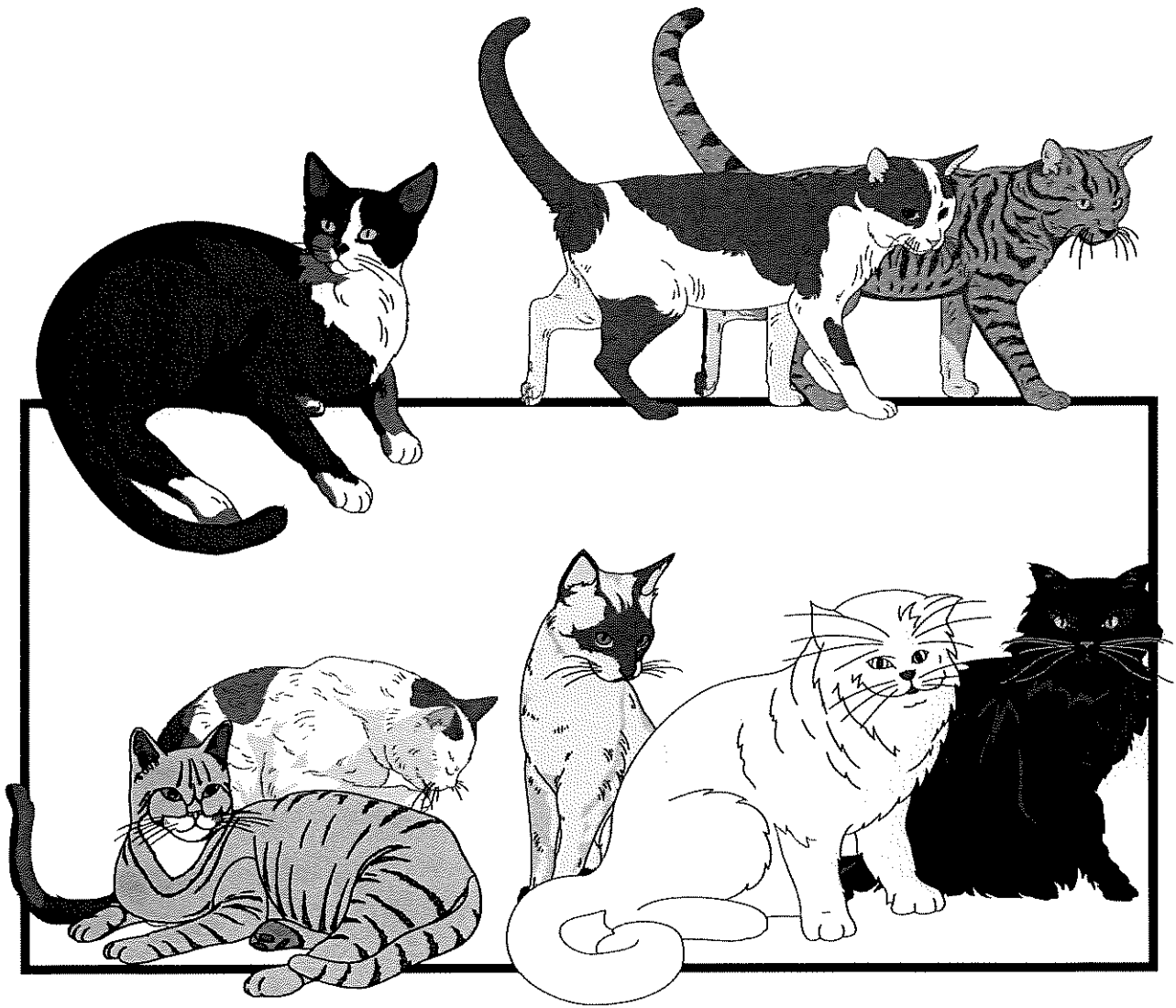


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4-H Cat Project

Unit 2

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4-H Youth Development Program 

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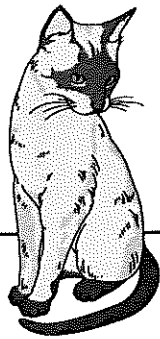
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4-H CAT PROJECT

UNIT 2

Dear Leaders and Parents:

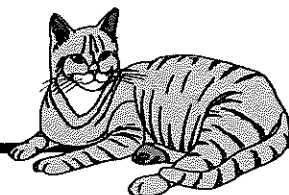
A 4-H member will progress to this manual upon successful completion of Unit One. There is no age requirement for any of the Cat Project manuals. The 4-H member is expected to do some research beyond this manual. Please check the back pages of this manual for suggested references including books and web sites. It is also suggested that members visit a breed association cat show where they may see many different breeds of cats and talk with their owners.



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CHAPTER ONE

CAT'S ORIGINS

We must go back 40–50 million years in the evolution of animals to identify the cat's ancestors. The earliest ancestors were called *Miacis* (pronounced my-a-kiss). The *Miacis* were creatures about the size of a lynx, with long slender bodies, long tails, and short legs with retractable claws that extended from the paws during such activities as climbing trees or fighting. Over the next 10 million years, the *Dinictis* evolved bringing higher intelligence and greater agility to an animal more like the cat of today.

The first sign of domestication of cats appears to be around 8000 years ago. The earliest remains were found in Africa. Overwhelming evidence points to Ancient Egypt and the African Wildcats (*Felis Sylvestris libyca*) as the oldest truly domestic cats. They were probably used in farming villages to hunt the river rats that invaded the granaries. Feline remains were found on Cyprus dating back to 5000 B.C., but wild cats did not occur naturally on Cyprus, so they had to have been brought there.

In Egypt, cats were so special that they came to be considered sacred. The earliest mention of the cat as sacred is in the *Book of The Dead* dating back to 3500 B.C. The cat was the symbol for the sun god Osiris or Re. About this time, it is said that Bast (the wife, sister, or daughter of Re) fled from Re and assumed the shape of a cat, thus becoming the goddess that protects cats. She is known as the goddess of the night and the moon. She protected crops and ensured a rich harvest. Her temples became sanctuaries for cats. When cats died, they were usually embalmed, given ceremonial rites, and buried in special cemeteries. The killing of cats was a crime punishable by death. Egypt prohibited the export of cats.

It is believed that Phoenicians and Greeks may have been the first to bring cats to Europe, starting around 2000 B.C. They likely used them for rat control on their ships, then sold or traded the cats at ports in Europe. Once on land, the Greeks, Romans, and others used the cats for rodent control. The cats did well in Europe, enjoying the protection of the Church until the 10th century. During the Middle Ages, cats lost favor with the Church and were blamed for anything evil. They were often burned. Their fur was used for clothing and their flesh was eaten during the famines. Cats were connected to witchcraft clear into the 1700's.

Cats were treated much better in the Orient. In China, the cat became a symbol for good fortune, peace, and beauty. Buddhists admired the cat's meditative powers. The domestic cat arrived in Japan about 600 A.D., which was about the same time Buddhism was introduced to Japan. The *Maneki Neko* (beckoning cat) is one of the most common lucky charms seen in Japan. This figure of a sitting cat with the left front paw raised is frequently seen in shop windows where it is inviting customers to enter. The same figure with the right paw raised attracts money and good fortune. With the Japanese appreciation of simple artistic form, cats are seen as a being of rare beauty.

During the 17th Century, attitudes toward the cat began to change for the better. Cats found a special spot in the family household and eventually became the beloved pets they are today. The cat's progress was significantly improved in the 19th Century, the Victorian Era, which saw an improvement in the treatment of all domestic animals.

The Victorian Era also saw an increasing enthusiasm for exhibiting and breeding cats. The first cat show was held in London, England, on July 13, 1871, at The Crystal Palace. There were 160 cats for display and competi-

The first section of the document discusses the importance of maintaining accurate records. It states that records are essential for tracking progress, identifying areas for improvement, and ensuring accountability. The text emphasizes that without proper record-keeping, it is difficult to measure success or understand the reasons for failure.

The second section focuses on the role of communication in a team. It highlights that effective communication is the foundation of any successful team. Team members must be able to share ideas, listen to others, and provide constructive feedback. The text suggests that regular communication, such as through meetings or reports, helps to keep everyone on the same page and ensures that all team members are contributing their best efforts.

The third section discusses the importance of flexibility in a dynamic environment. It notes that plans often change, and teams must be able to adapt to new circumstances. Flexibility allows teams to respond quickly to challenges and seize opportunities as they arise. The text encourages teams to remain open-minded and willing to change course when necessary.

The fourth section addresses the issue of motivation. It explains that while some people are naturally motivated, others may need encouragement and support. Leaders should focus on creating a positive and motivating environment where team members feel valued and empowered. This can be achieved through recognition, clear goals, and providing the necessary resources and training.

The fifth section discusses the importance of time management. It states that effective time management is crucial for meeting deadlines and maximizing productivity. The text suggests using tools like calendars and to-do lists to stay organized and prioritize tasks. It also emphasizes the importance of avoiding distractions and staying focused on the task at hand.

The sixth section discusses the importance of collaboration. It notes that many complex tasks require the input and expertise of multiple team members. Collaboration allows team members to leverage their strengths and work together to overcome challenges. The text suggests that team members should communicate openly and share their knowledge and skills with one another.

The seventh section focuses on the importance of resilience. It explains that setbacks and failures are inevitable in any endeavor. However, resilience allows teams to bounce back from these challenges and continue to move forward. The text suggests that teams should focus on learning from their mistakes and using them as opportunities for growth and improvement.

The eighth section discusses the importance of leadership. It states that a strong leader is essential for guiding a team through its journey. A good leader should be able to inspire and motivate team members, provide clear direction, and make difficult decisions when necessary. The text suggests that leaders should lead by example and be accessible to their team members.

The ninth section discusses the importance of innovation. It notes that innovation is key to staying competitive in a rapidly changing market. Teams should encourage their members to think creatively and come up with new ideas and solutions. The text suggests that teams should create a culture of innovation where ideas are valued and experimentation is encouraged.

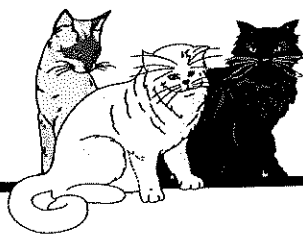
The tenth section discusses the importance of customer focus. It states that understanding the needs and expectations of customers is essential for success. Teams should strive to provide high-quality products and services that meet or exceed customer expectations. The text suggests that teams should regularly gather feedback from customers and use it to improve their offerings.

The final section of the document provides a summary of the key points discussed. It reiterates that success is achieved through a combination of hard work, effective communication, flexibility, motivation, time management, collaboration, resilience, leadership, innovation, and customer focus. The text concludes by encouraging teams to stay committed, work together, and strive for excellence in everything they do.

In conclusion, the document provides a comprehensive overview of the factors that contribute to team success. It offers practical advice and strategies that can be applied in a variety of settings. By following these guidelines, teams can increase their chances of achieving their goals and making a positive impact.

This document is intended to serve as a guide for teams looking to improve their performance and achieve their goals. It is not a substitute for professional advice, and teams should consult with experts as needed. The information provided here is for general informational purposes only.

We hope that the insights and strategies shared in this document will be helpful to you and your team. Remember, success is not an overnight affair; it requires consistent effort, dedication, and a willingness to learn and grow. Good luck on your journey!



tion. During the late 1800's interest in breeding and showing began to spread abroad. The first American cat show was held in Madison Square Garden, New York City in 1895. In 1904, the Cat Fancier's Association (CFA) began a registry of pedigreed cats in America.

The cats of today are approximately the same size and shape as the ancient cats. They have retained their keen hunting instincts and self-reliance, make the same purring sounds, and display the same aloofness and affection.

CHAPTER TWO

CAT BREEDS

Today there are many breeds of cats. The Cat Fancier's Association (CFA) recognizes 41 different breeds. Other North American associations recognize many additional breeds, including the exotic crosses between wild and domestic cats. There are more breeds recognized overseas and some that are still in development.

Cats may be divided into two categories: the popular house cat of unknown ancestry, or the purebred, (a pedigreed cat), intentionally bred for certain desirable qualities and usually eligible for exhibition in the show ring. The various cat associations have prepared written standards so that judges might compare the qualities of competing cats with the appropriate breed specification. A large number of purebreds do not meet the standards and, therefore, may be obtained at lower prices. However, they may still be registered and make excellent pets.

The majority of pet cats are mixed breeds. They almost never resemble the standard of any cat breed. However, 4-H has acknowledged the desirability of all cats by allowing

household pets to be shown. Unlike purebreds, they are not judged according to a written standard, but on the basis of physical condition, cleanliness, presentation, temperament, and attractive or unusual appearance. Throughout the world, cats of unknown lineage comprise the vast majority of pets, and most of them are mixed breeds. They are, without a doubt, the most popular cats of all.

Breed Types

Cat breeds are divided into three types: Natural, man-made (hybrid), and spontaneous mutation.

- *Natural:* A natural breed was created by nature, but refined and stabilized through selective breeding. Some natural breeds such as the Abyssinian have been in existence for hundreds of years.
- *Man-made:* Man-made breeds, or hybrids, are created by the purposeful crossing of two or more breeds to establish a third breed. The new breed's results range from having its own distinct appearance such as the Ocicat, to being almost identical to one of the foundation breeds, such as the Oriental Shorthair. An example of a hybrid showing equal characteristics of both foundation parents is the Tonkinese. It is interesting to note that Siamese have been a foundation for more new breeds than any other cat.
- *Mutation:* A mutation is a spontaneous change in the gene structure resulting in an unusual feature. This feature may attract the attention of breeders who then develop that feature, creating a new breed with uniform standards. Some of these breeds are relatively new, such as the Rexes and the Scottish Fold, while others have been around for so long they are now considered natural breeds, such as the Manx or Japanese Bobtail.

The first part of the document discusses the importance of maintaining accurate records. It emphasizes that proper record-keeping is essential for ensuring the integrity and reliability of the data collected. This section also touches upon the various methods used to collect and analyze data, highlighting the need for consistency and precision throughout the process.

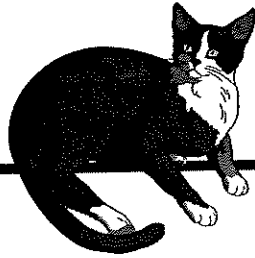
In the second part, the focus shifts to the challenges faced during the data collection phase. The document identifies several common obstacles, such as incomplete data sets and inconsistent reporting. It provides practical advice on how to address these issues, including the use of standardized protocols and regular communication with data providers. The goal is to ensure that the data collected is as complete and accurate as possible.

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Body Types

Cats are divided into three basic body types—cobby, moderate, and foreign—with some overlapping.

- *Cobby*: Cobby refers to a heavy, short-legged, compact, broad-chested body. Examples are the Persian and Manx.
- *Semi-Cobby*: Semi-cobby bodies are a little longer and not quite as broad-chested. Examples are the Chartreux and British Shorthair.
- *Moderate*: Moderate refers to a well-balanced body of medium length, well-muscled, with no extremes. This includes the majority of the breeds.
- *Semi-Foreign*: Semi-foreign bodies are beginning to stretch out, but not too extreme. Examples are the Abyssinian, Japanese Bobtail, and Russian Blue.
- *Foreign*: Foreign bodies (sometimes referred to as oriental or exotic) are long and tubular to the extreme. They are firm and muscular. Examples are the Siamese and Cornish Rex.

