create a scrapbook of field crop seeds and plants. This collection may simply be made up of pictures or hopefully, will include actual seed or plant samples.

- Materials
- A large scrapbook
- Plastic page protectors
- Farm magazines, seed catalogues, newspapers etc.
- Glue
- Scissors
- Markers
- Pen or pencil
- Specialty pages-pages with pockets may be helpful to display seed samples.

1. Start talking to farmers in your area to see if you can acquire samples of the different field crops – either seed or plant samples. If it is not the correct season to acquire plant samples you could talk to someone that sells or saves dried flowers. Some of these people may have a collection of dried flowers that may include some of the field crops you are looking for.

2. Once you have exhausted your options for collecting samples start browsing the internet and going through magazines. Look for pictures of field crop plants and seeds.

3. Once you have collected all your materials, you can start putting your scrapbook together. Include a title page. Be sure to identify each item you put in the book. You can add a date- this would indicate what year the crop was grown. You might want to include where the item came from. I.e. Uncle Jack's wheat field.

4. This scrapbook will be a great keepsake. Maybe when someone wants to know what a certain type of field crop plant or seed looks like you will be able to pull out your scrapbook and show them.

5. Be creative and have fun.

FIELD CROPS FRENZY

The clues below will help you unscramble the letters to fill in the blanks with the correct words. Once you are done unscrambling the letters and filling in the blanks, transfer the letters in the numbered squares to the boxes at the bottom to complete this puzzle.

1. Is the largest crop produced in Canada.

WEHTA ____ ____ ____ ____ ____

2. Is a horses favorite food.

TASO ____ ____ ____ ____
8

3. A large seeded legume in which the seed is eaten.

SEPSUL ____ ____ ____ ____ ____ ____
3

4. Seeds from crops that are of poorer quality are used as _____ feed.

MIANAL ____ ____ ____ ____ ____ ____
2

5. Canola is an example of one of these.

SEISOLDE ____ ____ ____ ____ ____ ____ ____ ____
4 5 10

6. Alfalfa is an example of a _____ .

LEMGUE ____ ____ ____ ____ ____ ____

7. This grain is used in the malting and brewing industry.

LARBEY ____ ____ ____ ____ ____ ____
7

8. Usually seeded in the fall for harvest early next summer.

EYR ____ ____ ____

9. The name of this crop comes from Canadian and oil.

LOANAC ____ ____ ____ ____ ____ ____
6

10. Seventy-five percent of all of these grown are used for livestock feed.

SEAP ____ ____ ____ ____
9

11. _____ are any plants consumed by livestock.

RSFEGAO ____ ____ ____ ____ ____ ____ ____
1

When you are done this module we hope you have learned something about this.

____	____	____	____	____	____	____	____	____	____
1	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**

SOLUTIONS!

FIELD CROP FRENZY

1. wheat
2. oats
3. pulses
4. pulses
5. animal
6. oilseed
7. legume
8. barley
9. rye
10. canola
11. peas

When you are done this module we hope you have learned something about this.

F	I	E	L	D	C	R	O	P	S
1	2	3	4	5	6	7	8	9	10

MORE! MORE! MORE!

If you are interested in learning more about field crops, talk to local farmers in your area or check out the Field Crops Project available through the Alberta 4-H Branch.

RESOURCES USED TO CREATE THIS MODULE

1. Canadian Western Agribitions' Teachers' Resource Package - AGRICULTURE AND YOU – AGRI-ED SHOWCASE
2. 4-H Field Crops Project Books – produced by the Alberta 4-H Branch

ENVIRONMENT MODULE: **NEST BOXES**

BIRD FEEDERS

WHAT WILL WE LEARN?

This module will provide ideas for making bird feeders that will attract a variety of species to observe.

WHO CAN HELP?

You would be surprised who might have a secret passion for birds - maybe your local grocer, or a retired engineer in your neighborhood. Ask a nature center, conservation officer, fish and wildlife officer, or forestry officer. Try your local Junior Forest Warden Group or Girl Guide or Scout group. They can help you identify the birds and give some personal stories on the experience of bird feeders and bird watching.

WHAT DO YOU NEED?

The following materials are sufficient for making one of each type of bird feeder described in this fact sheet. The letters in parenthesis refer to the feeder type.

1. 1 roll of nylon string or twine (A,B,C)
2. 1 cardboard toilet paper roll (A)
3. Plastic net bag like those used for produce (onions or oranges) (E)
4. Dull kitchen knife (A,B)
5. Hole punch (A)
6. Drill with 1" drill bit (C,F)
7. 1 eye bolt (F)
8. Wire hanger (D)
9. 2 - 9" wooden dowels, 5/16" diameter (C)
10. Clean 2-liter plastic soda bottle (C)
11. Softwood log 12" long, 4-6" diameter (F)
12. Smooth peanut butter (A,B,F)
13. Mature pine cone (B)
14. Sunflower head (D)
15 Seeds (A-F)
16 Millet
17. Corn
18. Black-oil sunflower seed
19. Niger thistle seed
20. Suet (B,E,F)

LET'S HAVE SOME FUN!

