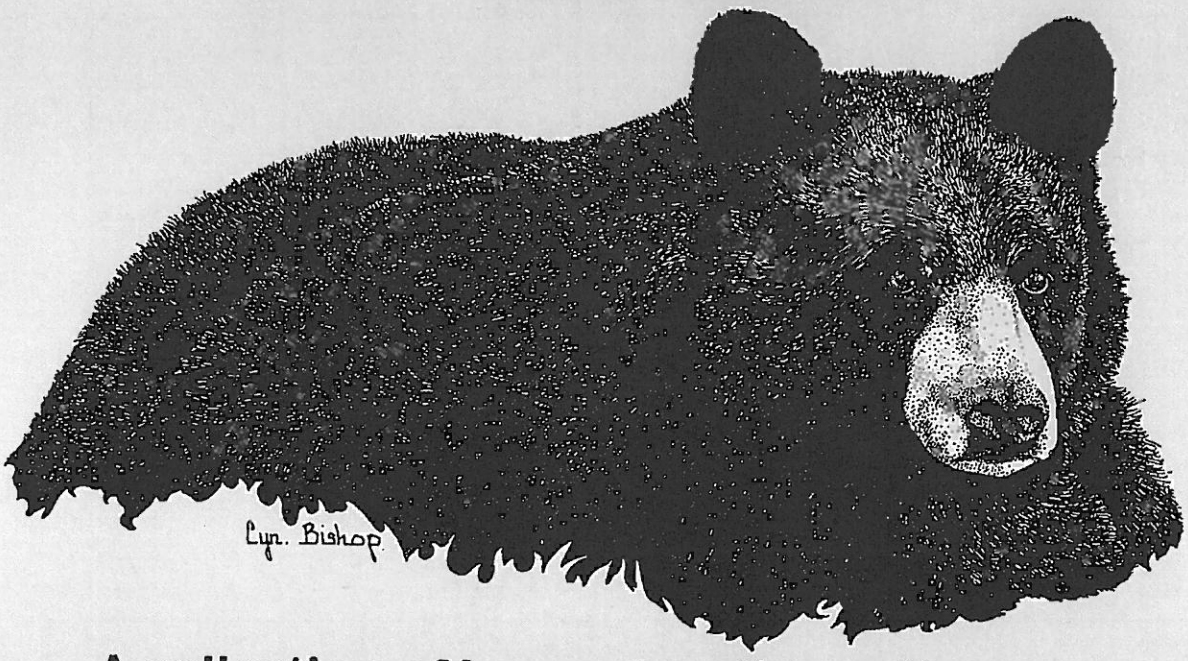
GETTING TO KNOW THE BLACK BEAR IN OHIO



A collection of bear education activities compiled by the Ohio Division of Wildlife

Getting to Know

The Black Bear

in Ohio

Written, adapted and compiled by Paul D. Schiff

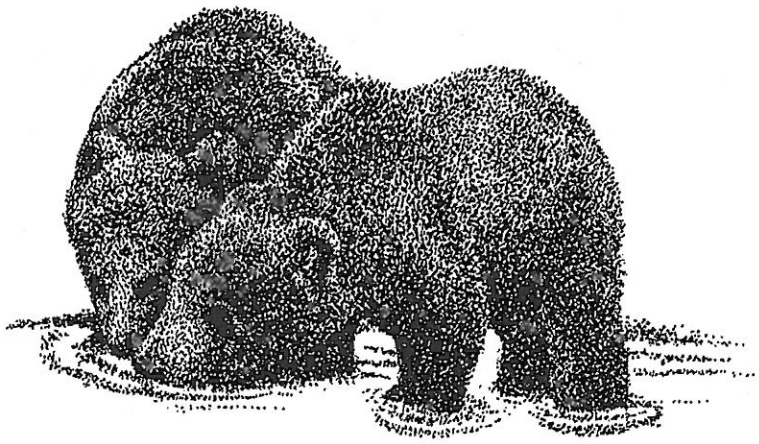
Edited by Lisa Smith

Illustrated by Cynthia Bishop

Designed by Chuck Greenwalt

Contributions by
Mike Moutoux
Jen Dennison

Developed by
The Ohio Division of Wildlife



Field Test and Review by:

Mike Moutoux	Ohio Division of Wildlife
Jen Dennison	Ohio Division of Wildlife
Teresa Gelonese	Our Lady of Peace Middle School
Robert Stoll	Ohio Division of Wildlife
Lloyd Culbertson	Ohio Division of Wildlife
Al LeCount	Hocking College
Cheryl Mollohan	Environmental Education Consultant
Marty McTigue	Perry Intermediate School

"The world has room to make a bear feel free."

--Robert Frost

TABLE OF CONTENTS

INTRODUCTION

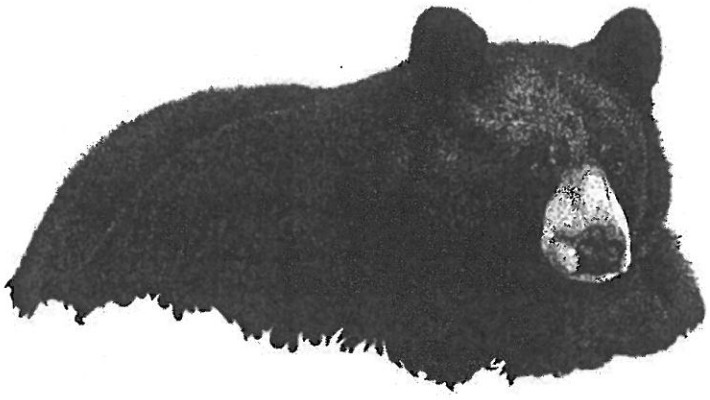
"The bear has a unique place in American culture, as the warmest, cuddliest predator in the woods. Bears have been the elemental driving force in stories about campers fearing they might be eaten by the animals, and their likeness in the form of stuffed toys has for decades been a perennial favorite of young children and adult collectors. The bear is feared as an uncontrollable man-eater but loved and cuddled as a Teddy Bear..."

William L. Woodfin, Jr.
Director, VA Dept of Game
and Inland Fisheries

What's wrong with the above picture? For one thing, the black bears recolonizing Ohio today from neighboring states are hardly man-eating predators. Nor, like any wild animal, are they cute and cuddly pets. So just what is this animal, the black bear?

These articles and learning activities are designed to foster an awareness of and an appreciation for the black bear as they once again seek to share part of our state with the human population.

We hope you'll join those of us who find the return of the black bear to Ohio fascinating and thrilling. And we encourage you, as an educator, to share this information and these opportunities to help others "get to know the black bear."



How to Use This Book

These learning activities, with a focus on black bears, are intended to enhance and supplement use of the *Black Bear Loaner Trunk*, a collection of furs, skulls, tracks, references and other resources available on free loan from each of the Ohio Division of Wildlife's District offices.

While a few of the activities require materials found in the loaner trunks, many can be accomplished without any special preparation or equipment.

Each activity focuses on learning objectives and is consistent with current education standards. The concepts on which the activities are based are supported by real science and current black bear research. Additional concepts include a wide range of cultural and social issues.

No grade level, length of time, or other cross references are suggested. Activities can be done in any order to your preference. We hope you will find these activities adaptable and complimentary to your curriculum.

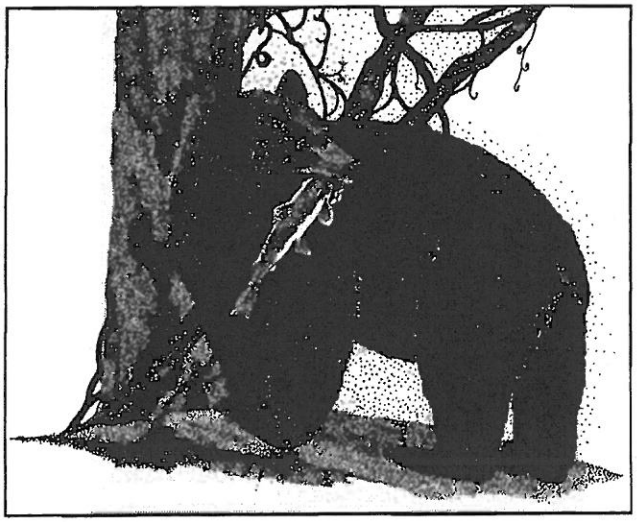
Several activities are from the award-winning curriculum supplement Project WILD, a multi-disciplinary, activity-based, wildlife conservation education program. For additional information about Project WILD and our other wildlife education materials, please contact the Ohio Division of Wildlife at 1-800-WILDLIFE or www.wildohio.com

Ohio Division of Wildlife

Life History Notes

Black Bear

Scientific Name: *Ursus americanus*



State Endangered Species

Publication 378
(R905)

Introduction

Although black bears inhabited Ohio prior to settlement of the region, unregulated hunting and the extensive deforestation that occurred by the mid-1800s as farms, towns, and industry were established resulted in a sizable reduction in the number of bears residing within the state's borders. Those bears that remained following this drastic change in habitat were either shot or trapped to protect livestock and crops from depredation. By 1850, black bears were considered extirpated from Ohio. However, occasional reports of their presence, particularly in south-central and southeastern Ohio, persisted and, in 1973, included a report of a sow (female) with cubs (offspring).

Reports of black bear sightings in the Buckeye State began to occur annually starting in the mid-1980s. This promted the Division to develop a formal black bear reporting procedure in 1993. The number of reports received through this procedure varies somewhat from year to year, but currently numbers around 100 and has included verified observations of sows, or females, with cubs. The 50 or so reported sightings usually translate to about 40-50 individual bears, as some bears are reported more than once. Most of the reports are from our northeastern, east-central, and southeastern counties, especially those bordering Pennsylvania and West Virginia. These reports, coupled with the verified observations of adults with young strongly suggest that Ohio supports a small breeding population. The number of bears in the Buckeye State is expected to increase as bear populations in neighboring states continue to expand.

Most of the bear reports that have been received are believed to be young males(1 1/2 - 3 1/2 year olds). These bears have dispersed from Pennsylvania and West Virginia, where sizeable bear populations exist, in search of their own territories. Some of the bears that wander across Ohio's borders each year, upon finding suitable habitat and little competition from other bears, remain thus adding to the state's abundant wildlife diversity. Many others continue their travels, ultimately completing a loop that once again crosses the border between Ohio and its neighboring states. Occasionally, one of these wandering bruins comes into close enough contact with people that relocation of the bear to a more isolated environment is considered appropriate.

Even with the growth of this species' population in Ohio, the chances of seeing a black bear are slim. In the unlikely event that you do encounter a bear, leave it alone and allow it to go its own way. Bears are generally shy and try to avoid interaction with people. Keep in mind that more people die from bee stings each year than are injured by black bears. As an additional note, black bears are a protected species in Ohio and injuring or killing one is a violation of Ohio wildlife laws.

Description

The black bear is the most common species of bear in North America. The name "black" bear can be somewhat misleading as this species appears in a range of color phases that include black, chocolate brown, cinnamon brown, blue-black, and even white. Its face,

in profile, can be straight or Roman-nosed, a distinguishing characteristic that helps differentiate it from the dish-faced grizzly bear.

An adult black bear can weigh anywhere between 150 and 700 pounds. Males average 300 pounds while the smaller females average around 175. Males, when standing upright, measure between five and six feet tall; females, typical of mammals, are smaller, measuring four to five feet. On all fours, most adult black bears are between 2 1/2 and 3 feet at the shoulder. Prints from a black bear's front paw are about six inches wide. Those from the back paws are about eight inches long and leave a readily discernible heel mark. Both front and rear paws have five toes. This is remarkable growth for an animal that weighs about a half pound at birth. Considering their size, black bears are extremely mobile. They can outrun a human over a short distance and climb trees equally fast.

Habitat and Habits

Since Ohio has only recently had black bears within its borders and the current number of individuals is small, there is not a lot of information on this species specific to Ohio. As a result, our knowledge of both bear biology and behavior is based upon research results obtained from those nearby states having established black bear populations.

Black bears can be found from coast to coast throughout North America in a wide variety of the more heavily wooded habitats, ranging from swamps and wetlands to dry upland hardwood and coniferous forests, from the Yukon and Northwest Territory in Canada to the northern portions of Mexico. Although they will utilize open areas, bears prefer wooded cover with a dense understory.

Despite the black bear's territorial and solitary nature, some degree of mutual toleration, particularly between a sow and her young from a previous litter, occurs. Home range size appears to be influenced to a large extent by habitat quality, the bear's sex and age, and the number of other bears in the area. In the upland hardwoods of New York and Pennsylvania, for instance, home range size varies from 24 to 50 square miles for females and 100 to 120 square miles for males while 8.3 and 30.5 square miles have been reported for females and males, respectively, in swamp habitat in Virginia and North Carolina. With the type of habitat found in Ohio, one would expect the bruin's home range here in the Buckeye State to be more like that of New York and Pennsylvania.