Coat Types

Probably the first thing a person notices about a cat is its beautiful coat. The color, pattern, texture, and length of the coat have a great deal of influence in selection of a cat. Patterns and colors are not breeds. They are the decoration a cat wears. The original coat was a shorthaired brown classic tabby. All the other colors, patterns, textures, and lengths evolved over many centuries, creating variations in the tabby markings. Eventually a solid coat color with no markings occurred. Other mutations created the dilute color blue and other lighter colors while the white mutation created the bicolor patterns such as calico, as well as solid white.

Color

The basic colors are black, chocolate, red, and white, with dilute (lighter) variations within those colors. Some breed descriptions use different names for the colors, such as the Burmese, which lists sable instead of chocolate. Two breeds with ticked tabby patterns have special names for their color, ruddy for the Abyssinian and sepia for the Singapura.

- *Black*—Sometimes called ebony
 - Blue is a dilute (lighter color) of black, also called gray, ash, and slate
 - A dilute of blue is called lavender, lilac, or platinum
 - Fawn is a beige-toned lilac
- *Chocolate*—Sometimes called brown, sable, seal, mahogany, chestnut, or tawny
 - A dilute of chocolate may be called natural, caramel, or champagne
- *Red*—Sometimes called orange or tangerine
 - A dilute of red is cream, sometimes called yellow, beige, or tan
- *White*

Silver and Golden are the background colors of tabbies with variations sometimes called bronze or pewter.

Pattern

All cats are genetically tabbies, with other patterns evolving later. The different patterns are solid (self), tabby, tipped, parti-color, bi-color, and pointed.

- *Solid*—A solid (self) colored cat is entirely one color. There are no tabby markings, no white, and no changes of color on each hair.
- *Tabby*—There are four basic tabby patterns: Classic, Mackerel, Spotted, and Ticked. The hairs are each banded with light and dark stripes called agouti bands or ticking. It is

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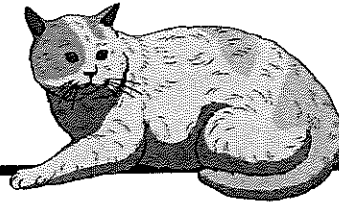
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the arrangement of the bands that create the patterns.

- Mackerel: The “wild type” pattern with spine lines and narrow vertical stripes on the sides.
- Classic: Irregular spirals and whirls, broad and clearly defined that create a bulls-eye effect on the sides, with solid lines on the spine, and a butterfly mark on the shoulders.
- Spotted: Broken stripes appear as spots, sometimes seeming to run together into a mackerel pattern.
- Ticked: Body hairs are “ticked” with various shades of the main marking color and the ground color. The body is free from noticeable spots or stripes.

An interesting variation of tabby is the patched tabby, which has patches of red or cream mixed with the ground colors on the body and extremities. It can occur with any of the tabby patterns.

- *Tipped*—In the tipped patterns, each guard hair has color only on the tips of the hair and white underneath. A cat with red tipping is called a cameo.
 - Chinchilla (or shell) is the lightest tipping with color only on the very tip of each hair.
 - Shaded is the intermediate tipping with color on the last quarter of hair.
 - Smoke is the heaviest tipping with color on the last half of the hair. The smoke pattern is especially striking because when the cat is still, it appears to be a solid color, but the white shows up when the cat moves.
- *Parti-color*—A black female cat with random patches of red is called a tortoiseshell. The red patches often have tabby markings. A blue/cream (dilute tortoiseshell) is a blue female with patches of solid cream.
- *Bi-Color*—Bi-colors are cats with white. White spotting or piebalding can occur with any solid color or pattern, including the col-

or points. There can be as little as only one small spot of white or the cat can be nearly all white. A female cat with a tortoiseshell pattern and white is called a calico. A van pattern is a white cat with patches of color on the head and tail. It may also have a few spots on the rest of its body.

- *Pointed*—The pattern of a pointed cat has the facial mask, ears, legs, feet, and tail of a contrasting darker color while the body is a pale cream, fawn, or white.

Texture

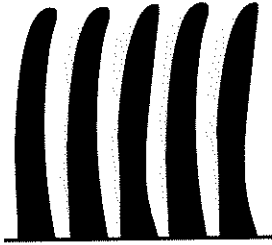
A cat’s coat is made up of longer guard hairs, more bristly awn hairs, and an underlying layer of soft down hairs. These three types of hairs vary from one breed to the next. For example, a Persian’s down hairs are nearly as long as its guard hairs, while the Turkish Angora has lesser developed down hairs resulting in a less dense coat. The American Wirehair has awn hairs the same length as the guard hairs. Both types of hairs are curled and crinkled, resulting in a wiry feel to the coat. The Rex breeds have no guard hairs and wavy coats.

Length

The length of a cat’s coat is naturally short. The long hair mutation occurred over many centuries. Specifying the length of a coat can be confusing. Show standards refer to short, short to medium, medium, semi-long, medium-long to long, and long and thick. Many breeds began as short hairs, but eventually were bred for long hair as well. Some registries list long hairs as separate breeds while others list them as a division within a breed.

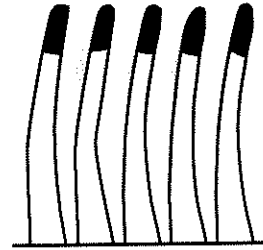
One interesting coat length note: The Sphynx is not totally bald. It has thin, short hairs on its ears, muzzle and tail, but no whiskers. The rest of the body may be completely hairless, or it may have thin, short hairs up to 1/8 inch in length over other parts of its body.

HAIR COLORING



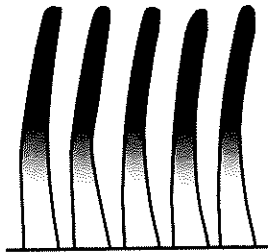
SOLID, SELF

The hair is totally one color.



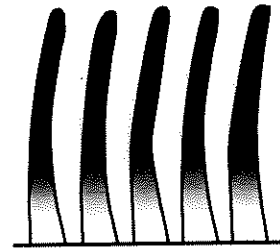
TIPPED

Only the tip is colored. The base is white.



SHADED

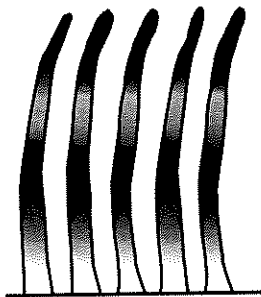
Half the hair is colored, blending to a white base.



SMOKE

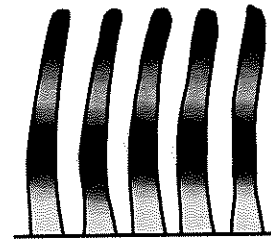
Most of the hair is colored with a white base.

TABBY, TICKED, OR AGOUTI



LONG

The color is broken into bands, the outer tips usually being the darkest and the base the lightest.



SHORT

A short hair can have as few as 3 bands of color.
A long hair can have 5 to 8 bands of color.

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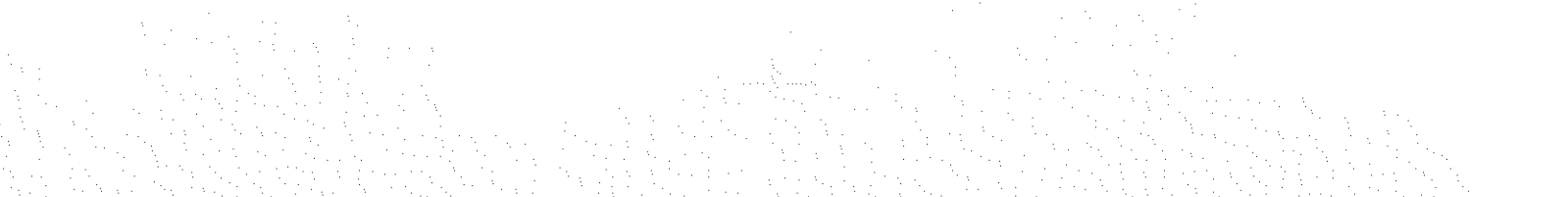
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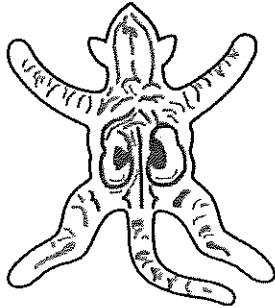
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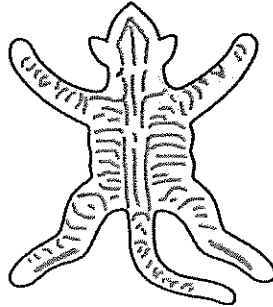
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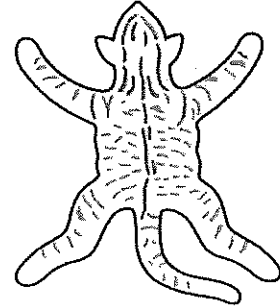
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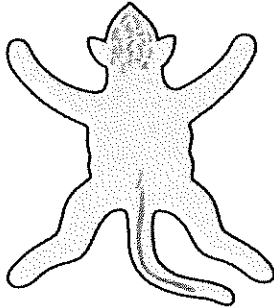
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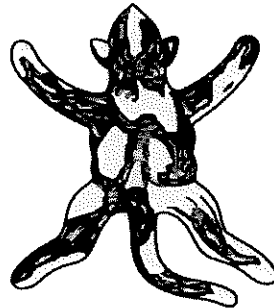
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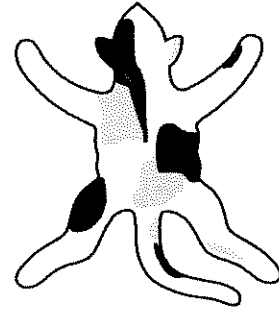
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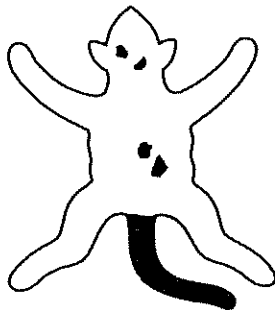
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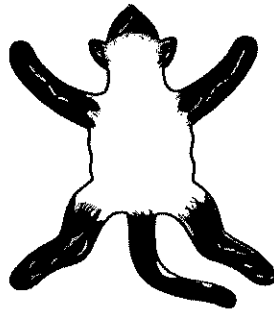
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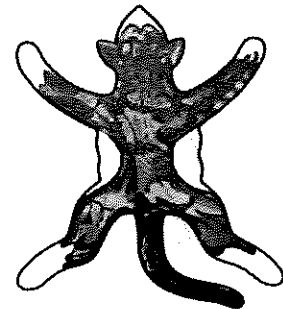
CALICO



VAN



POINTED



BI-COLOR

BREED IDENTIFICATION WORKSHEETS

The following pages are designed to help you learn about many breeds of cats. In the back of this manual is a list of reference books and web sites. There are many other books and web sites available as well. Fill in all the spaces for each breed. The first two pages are the breeds recognized by The Cat Fancier's Association (CFA), the largest breed association in North America. The next two pages list different breeds recognized by one or more breed associations in North America.



THE MOUNTAIN GOATS OF THE ALPES

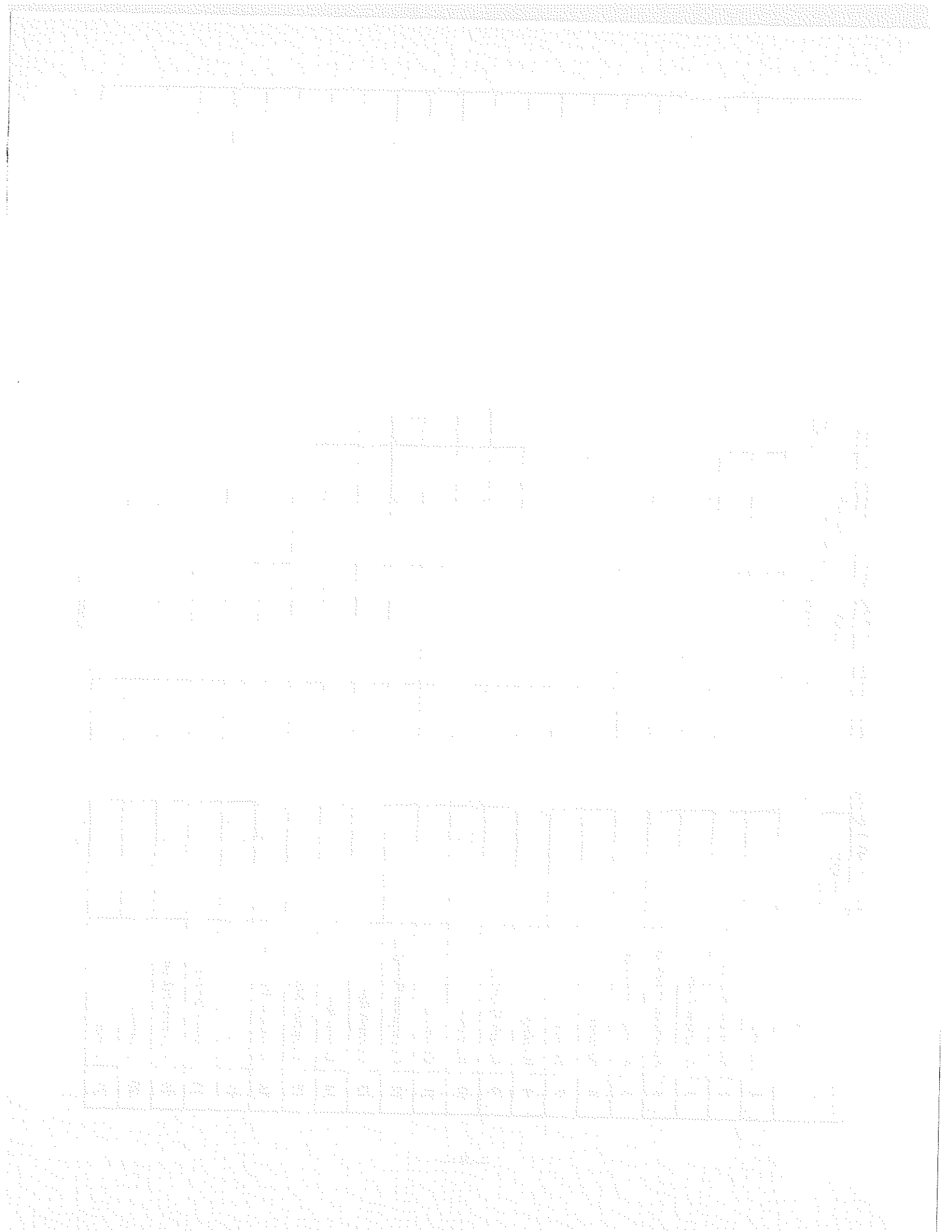
These drawings are intended to show the various poses and positions of the mountain goats of the Alps. They are arranged in a grid of three rows and four columns. The first row shows the goats in various poses, the second row shows the goats in various poses, and the third row shows the goats in various poses.