You might think that making a bird feeder is complicated, but it doesn't have to be. Think about it - you could just spill some seed on the ground and the birds would come.

Choose one or two of the feeders to construct and identify and compare birds that come to each feeder. Refer to the 'What Do You Need' section of this module for a list of supplies needed for each feeder.

A. Peanut Butter/Millet Roll

1. Take a cardboard toilet paper roll with a small hole punched 1/2" from the top on each side of one end.
2. Attach a string loop through these holes. This string should be long enough to hang the feeder from a branch.
3. Using a dull knife spread smooth peanut butter all over the outside of the cardboard roll.
4. Roll the peanut butter-covered cardboard in millet seed until it is well covered.
5. Hang the feeder from a tree branch.

BIRDS ATTRACTED - chickadees

B. Pine Cone Treat

1. Tie a string to a pine cone in such a way that the pointed end will remain upright when hung from a tree by the string.
2. Make a mixture of peanut butter and millet seed.
3. Using a knife or finger, apply the peanut butter/seed mixture to each pine cone scale.

BIRDS ATTRACTED - finches and chickadees

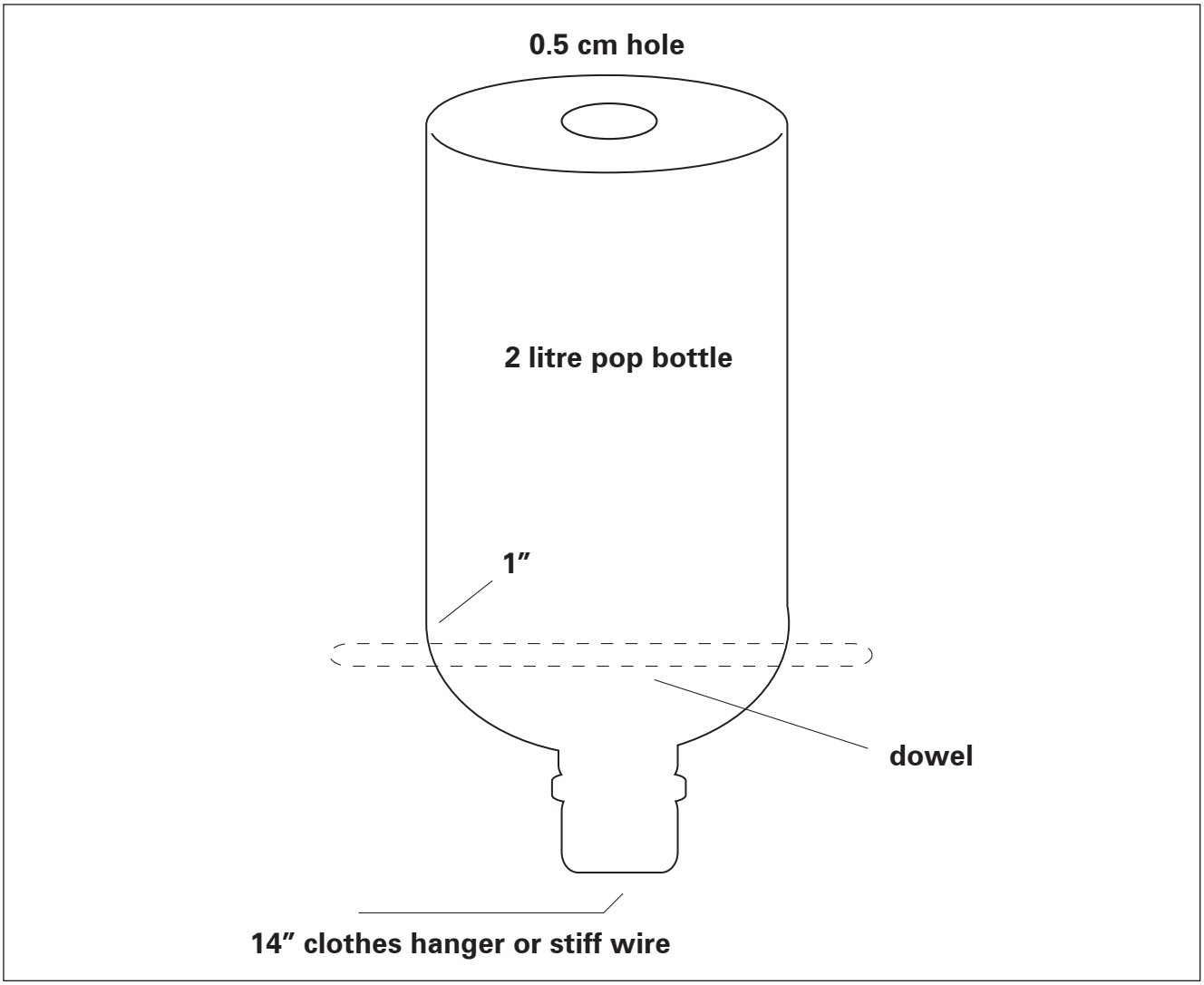
C. Hanging Plastic Bottle Feeder

1. Remove the label from a 2-liter plastic pop bottle.
2. Several holes must be made in the bottle either with a drill or a hot wire.
3. Make holes in the bottle as follows: a 1/8"(0.5 cm) hole in the bottom of the bottle; 4 holes 5/16" (0.75 cm) in diameter near the shoulder of the bottle so that dowels can be inserted for perches; and 4 feeding holes about 1" (2.5 cm) above the perch holes. The feeding holes should be 5/16" (0.75 cm) round if you intend to fill the feeder with black sunflower seeds and 1/4" x 1/8" (0.5x0.25 cm) if you will be using niger thistle seed.
4. Take a clothes hanger or other stiff wire and make 3 bends at one end. Insert the wire, straight end first, though the mouth of the bottle and into a 1/8" (0.5 cm) hole in the bottle's bottom. Pull the wire through the hole and fashion a loop from which to hang the feeder.

5. Cut off any extra wire.
6. Insert two dowels to serve as perches. Fill the feeder with the desired seed and suspend from a branch.

BIRDS ATTRACTED - finches and chickadees

HANGING PLASTIC BOTTLE FEEDER



D. Hanging Sunflower Head

This feeder uses sunflower heads from your garden - once they are mature. The heads are spiny and are attached to tough stalks so be sure to wear gloves and use clippers when making this bird feeder. To hang the sunflower head, push a piece of wire through the sunflower head. Bend the wire to make a hook that can be suspended from a branch. Hang the feeder in a location where you can watch the birds come to it.

BIRDS ATTRACTED - Chickadees, siskins, redpolls, nuthatches and goldfinches

E. Bag of Suet

1. Take a plastic net produce bag, such as those used for onions or oranges.