Bears tend to wander around a great deal both inside and outside their home ranges, with the greatest movement occurring among young males. Movement of 100 miles or more from their birth or cub range has been recorded for some yearling males as they attempt to establish their own territories. Bears are crepuscular, which means they are usually active early in the morning and late in the evening. They normally bed down most of the day and night. Bears in areas of high human population will often adjust this schedule and become more active at night when few people are about. Daytime travel is uncommon, but does occur during the breeding season and during the fall as the animals prepare for overwinter denning. At latitudes similar to Ohio, bears head to their overwinter dens between early November and mid-December. Emergence from the den generally occurs between mid-March through mid-April.

Bears are omnivorous , feeding on a variety of foodstuffs including fruits, nuts, insects, grasses and leaves, flowers, fish, carrion, and occasionally newborn mammals and birds. Their diet will change with the seasons based on the availability of various foods.

Reproduction and Care of Young

Bears, especially the males, are best described as promiscuous breeders; females may mate with more than one male, however a single male is most common. Females remain receptive to the male only until fertilization of the egg occurs. Breeding usually occurs from mid-June through mid-July; however, the fertilized egg is not implanted in the female until early December. Females are induced ovulators, meaning that the eggs are not released from the ovaries until mating has occurred. Following implantation, the sow carries her young for about six weeks. The young are born from mid-January through early February while the sows are in their overwinter dens. Sows and their cubs leave the dens when the cubs are approximately three months old. The young remain with the mother, who is the sole care giver, for the first year and a half of their lives.

Growth during a cub's first year is rapid. At birth, the sightless cubs weigh about eight ounces. By the time that the cubs open their eyes at about six weeks of age, they weigh between three and four pounds. Typically, cubs weigh between 25 and 65 pounds by September and may, provided high quality food is readily available, weigh nearly 70-80 pounds by the time they enter the overwinter den with the sow in early November.

In exceptional habitat conditions, a sow can breed for the first time at 2 1/2 years of age; however, most females are 3 1/2 years old. In the first litter, a sow usually produces a single cub; two or three young are normal for subsequent litters; as many as five offspring have been recorded in one litter. Sows generally breed every other year unless the litter is lost or the quality of the habitat is especially good.

Management Plans

Currently, the Division of Wildlife monitors reports of black bears as they travel and establish residency in Ohio. Other efforts focus on informing and educating the public about the black bears in the state.

Wildlife officers in counties where black bear sightings are most likely to occur have been trained on how to handle nuisance bear situations. In most instances, the bear can be trapped or tranquilized, and relocated to a more remote area.

Black bears are a small portion of the state's wildlife population. The species has been classified as endangered in the state. The Division is gathering data to better understand this species as its population grows and becomes established in the state. Hunting black bears in Ohio is prohibited.

Viewing Opportunities

Current bear populations in the state are still quite low. Because of this and their elusive nature, viewing opportunities are unlikely and a chance occurrence when they do happen.

Do Something Wild!

The Division of Wildlife has utilized money from the Do Something Wild! income tax checkoff to study species of special interest. Through the generosity of Ohio citizens who either donated through the checkoff or made their contribution to the Endangered Species and Wildlife Diversity Fund, the Division is able to sponsor special projects benefiting animals, like the black bear, that contribute to the wildlife diversity of the state.

Tax time is not the only time you can help. Contributions to our Endangered Species and Wildlife Diversity Program are accepted throughout the year. To make a donation, please send a check to: Endangered Species Special Account, Ohio Division of Wildlife, 2045 Morse Road, Bldg. G, Columbus, Ohio 43229-6693. All contributions, whether made on your tax return or directly, are tax deductible.

At a Glance

Mating: Promiscuous. Males in particular will mate with more than one individual, females do on occasion.

Peak Breeding Activity: Mid-June through mid-July.

Gestation Period: Black bears are delayed implanters. Implantation of the fertilized egg usually occurs during early December, with gestation requiring six weeks.

Litter Size: First litters generally have only one cub. Two or three cubs are usually produced in subsequent litters.

Young: Altricial. They are born sightless with a fine coat of fuzzy hair; weight is generally eight ounces at birth.

Number of Litters Per Year: Generally, one litter is produced every other year.

Adult Weight: 150 to 700 pounds; average is 300 pounds for males and 175 for females.

Adult Length/Height: 2 1/2 to 3 feet when on all fours, 4 to 6 feet when standing upright.

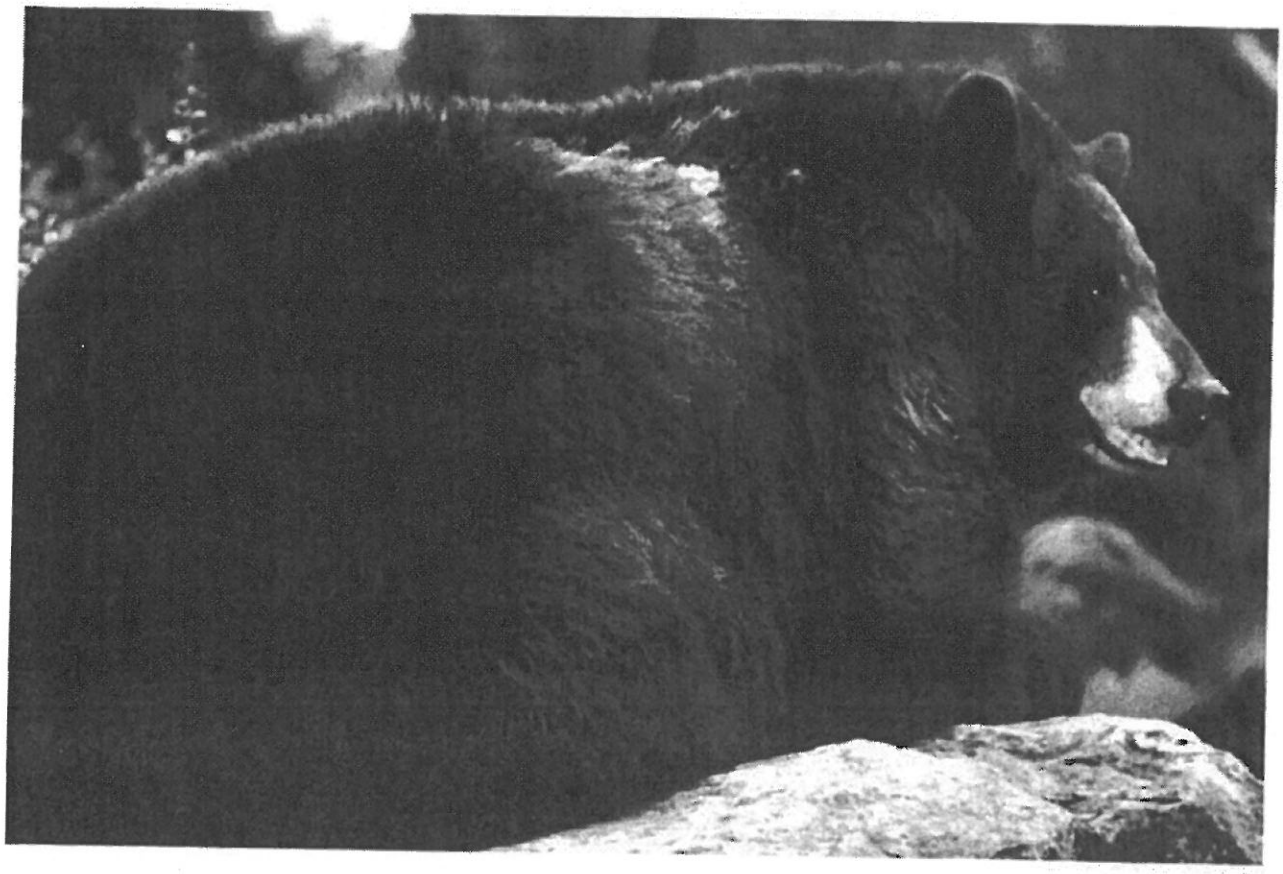
Life Expectancy: Can live to 25 or more years in the wild, but the average is less in populations where hunting occurs.

Home Range: Bears have a large home range and travel a great deal. Studies in other states indicate the home range of adult males to be 100 to 120 square miles in upland hardwood habitats, 24 to 50 square miles for females. Movements of 125 miles from a denning site have been documented.

Feeding/Travel Periods: Crepuscular- Active early in the morning and late in the evening. Daily timing of movements may be influenced by human activities. Bears in high human activity areas tend to be more nocturnal in their movements while dawn and dusk are the periods of primary movement among bears in low human activity areas.

Typical Foods: Bears are omnivores; they will eat a variety of foods from fruits and grasses to meat. Grasses, forbs, berries, mast from oak, hickory, and beech trees, carrion, and insects are typical foods. Bears will also utilize agricultural crops, if available.

Native to Ohio: Yes



Active or Potential Nuisance Species: Can become a nuisance, particularly around dumps and human populated areas. Bears can also do substantial damage to agricultural crops, especially beehives; an occasional bear may kill livestock. In situations where people feed bears, the bear can lose its fear of humans and become a nuisance or even aggressive toward people. Feeding bears is totally discouraged. Current low populations present a low potential for conflict at the present time.

The black bear is classified as endangered in Ohio. As such, the species is afforded full protection.

The All American Bear

Most of us have never seen an Ohio black bear in the wild. But they are one of those critter that seem familiar. And no wonder! There are Teddy bears and bear hugs. There's a bear that tells us "we alone can prevent forest fires." And we all know of Goldilocks, who met three bears under unusual circumstances.

Wildlife has always inspired myths, stories and art. Early explorers' first contact with the New World bears spawned wondrous and terrifying tales of shaggy, man-like creatures. Our culture is full of bear-influenced and inspired images.

Ursa major, the Big Dipper to most of us, is a portion of a much larger constellation, the *Great Bear.* Native North Americans consider the bear symbolic of a preeminent giver of life. The *Great Bear Mother,* with its super human wisdom, emerges with young each spring from the earth itself.

Black bear in early Ohio were both a nuisance and a necessity. Whenever bears and people crossed paths, there were "incidents." Bears, thought of as food or as a dangerous predator, were killed in large numbers by settlers. Bear were big game and one of the few animals that were hunted early in Ohio history solely for sport. Local heroes gained status as bear hunters and accounts of remarkable hunts and hunters are well documented.

Large circle hunts, where whole communities participated, often resulted in large numbers of deer, turkey and bear being killed.

Settlers were as fond of bear meat as any other game. Bear grease, or the oil rendered from bear fat, was put away in deer skins and was considered a valuable commodity. It could take the place of lard for frying meat and was even used for buttering bread. Bear grease mixed with dried corn and venison was considered fine eating.

Well known national heroes had their own bear encounters. Daniel Boone and Davy Crockett earned part of their folk hero status from their exploits with bears. And even later, Theodore Roosevelt, conservationist, politician and president, hunted bears, preserved bear habitat and became the namesake for one of America's favorite stuffed animals, the Teddy Bear.

People have always had a unique relationship with bears. We've historically seen them as a challenge for dominance in an untamed Ohio. We've feared them and loved them at the same time.

But we really don't know the Black Bear. They've been gone from Ohio for too long. For many of us, it's very exciting to think that the all American black bear is recolonizing Ohio from our neighboring states. And this time, if we really get to know them, we may be able to share the Ohio country a little more equitably.

The "Bear" Facts

Getting to know the black bear is something many Ohioans are excited about as black bears recolonize Ohio from expanding states. Here are some interesting facts:

- While there have been some unusually large animals reported, the average black bear is about the size and weight of a large man, maybe six feet or so long and just over 200 pounds.
- Black bears are not always black. Black, brown and cinnamon color phases can occur in the same litter.
- While perceived by many as carnivores, black bears are omnivores, with more than half their diet consisting of plant material. Their "prey" consists mostly of grubs, worms, ants, mice, snakes and nesting birds.
- The black bear's maximum life expectancy in the wild, where they are hunted, is 10-12 years. Where bear populations are not hunted, they may live as long as 20-25 years.
- The black bear is the only bear native to all parts of the United States (except Hawaii) and is unique to North America.
- Black bear cubs are born blind and helpless (altricial) during the sow's deep winter sleep. They weigh between 8 and 15 ounces. Litters range from one to three, but litters of up to five have been recorded.
- Black bear cubs can climb a tree easily at five months of age, an adaptation that is a bear cub's primary escape from danger.
- Yearling cubs den with the female the first winter, but are on their own the next spring. Young males are driven off to establish their own territories.
- One of the greatest threats to today's wild bear is acclimation to humans. When they lose their natural fear of humans as a result of food handouts, bears often become intolerable and dangerous nuisances and must be destroyed.