The drawings are arranged in a grid of three rows and four columns. The first row shows the goats in various poses, the second row shows the goats in various poses, and the third row shows the goats in various poses.

The Cat Fancier's Association (CFA) Breed Identification Worksheet

	BREED	BODY • Type	EYES • Shape • Color	EARS • Size • Special Feature?	HEAD • Shape	COAT • Length • Pattern • Texture • Color	TAIL • Length • Special Feature?	TYPE • mutation • hybrid • natural
1	Abyssinian							
2	American Bobtail							
3	American Curl							
4	American Shorthair							
5	American Wirehair							
6	Balinese							
7	Birman							
8	Bombay							
9	British Shorthair							
10	Burmese							
11	Chartreux							
12	Colorpoint Shorthair							
13	Cornish Rex							
14	Devon Rex							
15	Egyptian Mau							
16	European Burmese							
17	Exotic							
18	Havana Brown							
19	Japanese Bobtail							
20	Javanese							
21	Korat							

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The Cat Fancier's Association (CFA) Breed Identification Worksheet (Continued)

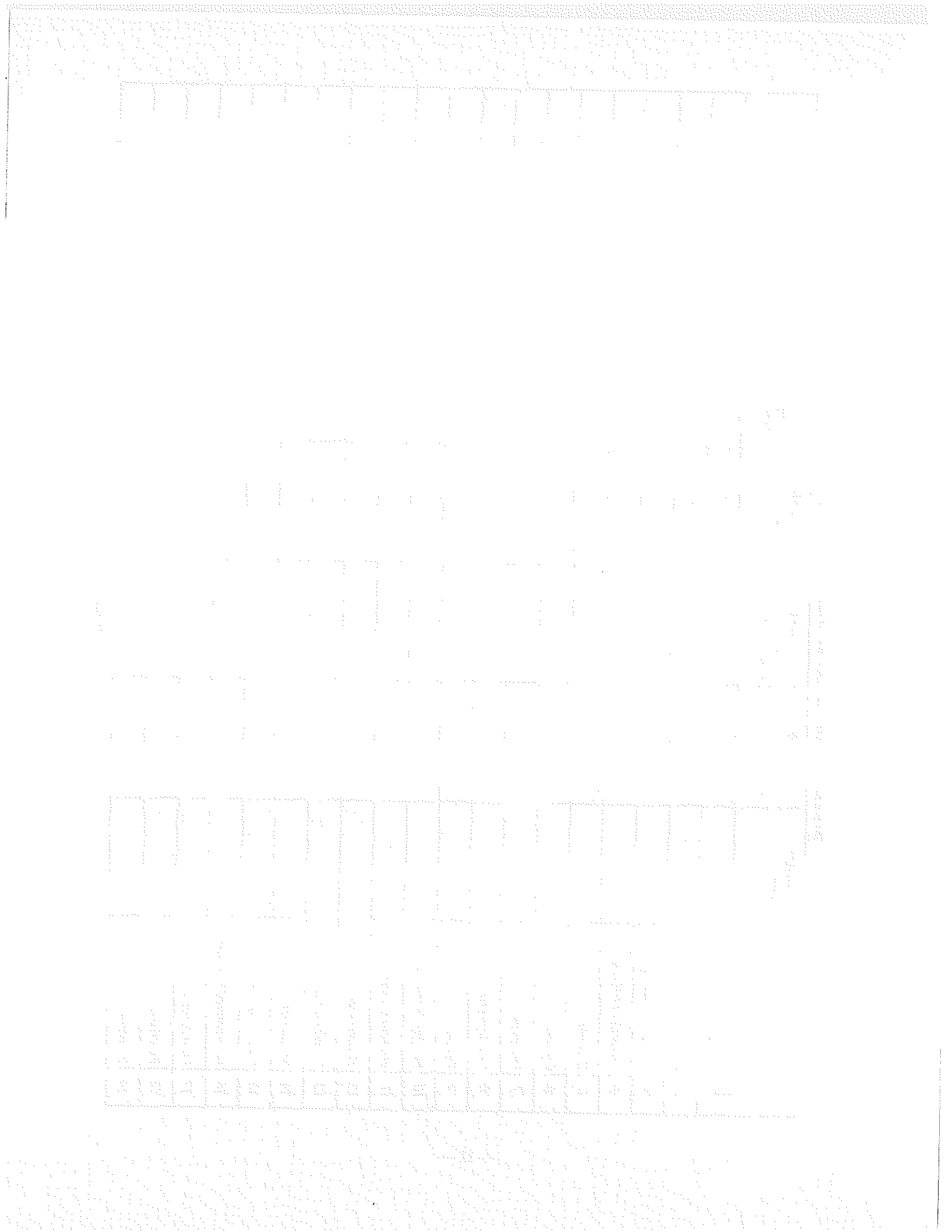
	BREED	BODY • Type	EYES • Shape • Color	EARS • Size • Special Feature?	HEAD • Shape	COAT • Length • Pattern • Texture • Color	TAIL • Length • Special Feature?	TYPE • mutation • hybrid • natural
22	LaPerm							
23	Maine Coon							
24	Manx							
25	Norwegian Forest Cat							
26	Ocicat							
27	Oriental							
28	Persian							
29	RagaMuffin							
30	Ragdoll							
31	Russian Blue							
32	Scottish Fold							
33	Selkirk Rex							
34	Siamese							
35	Siberian							
36	Singapura							
37	Somali							
38	Sphynx							
39	Tonkinese							
40	Turkish Angora							
41	Turkish Van							
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Breed Identification Worksheet for Different Breeds

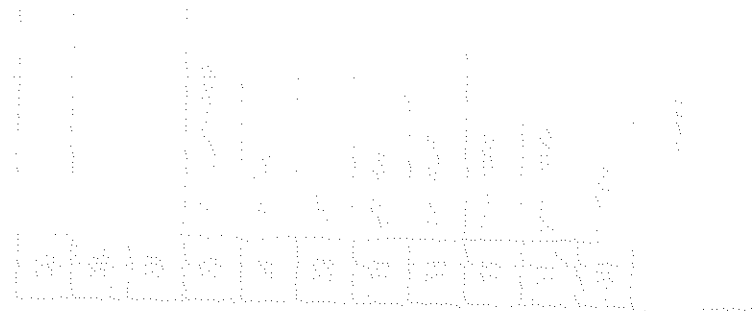
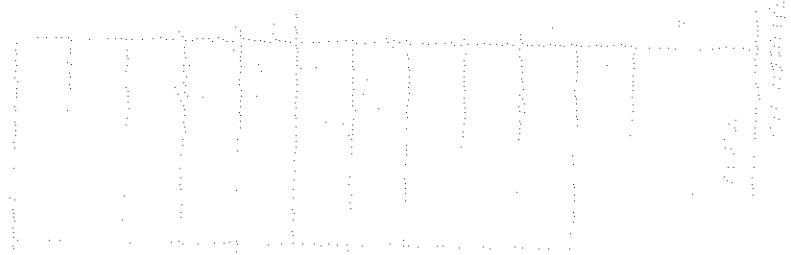
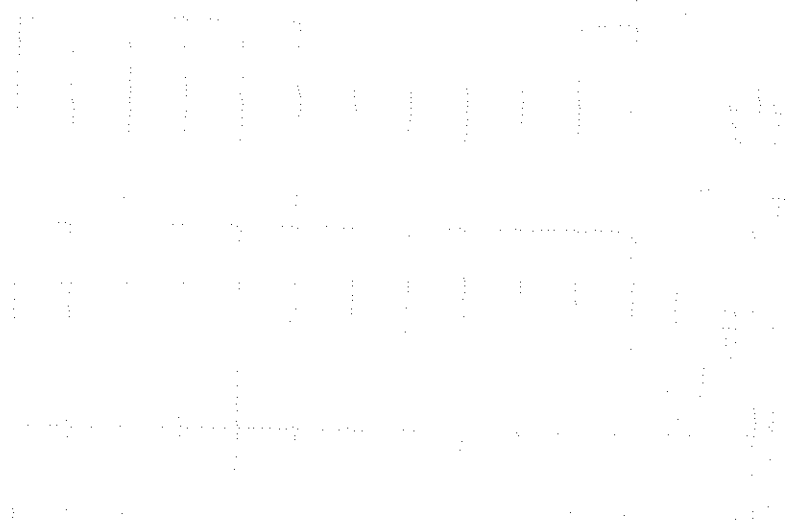
	BREED	BODY • Type	EYES • Shape • Color	EARS • Size • Special Feature?	HEAD • Shape	COAT • Length • Pattern • Texture • Color	TAIL • Length • Special Feature?	TYPE • mutation • hybrid • natural
1	Bengal							
2	Burmilla							
3	California Spangled							
4	Chantilly (Tiffany)							
5	Chausie							
6	Cymric							
7	Donskoy							
8	Don Sphynx							
9	Foldex							
10	Foreign Burmese							
11	Highland Fold							
12	Himalayan							
13	Longhair Exotic							
14	Munchkin							
15	Nebelung							
16	Non-Pointed Himalayan							
17	Ojos Azules							
18	Peterbald							
19	Pixiebob							

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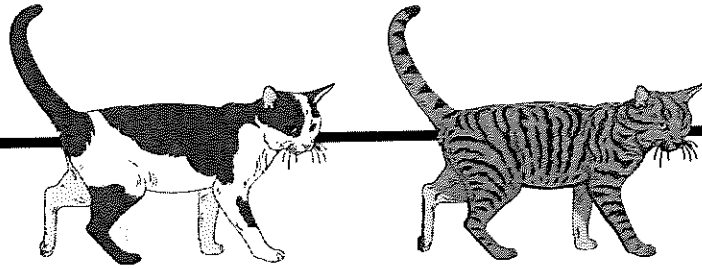


Breed Identification Worksheet for Different Breeds (Continued)

	BREED	BODY • Type	EYES • Shape • Color	EARS • Size • Special Feature?	HEAD • Shape	COAT • Length • Pattern • Texture • Color	TAIL • Length • Special Feature?	TYPE • mutation • hybrid • natural
20	Ruffie							
21	Savannah							
22	Serengeti							
23	Snowshoe							
24	Sokoke							
25	Thai							
26	Toyger							
27	York Chocolate							
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CHAPTER 3



CAT CHARACTERISTICS

Your cat is one of the most intelligent and beautiful of all animals. Understanding its anatomy, temperament, and physical characteristics will help you enjoy the unique personality of your cat even more.

Scientists classify the cat as a carnivorous (meat-eating) animal because of its teeth. The teeth have three functions: stabbing (killing prey), anchoring or holding prey, and cutting or tearing flesh. Cats do not have flat-crowned molars so are not able to crush or grind food.

The Cat's Body

The cat's body has 230 bones while man has only 206. Many of the cat's "extra" bones are in its tail. A cat's tail can indicate its moods. Carried high, the tail shows the cat's pride and contentment; extended straight, it tells you the cat is stalking; curled against its body says the cat is scared or worried; and thrusting from side to side warns that the cat is angry. A cat's hind legs are longer and stronger than those in front, enabling it to leap with great skill. While most animals move their front and opposite hind legs at the same time, a cat moves its front and hind legs on one side, then the other.

Notice how silently a cat moves. This is because of its thickly cushioned paws. The cat is digitigrade, which means it walks or runs on its toes. A cat usually has five toes in front and four in back, but some cats are polydactyl, having more than the usual number of toes. Each toe has a firmly attached hook-shaped claw which is the cat's main method of defense. The retractable claws allow the cat to

climb, fight, and grip. However, all the claws point forward so a cat can only back down a tree after climbing it. A cat expresses pleasure or contentment by extending and retracting the claws in a pumping motion we call "kneading."

A cat's beautiful coat is one of its most striking features. The hairs of the cat's coat grow from tiny pits in the skin called follicles. The coarse top coat is formed from primary or guard hairs which grow from individual follicles. The secondary hairs which form the undercoat (underfur) grow in groups from each follicle. There are two types of secondary hairs, the awn hairs which have bristly tips and the down hairs which are fine and crinkly. A special type of follicle produces the sensitive hairs called sinus hairs. These are located on the muzzle (as whiskers, also known as vibrissae), above the eyes, and on the back of the lower forelegs (carpal hairs). The carpal hairs are particularly sensitive to touch such as when using their forelegs for grasping wriggling prey.

The Five Senses

Sight

A cat's eyes are probably its most distinctive feature, and sight is a highly developed sense. Cats can see in nearly total darkness, yet their sight is keen in bright daylight. Although they do have some special features, cats' eyes are basically similar to the eyes of other mammals, including humans. Due to the size and shape of the lens, a cat cannot focus very well on close-by objects, but can see best at distances of seven to twenty feet. Cats' eyes are designed to collect the maximum amount of light, which allows a cat to see in

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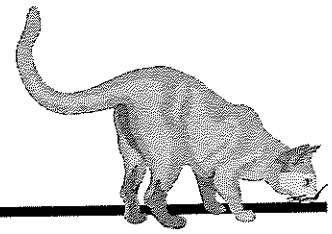
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light six times dimmer than that in which humans are able to see. Although it may seem very dark to us, there must be a faint glimmer of light in order for the cat to see. Cats eyes shine in the dark when caught in a ray of light. This occurs because a mirror-like structure called the tapetum lucidum lines most of the back of the eye. For a long time it was believed that cats only saw in shades of gray, but research has proven that cats do have the ability to see at least some colors. A newborn kittens eyes are closed and remain that way for seven to ten days. After opening, their vision is still very poor, and kittens do not see as well as adult cats until they are about three months old. From then on, vision becomes their most important sense.

Hearing

In addition to keen eyesight, a cat also has super-sensitive hearing, a real bonus for a hunter. Not only is a cat able to hear noises too faint for human ears, but they also hear ultrasonic sounds much higher than we can detect. Cats can locate the sources of sounds, being able to accurately locate the squeaks and noises of small rodents which are completely hidden from view. Cats are constantly alert to strange noises which may signal danger; even when catnapping they immediately respond whether the sound indicates danger or is a familiar sound such as a footstep, car, whistle, or their name being called. The source of the sound is easily located, and a cat can discriminate between two sounds as close together as three inches or from three feet away. Although directing earflaps toward a sound enables a cat to better hear faint sounds, it will not help in direction-finding. A cat's hearing is not accurate enough for it to be able to hunt in total darkness. Some white cats, particularly blue-eyed ones, become deaf at a very young age. Cats also tend to become deaf in old age. Cats compensate for deafness by an increased acuity

in eyesight and smell. They also become quite sensitive to vibrations, appearing to "hear" with their feet.

Smell

A highly-developed sense of smell plays an important role in the appetite, behavior, protection, and reproduction of cats. The sense of smell is the cat's method of recognition and any new object, person, or cat will be thoroughly sniffed before being accepted. Food is first identified by smell, then tasted, and eaten if the smell is acceptable. The smell of catnip often brings intense interest. Most cats respond to catnip by sniffing, chewing, rubbing, rolling, and meowing. The cat will appear to be in a psychedelic state for a period of five to fifteen minutes. Fortunately, the effect does not last long, nor is catnip addictive.