2. Fill the bag with suet. Suet is animal fat that can be obtained free of charge from the grocer. If you'd like, the fat can be mixed with seeds.
3. Knot the bag closed and hang it in a tree high enough so that dogs will not be able to jump up and get it.

BIRDS ATTRACTED - woodpeckers, nuthatches, and chickadees

F. Suet Log

1. Take a softwood log (pine or aspen would be good) 12 inches (30 cm) long and 4 to 6 inches (10 to 15 cm) in diameter.
2. Prepare the log by drilling numerous 1 inch holes (2.5 cm) 1 to 1.5 inches (2.5 to 5 cm) deep in various places along the log.
3. Fill these holes with suet or a mixture of suet and seeds.
4. Attach an eye bolt to the top, from which the log can be suspended in a tree or from a pole.

BIRDS ATTRACTED - This suet log should attract the same species as the suet bag – woodpeckers, nuthatches, chickadees

It might be fun to try filling the holes with a peanut butter/seed mixture to see what species it may attract.

It is a good idea to really think about feeding the birds... in the winter, it is not very easy for the birds to find food.

Please remember one thing. If you start feeding the birds... they will come to expect food to be there for them... so if you start... plan to feed them ALL winter long!

BIRDS AND BIRDERS

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

WORD LIST

BLUEJAYS
CHICKADEE
FINCHES
GOLDFINCH
GREYJAYS
GROSBEAK
NUTHATCHES
PINE
REDCAPPED
REDPOLLS
SISKINS
SPARROW
WOODPECKER

SOLUTIONS

BIRDS AND BIRDERS

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

OVER,DOWN,DIRECTION

BLUEJAYS (1,4,SE)
CHICKADEE (13,1,SW)
FINCHES (7,14,W)
GOLDFINCH (1,9,NE)
GREYJAYS (11,8,NW)
GROSBEAK (9,8,NW)
NUTHATCHES (10,11,NW)
PINE (1,10,E)
REDCAPPED (1,13,E)
REDPOLLS (12,8,S)
SISKINS (1,6,SE)
SPARROW (12,7,NW)
WOODPECKER (13,6,S)

MORE! MORE! MORE!

1. Compare the popularity of different feeders with different birds.
2. Nail a pie tin to the deck and fill with seeds. (not good if feeder is near cats or squirrels).
3. Identify the birds that visit your feeder.
4. Participate in your local Bird Count Survey. Contact your local Nature Conservatory to get details.

RESOURCES USED TO CREATE THIS MODULE

1. R. T. Peterson. A Field Guide to the Birds, Houghton Mifflin Co., Boston MA., 1980
2. Robbins, B. Bruun and H.S. Zim, Birds of North America
3. Golden Press, New York, NY, 1983.
4. Cornell Laboratory of Ornithology, Common Feeder Birds of North America, Ithaca, NY 1993
5. 1999 Loraine Wauer-Ferus www.BillyBear4Kids.com
6. www.puzzlemaker.school.discovery.com

ENVIRONMENT MODULE: **OUTDOORSMAN**

Outdoor Survival

"A man can live for forty days without food, three days without water, eight minutes without air, but only a second or two without hope." Unknown

WHAT WILL WE LEARN?

In this module you will learn:

1. Tips to survive if you get lost in the woods
2. How to prevent and treat hypothermia
3. How to build a fire

WHO CAN HELP?