Activity 1

BEARLY BIG

OBJECTIVE: Students will be able to: 1) describe the size of an average black bear; and 2) compare the size of a bear to their own size.

METHOD: Students use computation and measuring techniques to create a life-size drawing of a black bear.

BACKGROUND: Large and ferocious may be the typical first impression when the image of a bear comes to mind. But Ohio's black bear are hardly that. One biologist candidly described the black bear as more like "an over grown raccoon" than a huge dangerous predator.

The purpose of this activity is for students to use mathematics to gain a better understanding of the moderate size of a typical adult black bear.

MATERIALS: Bear drawings, drawing paper, markers, tape.

PROCEDURE: Provide each student or small group of students with copies of the bear picture(s) within numbered squares and a piece of drawing paper 12 inches square.

Assign each student or small group a different numbered square. If there are not enough students or groups, some may be assigned more than one so that all the numbered squares are assigned.

Have each student or group draw only the piece(s) of the bear they see on their assigned square(s).

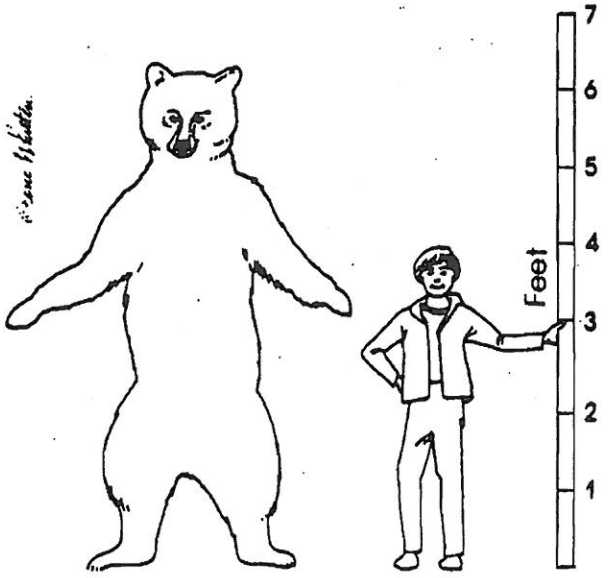
When all the drawings are complete, tape the squares, in order, on a wall or arrange them on the floor and tape them together so that one large drawing is created.

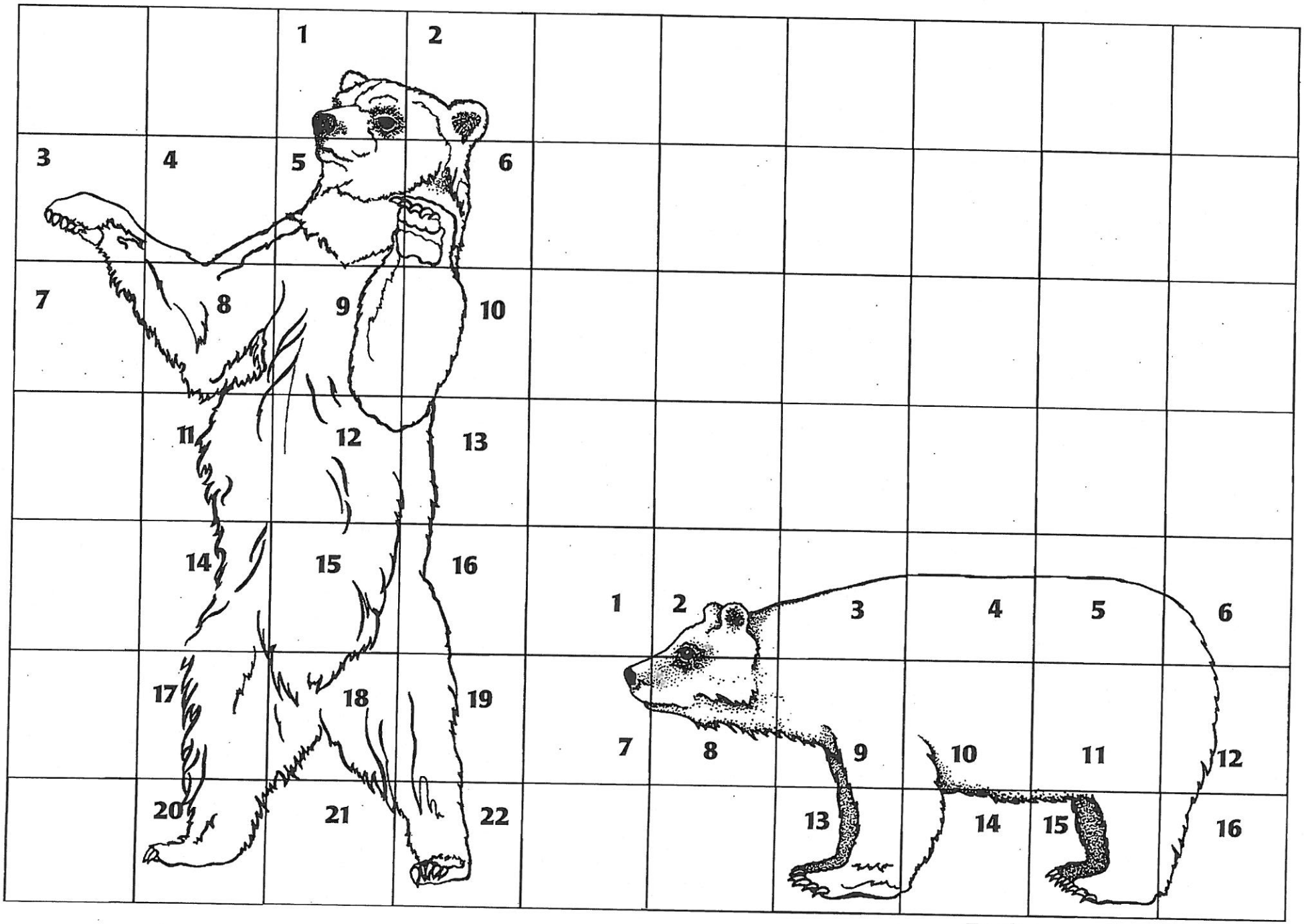
Next, have the students stand next to or lie on top of the completed full size drawing to compare their overall size to that of a typical adult black bear.

Discuss the actual size of a black bear with any previous impressions or assumed understanding.

EVALUATION:

1. Describe the size of a black bear using more familiar animals as a standard measurement.
2. Make a scale drawing of a black bear next to a raccoon, a horse and a human
3. Make a list of other wild animals about which there are likely misconceptions. Discuss some of the reasons why some animals are assumed to be something they are not.
4. Create a story in which the true nature and size of a black bear is revealed.





Each square represents 12"

Activity 2

BEAR WEIGHTS AND MEASURES

OBJECTIVES: Students will be able to: 1) interpret data showing the relationship between two measurements, and; 2) recognize the value of field techniques in wildlife management.

METHOD: Students use a graph of bear research data to determine the weight of hypothetical black bear.

BACKGROUND: The weights of black bears are probably overestimated more than the weights of any other big game species. Even wildlife workers and hunters handle too few of these animals to become proficient at weight estimation. Stories and legends have also made bears much larger in most peoples' minds than they actually are. Black bears in North America are often estimated to weigh from 200 to 400 pounds, yet adult females actually average about 150 pounds and the adult male about 275.

Cattle and hog producers have used weight tapes for years to estimate the live weight of animals being fattened for market. These tapes work on the principal that a relationship exists between chest circumference and whole body weight. In other words, as an animal gains or loses weight, the distance around the chest changes proportionately. Similar relationships have also been described for several wildlife species.

As part of a black bear study, chest circumference and live weights have been taken on more than 50 different bears. It was found that a close functional relationship exists between chest circumference and weight of adult bears. This makes it possible to estimate the live weight of a bear by measuring the distance around the chest.

In order to determine the weight of a bear with this technique, the chest circumference measurement is taken around the chest immediately behind the shoulders with either a steel or cloth tape measure. Position of the animal and breathing movement are not important. The main precaution is to be sure the tape is snug, but not tight, when the measurement is taken.

The results of this study are recorded on the graph with the live weight in pounds plotted on the vertical axis and the chest circumference in inches on the horizontal axis.

Using this system, biologists can now estimate the weight of an anesthetized black bear without carrying bulky scales into the field. A single simple measurement is taken and a relatively accurate weight can be determined.

MATERIALS: ruler; tape measure; graph paper; calculator.

PROCEDURE:

TASK 1

The following table shows the chest circumference (girth length) of black bear from a sampled population. Find the girth length on the horizontal axis of the graph provided; move vertically to the point of intersection with the curved line. This point projected onto the vertical axis estimates the live weight of each bear.

Complete the data table:

	SEX:	*GIRTH:	WT:
Bear 1	M	41"	
Bear 2	F	23"	
Bear 3	F	39"	
Bear 4	M	46"	
Bear 5	M	53"	
Bear 6	M	48"	
Bear 7	F	34.5"	
Bear 8	F	33"	
Bear 9	M	44.5"	
Bear 10	F	31"	

*Chest circumference

Task 2

Determine: 1) the average weight of the bear population in this sample; 2) the average weight of the female bears; and 3) the average weight of the males.

Task 3

Using the average weights of male and female black bear found in the background information determine an average chest circumferences for each.

Task 4

Using selected class members, determine what their weight would be if they were black bear. How do these estimates compare to the black bear data?

Task 5

Consider the following questions:

1. What factors might determine the rate in which a black bear gains weight?

2. Would quality and quantity of available food impact the relationship between chest circumference and body weight?

3. Why would collecting this type of data be important for wildlife research? How might it be used?

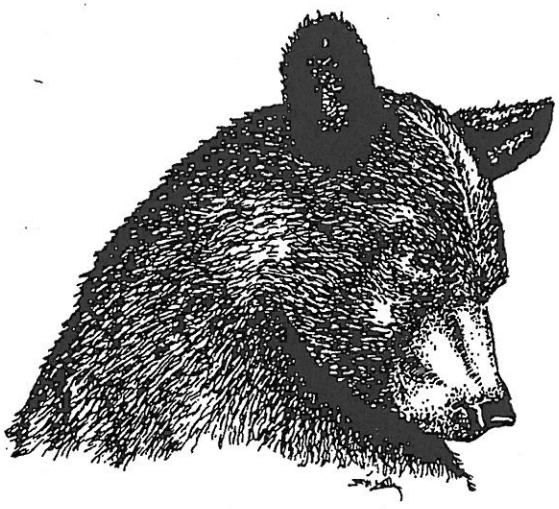
4. Why do you think the weight of wild animals is often overestimated?