Taste

Closely aligned to the sense of smell is the sense of taste. Taste buds are located on the front and side edges of a cat's tongue and at the back of the tongue. Cats are very sensitive to taste and have very definite food likes and dislikes. The sense of taste develops very early in a kitten; kittens only one day old can determine the difference between salted and unsalted liquids. Although most mammals can detect sweet, bitter, salt, and acid, cats are different because they may not respond to the taste of sweet things. In fact, their digestive system is very sensitive to sugar, and eating sugar may make them ill. That is why many cats develop diarrhea when given cow's milk. They are not able to tolerate the lactose (milk-sugar) in the milk.

Touch

Touch is the least important sense in a cat. Touch includes the sensations of gentle touch, heavy pressure, warmth, cold, and pain. The hairless parts of a cat, the nose and paw pads, are especially sensitive to touch, warmth, and

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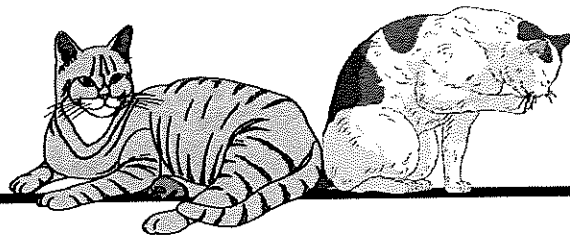
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cold. A cat uses its paw pads to investigate the texture, size, and shape of anything with which it is not familiar. The pads also are used to help a cat maintain its posture and can detect vibrations, helping a cat “hear” with its feet. Hair follicles also are quite sensitive, especially those containing guard hairs or whiskers. The whiskers are especially important for investigating nearby objects and may also be sensitive to air currents. The cat’s skin picks up the feeling of warmth or cold as well as pain.

Other Characteristics

Cats are noted for their great ability to sleep; nearly two-thirds of their life is spent sleeping. Cats sleep in a series of “catnaps” rather than one long period. When a cat is in a deep sleep period, it may appear to be dreaming. We will never know for sure, but it is assumed that cats probably do dream.

Self-grooming is not just a cat’s way of keeping itself clean. Licking stimulates the skin glands which produce a waterproofing agent for the coat. In addition, grooming is also a method of temperature regulation. Cats are unable to sweat because of the fur, so saliva becomes a substitute for the cooling effect of sweat. That is why cats groom themselves more often in warm weather.

A well-known cat characteristic is its ability to land on its feet. When falling, a cat will turn its head to an upright, horizontal position, and the rest of the body will follow. The tail may help in avoiding overbalancing. A cat may still be injured in a fall, because falling from a great distance can still result in broken bones. Likewise, a fall from a short distance could also result in injury because the cat may not have time to right itself.

Cats are the only animals that purr. While it was originally believed that the purring sound

came from vibrations of the false vocal cords in the throat, it is now believed that it comes from a vibration motion that arises in the wall of one of the major blood vessels in the chest area. These vibrations are readily transmitted to the cat’s upper air passages which result in a purring sound. While purring is usually an indication of contentment, it can indicate a cat in pain.

Playing is a special characteristic of cats. Kittens begin playing when they are about three weeks old. Although cats will begin to play less often after about five months of age, a cat will continue to play occasionally even into old age. Play is important to the health and fitness of a cat. Two cats of similar age will play together, but if there is only one cat, the owner must encourage play.

CHAPTER FOUR

SELECTING A KITTEN OR CAT

Once you have decided to acquire a cat, there are several things to consider in order to be a responsible pet owner. Some of these were covered in Unit One, including age, coat type, and male/female.

Purebred or Mixed Breed

All cats are enjoyable, but you will need to decide whether you want a purebred cat that may be registered with a cat association, or if you want a mixed breed cat. If a random-bred cat is desired, the local humane society shelter will be able to provide several good choices. Workers at the shelters often will be able to give you the background of the cat you plan to adopt. Cats and kittens are available, usually for a fee, and some may spay or neuter them before adoption. This way, they ensure no litters of unwanted kittens are born. If you prefer a purebred cat that can be exhibited or used for breeding, you will

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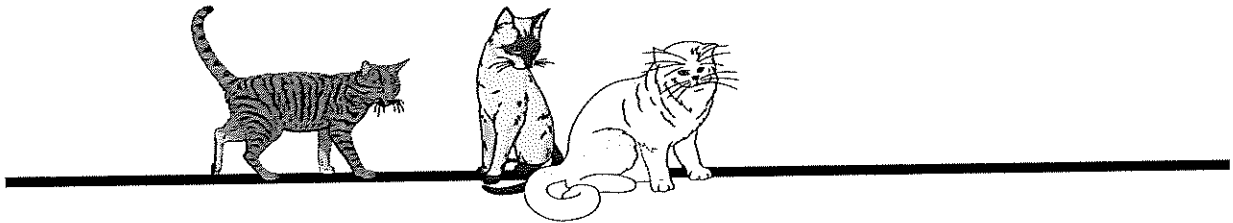
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need to visit several catteries to make sure you obtain the best possible animal in the breed of your choice. Show cats and cats to be used in a breeding program can be quite costly. However, not all purebred animals meet the strict show standards and often can be obtained at a reduced price. Although you may not want to show them at an open show, they may do very well in a 4-H show. Generally, the breeder will require you to have the cat spayed or neutered before they will give you the papers on the animal.

Begin your search by checking newspapers and cat magazine classified advertisements for catteries in your area. Attend a few cat shows and observe the various breeds before making a final decision on the one you like best. Talk to the breeders and exhibitors at the shows and ask any questions you might have regarding personality and care. This is also a good time to get an idea of the prices of show and pet quality kittens and cats which might be for sale.

You could also write to an association that registers cats for the names of catteries in your area that might have kittens for sale. It would be better if you could visit the catteries yourself and select the kitten or cat you want, but there is also the possibility of having one shipped to you by air. The cost of the shipping container and freight would be your responsibility. Reputable dealers can be depended upon to send a healthy cat, and it may be the best, if not the only way of acquiring a cat of the particular breed you desire.

What to Look for When Choosing a Kitten

Good health is essential when choosing a kitten. The kitten should be active, playful, curious, and alert. It should not be afraid of strangers or give any indication of hostile behavior when picked up by you or the breeder, as this could indicate illness or a behavior problem.

In addition to an outgoing personality, the kitten should have clear eyes with no excessive watering, no discharge from the cool damp nose, a lustrous shine to its fur with no mats, clean ears with no sign of mites, clean white teeth and pink gums, and no skin irritations or indications of fleas. Check around the rectum for signs of diarrhea or inflammation. The kitten should not be too thin or fat, as this would indicate a nutrition problem or worm infestation.

Ask to see the mother so you can determine her general health and conformation, as well as observe her behavior. If she is a friendly, outgoing cat, her kittens will probably be that way, too. If you are buying a kitten for showing and/or breeding, you should examine the pedigree certificate of the kitten. Never hesitate to ask questions; breeders will welcome your interest if they are proud of their litters.

Pedigree

The pedigree will give the names and registration numbers of the kitten's parents and several earlier generations. It will also indicate championship stock in the background. This is important if you plan to use your new cat for breeding. Once you have completed the purchase, make sure a transfer certificate showing the change of ownership is registered.

Contract

Once you have chosen your kitten and have agreed on the price and method of payment, have the breeder put it in writing. The contract should state the full purchase price, and, if payments are to be made, what they will be, and over what period of time. Include the time you will need (up to two weeks) to take the kitten to a veterinarian of your choice to determine if it is normal and in good health. Reputable breeders should allow this with an adequate deposit.

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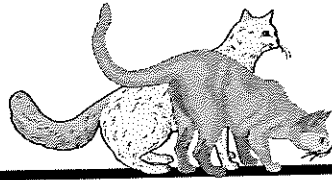
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Veterinary Approval

Your veterinarian will not be able to give you an absolute guarantee of the kitten's health following a short examination, but should be able to advise you of any serious faults or obvious abnormalities which could cause problems. Let the veterinarian know what vaccinations the kitten has been given and have the kitten tested for internal parasites. Once you have selected a kitten, you should set up a schedule for future vaccinations and examinations.

Bringing the Kitten Home

Before bringing your kitten home, you should have all the necessary equipment ready and have a supply of food. The breeder can advise you what kind of food and how much the kitten has been eating.

Let the breeder know what time you will arrive so the kitten will not be fed before the return car trip. If you pick up the kitten early in the morning, it will have the entire day to get used to its new home. A weekend would be good because the entire family will be home for two full days.

On the first day, teach children the correct way to pick up a kitten. A kitten should not be picked up by the front legs. Place one hand on the chest under the front legs with the other hand supporting the hindquarters. Hold the kitten close to your body for additional support.

Once the kitten has become accustomed to its new surroundings, let everyone take turns feeding and playing with the kitten. Introduce it to a collar or soft harness, even though they may be a little big for the kitten; the sooner it gets used to the feel of a collar or harness, the better.

Housebreaking

Housebreaking a kitten is usually not difficult. Start early by showing the kitten where the

litter box is located. Also familiarize the kitten with the placement of its food and water dishes, and its bed. Although a kitten will probably choose its own place to sleep, the bed may become a favorite spot. It should be away from the mainstream of traffic in the house, and be in a dry and draft-free location.

The Kitten's First Night in Its New Home

You may want to leave a nightlight on in the room where your kitten will be spending its first night. It will be happier and more content if it can easily find the food and water dishes, the litter pan, and the bed. Leaving a toy or a stuffed animal the same size as the kitten in the sleeping box or basket will help take the place of the litter mates it has been sleeping with. Make sure the room is warm enough and draft-free so the kitten can sleep comfortably.

Becoming Friends

Cats will live happily in either the country or the city. All they really want is someone to care for them, give them a warm place to live, proper food, fresh water, a dry bed, and provide companionship. It takes some kittens and cats longer than others to get used to their new owners. Do not force yourself on the cat, but let it come to know you gradually. A good time to approach your cat is when it is eating. Talk to it gently, but do not touch. Try not to frighten the cat with loud noises or sudden movements. As your cat becomes more acquainted with you, it will come to you for a little petting. Do not overwhelm the cat with attention. With your patience and gentleness, your cat will come to trust you.

Unlike most other pets, cats do not usually respond to punishment, except perhaps to become indignant. They can be taught household rules if an action such as jumping on a table or scratching a chair is never permitted.

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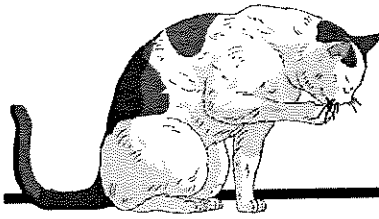
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Get the cat to associate that action with something it considers unpleasant, such as a loud "NO!" or a squirt from a water pistol. Cats are quick learners and can learn skills such as using a pet door in a short time.

If your new pet is to be allowed outdoors, it should be done gradually after several days of being confined indoors. This is especially important if you have adopted an adult cat, as it may try to return to its previous home if it has not completely accepted its new surroundings. The first few times the cat is allowed outdoors, it should be accompanied by its owner. Otherwise, it could be frightened away by a startling noise or it may wander away. After that, you may allow it to be outside alone, but remember that, even if the yard is completely fenced in, the cat may decide to explore further and can easily scale most fences. It will be important for you to get a collar with an identification tag. You must also be aware of the possibility of a litter of unwanted kittens if an unspayed female is allowed outdoors. Another danger is exposure to diseases and parasites. This can be avoided by keeping the cat indoors. Cats can be very happy as an indoor pet as long as they have room to move about for exercise and get plenty of attention from their owner.

CHAPTER FIVE

FEEDING AND NUTRITION

Good nutrition is essential for the overall health of a cat during all stages of its life from kittenhood to old age. A kitten or cat that is malnourished is more susceptible to disease and infection and may have problems with growth and/or reproduction. Nutritional studies have shown that cats have very special dietary requirements. Their need for protein is particularly great and can only be provided

by animal products such as meat, fish, or eggs. These products provide essential amino acids such as taurine which is important for a cat's eyesight. Lack of taurine will result in eye lesions which can lead to blindness.

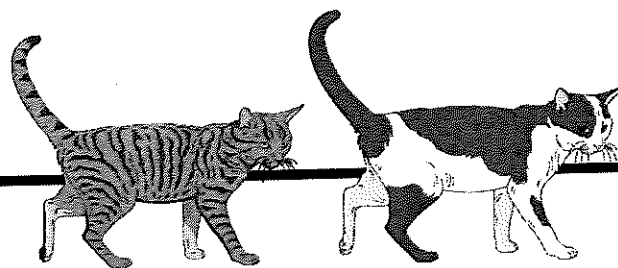
Types of Food

A cat may enjoy table scraps as a treat, but nutritionally they are generally inadequate. Cats need a high-protein diet fortified with vitamins and minerals. The best way to make sure your cat is eating a nutritionally balanced diet is to feed a high quality commercial cat food. High quality cat foods have been developed after years of careful research and they can be depended upon to give your cat well-balanced diets for a long healthy life. There are four major types of commercial cat food: dry, canned specialty, canned maintenance, and raw diets.

Dry cat foods contain an average of about 31% protein, 11% fat, 10% moisture, and have 1500 to 1700 digestible kilocalories per pound. These foods provide complete and balanced nutrition by combining quality sources of animal protein, cereal grains, fat sources, and other ingredients, including vitamin and mineral supplements.

Some dry cat foods can be moistened with water. However, a primary advantage of dry cat food is that it can be left dry in the bowl all day so that the cat can nibble as it pleases. This, along with its economy and complete nutrition, makes dry food a popular choice. A dry food also helps keep your cat's teeth clean and gums healthy by reducing tartar build-up.

Canned specialty cat foods are very tasty and offer a wide range of flavors. These products have a high percentage of meat, making them an excellent source of protein. Vitamins and minerals are sometimes added to help com-



compensate for the fact that meat, by itself, is not completely nutritious. Read the label to determine if the specialty cat food will provide a complete and balanced diet for your cat. Specialty cat foods generally are not intended to be the only source of nutrition, but add a variety and taste-appeal to the cat's diet.

Canned maintenance cat food usually contains about 10% protein, at least 4% fat, and approximately 75% water. Since 1969, any maintenance cat foods that state "scientific," "complete," or "balanced" on the label must, by law, provide a completely balanced diet for cats of all ages from weaning to senior, including pregnant or lactating females.

Raw diets are also available, but one must be very careful in feeding these as it may be difficult to maintain a well-balanced diet and provide appropriate nutrients needed for the cat's age and activity level.

Fresh, cool water should be available in a clean dish at all times, as it is an essential element in the diet. While some cats enjoy milk, it is not a substitute for water. Cats will drink more water in hot weather and when soft-moist and dry foods are fed. If a cat is ill, and refuses to eat or drink, it is very important to get it to drink liquids, even if by force, in order to prevent dehydration.

Feeding the Growing Kitten

Diet plays an important role in kitten development. In order to insure proper growth and development of other tissues, strong bones and teeth, and general good health, a kitten will require about one and one-half times as much protein and three times the calories per pound of body weight as a mature cat. As they will need extra energy until they reach approximately one year of age, kittens should be fed two or three times a day. Even after kittens have been weaned, they may continue to

drink milk, but too much milk may produce a laxative effect.