This project will need an instructor or experienced supervisor. Your mom or dad may enjoy backpacking, hunting, or some other outdoor activity, but if they do, make sure you ask whether they have experience or training in first aid or survival. Scout Leaders and Junior Forest Warden Leaders are good possibilities. Safety instructors, specifically survival first aid, people who work in the forestry or wildlife industries, may also have the background you need.

WHAT DO YOU NEED?

1. You will need to find a park or piece of private land with some forest.
2. If you know where to find an evergreen deadfall or some branches from a forestry company, or tree pruning business, you can use these to build a shelter.
3. Blanket, survival blanket, or sleeping bag
4. Wool toque and sweater
5. Waterproof matches or lighter
6. Tinder, kindling, and wood
7. Thermos of water
8. Tea bag
9. Small pot to boil water
10. Cups

LET'S GET EDUCATED!

Finding a good location for your outdoor survival project is the key to success. Parks in the city will have restrictions on building fires, using deadfall and wood, or building shelters. Check with the park officers or the town administrators if you can bring your own boughs and poles to build a shelter. Build a fire in the fire pits.

If you are on private land and can build shelters and fires, remember supervision will be even more important. Look for a location with a few species of trees and make sure there are open spaces that would be appropriate for building a fire.

Tree Hugging Can Save Your Life

Ever hear the phrase "tree hugger?" Well in this project you are going to be one. When people get lost in the bush, they often wander and get cold and tired and sometimes don't survive, because they don't sit still and wait for help to arrive. The principles for staying alive when you are lost are:

1. When you realize you are lost stop. Don't wander. Look for familiar landmarks. Make a tree your home base. If you think hugging a tree is too friendly for a first visit, lean against it, talk to it, name it, do whatever just don't leave. Trees get very offended if their new friends leave them. If you wander off you will only make it harder for searchers to find you.
2. Now that you've made friends with your tree you might spend your time making shelter. If there are lots of evergreen trees around, you can break branches from the bottom of them and lay them upside down against a pole or branch leaning against your tree. Place the branches on the windward side of the pole and create a small windbreak that you can stay warm behind.
3. Put some branches on the ground to make a pallet to keep you off the cold ground.

***Remember to only gather branches from nearby trees, don't wander more than a few feet. The key to survival is staying as dry as you can and not wandering off. (Besides your tree could get lonely.)**

Keep A Warm Heart

The biggest threat to your survival is hypothermia. Hypothermia is a condition the body develops when its core temperature lowers two degrees. It can be fatal. Our normal body temperature is 39 degrees C and if your body temperature lowers to 37 degrees C you are considered hypothermic. This condition causes disorientation and can often cause the individual to make life-threatening decisions.

Hypothermia is caused by exposure to cool air or water and is accelerated by wet or damp clothing, wind or exhaustion. When your body starts to cool, you will shiver and as the shivering gets more severe, the possibility of hypothermia develops.

Signs And Symptoms Of Hypothermia

1. Uncontrollable bouts of shivering
2. Slurred, slow or incoherent speech
3. Memory lapses
4. Fumbling and stumbling
5. Drowsiness or inability to wake after a rest

An Ounce Of Prevention Is Worth A Pound Of Cure

1. Dress for the weather. Your mother has been nagging you for a reason. Remember most of your body heat escapes through your head and torso.
   - Do up your coat
   - Put on a toque
   - Bring rain gear. Even a plastic bag with holes cut in it can keep you dry in a pinch and save your life.
2. Check the weather before you leave.
3. Carry water, something to eat, and a set of matches.
4. Toss an emergency blanket in your bag if you plan on a trip into the bush. The shiny tinfoil like blanket preserves warmth and keeps you dry.

How To Treat Hypothermia

1. Cover up with your dry clothes, coats, toques, and blankets.
2. Move to shelter; even a rough evergreen branch windbreak can cut the cold and wind.
3. If possible remove wet clothes and replace with dry clothes or blankets.
4. Heat water and drink water or tea if possible.
5. If you are with someone, cuddle together and remember that you lose most of your heat through your head and torso.
6. Build a fire.

Building A Fire

One of the best ways to stay warm and keep up your spirits if you are lost is to build a fire. It also helps signal to searchers where you are, and provides a way to dry damp or wet clothes. If you plan to spend any time in the bush it is always a good idea to put a set of dry matches in a plastic container or a lighter in your pocket. Also pack some paper or tinder in a separate plastic bag in case you need to start a fire.

Three things that a fire needs to burn are:

1. Fuel (leaves, paper or wood)
2. Air (there is a reason people blow on a fire. The fire flares as it feeds on oxygen.)
3. Ignition (matches or lighter)

When making a fire one of the key challenges is making a good fire site. Find a spot in front of your shelter so that the radiant heat from the fire can warm your shelter, but far enough away that your shelter or nearby trees won't burn. Brush the leaves from the ground until you get to bare earth. If it is snowy, either find a few green stumps to build a fire platform or brush the snow away.