For Younger Students:

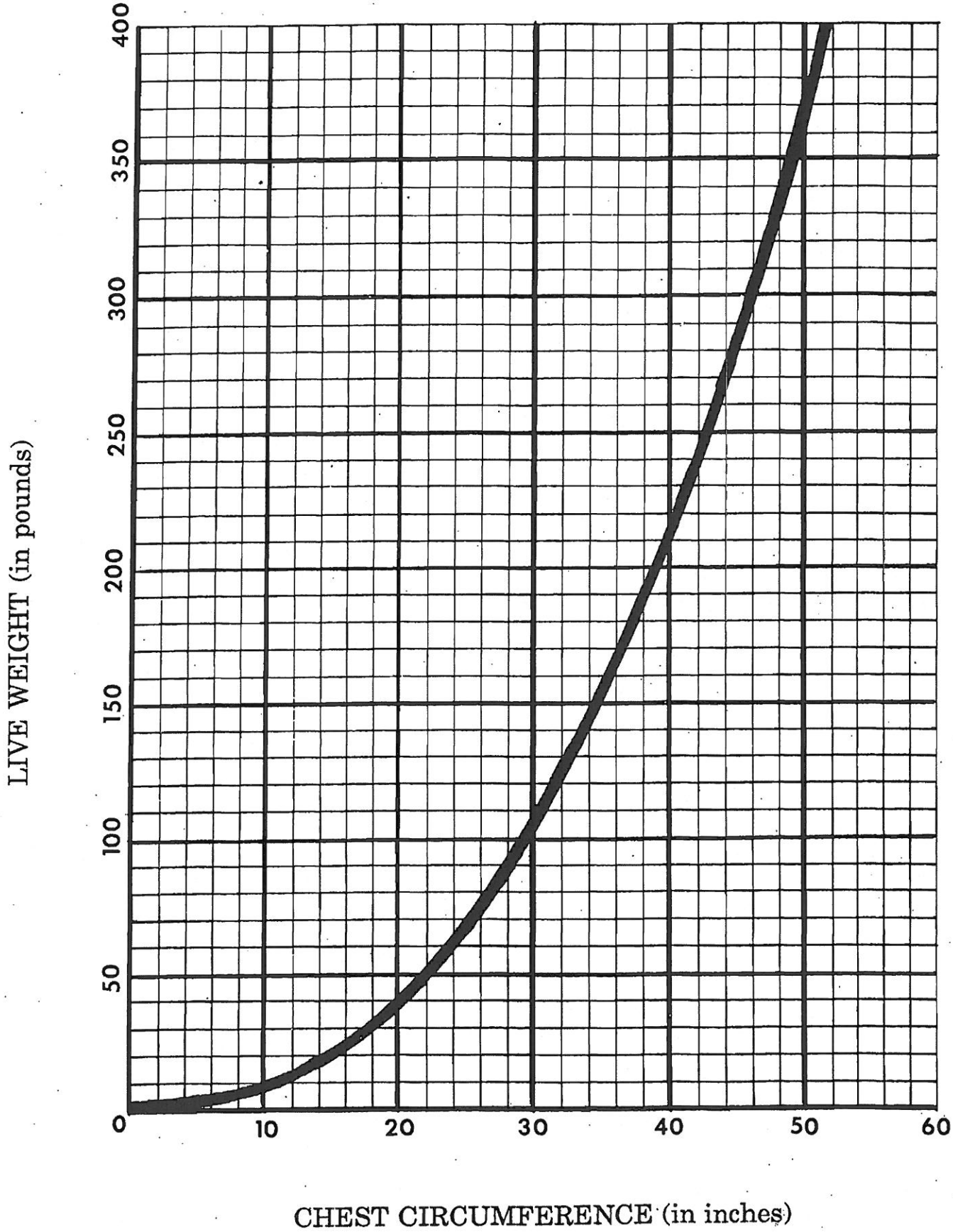
Use teddy bears to create a comparable measuring activity.

EVALUATION:

Using measurements such as arm length relative to height, develop a similar graph for estimating classmates' height by measuring only their arm length.



This activity is based on background and data from *Arizona Wildlife Digest*, Abstract 11; 1977, by Al LeCount, research biologist, Arizona Game and Fish Department.



Weight estimation for adult black bears in Arizona

Activity 4

ENOUGH HONEY

OBJECTIVE: Students will be able to: 1) interpret quantitative data from a summary chart and convert chart data to a graph; and 2) draw conclusions about the weight patterns in black bears.

METHOD: Students use information from a chart summary of bear research to graph comparative weights of black bears. Students then interpret the data to draw conclusions about the weights and seasonal changes in the weights of black bears and discuss their findings.

BACKGROUND: The average weight of a black bear is different relative to age, sex, diet, and season of the year. Males usually weigh more than females of the same age. Bears going into winter sleep weigh more than bears just leaving their den in the spring.

The age of a bear can be accurately determined by counting the *cementum annuli* (annual growth rings from a cross section of a pre-molar tooth). Researchers harmlessly remove this tooth from anesthetized bears.

Biologists use the age and weight information to determine the over all health of the bear population in a given area and to assess the quality of the habitat. Information is gathered from captured bears and from bears killed in states where the population is stable enough to provide hunting.

MATERIALS: Table of bear weight data; graph paper.

PROCEDURE: The following chart depicts the average weight in pounds of black bear with respect to age , sex, and season of the year. The data was collected over a twenty year period from a research project conducted in Pennsylvania.

Using the data from the chart have the students individually, or as a group, construct a labeled graph depicting the average weight of males and females in the summer for ages cub to 5 years.

As students study the graph and look for trends or patterns have them answer the following questions:

1) Which bears consistently weighed the most, males or females?

2) Between which ages did the bears gain the most weight?

3) Hypothesize a reason for weight gain at this time of the year.

4) Are there times when the weight gain seemed to level off? Why?

Have the students construct a second graph depicting the average weight of a 3 and 5 year old male and female bear. Study the graph as above and assign the following questions:

1) Does the weight of the bears seem to fluctuate with the seasons? What are some possible explanations for these fluctuations?

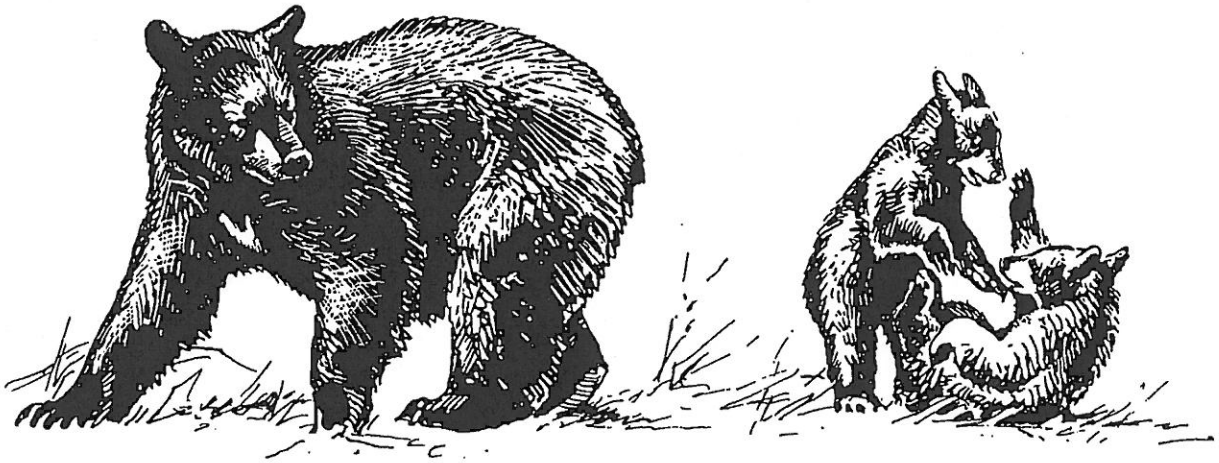
2) When is the male at his greatest weight? Why? When is the female at her greatest weight? Why?

3) Is there a weight difference between the 3 and 5 year old males? Females? Why?

EVALUATION:

1. Survey a sample of students from a range of grade levels within your school to determine individual weights. Determine the average weight for students in each grade and the range of weights. Chart and graph the results of your survey. Between which grade levels do students gain the most weight? What other, if any, inferences can you draw from the information you collected?

2. Make a series of drawings of black bears, using an arbitrary size scale, illustrating weight gain patterns for bears of different ages and sex.



This activity was created with information provided by the Pennsylvania Game Commission, Division of Information and Education.

Change in bear weights with respect to age of the bear and season of the year*							
		Males			Females		
Bear Age	Season	Sample Size	Average	Range	Sample Size	Average	Range
Cub	Winter**	47	6	3-10	34	6	3-9
	Spring	25	9	3-16	16	6	4-14
	Summer	15	50	18-93	15	42	20-59
	Fall	26	97	65-126	34	82	34-110
1	Winter	7	82	52-147	10	66	34-95
	Spring	34	85	59-140	13	65	41-95
	Summer	36	123	65-187	21	94	64-124
	Fall	31	172	97-242	20	144	79-202
2	Winter	2	197	156-238	2	104	95-113
	Spring	64	175	98-270	12	109	84-139
	Summer	51	188	102-290	5	165	114-188
	Fall	32	240	150-341	1	205	-
3	Winter	2	198	198-198	2	163	155-170
	Spring	46	255	151-372	12	144	92-184
	Summer	24	258	166-344	13	172	94-255
	Fall	22	339	216-492	9	190	130-282
4	Winter	4	339	222-439	5	163	134-192
	Spring	10	342	210-481	5	168	133-221
	Summer	10	298	229-374	17	171	116-236
	Fall	13	395	216-514	11	200	120-346
5+	Winter	1	442	-	14	213	155-285
	Spring	30	383	210-506	27	178	133-241
	Summer	30	384	256-515	35	196	132-314
	Fall	11	485	385-584	17	249	150-356

*Weights taken dur ing January-March were considered winter, April-June were considered spring, July-September were considered summer and October-December were fall.

**Weights were taken primarily during late March.

Activity 7

AND THE BEAR WORE SHOES

OBJECTIVES: Students will be able to: 1) distinguish between animals based on "real life" and those based on "make believe"; and 2) give examples of real and make-believe animals and their characteristics.

METHOD: Students divide books and pictures into those about "real" and those about "make-believe" animals and then distinguish between real and fictitious animal characteristics.

BACKGROUND: Portrayal of animals in books, fairy tales, comics, cartoons, movies and other media may have an influence on the perceptions young people have of those animals.

The major purpose of this activity is to give students experience in actively distinguishing between realistic and fictionalized portrayal of animals in literature.

MATERIALS: Pictures, children's books and comics about or including both real and "make-believe" bears and other animals.

PROCEDURE:

1. Put out a small stack of books and pictures for every group of two to four students. Each stack should have some books that portray bears and other animals realistically and some that give the animals unrealistic qualities such as human attributes.

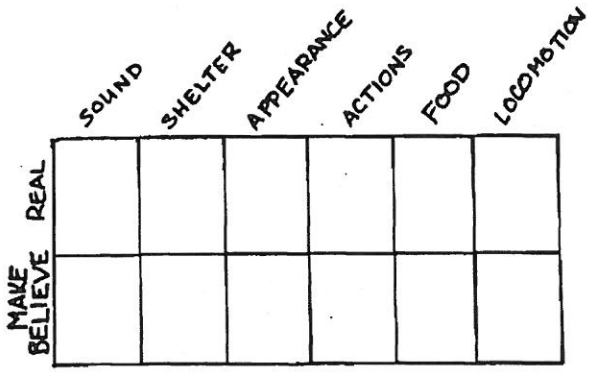
2. Let the student look though the books in their stack and try to divide them into books about real animals, or animals that act in real ways; and books that are about imaginary or make-believe animals, or even real animals that act in make-believe ways. If necessary, help the students to make their distinctions.

3. Work quietly with each of the groups to check their classifications into "real" and "make-believe."

4. Ask any volunteer from any of the groups to give an example of a "make-believe" animal. Talk about what makes that animal "make-believe."

5. Ask any volunteer from any of the groups to give an example of a "real animal." Talk about what makes that animal real..

6. Using a chart like the one below, ask the students for examples from the books in their stack to fill in the blanks in the chart.



7. Talk with the students about their ideas concerning the importance of being able to tell when something is real and when something is make-believe. Talk about why that is important when learning about animals and how they live.

EVALUATION:

Name three things a make-believe animal often does that a real-life animal cannot do.

Activity 9

A FOOTPRINT APART

OBJECTIVE: Students will be able to: 1) describe the differences and similarities between human and bear footprints and methods of walking, and 2) infer the adaptive significance of each.

METHOD: Students compare bear and adult human foot prints with their own. Then discuss how feet and walking styles help each animal monitor their environment.

BACKGROUND: Walking flat on the foot, with the heel, sole, and pad on the ground is called *plantigrade locomotion*, and bears share this feature with humans. Other animals use different types of locomotion. For example, deer and horses walk on their hoofs, which are modified toenails; dogs and cats walk on their toes.

Since bears stand on the entire foot and their feet are large, they have a broader base of support and greater stability when in an upright position then do hoofed animals. Deer walk on their hoofs in the way ballet dancers walk on their toes. Each hoof provides only a small area of support compared to the long and wide bear paw.

Also, bears can position their bodies to balance on their rear legs and walk in this position; deer cannot. It would be very difficult for a deer to keep its balance, although some deer can rear up on their hind legs to browse on leaves and twigs that would otherwise be out of reach.

Even with their more stable posture, bears stand and walk on their hind legs for short distances only. By standing on their hind legs, bears can see over objects and scan a larger area for danger and for food. Their hearing and sense of smell are also enhanced in an upright position.

Bears usually walk on all four legs. In this position they are better suited to find roots, berries, insects, and other foods close to the ground.

When bears stand upright, their heads are at about the same height as a tall human, so they see things form a similar angle. However bears depend more on their acute hearing and sense of smell than on their vision.

Another foot feature is toenails, which perform a much more specialized function for bears than to humans. Bears use their claws to climb trees, to dig, and to mark trees as part of their territory.

MATERIALS: Illustrations of bears and human footprints; drawing paper and markers.

PROCEDURE: Enlarge the bear and human footprints to make them adult size. Give each student or small group of students a copy of the footprint illustrations. Allow them time to examine and compare the two pictures.

Ask the group to contribute to a list of similarities and differences.