Feeding the Adult Cat

When a kitten reaches one year of age, it has completed its rapid growth period, and it may be placed on a maintenance diet. Unless the cat is pregnant or lactating, it should remain on a maintenance diet for the rest of its life, although some adjustments may need to be made if the cat is sedentary or elderly. Review the chart, "Guidelines for the Amount to Feed," for recommended amounts of food. A cat receiving the proper amount of food will eat it all every day without becoming overly lean or obese. A cat's appetite and food intake may vary occasionally, but this is not a problem unless it goes on for several days or the cat begins to show symptoms of illness.

Feeding the Older Cat

The longevity of cats continues to increase. Better food and balanced diets are a major factor in cats now having an average life span of 14 years. Specialized diets have been formulated for the older cat that address the physiological changes and reduced physical activity of an older cat. Older cats also should be encouraged to drink sufficient amounts of water as this increases kidney function. Older cats should not be allowed to become obese, and regularly scheduled veterinary checkups are advised. Old age is generally accompanied by a general slowing down, but a healthy cat should remain fairly active throughout its lifetime.

Feeding the Obese Cat

If a cat's ribs cannot be felt easily, the cat is probably overweight. The most common cause of obesity is over-feeding and inadequate exercise. Obese cats need fewer calories. It is much kinder to reduce the amount of food given to the cat, rather than allow it

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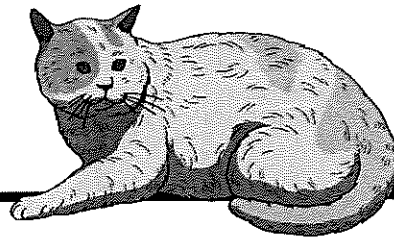
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to suffer the poor health that may result. An obese cat is much more susceptible to serious illness such as heart disease or diabetes. It may also have physical problems such as arthritis or hip dysplasia. Obesity affects nearly one cat in ten, and is especially common

in neuters. To reduce the cat's weight, the caloric intake must be reduced and exercise increased, although it is best for a veterinarian to decide the best program based on the cat's health.

Guidelines for the Amount to Feed

	Calories per pound of body weight	Ounces Per Pound of Body Weight	
		DRY FOOD	CANNED MAINTENANCE FOOD
<i>Kittens:</i>			
10 weeks old	113	1.1 oz.	3.6 oz.
20 weeks old	59	.6	1.8
30 weeks old	45	.45	1.4
40 weeks old	36		1.2
<i>Adults:</i>			
Active	32	.36	1.2
Pregnant	45	.45	1.4
Lactating	56-145	1.0	3.3
Sedentary	32	.32	1.0
Obese	22	.26	.84

Body Condition Score

It is important to determine the body condition of your cat so you can feed correctly. If your cat is thin, you need to feed more. If your cat is obese or fat, you need to give your cat less food.

The Body Condition Score (BCS) was designed to help cat owners determine the appropriate weight for their cat. If your cat is not at the ideal weight (BCS 3) then you should take steps to achieve ideal weight.

Body Condition Score 1—Very Thin
 Ribs are prominent and easily felt without any fat cover. The pelvis and shoulder blade can easily be felt.

Body Condition Score 2—Underweight
 Bones are raised with minimal tissue between skin and bones.

Body Condition Score 3—Ideal Weight
 Ribs are visible and easily felt. Shoulder and pelvic prominences can be felt but with enough tissue to not make them protrude.

Body Condition Score 4—Overweight
 Ribs are difficult to see or feel through moderate fat cover. Slightly sagging abdominal fat pad.

Body Condition Score 5—Obese
 Ribs are not visible and difficult to feel through thick fat cover. Cat has a prominent sagging abdominal fat pad.

(Thanks to Hill's Pet Nutrition, Inc. for use of their Scoring System. <http://www.hillsvet.com/Petfit/PetfitLevel2.jsp>)

THE UNIVERSITY OF CHICAGO

PHYSICS DEPARTMENT

PHYSICS 311

PROBLEM SET 1

Due: 10/10/11

1. A particle of mass m moves in a circular path of radius r with constant speed v . Find the magnitude of the centripetal acceleration.

2. A particle of mass m moves in a circular path of radius r with constant speed v . Find the magnitude of the centripetal force.

3. A particle of mass m moves in a circular path of radius r with constant speed v . Find the magnitude of the centripetal force.

4. A particle of mass m moves in a circular path of radius r with constant speed v . Find the magnitude of the centripetal force.

5. A particle of mass m moves in a circular path of radius r with constant speed v . Find the magnitude of the centripetal force.

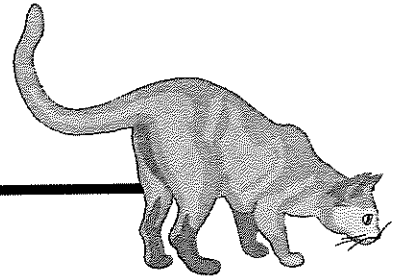
6. A particle of mass m moves in a circular path of radius r with constant speed v . Find the magnitude of the centripetal force.

7. A particle of mass m moves in a circular path of radius r with constant speed v . Find the magnitude of the centripetal force.

8. A particle of mass m moves in a circular path of radius r with constant speed v . Find the magnitude of the centripetal force.

9. A particle of mass m moves in a circular path of radius r with constant speed v . Find the magnitude of the centripetal force.

10. A particle of mass m moves in a circular path of radius r with constant speed v . Find the magnitude of the centripetal force.



WORD SEARCH

Locate the following words. These words all pertain to a cat's nutrition. Extra credit is given for writing their definitions and how they relate to the cat on another sheet of paper.

activity level	complete	liver	soybean meal
additives	corn	magnesium	specialty
age	deficiency	maintenance	starch
amino acids	diet	malnourished	stomach
appetite	digestible	meat	stress
ash	disease	metabolism	supplements
balanced	dogfood	milk	table scraps
biotin	dry	minerals	tartar
bird	elderly	mouse	taste
blindness	environmental	nutrients	taurine
bonemeal	exercise	old	teeth
bones	eggs	obesity	temperament
bugs	fat	phosphorus	thiamine
calcium	fiber	plaque	toxic
calories	fish	pregnant	toxoplasmosis
canned	grain	preservatives	tuna
carbohydrates	internal parasites	protein	vegetable
carnivorous	iodine	reproduction	virus
catnip	iron	salt	vitamins
chlorine	illness	scientific	waste
coat	kitten milk replacer	sodium	water
colostrum	lactating	sedentary	weaning
commercial	laxative	soft-moist	weight
			zinc

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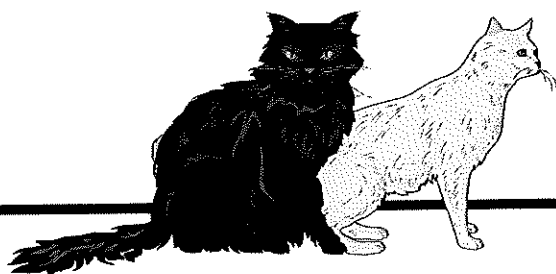
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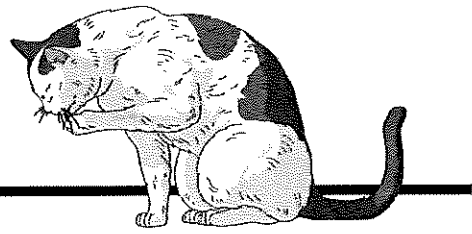
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DEPARTMENT OF CHEMISTRY
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CHICAGO, ILLINOIS 60637

RECEIVED
JAN 15 1964
FROM
DR. J. H. GOLDSTEIN
SUBJECT
POLYMERIZATION OF VINYL MONOMERS

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CHAPTER SIX

HEALTH CARE

Health care for your cat begins with daily attention. You learned in Unit One that you should groom your cat daily. Not only does daily grooming keep the cat's fur shiny and tangle-free, but the cat becomes used to being handled, which can make trips to the veterinarian or to a 4-H activity a little less stressful. More importantly, during this grooming session, you can also check for health problems. By knowing what is normal for your cat, you will quickly notice the earliest signs of a health problem. Look at the mouth, checking the color of the gums and looking for tartar build-up or broken teeth. The nose should be free of discharge. Check the eyes for discharge, discoloration (red or yellow), and whether the third eyelid (nictitating membrane) is showing. The ears should be clean; redness or a dark, waxy accumulation indicates problems. While brushing or combing your cat's fur, feel its body for any unusual lumps, swelling, or hair loss. Watch for fleas and ticks. Observe the cat's weight and the condition of its fur.

You may want to learn how to check your cat's vital signs during this time.

Respiration. A cat at rest normally takes 20–30 breaths per minute. If it is ill, the breaths may become shallow and more rapid. Observe your cat while it is resting quietly. One rise plus one fall of the chest equals one breath. Count the breaths for thirty seconds, then double that number for the respiration rate.

Pulse. Lightly press against the inside of an upper hind leg, on the femoral artery. Count the beats for thirty seconds and double the figure for the pulse rate. The normal resting pulse rate is 112–160 beats per minute.

Temperature. You will need the assistance of another person, preferably an adult, to do this. One person will restrain and comfort the cat while the other takes the temperature. Use a rectal thermometer (NEVER an oral one). Shake it down and lubricate it with petroleum jelly, mineral oil, or cooking oil. Insert the thermometer gently but firmly into the anus. You may need to twist it slightly to relax the rectal (sphincter) muscles. Insert the thermometer so that the bulb is aimed straight towards the cat's head and goes in about one inch. Leave it in for about two minutes, then remove; wipe it off and read. A cat's normal temperature is 100.5°F–102.5°F. 105°F is a danger sign, and 108°F is life-threatening, requiring immediate cooling off in a cold water bath. Cats can suffer brain damage from high fevers just as humans can.

If you have not already chosen a veterinarian, it is important that you do so. If this is your first cat, you may have to depend on your friends or neighbors to recommend a veterinarian. You and your cat should visit the veterinarian before an emergency arises. Once your cat's health record has been established, you should keep the veterinarian's name, address, and phone number near the telephone at all times, in case of emergency.

On the first trip to the veterinarian, observe how your cat is handled. The office should be clean, neat, and professional in appearance. Look on the office wall for college and state license credentials. During the initial visit, your veterinarian will set up a case history of your cat for future reference. The types of vaccinations the kitten has had will be recorded and an appointment will be scheduled if further vaccinations are needed to protect the kitten from several diseases. These vaccinations are important for the health of your kitten. While a newborn kitten is nursing, it receives protec-

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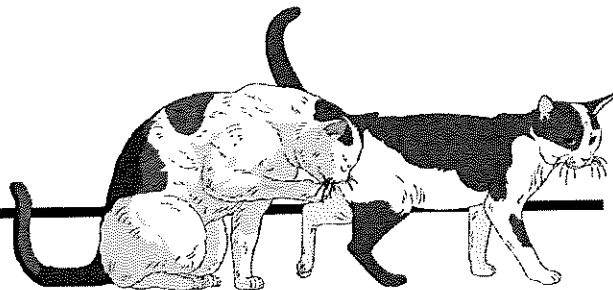
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five antibodies from the mother's milk. After weaning, this immunity will disappear. By the time kittens reach six weeks of age, they will need protection against several feline infectious diseases, and that's why vaccination is initiated. After taking your cat to the veterinarian for the initial visit(s), you should return at least once per year for health check-ups and vaccinations.

Diseases

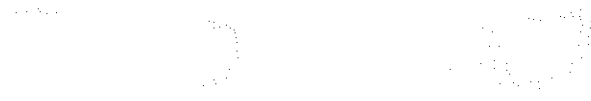
Vaccinations are generally required in the 4-H program for the following conditions.

- **Panleukopenia.** Feline Panleukopenia Virus (FPV), also known as Feline Infectious Enteritis (or sometimes as feline distemper), is caused by a virus and is highly contagious. It usually is spread by direct contact with infected animals or their body discharges, but the virus is long-lived, and the disease is so easily spread that your cat can pick it up just by passing through an area where an infected cat has been. Although the disease has a high mortality rate once the cat becomes ill, it is entirely preventable by vaccination. Kittens should receive their first immunization at six weeks of age, and a booster 3–4 weeks later. It is recommended that your cat receive yearly boosters, and this is required for 4-H cat shows. Symptoms of panleukopenia are fever, vomiting and diarrhea, loss of appetite, depression, and dehydration. Treatment includes controlling the dehydration and preventing secondary infections such as respiratory illnesses.
- **Upper Respiratory Diseases.** There are several feline respiratory illnesses that resemble the common cold in humans. They can be complex to treat as well as difficult to diagnose due to the common symptoms

characteristic of several diseases. The three most common upper respiratory diseases are Feline Viral Rhinotracheitis (sometimes called feline herpes), Feline Calicivirus (FCV), and Feline Chlamydiosis (also known as pneumonitis). Rhinotracheitis is caused by a herpes virus; Calicivirus is caused by a virus very similar to the human cold virus; Chlamydiosis is caused by a rickettsia—a cross between a virus and a bacterium—called *Chlamydia psittaci*. All three are highly contagious, and young cats are especially susceptible. These illnesses are usually transmitted by direct contact or airborne droplets, although contact with contaminated cages, dishes, or litter pans can also cause the illness. The viruses are fairly short-lived outside the cat's body, 24 hours to 3 days.

The first symptoms are sneezing and coughing, followed by watery discharge from the eyes and/or nose. Later, this discharge may become thicker with the eye discharge containing pus and the nose becoming crusted. Other symptoms may include loss of appetite and weight loss, listlessness and weakness, depression, and fever. Mouth and tongue ulcerations may occur, especially with Calicivirus. Pregnant cats will frequently abort. The main treatment is warmth, rest, plenty of fluids (forced, if necessary) to prevent dehydration, and nutritious food. Frequently, antibiotics are given to prevent or combat secondary infections, especially pneumonia. Cats rarely die from these illnesses unless they are very young or very old.

Prevention of these diseases is by vaccination of kittens at the age of six weeks, with a booster 3–4 weeks later. A yearly booster is recommended. The disease seems bad, but with good care, the cat can be saved. The disease may last from three to six weeks.



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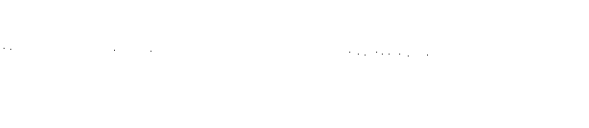
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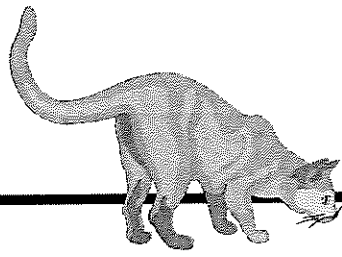
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- **Rabies.** Rabies is a virus infection to which all warm-blooded animals, including humans, are susceptible. It is highly contagious and is always fatal once the symptoms begin to show. Rabies is caused by a virus and is transmitted through a bite wound or through any break in the skin by which the saliva may enter the body. The virus enters the nervous system, traveling along the nerves to the spinal cord, then on to the brain where it multiplies and causes nerve damage producing the symptoms. Incubation is usually two to eight weeks, but in rare cases may incubate for several months. Death usually occurs two to eight days after symptoms show.