1. Find dry tinder branches and wood. Remember even a small fire can create a lot of heat and can be very helpful.
2. Place the tinder or paper on the fire site. Put dry kindling (small dry branches), on the tinder in a teepee shape or cabin shape alternating pieces of wood to give the burning fuel lots of room to draw oxygen.
3. Lay larger pieces of wood nearby to use when the tinder and kindling starts to burn.
4. Using your body as a wind-break, put the match or lighter to the kindling and start the tinder on fire.
5. When you have a flame add small amounts of tinder and kindling as the fire catches.
6. When you have the tinder and kindling burning well, add a piece of wood and let it catch and burn. Then add a piece or two more and let it burn.

***Remember to conserve your wood supply as you will want to stay warm as long as possible.**

LET'S HAVE SOME FUN!

SURVIVAL ACTIVITY

1. Plan for your day outside by dressing for the weather. Remember that you should prepare for weather changes.
2. Each of the members of your group should identify:
   - Ways to prevent hypothermia
   - Signs of hypothermia
3. As a group, find a spot you can pretend to be lost and hug a tree. When you have picked a tree, name it, get to know it, and if you are feeling particularly silly tell your group why it got its name, and what its likes and dislikes are.
4. Tell your group why you picked that tree.
   - Did it provide good shelter?
   - Was it large enough to find easily?
5. As a group construct a small one person shelter using whatever materials you have on hand. It does not have to be pretty; it just has to provide some shelter from the elements.
6. Adult supervision is necessary for this part of the module.
   - Prepare a fire site
   - Build a fire using materials you find or bring

ROLE PLAY

One member of your group has started to talk very strangely and is shivering very hard. Remembering what you have learned about hypothermia, role play how to treat this person using the materials on hand.

- What would you do if he/she was wet?
- What would you do if he/she started to drift off to sleep?
- How would not having a fire change how you would treat the individual?

HYPOTHERMIA HUNT

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

WORD LIST

BLANKET
FORGETFUL
SLUR
COAT
FUMBLING
SPEECH
COVER
RAINGEAR
STUMBLING
CUDDLE
SHELTER
TEA
DROWSY
SHIVERING
TOQUE
FIRE
SLEEPY
WEATHER

HYPOTHERMIA HUNT SOLUTION

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

MORE! MORE! MORE!

1. Take a First Aid Course or hire an instructor to teach your whole 4-H club.
2. Go on a day trip with an experienced canoer, hiker or climber.
3. Make a survival kit

RESOURCES USED TO CREATE THIS MODULE

Alberta Conservation and Hunter Education, Alberta Sustainable Resources, Edmonton, 2004

ENVIRONMENT MODULE:
RANGE AND PASTURE MANAGEMENT

Most livestock operations have both range and pasture land. WAIT A MINUTE!! Are they not the same thing? Read on and find out the differences.

WHAT WILL WE LEARN?

In this module you will look at both range and pasture. You will discover the difference between them and find out why they are valuable to livestock producers.

WHO CAN HELP?

Most producers of cattle, bison, sheep, etc., use either range or pasture land, or both, and would be able to assist you with this module.

WHAT DO YOU NEED?

Everything you need to complete this module is included.

LET'S GET EDUCATED!

Range land and pasture land are two different types of land - both are used for growing feed for animals.

Pasture is land that grows plants put there by man. Pasture land is usually more productive than range land.

Range is land not suited for growing crops because it is too dry, rocky or rolling. Range land grows native plants - those that naturally grow in that area.

Looking After The Environment

Farmers and ranchers know that saving the land for future generations depends on how they care for it today. They must be very careful of the environment. Growing grasses and legumes for feed is an excellent way to protect land from erosion. The land that grows these grasses and legumes, covers a large area of Canada. Most of this land can only grow grasses or other leafy vegetation, as it is too rocky, dry or marshy to grow food for humans.

What Is Managing Your Range And Pasture?

To produce the highest yield and best quality feed, the farmer must properly manage the land and make careful use of the water available to him.

Managing your range and pasture land is 'the plan for the care and use of it'. This plan allows you to get the most product (meat, live animal, wool) per acre of land, while keeping the land in reusable condition. You want to make sure you do not harm the plants, soil and water.

Without a plan, your range and pasture would not stay in good condition and you would be unable to get the same return from it in the future.

Range and pasture management is much more than turning your cattle out to graze.

- By caring for the land, you make the best plants grow at the fastest rate. These plants are harvested by the animal, turning the plant into products, which provide an income for the farm.
- With good management, you will always have a reserve of feed. If cattle grazing is not controlled, they will overgraze the land, eventually killing many of the popular plants. Those plants that are not liked by the animals and are usually the least valuable, will grow and take over the pasture, reducing its quality.
- With proper management, you can keep a good plant cover. The grasses and plants will have strong root systems. This plant cover will help to protect the soil from erosion.

Rules For Proper Management

1. **Use the right season for grazing.**

   Some plants (native western wheatgrass and Russian rye grass) are cool season grasses. They begin to grow early in the spring. Warm season plants (blue gamma grass) do not begin to grow until the weather becomes warmer.

   In the spring, allow the plants to grow to a height of 15cm before you put your cattle out to graze. If there are lots of legumes, such as alfalfa and clover, allow them to grow to a height of 25cm.