Next, instruct the students to place the bear paw prints on the floor, take off their shoes and stand on the rear paw prints. Ask them to compare their feet with the paw prints for size and shape.

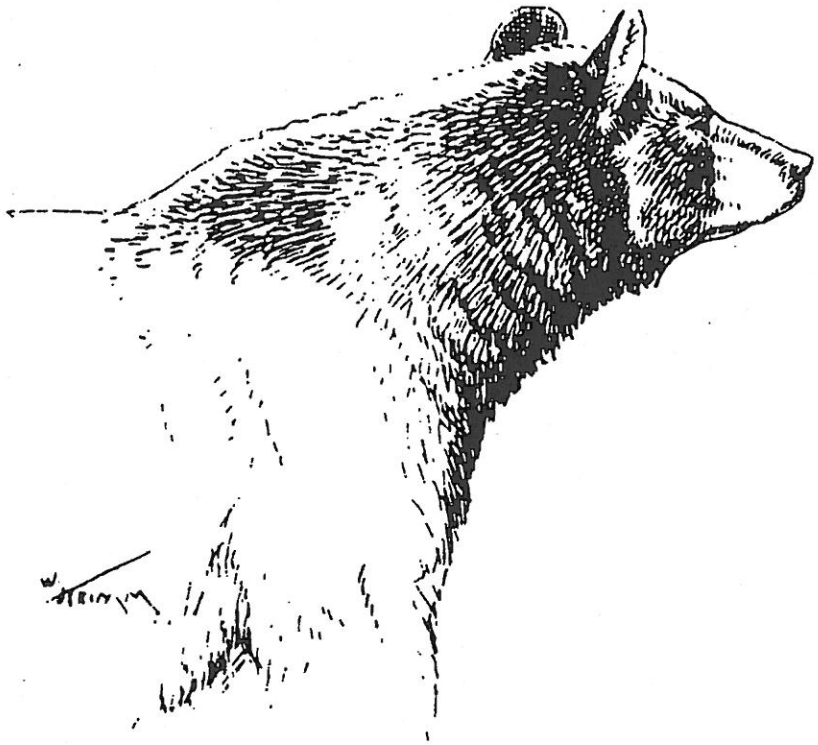
Suggest that they get down on "all fours" like a bear. Have them look about the room and report what they see from that position that might not have been as readily observable while standing. Have

them "rear up" on their hind legs and compare the two views.

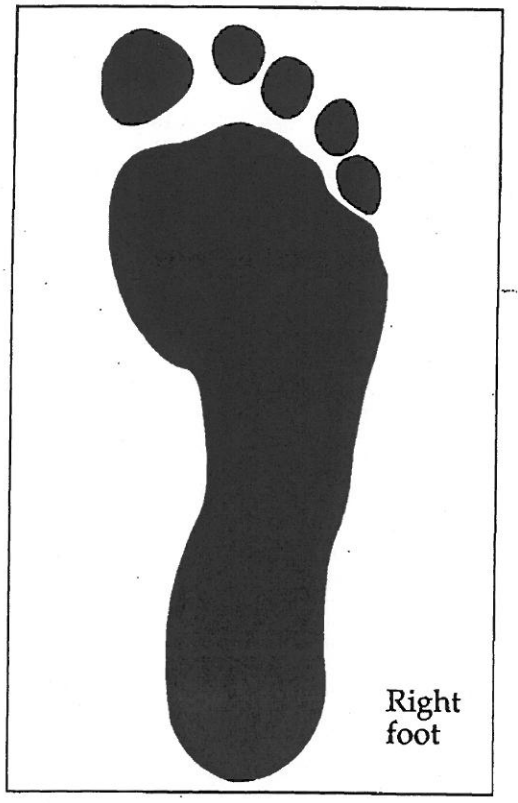
EVALUATION:

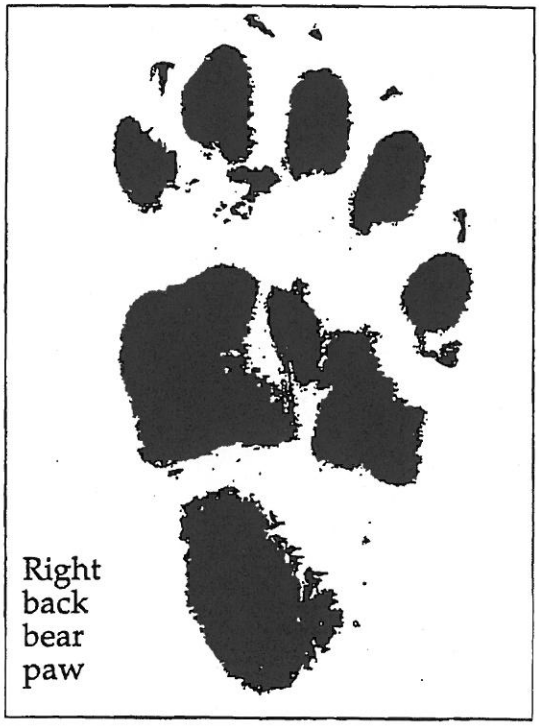
1.) Why is it possible to train some "circus" animals that normally walk on four legs to walk for short distances on their hind legs?

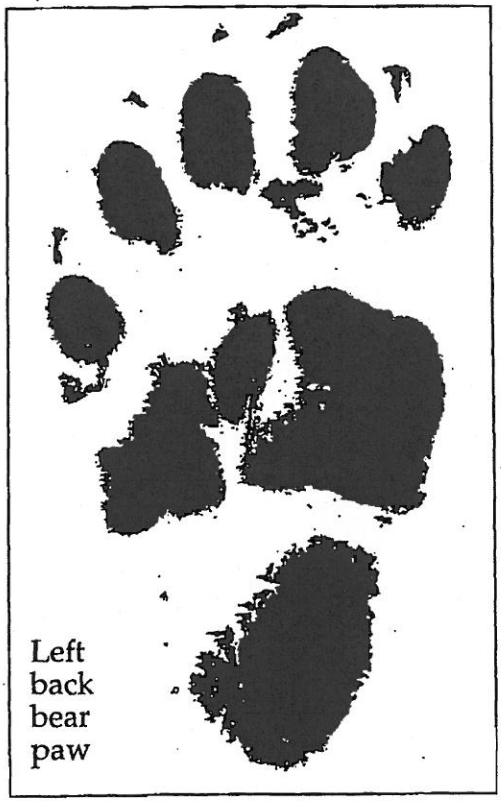
2.) Examine the footprints of other animals. What can you infer about their method of walking or other behavior?

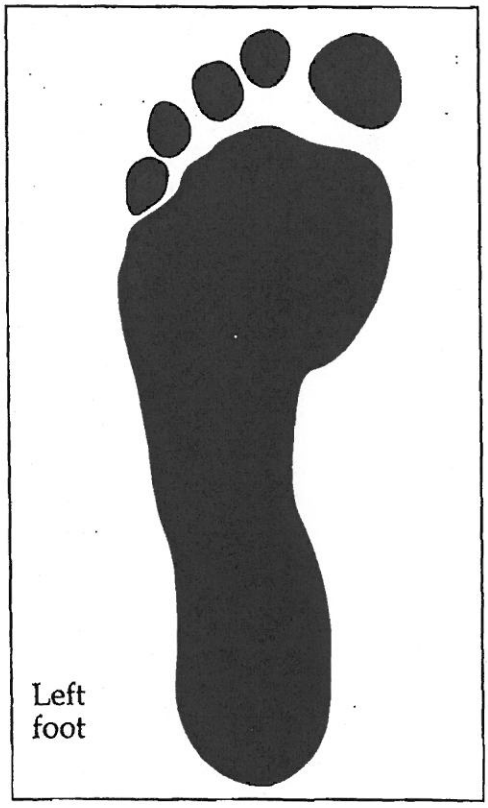


This activity was adapted from Wild in the Woods, A Teachers Newsletter from Project WILD and Project Learning Tree, Virginia Dept. Of Game and Inland Fisheries, Sept., 1995.









The Illustrations above should be enlarged by 100% to approximate adult size.

Activity 10

SKULLS TALK

OBJECTIVE: Students will be able to surmise various adaptations of selected wild animals by examining skulls.

METHOD: Students examine preserved skulls and compare skull features among several animals to explore associated adaptations.

BACKGROUND: Preserved skulls provide a fascinating look at adaptations of a "real" wild animal. Skull features associated with the senses and processes such as eating can be compared with what is known about an identified animal.

MATERIALS: A variety of preserved animal skulls including deer, coyote, opossum, and black bear.

PROCEDURE: Use the following narrative to guide a student discussion of skull features and adaptations as preserved skulls are examined. This procedure or the narrative should be modified for the age of the group and the skulls that are available.

By looking at a skull, can you tell what kind of animal it belonged to? You might not be able to tell if it is from a coyote or a deer, but if we look closely at some of the features of a skull, we might be able to tell if the skull belonged to a predator or a prey animal.

Let's start with predators. A predator is an animal that hunts and catches other animals for food. How might we tell if an animal is a hunter by examining its skull? What features would it need to catch prey? Let's think of a few. Maybe good eye sight? How about a good sense of smell? When we look at a skull, the eye socket, or the space that holds the eye, can tell us something about how well an animal can see. The larger the eye socket, the better the animal's vision. This might also indicate if the animal was active at night. Nocturnal animals usually have larger eyes to see better in the dark. Similarly, the size of the nasal cavity, or the space where the nose is, tells if the animal had a good sense of smell. The size of the auditory bulla or the bones that cover the hearing organs is indicative of how well an animal can hear.

But don't prey animals need all of these things too? A rabbit needs a good sense of smell and keen eye sight to avoid the fox coming down the path. So lets look at other features of the skull that might tell us if the animal was a predator or prey. What about teeth? What kind of teeth would a carnivore or meat-eater have? Sharp teeth would help a predator catch its prey as well as aid in eating meat. What kind of teeth would a herbivore or plant-eater have? Flat teeth help herbivores grind up the tough leaves and stems of plants. What about omnivores, those animals that eat both meat and plants? Omnivores have both types of teeth, sharp in the front, and flat, grinding teeth in the back.

Another feature to look for is the placement of the eyes. A predator is always on the lookout for food. So the eyes of a predator are usually up front and facing forward. However, an animal being hunted is always on the

lookout for predators. So the eyes of a prey animal are on the sides of the skull and provide a broader field of vision. This helps them avoid the sneak attack! Now see if you can guess which of the skulls belong to predators and which belong to prey.

You can also somewhat determine the intelligence of an animal by the size of its brain. Compare the size of the brain cavity of the skulls you examine. How large or small is the brain cavity in relation to the size of the skull? Which animal has the largest brain cavity? Which has the smallest? Let's take a close look at the bear skull. The brain cavity is fairly large in relation to the size of its head. So we can guess that bears are fairly intelligent. Now look at the opossum skull. Have you ever heard the expression "pea brained"? The opossum has a very small brain cavity in relation to the size of its head. The opossum's small sized brain is one indication of its intelligence.

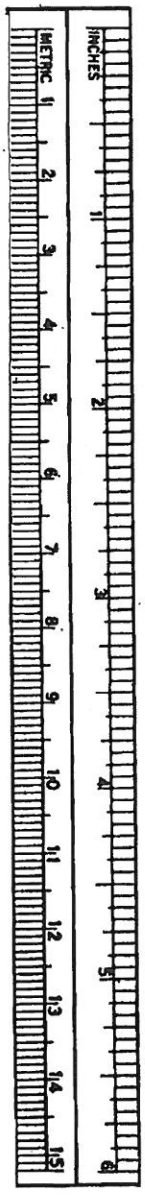
The features of each skull help us to understand the characteristics of the animal that help it survive. These characteristics are called adaptations. Good eyesight, hearing, and a sense of smell, as well as intelligence are adaptations that help animals survive.

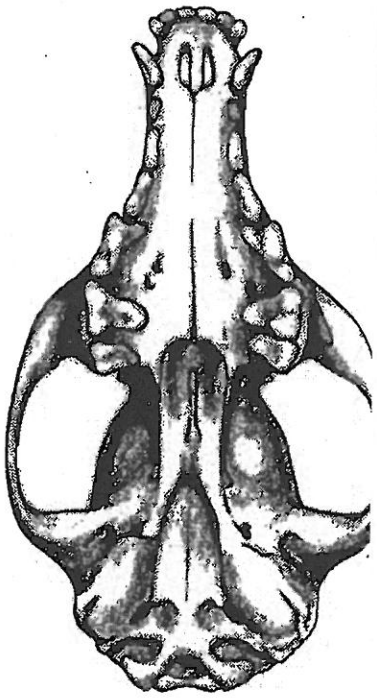
Let's take another look at each skull and compare the features we have identified and see how they might indicate a survival adaptation.