There are three stages of symptoms. The first is the prodromal state marked by uneasiness, anxiousness, irritability, and sensitivity to noise and light. The cat may stop eating and drinking, yet urinate frequently. During the second (excitatory) stage, the animal becomes excited and aggressive. It may have difficulty swallowing, although it does not develop the hydrophobia (fear of swallowing water) that humans do. Often, a loud noise or sudden movement will set the animal off in a biting, scratching frenzy. Finally, the third or paralytic stage occurs. First the head and neck, then the rest of the body become progressively paralyzed, resulting in death. There are two forms of rabies. If the second, excitatory, stage is prolonged, while the paralytic stage is very short, it is known as "furious" rabies. If there are few signs of excitement, but the paralytic stage is lengthy, it is known as "dumb" rabies. It is more usual for cats to suffer the furious form. Prevention of rabies is by vaccination. The first vaccination should be given no earlier than three months of age. Booster vaccinations are required annually or every three years depending on the type of vaccine given.

- **Feline Leukemia Virus.** Although vaccinations for Feline Leukemia Virus (FeLV) are not required for participation in the 4-H program, they are strongly recommended. **Feline Leukemia Virus is the major fatal infectious disease in cats today.** It induces cancer in the white blood cells and is linked to other illnesses such as anemia and lessening disease resistance. It eventually leads to death of the cat. Indeed, a cat who tests positive for FeLV and is showing symptoms should probably be humanely destroyed, or at least completely isolated from other cats. FeLV is caused by a type of virus known as a retrovirus. It is transmitted by saliva, feces, and urine. The virus is not long-lived outside the cat's body (3–4 hours at most) and is easily destroyed by disinfectants, so it is not as contagious as some other viruses.

Once a cat has been exposed to FeLV, one of three possibilities will occur: the cat will not become infected; the cat will become infected but will develop an immunity; the cat will develop symptoms after an incubation period of anywhere from a few weeks to several years. Symptoms may include anemia, fever, vomiting, diarrhea, and breathing problems. Cats may also develop tumors, known as lymphosarcomas. A definite diagnosis of FeLV is procured by doing a blood test. However, if a cat is known to have been exposed to FeLV, yet tests negative, it should be retested a few more times during the next 8–12 months just in case the virus didn't have a chance to "take hold" at the time of the initial test. Likewise, if a cat tests positive, but shows no symptoms for a few months, it should be retested. In the meantime, the cat should be isolated from other cats to prevent further spread of the disease. If the cat tests negative on the second test, it is no longer a danger to others. It is recommended that all cats be tested for FeLV. Cats testing positive should be isolated or hu-

RESEARCH REPORTS

THE EFFECT OF VITAMIN B₁₂ ON THE GROWTH OF THE RAT

BY R. H. WELLS, JR., M.D., AND J. H. WELLS, M.D.

From the Department of Pediatrics, University of Chicago School of Medicine, Chicago, Ill.

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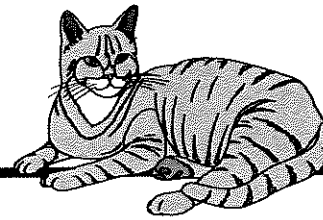
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manely destroyed. It is further recommended that cats testing negative be immunized, with annual booster vaccinations.

The following are diseases of which we need to be aware. Immunizations may be developed for some of these diseases. Check with your veterinarian to decide if they are appropriate for your cat.

- **Feline Immunodeficiency Virus.** Like FeLV, Feline Immunodeficiency Virus (FIV) is caused by a retrovirus; however, it is more closely related to viruses that cause such diverse illnesses as progressive pneumonia in sheep, infectious anemia in horses, and acquired immunodeficiency syndrome (AIDS) in humans. The FIV virus causes depression of a cat's immune system and results in secondary illnesses such as conjunctivitis, chronic diarrhea, or respiratory problems. These illnesses are similar to those of FeLV; however, if a cat tests negative for FeLV, FIV should be suspected, and a test has now been developed for detecting that illness, as well. Also like FeLV, there is no cure for FIV. Only the secondary illnesses can be treated. No vaccine is available for prevention, so the best way to avoid the illness is to keep the cat indoors and away from other cats that may be infected.
- **Feline Infectious Peritonitis.** Feline Infectious Peritonitis (FIP) is caused by a coronavirus. It is a fairly rare disease, but when it does occur, it is generally fatal. The virus spreads rapidly from infected cats, but is easily killed by disinfection; therefore, any cat suspected of carrying this virus should be isolated from other pets. Symptoms include loss of appetite, weight loss, and fever. The virus can attack many different parts of the cat's body, and peritonitis (inflammation of the membrane lining the abdominal cavity or chest cavity), accompanied by accumulation of fluid is a common
- result. There is no effective treatment, only methods of making the cat more comfortable such as dehydration prevention and inflammation reduction. No recommended immunization is available.
- **Feline Infectious Anemia.** Feline Infectious Anemia (FIA) is caused by bacteria called rickettsiae, although it also occurs as a secondary infection to FeLV or FIV. Spread of the disease is thought to be caused by blood-sucking insects, primarily fleas. Symptoms of FIA include depression, vomiting, dehydration, weakness, loss of appetite, weight loss, and pale mucous membranes. Positive diagnosis is made by blood testing. The illness is not usually fatal, and is treatable with antibiotics which must be given for at least three weeks in order to prevent recurrence. However, if it is secondary to another disease, the treatment may not be effective.
- **Feline Urologic Syndrome.** Feline Urologic Syndrome (FUS) refers to inflammation of the urinary bladder (cystitis) and/or the formation of stones in the lower urinary tract (urolithiasis). Male cats, especially neuters, are more frequently prone to serious symptoms than females because the male is more likely to have an obstruction of the urethra and be unable to urinate. Prompt veterinary treatment is mandatory in case of FUS because delaying even a few hours can lead to uremic poisoning, kidney failure, and death. The bladder inflammation may be caused by a bacterial infection, but the more common suspect is a high concentration of minerals in the urine which leads to formation of uroliths (stones) which enlarge to the point that they plug the urinary tract. It is suspected that feeding the cat a diet high in minerals ("ash"), particularly magnesium, may be the primary cause, although research is still being done on this.

Section 1

Section 2

Section 3

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Section 8



Symptoms of FUS include bloody urine, frequent urination, or the inability to urinate. If the urethra is partially or completely blocked, the cat may raise on its haunches instead of squatting to urinate. It may also cry out because of the pain, and if any urine is passed at all, it will probably be bloody. A person should never try to treat the cat by applying pressure to the bladder, as it could rupture. The cat should be taken to the veterinarian immediately. The first thing the veterinarian will do is relieve the cat by emptying the bladder, either by gentle manipulation or, more often by passing a catheter through the urethra into the bladder. If that doesn't work the urine may be withdrawn by suction with a needle directly through the abdominal and bladder walls. If all else fails, surgery is performed to provide a new urethral opening (urethrostomy). Once the bladder has been drained, treatment will include antibiotics to fight infections and dietary changes to reduce the magnesium, increase the urine's acid content, and encourage a higher fluid intake. FUS is likely to recur, so it will be necessary to continue observation for symptoms and continue the proper diet. Some brands of cat food are noted for low magnesium. Check the labels on the cans or packages. Encouraging more exercise, preventing obesity, keeping a clean litter box, and always having plenty of fresh water available are other ways to help avoid FUS.

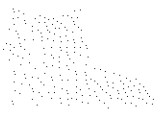
Parasites

A parasite is an organism that lives in or on another animal (that animal being known as the host). A parasite ranges in size from a one-celled protozoan to a creature easily visible such as a worm or a flea. Parasites can harm or even cause death to the host animal in or on which they are living.

Internal Parasites

It is quite likely that a cat will have a problem with worms sometime during its life. There are methods of testing for the presence of worms and effective medications your veterinarian can prescribe that will get rid of specific types of internal parasites before they cause any permanent damage. Kittens should be checked for worms by a veterinarian because some internal parasites such as roundworms can pass from the queen to kittens during lactation. The veterinarian will prescribe the correct medication and the amount needed. Sanitation is very important in controlling internal parasites. Some of the parasites such as hookworms and whipworms are rarely found in the Pacific Northwest, but one should be aware of them when traveling with cats in a different area of the country.

- **Roundworms**, or ascarids, are the most common of all intestinal parasites. Adult cats rarely show symptoms of roundworm infestation, but failure to thrive, a dull coat, and a potbellied appearance are common symptoms in kittens. If the cat has a particularly heavy infestation, a few spaghetti-like worms may pass in the feces; or they may be vomited, but the primary method of detection is by checking the feces for eggs. The eggs, which are passed in the stool, contaminate the ground and can be transmitted to other cats in the area or to cats that use the same litter pan. A cat may swallow an egg directly or by eating a rodent that has eaten the eggs.
- **Tapeworms**. There are numerous species of tapeworms that range in size from a fraction of an inch to 30 feet in length, although the two most common species found in cats rarely grow to more than two feet in length. Intermediate hosts such as fleas and rodents are necessary for each species to complete its life cycle. A veterinarian must identify the



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The third part of the document
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 The results of the analysis
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The third part of the document
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The final part of the document
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 for the authors. It also
 includes a list of the
 authors' affiliations and
 their respective roles in
 the project.



species in order to prescribe treatment. Carriers, such as fleas, must be eliminated from the cat and the premises, and the cat should not be allowed to hunt and eat rodents. Symptoms of tapeworm infection are rare. You may notice rice-like segments of the tapeworm around the cat's anus, on carpets, or in the cat's bed. These segments contain tapeworm eggs which may be ingested by fleas and other intermediate hosts.

- **Hookworms.** These small parasites with hook-shaped heads infect a cat either by being swallowed or by penetrating its skin. They attach themselves to the intestinal wall with spines and suck blood from the cat. Hookworms are generally found only in the southern United States.
- **Lungworms** may cause chronic respiratory distress, although it is generally mild. Lungworms have an interesting life cycle. The adult worm lives in lung tissue. It produces eggs which hatch into larvae. The larvae are coughed up by the cat, then swallowed and passed out in feces. They are dormant until eaten by a snail or slug. The snail or slug must then be eaten by another animal such as a rodent or bird, which then is eaten by a cat. The larvae then are carried by blood to the lungs where they become adult lungworms.
- **Heartworms** are slim roundworms that primarily infect dogs, although they can also be found in cats. They are transmitted by mosquitoes, who suck the microscopic larvae from the blood of one animal, then inject them into the blood of another. The larvae travel to the right ventricle of the heart where they develop into adult heartworms, 5-10 inches long. Due to the small size of the cat's heart, one or two adult worms can cause serious problems. A preventive medication is approved for dogs and may also be used for cats in areas

where there is a high occurrence, primarily in the southeastern United States.

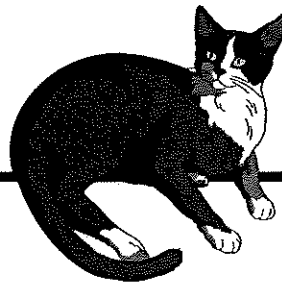
- **Whipworms and threadworms.** These worms are quite rare in cats. They are approximately two to three inches long and have a whitish-colored whip-like body. They are usually located in the lining of the large intestine of the cat. Symptoms are minimal, perhaps diarrhea. Examining the feces for eggs during a routine check-up should be done in areas where they may occur.

There are several protozoa that can cause disease in both cats and humans. Two of the more well-known diseases are coccidiosis and toxoplasmosis.

- **Coccidiosis.** This is a disease caused by the coccidian protozoa, *Isospora filis*, a parasite in the small intestines. There is very little disease caused by this protozoa, except in kittens, where diarrhea may develop.
- **Toxoplasmosis.** A cat infected by the protozoa, *Toxoplasma gondii*, may show very minor flu-like symptoms or none at all. The major concern of this infection is the transmission to humans, which occurs by coming in contact with the feces of an infected cat. Although most humans will suffer only minor symptoms, small children may become more ill, and a pregnant woman may miscarry, or the unborn child may develop deformities. For this reason, children's sandboxes should be kept covered when not in use, and a pregnant woman should never clean litter boxes. Thorough handwashing after cleaning litter boxes should be practiced by everyone.

Control of Internal Parasites

There are only a few products available for controlling internal parasites in cats. They may be packaged under several brand names, so it is important to know drug names and read



the label. NEVER use a dog product unless directed by your veterinarian. You also need to know what parasite you are trying to eliminate. Yearly fecal exams are very important to identify internal parasites.

Tapeworms require different chemicals than all other parasites. Praziquantel is the only dewormer currently approved by the Federal Food and Drug Administration that is effective against tapeworm species. It is often combined with other products so read the label carefully. It is currently a prescription medication so you will have to get it from your veterinarian. Roundworms, hookworms, lungworms, whipworms, and threadworms are usually susceptible to pyranel pamoate and fenbendazole. Piperazine is widely available over the counter, but is not very effective. Heartworms are susceptible to several medications, but only ivermectin has been approved for use in cats. Coccidiosis is normally treated with sulfa drugs. Toxoplasmosis has no effective treatment.

External Parasites

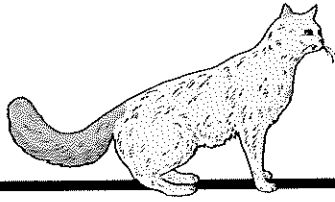
External parasites include fleas, lice, ticks, and mites. They can make a cat irritated and miserable until they are properly treated. Severe infestations can make a cat ill and can even cause death, particularly in very young or very old cats. A veterinarian can identify any type of external parasite infestation and prescribe the proper treatment. Before using any product, make sure the label clearly states that the product is safe for cats and then follow the label instructions exactly. Do not mix different types of treatments unless the veterinarian has approved them.

- **Ear Mites.** Commonly found in the cat's ear canals, these mites, *Otodectes cynotis*, irritate the ears causing them to produce a dark brown wax. Scratching in response to the irritations results in scabs and sores in and around the ears. If left untreated, the irrita-

tion will get worse, resulting in a blocked ear canal, bacterial infection, or even spread to the inner ear, causing loss of hearing or loss of balance.

- **Fleas.** Fleas are a cat's most common parasite. Fleas, *Ctenocephalides felis*, are small, hard-shelled insects that feed on the blood of animals. The life cycle of a flea can last from a few weeks to over two years. An adult female flea can lay several hundred eggs during her lifetime of one year. An egg will hatch into a larva in two to twelve days. The larva eats adult flea feces and goes through three molts. This period of the flea's life can last from 1½ weeks to 30 weeks. Right after the third molt, the larva spins a cocoon around itself and remains in that cocoon for at least a week, but it may remain in this state for up to a year. When conditions are right, an adult flea will emerge from the cocoon. Ideal conditions for fleas to go through the first three phases of the life cycle quickly include warm temperatures (65°–80°F) and some moisture. The states of the life cycle are delayed by temperature extremes (below 50°F or above 80°F) or by lack of moisture.