2. **Graze the right number of animals.**

   Do not let too many animals graze any area. Change the number of animals grazing your land so that half of the annual grass is left at the end of the grazing season. Remember that the green leaves make the food for the roots to grow. "It takes grass to make grass."

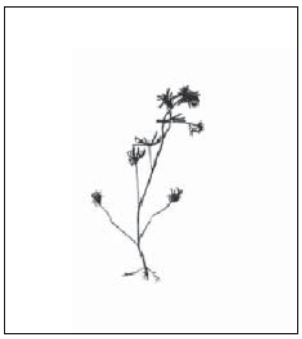
3. **Use the right amount of time for grazing.**

   Good grazing must include a rest period for the plants. Once the plants and grasses are down to 8cm in height, move the cattle to another area for about four weeks.

4. **Know the range and pasture plants**

   It is important to be able to recognize plants which are poisonous and can harm your livestock. You will need to get rid of them or fence them out. Three plants which can poison your cattle are:

Larkspur



Water Hemlock

Arrowgrass

Range And Pasture Plants

1. **Grasses** are the most important range plant group. They have hollow, jointed stems and the leaves are in two rows on the stem. Examples are rough fescue, quackgrass, smooth brome grass, orchard grass, and cheatgrass brome.
2. **Grasslike** plants look like grass but they do not have a hollow stem and the stem is not jointed. Veins in the leaves are usually net like. They include SEDGES (triangular stems) and RUSHES (round stems).
3. **Forbs** are non grassy plants with annual stems or tops. They include range weeds and flowere. Examples are gumweed, skelton, tapertip hawksbeard, bull thistle and tumbling mustard.
4. **Shrubs** are woody plants with stems and buds which winter abouve the ground and stems which branch near the base of the plant. Examples are sagebrush, wolf willow, rabbitbrush and bitterbrush.

LET'S HAVE SOME FUN!

R & P WORD SCRAMBLE

Below are some important words you have learned in this unit. Unscramble the letters and write the unscrambled words in the blanks.

1. OSNOPISUO _____
2. ZGIRANG _____
3. SGARS _____
4. GEMNAMTANE _____
5. TPALN _____
6. SOERNOI _____
7. TWEAR _____
8. LISO _____
9. RETPASU _____
10. GENAR _____
11. DEFE _____
12. VETANI _____
13. ONRENMTENVI _____
14. MESGULE _____
15. ROTPTCE _____

SOLUTIONS!

1.	OSNOPISUO	**POISONOUS**
2.	ZGIRANG	**GRAZING**
3.	SGARS	**GRASS**
4.	GEMNAMTANE	**MANAGEMENT**
5.	TPALN	**PLANT**
6.	SOERNOI	**EROSION**
7.	TWEAR	**WATER**
8.	LISO	**SOIL**
9.	RETPASU	**PASTURE**
10.	GENAR	**RANGE**
11.	DEFE	**FEED**
12.	VETANI	**NATIVE**
13.	ONRENMTENVI	**ENVIRONMENT**
14.	MESGULE	**LEGUMES**
15.	ROTPTCE	**PROTECT**

MORE! MORE! MORE!

1. Visit a local livestock producer during the grazing months and talk with him/her about some of the things you have learned in this module.
   - Take a look at their pastures and/or rangelands. Have them help you identify the different types of grasses and legumes that are growing.
   - Discuss the grazing system the farmer/rancher uses.
   - Talk to them about the different types of plants that grow on the land – are they native or did he/she plant them? Identify the plants according to the four categories described in the 'Let's Get Educated' section of this module. Ask the farmer/rancher about poisonous plants, perhaps he/she can point some out to you.
   - Map out a rancher's pastures and rangelands. Show the fences and water bodies and identify whether the land is range land or pasture land. Add anything you feel would be of interest to your map. You could even show how the rancher intends to graze each of the fields, considering the number of cattle he/she will put in each one, and how long they will graze each field.
2. To learn more about range and pasture management check with your leader to see if you can have a look at some of the resources put out by the 4-H Branch for the Range Management Project.

RESOURCES USED IN THIS MODULE

1. Alberta 4-H Beef Project Book – Level 1
2. Alberta 4-H Bison Project Book – Level 1

ENVIRONMENT MODULE: **WILDLIFE HABITAT**

Building A Terrarium

WHAT WILL WE LEARN?

In this module you will learn about the interaction of plants in their environment by building a terrarium.

WHO CAN HELP?

You do not need an adult to lead this session but if you know a science teacher, parent, 4H leader who can help it may make it easier. Your local plant nursery or greenhouse has lots of people who could give you some advice on choosing plants for your terrarium.

WHAT DO YOU NEED?

- A clear container with a lid, jar, bottle, cookie jar, fish bowl
- Pebbles to cover the bottom of the container to ½ inch
- Sterilized potting soil
- Three or four plants with similar watering needs
- Charcoal
- Piece of nylon stockings to cover pebbles and charcoal
- Two to four plants with similar watering needs

LET'S HAVE SOME FUN!

Designing and Building a Terrarium

A terrarium is a collection of small plants growing in a transparent, enclosed container.