EVALUATION:

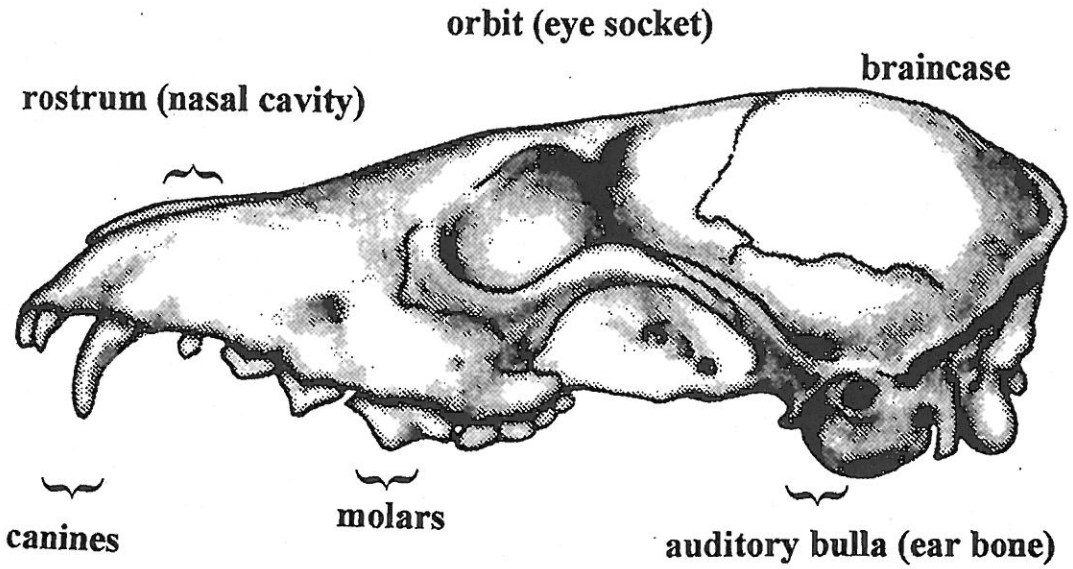
1.) Invent an imaginary animal. Determine what it might eat and how it might capture or gather its food. Make a drawing of its skull showing adaptations for these processes.

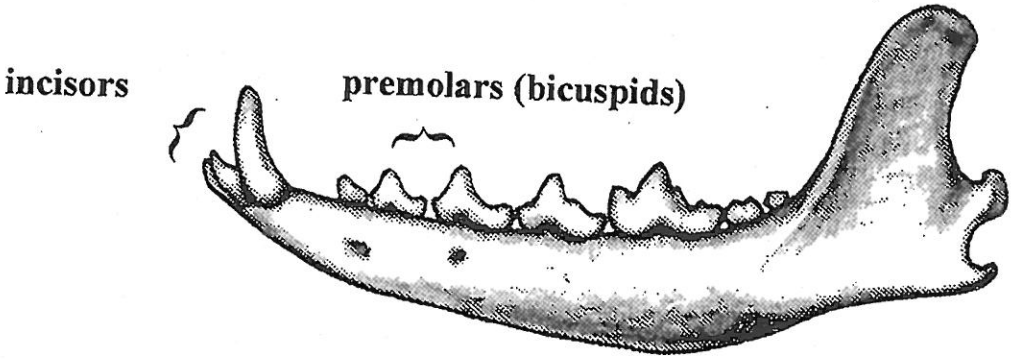
2.) Examine illustrations of a human skull. Make observations and inferences about the features you observe.





Skull Features





SKULLS TALK

- The size or length of the *rostrum* and associated nasal cavity indicates the significance of the sense of smell.
- The relative size and location of the eye sockets (*orbit*) is indicative of vision adaptations.
- The size and development of ear bones and the skull feature that protects them, the *auditory bulla*, is relative to the sense of smell.
- Structures for muscle attachment, ridges and jaw surface area, can provide information on eating habits and types of food.
- Openings for nerves and blood vessels indicate adaptive significance of some head features and senses.
- The size, shape, density and suture patterns of the skull and skull bones provide information about other lifestyle adaptations.
- The size and relative capacity of the brain cavity indicates brain development and suggests intelligence.
- The type, size, number and shape of the teeth are related to eating habits and food sources.
- Teeth may also indicate an evolution from one lifestyle to another.

Mammal Teeth

Of all the identifying skull features, teeth have the most to say about a mammal and its lifestyle.

There are four basic types of mammal teeth:

Incisors:
Incisors are the front teeth. They have sharp edges for cutting and are generally simple in structure. They may be modified for grooming, cropping, cutting and other functions.

Canines:
Canines are the conical, pointed teeth located between the incisors and the premolars-they grip and tear food and are the "stabbing teeth" in some carnivores. Some mammals lack canines (particularly herbivores).

Premolars, or bicuspid:
Premolars have two conical points and follow the canines. They are also used for gripping and tearing.

Molars:
Molars are the back teeth, and they vary in surface shape depending on the lifestyle of the mammal. Mammals that grind food have flat molars, while those that cut food have serrated ones.

The Science of Fur

Just as you might wear a heavy coat or a light T-shirt, depending on the weather, mammals rely on their fur coat to keep them warm in the winter and cool in the summer. *Thermoregulation*, or the ability to maintain a constant body temperature, is one of the most important functions that mammals can perform, thanks to their adaptations of fur or hair. Fur and hair also perform a variety of other functions. These include protective coloration or camouflage, various defense mechanisms such as the spines on a porcupine, attracting mates and the sense of touch.

Two types of hair fibers make up the *pelage* (pel'ij) or fur of mammals. *Overhairs*, also called *guard hairs*, are usually coarse, rigid and pigmented. They make up the outer protective layer of the pelage of most mammals and receive the most abrasion from the environment. They can be erected to increase the thickness of the coat and trap air for warmth, as well as making the animal appear larger to act as a warning to other animals. They can also be fairly water repellant, keeping the deeper fur layer dry. A good example is the coat of a deer. The overhairs are the long, tawny hairs on the back and the white hair on the belly and underside of the neck and tail.

Underhairs are short, thin and also pigmented. They make up the main insulating layer of fur in most mammals. Underhairs are like the wool of sheep.

As the seasons change, the insulating value of fur in most arctic and temperate mammals also changes, mainly because of changes in fur depth and density. In field mice, for example, the number of hairs per square area of skin is greater in the winter than in the summer.

All hairs, in particular guard hairs, are finer during the winter. In the fine winter coat, the hairs are close together, trapping air that acts as an insulator helping to conserve body heat and keep the animal warm. In the coarser, sparser summer coat, the hairs are further apart so heat can escape more easily from the skin helping the animal to keep cool.

All mammals strive to keep their fur dry. Dray fur provides the most effective insulation. Next to each hair follicle is a *sebaceous gland* that secretes an oily substance that help waterproof the fur. If this waterproofing were missing, and animal like a muskrat or an otter would not be able to maintain its body temperature in cold water.

Mammals actually seem to "know" when it's time to grow their winter coat. However, this coat "change" occurs because of a chemical change in the animal's brain. Data suggests that the brain responds to a decrease in the number of daylight hours. As the days get shorter in the fall, this hormonal change stimulates the growth of the winter coat.

Adapted from an article by David Kocka, Virginia Dept. of Game and Inland Fisheries.

Activity 11

HIDE N HAIR

OBJECTIVE: Students will be able to 1) infer the adaptive significance of the characteristics of mammal fur, and 2) identify some historic and present day uses of animal hides and fur.

METHOD: Students examine a variety of preserved animal hides and consider open ended questions to help guide there observations.

BACKGROUND: While we may be somewhat familiar with common mammals, it's unlikely that many of us have had an opportunity to actually handle them. By examining preserved animal parts such as bones, study skins, or hides we may discover additional relevance to many of the things we have learned about wild animals.

MATERIALS: Preserved fur and hides from several mammals, including if possible: black bear, deer, beaver or muskrat, and any others available.

PROCEDURE: Allow the students to freely examine the study skins. Ask individual students or small groups of students to propose a question based on their observations of the furs. The questions need not have a right or wrong answer, nor should they be answered with yes or no, rather they might begin with , "Why do you suppose....".

Note: This exercise not only encourages keen observation skills, it teaches the art of asking and answering questions. Questioning often leads to new thoughts and new discussions while opening the mind to things that might otherwise be overlooked. It exercises critical thinking skills because a good question requires fully developed thoughts to achieve an answer or conclusion. It's not always important that the answer is right; what's important is what is learned while trying to answer. Don't rush an answer; allow time for the students to discover possible answers for themselves, and perhaps come up with a new idea.

Introduce the idea of utilizing animal skins for clothing and other human needs. Ask again that the students develop the questions that will guide a discussion of this topic.

EVALUATION:

1.) Make a list of the metabolic processes in which fur or hide play a role.

2.) Generate a list of human wants and needs. For each item on your list, discuss in what way an animal might have historically contributed or presently contributes to satisfying that need.

Activity 13

BEARS IN THE NEWS

OBJECTIVE: Students will be able to compare and contrast elements within news stories including bias, opinion, and factual information.

METHOD: Students read and analyze newspaper accounts of black bears incidents in Ohio.

BACKGROUND: Whenever bears and people cross paths in Ohio, it's news. Even though incidents involving bear encounters are becoming more common, the potential for controversy is always present.

Newspaper accounts represent a major source of information for many people. Particularly concerning incidents of which they have very little other knowledge.

This activity is intended to provide students with the opportunity to "catch up" on the news concerning black bear in Ohio and at the same time consider the role of newspaper articles in influencing opinion.

MATERIALS: news articles about black bear.

PROCEDURE: Read any or all of the included news articles about bear and bear incidents in Ohio and consider the following questions:

NOTE: Some questions are not pertinent to some of the articles.

1. How does the writer personally feel about the return of the black bear to Ohio?
2. How do any individuals identified in the news story feel about the return of black bear to Ohio?
3. Find statements that likely represent personal opinion.
4. Find statements that indicate a bias or an opinion influenced by things other than factual information.
5. Why is it that black bear are sometimes killed in Ohio?
6. Which of the reasons you listed for the question above do you feel are valid, and which are questionable?
7. List information about black bear you have learned from the articles.

EVALUATION:

1.) Choose a topic that represents an area of personal interest or knowledge. Search for news articles about that topic. Use the questions above to evaluate the articles.

2.) Write your own news article demonstrating an understanding of the return of black bear to Ohio and some of the issues involved.

Hungry bear roving Ohio is pushing his luck

Columbus- Ohio wildlife officials have a traveling, garbage-eating bear on their hands. And if it continues its ways , it may not be long for this world.

You may have read about the bear that dined on garbage outside the Olive Garden and Bob Evans restaurants in Zanesville earlier this month, then climbed a tree next to a public library. It was tranquilized and moved by the Ohio Division of Wildlife to the Wolf Creek Wildlife Area in Morgan County.

Unfortunately, It didn't stay there. It cut through Burr Oak State Park and was last seen where Athens, Perry, and Morgan Counties come together, Says Tom Monroe, an assistant wildlife supervisor in southeast Ohio for the Division of Wildlife.

This week it was seen in Mt. Perry in Perry County, and on Monday morning it was back on the west side of Zanesville. Monday night it was spotted near Gratiot in Licking County. Could it be headed for Columbus?

Since the bear was released, the Division of Wildlife has received lots of phone calls from folks complaining about the bear in their garbage.

"We believe this bear has been darted before," Monroe said, explaining that scar tissue on the bruin indicated a tranquilizing dart had hit it. "It might have been a bear darted this spring in Ashtabula County and released in Harrison County."

That bear traveled in a westerly direction from Salt Fork Lake to Cambridge and finally to Zanesville, where it stopped for a meal of restaurant garbage.

"Some bears learn to avoid humans and cause no problems. Some even raise cubs in Ohio and are rarely seen, but others turn into garbage-eaters and become a nuisance," Monroe said.

"We'd like to exist with them," he said, "But this bear - a 180-pound, second year male - is a repeat offender.

The division could kill the bear if it continues to be a public nuisance.

"That's within the realm of possibilities, but not one we'll take lightly," Monroe said.

Now that bears are becoming more numerous in Ohio, the division plans to put ear tags on bears that are tranquilized in order to identify them later.

Black bear captured

AKRON- A 240-pound male black bear, which had become a nuisance in Ashtabula County, was successfully captured by Ohio Division of Wildlife personnel Wednesday night.

The bear was first reported to be near Pierpont in east-central Ashtabula County on June 2 where it reportedly had been raiding garbage cans and spending a lot of time around inhabited areas.