The bite of the flea causes a small red irritated spot which the cat scratches and bites to relieve the itching. A cat may develop an allergy to the flea saliva and a skin disorder known as miliary dermatitis may occur. Another health problem caused by fleas is tapeworm infestation. Flea larvae eat tapeworm eggs which then develop into tapeworm larvae inside the flea larvae. The adult flea continues to carry the tapeworm larvae. When a cat swallows the flea during the self-grooming process, it becomes infected with tapeworms.



- **Lice.** A cat louse, *Felicola subrostratus*, is a small, wingless insect. Healthy, well-fed cats most likely will not be bothered by lice, but a neglected cat, especially one suffering from malnutrition, may have them. Infestation is through direct contact with another infected cat or from bedding or grooming equipment recently used by an infected cat. Adult lice stick to hairs and feed on sloughed-off skin. There are various powders, dips, and shampoos that can be used to treat an infected cat. A cat with badly matted fur may need to have that fur shaved. The cat should be fed a high-protein diet. A thorough vacuuming and scrubbing of the house and destroying the cat's bedding should help.
- **Ticks.** Cats rarely acquire ticks, but an outdoor cat may pick them up. Usually they are found around the ears, neck, or between the toes. The best way to remove a tick is to use a large tweezer. Grasp the head of the tick as close to the cat's skin as possible and gently pull it straight out. Cats that roam in tick-infested areas should be dusted weekly with a cat-safe insecticide. A veterinarian can advise on other methods of tick removal and control. Don't use heat, flammable liquids, or caustic substances to remove ticks, as they could cause injury.

Control of Fleas and Other External Parasites

Control of external parasites has never been safer, easier, or more effective. The once-a-month topical products are by far the best way to control external parasites on your cat. Imidacloprid (Advantage) is highly effective against fleas but nothing else. Fipronil (Frontline) is very effective against fleas and ticks. Ivermectin (Revolution) is effective against most internal parasites (except tapeworms) and external parasites. Lufenuron (Program) will slowly control flea numbers by preventing reproduction of fleas but does not kill the fleas already on your cat. Regular

use of any of these products will prevent flea infestation of your house. Check with your veterinarian to decide which product will be best for your cat.

Older products are still widely available, especially through catalogs and the internet stores. Dips should be avoided as their benefit is minimal and their potential for toxicity is high in cats. Shampoos are effective for only a day or two. Read labels carefully and use products with only the chemical pyrethrin. Powders are not designed for cat fur and have a very short time of effectiveness. Collars must be used cautiously as some cats get quite sick from them and some cats have sensitive skin, and may develop a rash under the collar. Once the chemicals in the collar are gone, you need to remove the collar. In addition, collars are a hazard to outdoor cats as they can be caught on trees, brush, or other things cats travel through. When using flea bombs, make sure the label claims 16 weeks of control. This means it will contain an insect growth regulator, which kills the larval and egg stages. Nothing will kill the pupa or cocoon stage. Severe infestations may require a second bombing 10 days later in order to kill the pupae which have recently hatched.

If you have a severe flea infestation, then you may need to treat the cat's environment, both indoors and outdoors. You will need to treat the cat at the same time as its environment. Indoor treatment should begin with a thorough vacuuming of floors and furnishings. Areas not reachable by foggers (cracks, baseboards, closets, under furniture, etc.) should be "bombed" with a fogger (16 week duration). This should be repeated in two weeks (use any flea bomb at this time). The cat's bedding should be changed frequently. There are many sprays and dusts that can be used outdoors, and areas of flea infestations can be minimized by mowing, raking, and removing debris.

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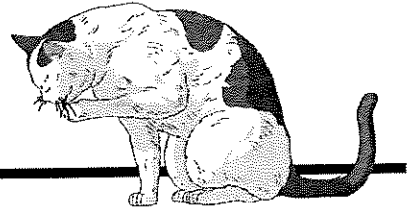
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Other Common Disorders

- **Hairballs.** Cats groom themselves by licking their coats, swallowing loose hairs in the process. Although this hair can pass through them with no problems, sometimes quantities of hair can lodge in the stomach or intestine and form hairballs. Loss of appetite, vomiting, and constipation are symptoms of a hairball. Hairballs rarely must be removed by surgery. Usually, they can be treated with a mild lubricant, such as mineral oil, which will clear the hairball out by vomiting or passing with the feces. Prevention of hairballs includes frequent brushing and an occasional dose of lubricant, especially during the spring and fall when cats are shedding more heavily. Another preventive measure that most cats really enjoy is the oil from a can of tuna.
- **Abscesses.** Abscesses most frequently occur following cat fights. They are caused by puncture wounds from teeth and claws and are found primarily on the face, head, legs, or back. Bacteria are injected into the skin, but the skin quickly heals over, sealing the infection under the skin. The infection creates a hot, red, painful, swollen area under the skin which is filled with pus. A veterinarian will open up the abscess so it can drain. Some abscesses may burst on their own. Treatment with antibiotics will help healing. The wound should be kept clean to prevent further infection.
- **Ringworm.** Ringworm is a highly contagious skin disease which is caused by a fungus, not a worm. Symptoms include circular patches of hair loss, with scaling and crusting on the skin, located mostly on the head, ears, forepaws, and back. This disease must be diagnosed by a veterinarian. Treatment should begin at once and will last for several weeks. Untreated, this disease will spread to other animals and humans as well. In addition to treating the infected cat, any other animals should be treated as well to prevent further spread. Any surfaces or objects that have been in contact with the diseased cat should be sanitized, disinfected, or destroyed. Disinfectants such as alcohol or diluted household bleach may be used.
- **Constipation.** Constipation can result from a variety of causes, including hairballs. If the cat is unable to pass the hairball, foreign object, or fecal matter, a veterinarian will take appropriate measures.
- **Vomiting.** It is quite common for cats to empty the stomach by vomiting or regurgitation. However, persistent, involuntary vomiting can often be a sign of something more serious than eating too much or too fast. If vomiting has not subsided within 24 hours, a veterinarian should be consulted, as more serious complications such as dehydration can occur.
- **Diarrhea.** Diarrhea is the frequent passage of excessively watery feces. It can be a symptom of several different problems including worms, viral infection, eating spoiled food, drinking contaminated water, or many other causes. Diarrhea will often cease within 24 hours. Stopping food intake during that time might help. If it doesn't stop, a veterinarian should examine the cat to determine the exact cause. Dehydration can occur if the diarrhea continues, and, especially in young kittens and very old cats, effects can be serious or even fatal.
- **Tail Gland Hyperplasia (Stud Tail).** This skin disease is fairly uncommon. It is most often seen in whole male cats, although it can occur in neutered males and in females, both whole and spayed. Stud tail is caused by overactive sebaceous glands along the

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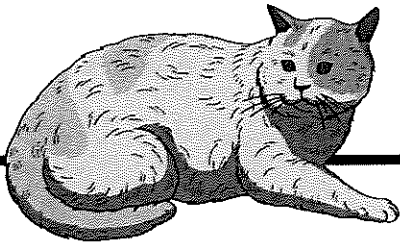
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top of the tail. Symptoms are blackheads and a yellow waxy substance on the skin and hairs of the tail base. It is controlled by bathing with a de-greasing shampoo, as needed.

- **Feline Acne.** Feline acne is a fairly common skin disease, apparently caused by a cat's failure to properly clean its chin. Blackheads form on the chin and lower lip. Changing a cat's bed frequently helps, as this condition seems to occur more frequently when a cat's chin rests on a hard surface or on dirt. If the problem keeps recurring, or if an infection occurs, the cat should probably be seen by a veterinarian.
- **Deafness.** Older cats may suffer a reduction in hearing, and cats that have had a serious head injury or disease of the ear may be deaf afterwards. Cats with permanent hearing impairment should be kept indoors to protect them from dangers such as traffic and predators. Congenital deafness (particularly with blue-eyed white cats) is present at birth and there is no cure.
- **Oral Diseases.** Dental health is becoming a major issue for cats. Most older cats will suffer from dental disease if they do not have proper dental care. Plaque is a soft material, formed by food particles and bacteria that build up on teeth. A minute amount forms every day. If not removed, it becomes calcified (hard) and eventually causes gingivitis. Gingivitis is inflammation of the gums. You will recognize it as reddening of the gums along with bad breath. If untreated, gingivitis causes a constant low-level infection of your cat's body that will lead to kidney and heart disease. Eventually the tooth roots become infected causing enough pain that your cat will no longer eat dry food and some of its teeth will fall out. In many older cats, dental disease is a major contributor to their death.
- **Heart Disease.** The most common form of heart disease seen in cats is hypertrophic cardiomyopathy (HCM). HCM is a genetic disorder where the muscle of the heart grows too big, resulting in a heart that cannot pump blood effectively. HCM is usually detected in the early stages by your veterinarian as a heart murmur. In advanced stages your cat will be lethargic and may be coughing.
- **Kidney Disease.** Kidney disease is a common disease in cats. It is a leading cause of death in older cats. You might first suspect it because your cat drinks and urinates excessive amounts. It usually occurs because of accumulated damage to the kidneys. The damage can come from toxins like anti-freeze, or it can be caused by diseases like gingivitis. Once the kidneys are identified as damaged, great care must be taken with your cat. Your veterinarian will help you manage the disease but expect your cat will eventually die from it.
- **Diabetes.** Diabetes is a disease marked by excessive drinking and urination. Internally, it is a disease of too much sugar in the blood. Overweight cats have the highest risk, but all older cats are susceptible. You will need the help of your veterinarian to manage this disease, but many cats can live for years after the condition is found. Treatment will consist of medication (usually injections), special diet, and close monitoring.
- **Hyperthyroidism.** Hyperthyroidism is a disease caused by a tumor of the thyroid gland. You will suspect it when your old cat begins to lose weight. Often, these cats have big appetites and will eat all the food you

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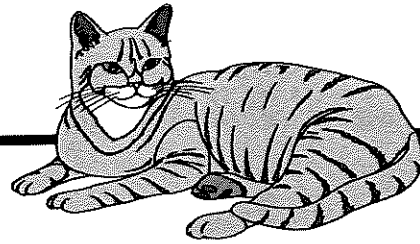
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offer. You will need to have your veterinarian help you with this treatable disease.

- **Cheat Grass and Foxtails.** Cheat grass is a common wild grass in dry areas like eastern Washington. It grows every year in the spring and fall. Soft and green in the beginning, it soon becomes dry with many seeds, or awns. Foxtails are the awns of a wild grass that grows in dry places in western Washington. Foxtails are very common and can even be found growing in cracks in the pavement in cities. The awns of both grasses have a barb at the point and bristles sticking out the back. When they penetrate flesh, they are difficult to pull out. Some pressure is necessary to make awns penetrate healthy flesh, but they can easily enter an open wound. Sometimes, an awn will get caught in the corner of the eye. This requires immediate attention. Daily brushing should prevent problems. If an awn has worked into an open wound, it must be removed. A veterinarian's help may be necessary.

Spaying and Neutering

While the kitten is still young, the decision to spay or neuter should be discussed with the veterinarian. The 4-H program strongly encourages the spaying and neutering of all cats except purebreds used in a breeding program. This will help prevent unwanted, homeless cats. Additionally, these cats generally make more gentle, affectionate pets.

- **Spaying.** Spaying is the surgical removal of the ovaries, oviducts, and uterus of a female cat. Spaying should be done at six months of age. Unless she is spayed or mated, a female will be in recurring heat (the period of time in which she can become pregnant) perhaps as often as every one to two weeks for several cycles, and this may be repeated

three or four times a year. Spaying also eliminates the restlessness, nervousness, and rolling, as well as the noisy crying. Spaying will lessen the possibility of mammary tumors and thus add to her longevity. Any tendency to become overweight as a result of the decreased activity and contentment which follows spaying can be corrected by proper diet and sufficient exercise.

- **Neutering.** Neutering is the surgical removal of the testes, epididymis, and vas deferens of the male cat. This prevents the impregnation of females. Male cats that are not neutered mark their territory by spraying a urine that has a strong odor. The mature male cat also has the desire to prowl and fight other tomcats in the neighborhood. If kept indoors, the male cat may spray urine throughout the house from the time he reaches about 10 months of age. Neutering may be done anytime after the cat reaches six months of age. If the cat is neutered before he begins to spray, he will usually not acquire the habit.

Declawing

As a last resort, when a cat continually ruins furniture by clawing it, declawing is an operation which removes the claws surgically. General anesthetic is used on the cat. The claw is not pulled out; the end bone of the toe holding the claw and nail bed is clipped off at the joint. The feet are bandaged for a few days. Usually, veterinarians will only remove the front claws, so a cat will be able to use the hind claws for climbing, holding onto surfaces, or defending itself. Declawing can be done at any age, but is generally easier on a younger cat. The procedure should be discussed with a vet-

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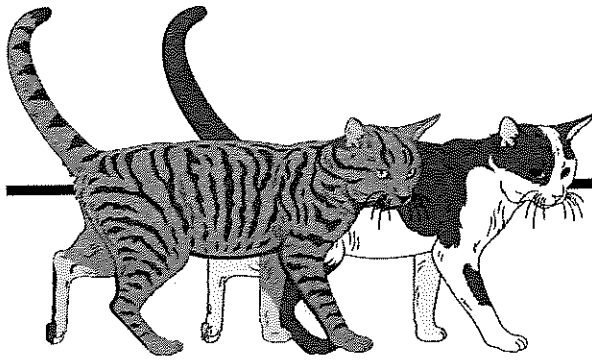
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erinarian before a final decision is made, and only after other methods of behavior modification have failed. It should also be remembered that declawed cats are not eligible to compete for championship status in some show rings; however, they are acceptable in 4-H cat shows.

REMEMBER
THE INFORMATION IN THIS CHAPTER IS DESIGNED AS A GUIDE FOR YOU IN MAINTAINING PROPER HEALTH FOR YOUR CAT. LET YOUR VETERINARIAN BE THE FINAL WORD ON ANY OF YOUR PET'S HEALTH PROBLEMS OR SYMPTOMS!

CHAPTER 7

EMERGENCIES AND FIRST AID

Cats are known to be self-reliant. However, sometimes circumstances can lead to an accident. Quick action on your part can make a difference. Until you can get the cat to the veterinarian, first aid treatment may save your cat's life. Your veterinarian's telephone number should always be handy in case of emergency.

An injured animal, even if it is your own, is frightened and may bite or try to run away. Restrain the cat with a blanket or towel to avoid being bitten or scratched. Comfort the cat with soothing tones and call it by name. It will be necessary to restrain it by first trying to get hold of it by the scruff of the neck. Do not grab it so hard that you cause additional stress or pain. Using a firm but gentle grip will help calm it.

Carrying An Injured Cat

A cat that has been injured severely should be moved gently and quickly to a veterinarian. Place a blanket or cloth flat on the ground in back of the cat. Placing one hand under the shoulders and the other under the flanks, gently raise the cat just enough to move it onto the blanket, or raise the cat and let another person slip the blanket underneath it. Place the cat gently in a box on the car seat beside you so you can control it to prevent further injury. If you suspect or detect shock, wrap the cat in a bath towel.