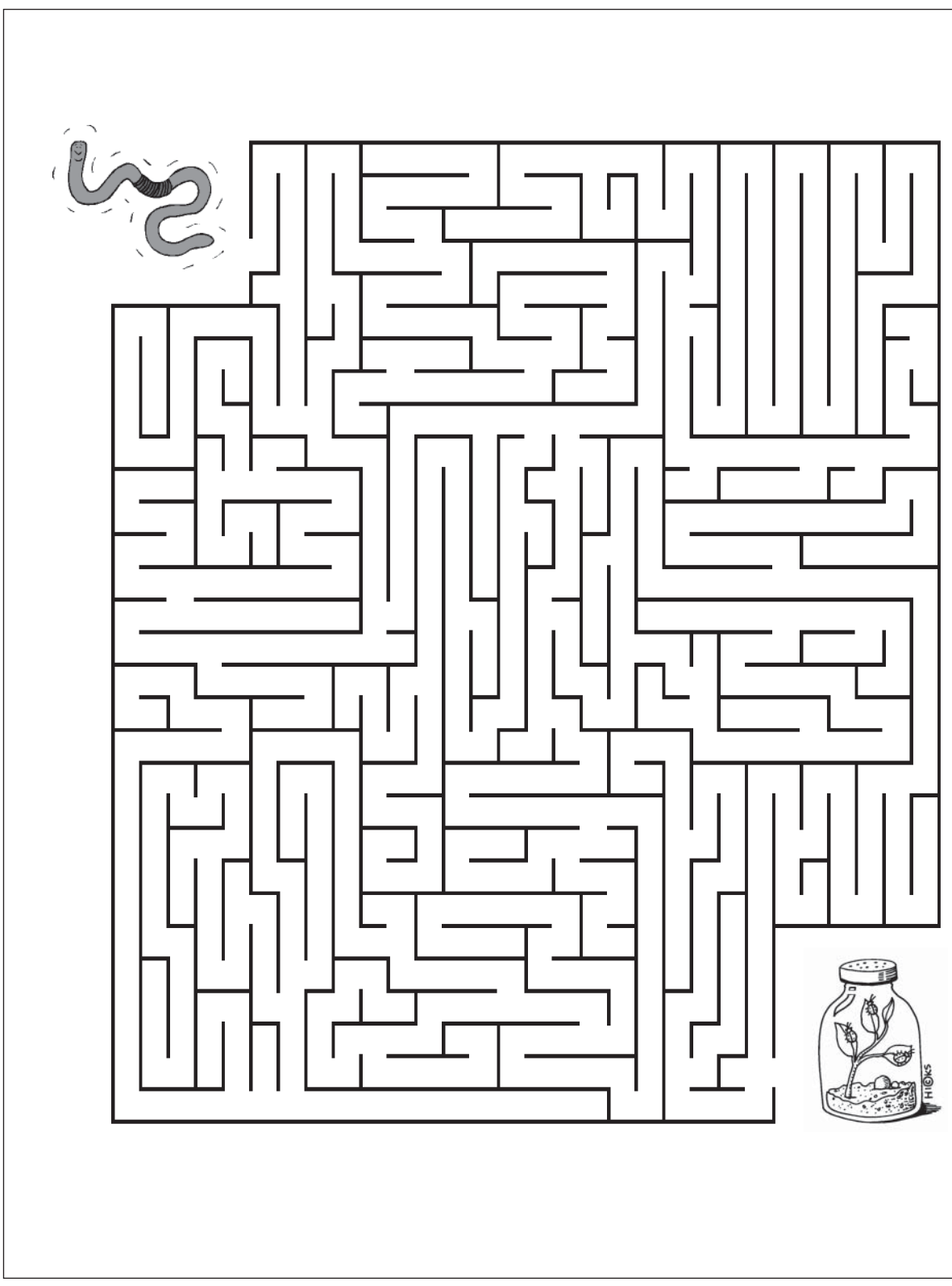
1. Select a container big enough to hold 2 or more plants such as s fish bowl, candy jar, aquarium, canning jar or a large bottle
2. Line the bottom of the container with pea-size gravel to provide drainage for excess water.
3. Add a thin layer of charcoal over the drainage materials to absorb unpleasant odors which can occur when terrariums are over watered
4. Place a piece of synthetic fabric over the drainage layer to prevent soil from settling into it and destroying its ability to drain.
5. Next, add enough premixed, sterilized soil mix to fill approximately 1/5 of the container, being careful to keep the soil off the walls of the container
6. If the terrarium is to be viewed from all sides, the largest plant should be planted near the center.
7. Place accessories such as stones, figurines, sand and driftwood at the desired location in the terrarium.
8. Water plants sparingly since excess water will saturate the soil and may cause disease.
9. Cover and place the terrarium where it is exposed to bright indirect light usually in a northeast or north window. Avoid direct sunlight, as this will increase the air temperature inside the terrarium and may burn the plants.
10. If the sides of the container become foggy due to the condensation of water, remove the lid until all condensation evaporates; then replace the lid. Terrariums should only be watered when the soil is dry to the touch.
11. If fertilizer is added at planting, there is no need to add more unless the plants begin to develop a slight yellow coloration. If this happens, apply a water soluble house plant fertilizer at 1/4 the recommended rate.