At approximately 9 15 p.m., Wednesday, Ashtabula County sheriff deputies contacted state wildlife officer Rick Cooley to report the bear was on the front porch of a residence on Foreman Road near Interstate 80 in Ashtabula County's Saybrook Township. According to Officer Cooley, the bear had walked onto the wood deck outside the residence and was going through trash bags to feed upon the remains of a recent graduation party held there.

Wildlife Officer Jim Kelley was able to place a culvert trap in close proximity to the bear at the Saybrook Township residence in an attempt to lure the bear into a successful capture with a trail of marshmallows. The bear, however, failed to fully enter the trap to the point where a protective door could be closed and soon fled when a motorcyclist passed by the scene.

The bear climbed twelve feet high in a nearby maple tree where Cooley successfully darted it with an anesthetizing gun, under the guidance of Dr. Paul Mechling from the Western Reserve Veterinary Clinic. The sedated animal was weighed, ear-tagged, and marked with a small amount of yellow paint for future identification.

The Division of Wildlife was to transport the bear for release in a remote location in southern Ohio on Thursday.

Cooley praised local residents for their cooperation which led to the successful and harmless capture of the black bear, believed to have come into Ohio recently from Pennsylvania.

"Cool hands prevailed. We have become accustomed to bears traveling through Trumbull and Ashtabula counties each spring. They always generate a great deal of curiosity and because residence leave the bears alone, generally no problems arise from this type of situation," said Cooley.

The bear had developed a taste for garbage and became a nuisance in the area, according to Cooley. He said, "The bear never posed a threat to human safety and we were pleased that most people took its nuisance behavior in stride until we were able to capture it. Past experience in Ohio and other states leads us to believe that the trauma of capture will convince the bear to return to a normal diet."

In June, 1990 Division of Wildlife officers successfully captured and relocated a 150-pound male black bear after it was discovered in a tree near an elementary school in the Vinton County village of McArthur in southeast Ohio. It was subsequently released in a remote wilderness area in southern Ohio and later reported seen leaving the state.

Black bears bear care in handling

TOLEDO, Ohio- Black bears are having their ups and downs in Ohio, as two recent incidents in the southeast corner of the state attest:

A 150-pound male bear was successfully captured and relocated after it was found in the village of McArthur, in Vinton County.

A 125-pound bear was killed by police in East Liverpool in Columbiana County in a confrontation that state wildlife officials branded as an overreaction to an imaged threat.

At McArtrhur, the bear was discovered in a tree across from an elementary school on June 3. A state wildlife biologist darted and tranquilized the bear, which bore a West Virginia tag. The immobilized bear, which fell unharmed into a safety net, was transported to and safely released in an undisclosed, remote wild area.

"It's very important that people remain calm, and alert the proper authorities who are trained in safely handling these situations involving bears," said Mike Budzik, southeast district manager of the Ohio Division of Wildlife.

The McArthur bear was the first case in which state wildlife biologist were able to successfully use training received last fall and this spring.

State wildlife authorities are continuing to investigate the East Liverpool bear kill, which occurred May 30.

The Liverpool bear had wandered into a residential area and was shot by police. Vince LaConte, the state's northeast wildlife district manager, said that he is frustrated by the local handling of the case, adding "the bear was not a direct threat to humans at the time it was shot and, given a little time and quiet, would have left the area on it's own."

Black bears in Ohio generally are few but growing in number, and are concentrated along the Pennsylvania and West Virginia border counties. Invariably the bears involved have been juvenile animals seeking new territories. Bears are totally protected in Ohio and may not be shot.

The shooting was similar to one last July in Hubbard, which prompted the bear-handling training program for Ohio wildlife personal.

"West Virginia wildlife biologists routinely handle bear situations in downtown Charleston, within sight of the Capital Building," LaConte said. "Their advise to us was, whenever possible, to allow the bear enough freedom to leave the area under its own power."

East Liverpool police, he asserted, ignored directions on bear-handling given them by Scott Blattert, state game protector in Columbiana County.

"Black bears are timid by nature," LaConte said. "Our problems right now are people not bears."

Encounter with black bear was excitement for woman

MINFORD- Leota Conkel's neighbors near Minford, in Scioto County, accused her of cooking good food yesterday.

She figures it wasn't anything she cooked but her trash that attracted the black bear that she barely missed bumping into.

Anyway, the basement storm windows are back in at the house in the bucolic area 7 miles east of Lucasville and 2 ½ miles north of Minford on Rt. 335.

Conkel returned the storm windows after a run-in yesterday afternoon with the unwelcome visitor. "It looked pretty big to me," Conkel said in describing the animal.

"And he was black, too. I don't know who was most scared, me or him."

It was the first time in Conkel's 70 years that she's met up with a bear. "And I don't want to run into another one, either."

It started just after noon, when Conkel took trash to the garbage can on her back porch. She couldn't find the can, then looked around and spied it and the lid in the back yard.

"I couldn't figure out how it got there because the wind wasn't blowing," she said. She returned the can to the porch, then went inside.

A few minutes later, as she "started taking my sack of trash from the can under my sink, " there was a noise outside.

She went outside, toward a side of the house. "When I got to the corner, here come that bear. It just about floored me."

Conkel put the brakes on. Fast. She stood there, near enough to touch the bear, while it strode by.

"I couldn't move. It just got to me."

She regained her senses and called her son-in-law, Richard Leive, of Rubyville, 9 miles away. He got there fast and showed Conkel where the bear had wandered in from a wooded area. They called on officialdom—state game warden Larry Rine.

"The game warden said he was probably from West Virginia, and I said he was going in the wrong direction," Conkel noted.

The bear tore at a screen on a basement window. "I suppose if I hadn't went out there he'd have gone in my basement," Conkel said.

That's why the glass storm windows are back in.

DIVISION OF WILDLIFE INVESTIGATING BEAR KILLINGS

AKRON- The Division of Wildlife is investigating the killing of a young male black bear by officers of the East Liverpool Police Department, according to Vince LaCount, Manager of Wildlife District Three in northeast Ohio. The 125-pound bear, which had wandered into a residential area of the Columbiana County community, was shot and killed May 30 under orders of Capt. E. D. Dillon of the East Liverpool Police Department.

"This is a particularly frustrating situation" said LaConte. "From what we have learned in interviewing witnesses to the event, the bear was not a direct threat to humans at the time it was shot, given time and a little quiet it would have left the area on its own." It is a violation of Ohio to kill a black bear at any time.

The death of a bear in a similar occurrence last July in Hubbard led the Division of Wildlife to enlist the assistance of West Virginia biologists in training Ohio game protectors and wildlife biologists in responding to bear and human contacts, including the use of baited culvert traps and capture guns.

"West Virginia wildlife biologists routinely handle bear situations in downtown Charleston, within sight of the capital building," said LaConte. "Their advise to us was, whenever possible, to allow the bear enough freedom to leave the area under its own power. When the East Liverpool police department contacted wildlife officer Scott Blattert, the state game protector assigned to Columbiana County, he told them to do exactly that, to focus on controlling the people and the bear would leave the area. His directions were not heeded."

Wildlife officials are concerned that, as increasing numbers of black bears move into Ohio from Pennsylvania and West Virginia, more could be needlessly killed in similar scenarios as people overreact to an imagined threat. "Black bears are timid by nature," says LaConte,. "Our problems right now are people, not bears."

Black bears occasionally seen in Ohio

ATHENS- Official reports of black bear sightings in 16 counties were recorded by the Division of Wildlife in 1996.

Most of the 38 sightings occurred in northeast Ohio. Two confirmed sightings of female black bears with cubs were recorded in Jefferson and Muskingum counties, which suggests a few bears may likely be year-round residents producing offspring.

State wildlife biologists say, based upon locations of confirmed sightings from 1993-1996, resident bear populations are most likely to be found in counties bordering Pennsylvania and West Virginia. Black bears have been increasing their abundance and distribution throughout both states, which likely has resulted in more bears coming to Ohio.

Just last month, wildlife employees safely captured a 225-pound male black bear in East Liverpool and relocated it to the Brush Creek Wildlife Area in Jefferson County.

"We certainly feel there are more wild bears present in Ohio now compared to 10 or 20 years ago, but the actual number of resident bears in our state is still low," said Bob Stoll, supervisor of the wildlife agency's forest game research station in New Marshfield.

Only four of the bears observed last year were described as causing a nuisance by raiding trash cans and backyard gardens. One of the bears observed last September in Ashtabula County was safely captured and relocated.

Most black bear sightings involve young male black bears who briefly enter Ohio from West Virginia and Pennsylvania. In most cases, the bears leave Ohio and return to the areas where they previously roamed.

"We have very few really remote areas of the state where a bear could survive for any long period of time without encountering people. The availability of suitable habitat will be a determining factor as to whether bear populations will increase in the state," said Stoll.

In its 1995-2000 Strategic Management Plan, the division says its goal is to maintain a viable black bear population in suitable habitats with minimum bear-human conflicts and to increase public acceptance of black bears.

Most of the effort to aid in the bears' survival is focused on collecting information about the bears' presence in Ohio and sharing it with the public. And while bears have generally posed no direct threat to human safety here, they are totally protected in Ohio.

"If you should see a wild bear in Ohio's outdoors, enjoy that rare opportunity of seeing it but do not interfere with its actions or path of travel. Leave the bear alone and that will minimize any major human-bear conflict, while at the same time help to ensure the safety of the bears as well as people," said Stoll.

Activity 14

BLACK BEAR WANT ADS

OBJECTIVE: Students will demonstrate an understanding of black bear behavior, habitat, and anatomy.

METHOD: Students create newspaper advertisements intended to attract the interest of black bears. (Older students might expand this project into an entire newspaper).

BACKGROUND: In this activity students will incorporate much of what they have learned about the black bear.; where they live, their habitat requirements, their behavior, and their physical characteristics.

MATERIALS: Pencil and paper, art supplies, newspapers, black bear resources.

PROCEDURE:

For Younger Students.

1.) Introduce the activity by reviewing information previously presented about the black bear.
2.) Ask the students to imagine they are looking for a place to live. Have them describe the features that would make them comfortable and happy. What would that like to have available in their habitat; how long will they be living there.
3.) Pass out paper and art supplies. Have the students write and illustrate advertisements that offer black bear habitat for rent. Display the ads. Ask the students which ones a black bear might answer and why?

For Older Students:

1.) Ask the students to contribute articles, advertisements, and art work to a special edition newspaper about black bears. Divide the group into teams to discuss what kind of items should be featured in the paper. Provide actual newspapers for reference.
2.) Ask them to consider what themes should be included. Some items will focus on black bear issues like loss of habitat or bear-human conflicts. However some items can be fun and lighthearted.
3.) Once the students have discussed what should be included, they need to choose an assignment. Spread out the work among reporters, cartoonists, and editors. Set a deadline
4.) Share the completed newspaper with others in the school community.

EVALUATION:

1.) List, by season of the year, the critical components of black bear habitat. Evaluate the ads and newspaper for inclusion of these components.
2.) Collect and evaluate actual newspaper articles about black bear. Do they accurately reflect the habitat requirements and behavior of the black bear. (See also the activity *Bears in the News*).

This activity was adapted from "Elk Classifieds" Wild about Elk, An Educators Guide, c. 1994. Western Regional Environmental Education Council Inc., and the Rocky Mountain Elk Foundation.

Activity 15

Denning Up

OBJECTIVES: Students will: 1) identify typical den requirements for black bears and 2) describe the experience of being inside a bear den.

METHOD: Students will illustrate, compute, design, and create a bear den in the classroom.

BACKGROUND: Black bears den in many different places, including hollow logs, under buildings, caves, under stumps, and in holes dug into hillsides. Black bears begin to search for dens around the first of November and will stay in their den until about mid-April. Black bears essentially build a nest inside the den. Nests are made up of vegetative material such as leaves, sticks, and grass found near the den site.

Black bears have unique adaptations to help them survive their long months of hibernation. Basically, their digestive system shuts down. Bears don't eat, drink, urinate, or defecate, while they are in the den. Their respiration slows down about 75%, but their body temperature only drops a few degrees. This is a form of hibernation unique to bears. Other hibernators such as mice and grounds squirrels wake frequently to eat and urinate and defecate. Their body temperatures cycle up and down as they hibernate. Their body temperature will drop to near the surrounding ground temperature and cycle back up to normal as they wake to feed. Bears also wake up occasionally while in the den, but the rest of their body functions remain in their hibernation state.

Black bear cubs are born in the den around mid-January while their mother sleeps. They only weigh about 8 ounces and are born naked, blind, deaf, and without a sense of smell. They can only detect heat and will move toward the warmest spot which is the mammary and they stay there to feed on their mother's milk. The mother recycles water from her and the cubs body wastes to produce the milk. By the time the cubs leave the den in April, they weigh about 5-7 pounds, and they can travel with their mother and even climb trees if needed.

MATERIALS:
1 card table or similar sized table
6-8 chairs
large, flattened cardboard boxes
trash bags
newspapers
bear hide (optional)
bear cub tape (optional)

PROCEDURE: Have students use data from the bear den dimensions table to calculate averages of den dimensions.

Mean dimensions (in Cm) of black bear dens in Arizona study area.

	Entrance		Tunnel			Cavity			Nest			Depth of Bedding
Age and Sex	Height	Width	Height	Width	Length	Height	Width	Length	Length	Width	Depth	
Adult males	56	97	46	76	234	61	104	211	99	86	28	13
Subadult males	46	48	41	51	97	94	99	122	71	76	15	
Adult females (nonpregnant)	41	58	41	58	86	64	89	119	76	76	20	10
Adult females (Pregnant)	33	66	43	48	76	56	112	149	74	66	20	13
Subadult females	36	30	51	30	81	106	61	116	102	61	20	

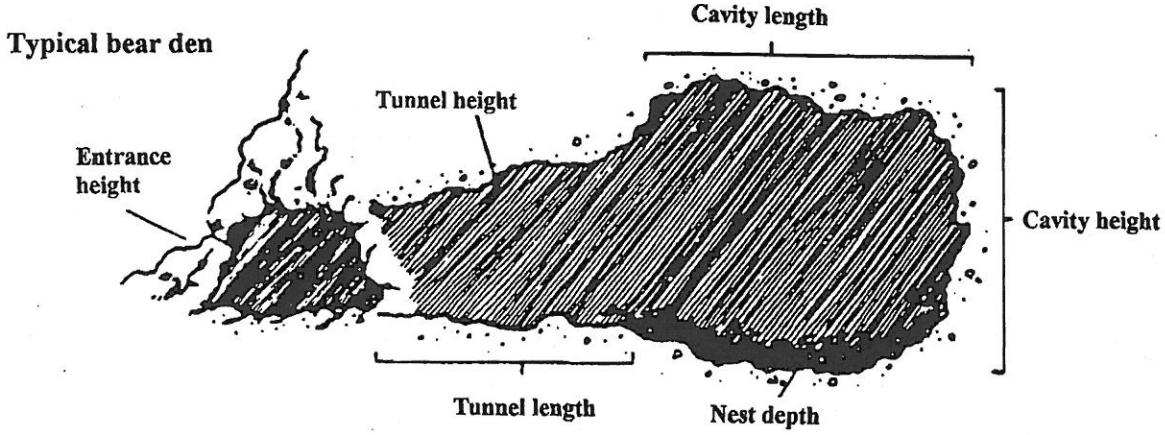
The students will need averages of the height, width, depth, and length of the entrance, tunnel, cavity, nest, and bedding. Find an object in the classroom that would serve as a good cavity such as a table. If nothing is available that is the same dimensions as the averages, use a card table. Use the chairs to create a tunnel coming out of the cavity by placing them in rows with the seats facing each other. Adjust the number of seats used to match the average length. Place the cardboard boxes across the seats to create a roof over the tunnel.

Now that the "skeleton" of the den is made, have the students fill the trash bags with rolled up newspapers to make "boulders". They will need to make enough boulders to completely conceal the den structure. Pile the boulders around and on top of the table and chairs. Place a flattened trash bag filled with newspaper on the floor of the den. This will be the nest. Then place loose newspaper around the cavity of the den to serve as bedding. Once the den structure is completely surrounded with the boulders, have the students take turns crawling in the den. Have the students take measurements to insure how close your den is in dimensions to a real black bear den.

EVALUATION:

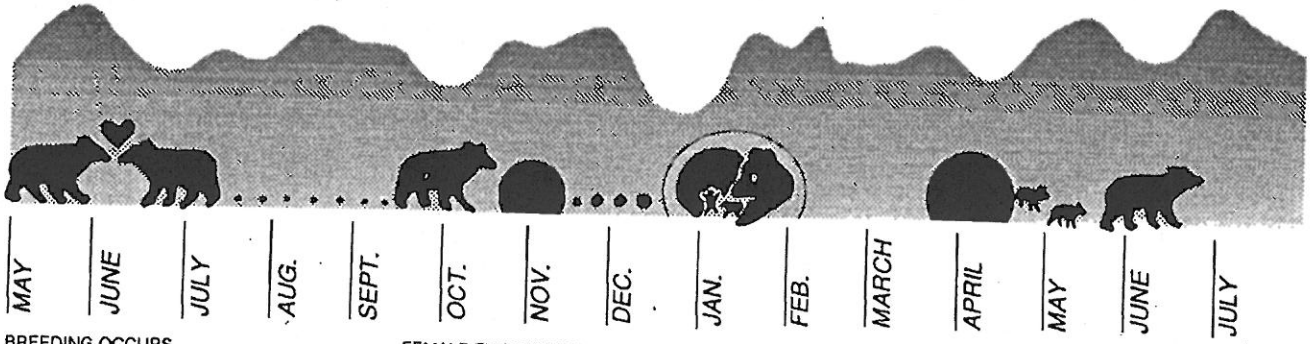
1) Have the students write a story as if they were a black bear looking for a den. What would they look for? What characteristics of the den site would be important to them?
2) Make a list of other animals that hibernate. Research and compare the den requirements of these animals to those of the black bear? Why are they similar, why different?
3.) Create dens of other small mammals using coffee cans, gallon buckets, etc. compare dimensions to those of the black bear den.

EXTENSIONS: Place the bear hide from the Bear Trunk on the floor of the bear den. Place the tape of the bear cubs in the Bear Trunk in a tape player behind the bear den and play the tape as the students are exploring the den. Have the students write a story about being a mother bear in a den with cubs.



This concept was developed by Ralph Seidel at Mary E. Dill School in southern Arizona for his fifth grade students. Bear information was provided by Al LeCount, an Arizona Game and Fish biologist. The activity "Denning Up" was adapted by Jen O'Neill. The Black Bear Breeding Cycle used with permission from Arizonia Wildlife Views VOL. 35, NO. 1

THE BLACK BEAR BREEDING CYCLE



MAY — BREEDING OCCURS IN MAY AND JUNE.

JUNE

JULY

AUG.

SEPT.

OCT. — FEMALE ENTERS HER DEN AND GOES INTO HIBERNATION IN THE FALL. THE EMBRYO IS IMPLANTED AND DEVELOPS FOR ABOUT SIX WEEKS.

NOV.

DEC.

JAN. — CUBS ARE BORN IN JANUARY IN ARIZONA AND THROUGHOUT MUCH OF THE BLACK BEAR'S RANGE IN NORTH AMERICA.

FEB.

MARCH

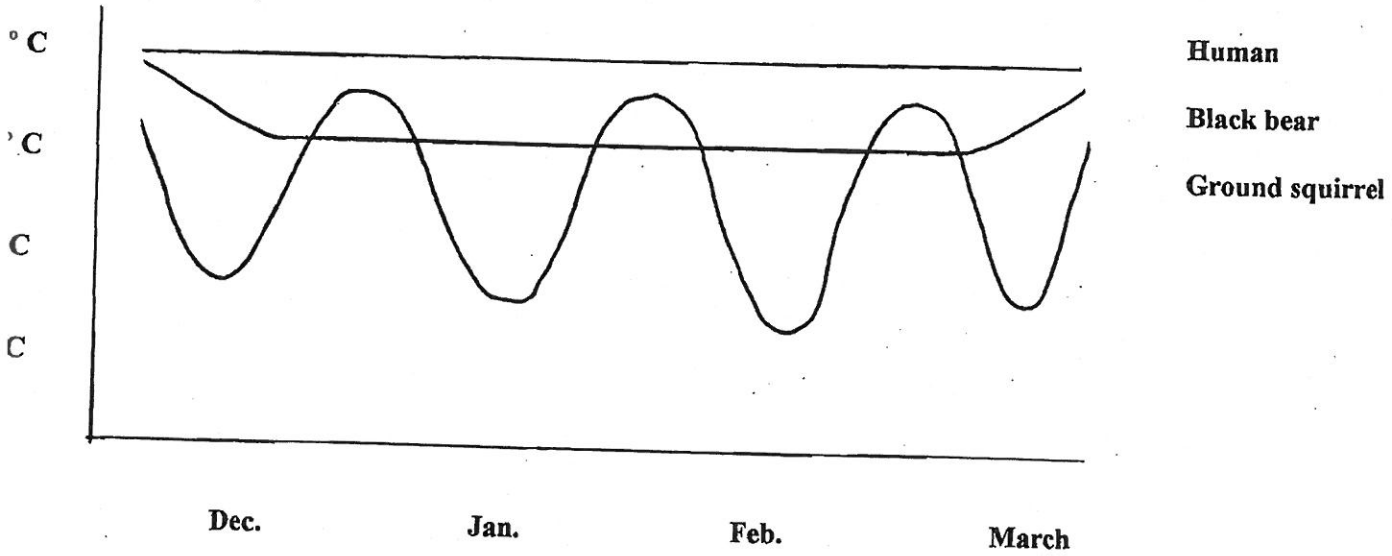
APRIL — BY THE TIME THE CUB LEAVES THE DEN IN APRIL WITH ITS MOTHER, ITS BODY WEIGHT IS APPROXIMATELY 5 to 7 POUNDS.

MAY

JUNE

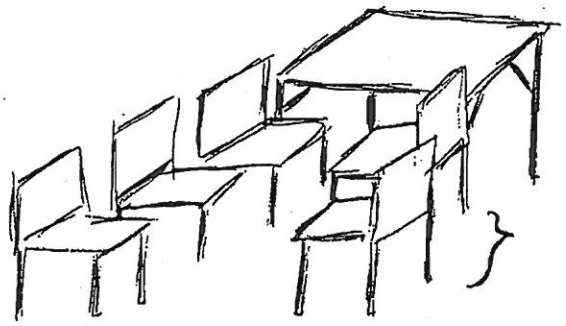
JULY

A comparison of the body temperatures (Celsius) of humans and hibernating black bears and ground squirrels



Denning Up

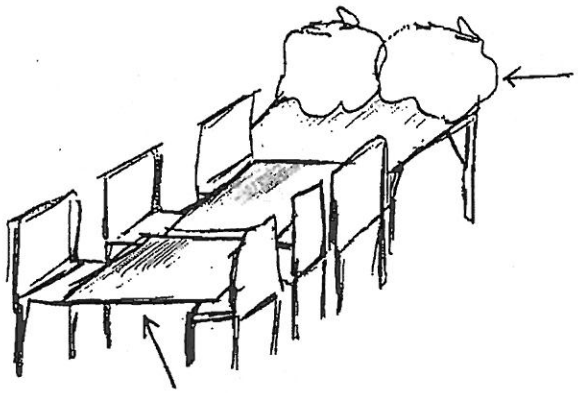
I



← Card table

Chairs

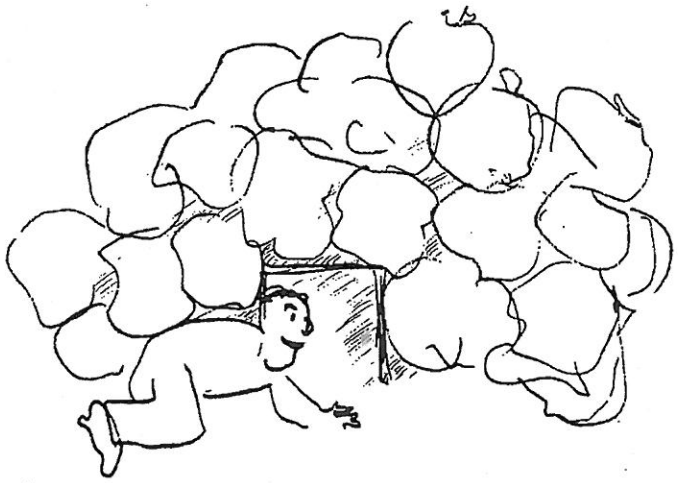
II



Garbage bag boulders

Cardboard

III



Completed "bear den"

Additional Art Credits

Introduction and *Enough Honey*; Doug Pifer, Pennsylvania Game Commission.

Title Page and *Bear Weights and Measures*; Bill Kelley, West Virginia Dept. of Natural Resources.

Bears in the News; Adirondack Mountain Club Inc.

Hide N Hair and *A Footprint Apart* (bear); New York State Dept. of Environmental Conservation.

A Footprint Apart (footprints); Virginia Dept. of Game and Inland Fisheries.

What Bear Goes Where (silhouettes); Arizona Game and Fish Dept.