Plants for Terrariums

Irish Moss	Liverworts	Maidenhair Fern	Mosses
Partridgeberry	Violet	Wild Strawberry	Foliage Plants
Baby's tears	Cast Iron Plant	Dracaena	Fern Asparagus
Fernleaf-inch plant	Jade Plant	Norfolk-Island pine	Prayer Plant
Wax plant	Strawberry Geranium	Swedish Ivy	

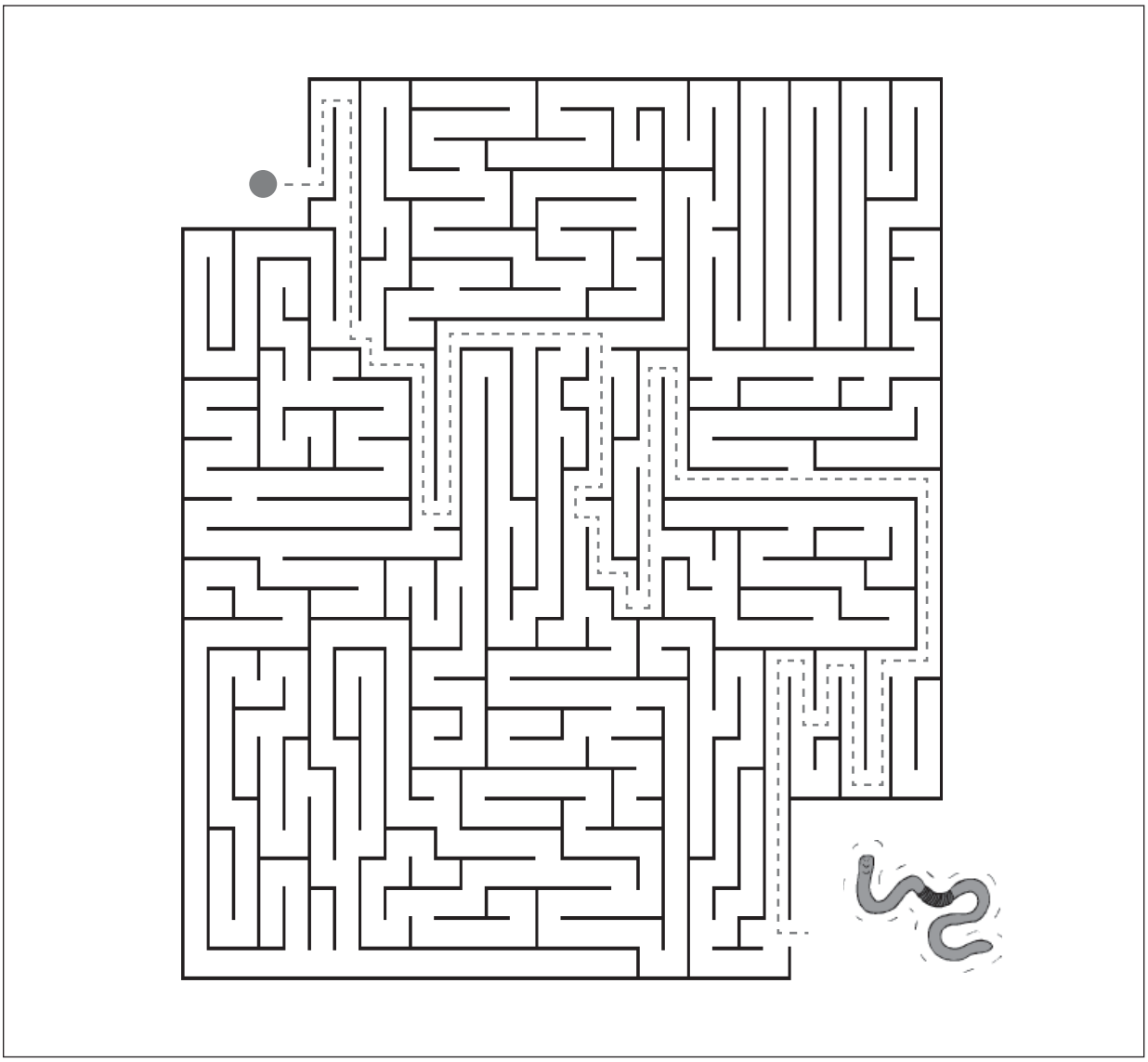
MOLLY'S MAZE!

Help Molly the earthworm find her way through the maze of tunnels back to her terrarium home.



SOLUTIONS!

MOLLY'S MAZE



MORE! MORE! MORE!

1. Add ants or earth worms to your terrarium

RESOURCES USED TO CREATE THIS MODULE

1. Kathleen C. Ruppert and Robert J. Black, Environmental Horticulture Department, Florida Cooperative Extension Service, Institute of Food and Agricultural Sciences, University of Florida June 1996. Reviewed October 2003
2. http://edis.ifas.ufl.edu.
3. www.puzzlemaker.school.discovery.com