Never forget that even the nicest cat may bite you severely when it is hurt. Be even more cautious with a cat you do not know.

Treatment of Shock

Shock is a state of circulatory collapse that can be the result of a severe accident, loss of blood, heart failure, toxins, or injury to the nervous system. Symptoms of shock are a weak and rapid pulse, drop in body temperature, pale mouth and gums, rapid breathing, depression, and sudden gentleness. (How to check the vital signs is covered in Chapter Six.) Keep the cat warm by covering it with a blanket or coat. Keep the cat quiet. Severe shock can kill, so act quickly and seek veterinary help as soon as possible. A cat which has suffered shock should be kept under close observation for several days.

Cuts and Wounds

Check first for excessive bleeding. In most cases bleeding can be controlled by applying pressure to the bleeding area with a folded pad of clean cloth. Clean superficial wounds. (Review Unit I EM4809). Bandage them, if necessary. Keep an eye on the healing process to be sure there is no infection. If the wound is large and bleeding, is excessive or does not stop bleeding, veterinary treatment is necessary. Until you reach the veterinarian keep the cat re-

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APPENDIX

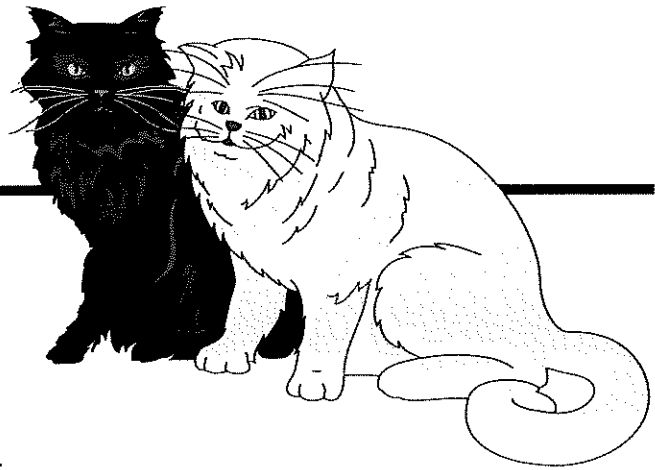
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strained, and apply moist dressings. Puncture wounds are common and can be extremely hazardous especially if to the chest area. If the chest cavity has been entered, the lungs may collapse. Try to cover this type of wound with an airtight seal, using plastic or gauze. Mouth to mouth resuscitation may be required. Never try to remove a penetrating object. Leave the object in place and treat for shock until you can get the cat to the veterinarian. Cuts are not commonplace with cats, but can happen. Cuts that do not require stitches should be washed and first aid ointment applied.

Burns

Run cool water over burned areas and, in severe cases, treat for shock. Do NOT apply butter or ANY type of ointment unless the veterinarian tells you to do so. Human medications can make the cat ill if it licks them. If the burn is severe, it must be treated by the veterinarian. Keep the burn covered with cool, moist compresses en route to the veterinarian's office. Move the cat very carefully.

Suffocation or Smoke Inhalation

Remove the cat from the smoky area immediately and apply artificial respiration. Treat for shock and keep the cat in the fresh air. Veterinary examination is necessary since pneumonia is a frequent complication.

Fractures and Broken Bones

Veterinary care is required for fractures or broken bones. Keep the cat quiet and restrict motion. If the broken bone has protruded through the skin and there is excessive bleeding, hand or bandage pressure should be applied at a point between the injury and the heart to help control the bleeding. Do not try to move the broken edges of bone back together.

Heat Stroke

Heat stroke most commonly occurs in cats which are left in closed cars, but can also occur

if a cat is confined in a carrier or a concrete run without shade. The symptoms of heatstroke, also called sunstroke or hyperthermia, include panting, rapid breathing, salivating, vomiting, loss of alertness, warm dry skin, rapid heartbeat, high fever, and collapse. Heat stroke should be treated immediately by reducing the body temperature. Wet the entire cat except the head. The abdomen is the area of thinnest hair coat, therefore the most effective cooling area. Use the coldest water available. Next you must wipe the water from the fur and apply fresh water. Repeat this cycle a couple times per minute. If you do not remove the water from the fur, it will last as an insulating layer and prevent escape of heat. If you have a hose available then constantly spray the abdominal area while you wipe off the warmed water. Constantly monitor the cat's temperature, as it is easy to get the cat too cold. Stop treatments once the temperature reaches 103 degrees. Then seek the help of your veterinarian. Kittens, obese cats, and older cats are particularly susceptible to heat stress, and so are cats with cardiovascular or respiratory problems. Anything more than the mildest heat stress should be treated by a veterinarian, as the cat may require oxygen therapy to prevent brain damage.

Convulsions

Convulsions and seizures may indicate serious problems. Prevent the cat from running off or falling down and injuring itself until you can get it to the veterinarian. Do not try to handle the cat during a convulsion. Wrapping the cat in a soft blanket or towel will help restrain it and help prevent it from scratching you or doing further damage to itself.



The first part of the document discusses the importance of maintaining accurate records and the role of the auditor in this process. It highlights the need for transparency and accountability in financial reporting, particularly in the context of public companies and government entities. The text emphasizes the significance of the audit trail and the impact of audit findings on the overall financial health and reputation of the organization.

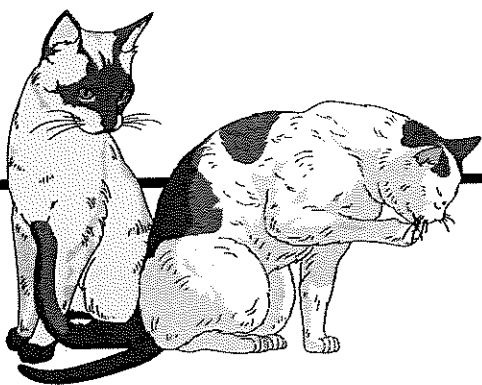
The second part of the document delves into the specific procedures and techniques used by auditors to identify and assess risks. It covers the process of identifying potential areas of concern, performing detailed testing, and evaluating the results. This section provides a comprehensive overview of the audit process, from initial planning to the final reporting stage, and discusses the challenges and complexities involved in conducting a thorough and effective audit.

The third part of the document focuses on the importance of communication and collaboration between the auditor and the client. It discusses the role of the auditor in providing clear and concise feedback, as well as the importance of maintaining a professional and objective attitude throughout the audit process. This section also addresses the need for transparency and the impact of communication on the overall success of the audit.

The final part of the document provides a summary of the key findings and conclusions of the audit. It highlights the areas of strength and the areas that require further attention, and offers practical recommendations for improving the organization's financial reporting and internal controls. The text concludes by emphasizing the importance of ongoing monitoring and the role of the auditor in ensuring the long-term success and integrity of the organization.

The document also includes a detailed analysis of the audit findings, providing a clear and concise overview of the key areas of concern. It discusses the impact of these findings on the organization's financial health and reputation, and offers practical recommendations for addressing these issues. This section provides a comprehensive overview of the audit process, from initial planning to the final reporting stage, and discusses the challenges and complexities involved in conducting a thorough and effective audit.

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Drowning

In case of a drowning, hold the cat upside down the minute you get it out of the water so that the water can empty out of the lungs. Then apply artificial respiration until the cat starts breathing on its own again. Treat for shock with a warm blanket.

Frostbite

Take the cat to a warm place immediately. Frostbitten areas should be thawed out slowly. Do not apply hot applications, only warm, moist applications directly to the frostbitten areas, and do not rub the frozen area. Antiseptic cream may be used to keep the skin from peeling off or drying out once the skin is thawed. It may be necessary to take steps to prevent self-mutilation. The veterinarian will determine the extent of the damage and check the condition of the cat's skin. Severe frostbite can result in lost toes or damaged feet and ear tips. Because a frostbitten cat is more prone to having this happen again, it is especially important to protect it from frostbite again.

Snakebite

Cats are usually too cautious to be bitten by a snake, but should it happen, treatment should be started within an hour. Put ice or an ice pack around the wound. Keep the animal quiet to decrease blood circulation, and take the cat to a veterinarian. Use of antitoxins can be helpful but not always possible or necessary.

Poisons

There are many sources of poisons which can kill cats. If you even suspect your cat may have been poisoned, a veterinarian should be

consulted. ALL poisonings require immediate treatment by a veterinarian. Determine the type of poison your cat has ingested and, if possible, take the container with you so the veterinarian can use the proper antidote. The most common poisons are household disinfectants, detergents, car anti-freeze, household plants, rat or insect poisons, lye, paint, and turpentine. Eating spoiled food, nicotine products, insects, or medications, especially aspirin and acetaminophen, and drinking water from chemically treated toilet bowls or alcoholic beverages is also dangerous. The use of flea treatments made for dogs can be toxic to cats! Symptoms may include drooling, vomiting, diarrhea, listlessness, labored breathing, trembling, convulsions, or collapse. Where poisons are concerned the best treatment is prevention.

Ingesting Foreign Objects

There is always a danger of kittens swallowing parts of toys, small balls, earrings, or any number of other unexpected items. Thread, with or without a needle, and rubber bands are especially dangerous. Symptoms may include vomiting, restlessness, salivation, dehydration, cramped walking, and signs of discomfort. If you have any reason to believe that your cat has swallowed something he shouldn't have, an X-ray may reveal what it is. If the veterinarian does not feel that the cat can pass the object normally, surgery may be required to remove it. It is better, and less expensive, to keep your kitten well supplied with its own safe toys, all of which should be too large for it to swallow.

It is important to keep a first aid kit handy for the safety of your cat. First aid supplies were covered in Unit I (EM4809). If you are treating a condition at home, keep your veterinarian informed of the problem and how you are treating it. Remember, don't try to be your own veterinarian.

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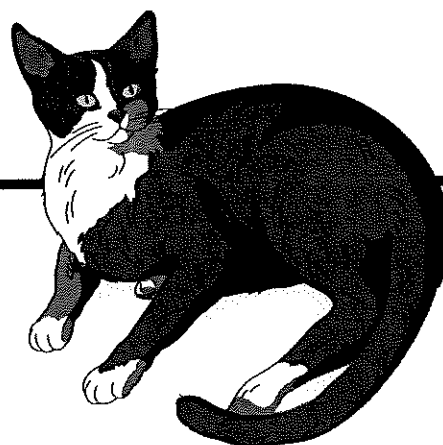
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Zoonoses

Zoonoses are diseases you can get from your cat. They may be diseases which make your cat sick, like Rabies, or they may not affect your cat at all and just make you sick, like cat scratch fever. Cats have only a few zoonoses, but it is important to know them.

Toxoplasmosis	Cat Scratch Fever
Ringworm	Rabies

CHAPTER 8

TRAVELING WITH YOUR CAT

If you intend to travel with your cat, car training should begin while it is young. Cats travel best in a carrier where they can feel safe. Local trips will help your cat get used to the motion of the car. If motion sickness occurs, discuss preventive measures with your veterinarian. Tranquilizers may be prescribed, although cats generally do not require them for traveling.

While it is better to leave your cat at home under the care of a neighbor or make arrangements with a boarding kennel, if you must take your cat along, you will have to prepare for its safety and comfort. Pack food and water dishes, litter pan, its regular food, bedding, toys, and a scratching post. Plan to keep your cat inside, behind a screened window or porch, or to walk the cat on a leash. Make sure your cat is wearing a collar and identification tag at all times. Consider getting your cat a microchip. Microchips are permanent, unique, and do not get lost. Most animal shelters and veterinary clinics scan stray animals.

Do not feed your cat for at least three hours before leaving. Plan to feed shortly after arrival at your destination. Take along a litter pan for long trips. If your cat is inclined to have accidents along the way, put newspaper on the bottom of the crate and sprinkle litter on top of the newspaper. The newspaper and litter can be replaced as needed.

Put the crate in a cool spot in the car, out of the direct sun, but where the cat will get light and air. **Never** leave a cat alone in the car. Even with the windows partially open, a parked car heats up very quickly and your cat may suffer heat stroke, suffocation, or even death.

On a long trip, your cat should be allowed to use a litter pan every three to four hours. When you arrive at your lodging, place the litter pan in the bathroom. Put the cat in the bathroom with the door closed while you are unloading the car. The cat will be safe and will probably find and use the pan.

Food and water can be served safely and clean-up will be easier if it is done in the bathroom. Once the cat has been fed and allowed enough time to exercise, let it sleep in the carrier overnight. It will be safe and comfortable and there should be no damage to furniture or carpets. Your cat should be confined to the carrier while you are out of the room. Before leaving, be sure to check the room for any accidents.



Map of Mexico showing state boundaries and major cities. The map is oriented vertically with the Gulf of Mexico to the right.

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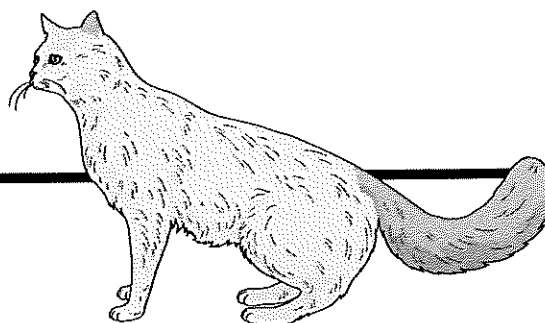
U.S. TRADE

Map of Mexico showing state boundaries and major cities. The map is oriented vertically with the Gulf of Mexico to the right.

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CHAPTER NINE



VOCABULARY

Abnormality: Something unusual, not typical or average.

Abort: Expelling kittens from the uterus before they are able to live.

Amino acid: The primary material of protein.

Anatomy: The structure of the body or any of its parts.

Ancestor: The stock from which an animal has descended; forefather.

Anesthetic: A drug that stops pain.

Antibody: A substance produced by white blood cells that helps fight illness-causing agents such as bacteria.

Artificial respiration: Forcing air into and out of the lungs of an animal that is not breathing.

Bacteria: A microscopic organism that can cause disease.

Breed: A group of cats with similar, defined characteristics and related ancestry.

Cardiovascular: Pertaining to the heart and blood vessels.

Carnivorous: Meat-eating.

Characteristic: A distinguishing feature or quality.

Circulatory: Organs and tissues involved in circulating blood through an animal.

Conformation: The body form of a cat, including size and shape, characteristic of its breed; type.

Conjunctivitis: Inflammation of the membrane lining the inner eyelid and eyeball.

Contagious: Able to be passed from one animal to another.

Convulsion: Twisting of the body caused by violent muscular contraction.

Dehydration: Loss of water or moisture.

Diagnosis: To determine by examination the cause and character of an illness.

Digestible: A substance that can be converted by the body to be used for nourishment.

Digitigrade: Walking on tip-toe.

Discriminate: To note or observe a difference.

Disease: A condition of the body in which there is incorrect function due to heredity, infection, diet, or environment; illness; sickness.

Domesticate: To tame; to change from wild to household or family use.

Frostbite: Inflammation of the flesh caused by exposure to extreme cold.

Gingivitis: Inflammation of the gums.

Hybrid: The result of a mating between two different breeds.

Immunity: Protected from a particular disease.

Incubation: The period of time between infection and showing signs of disease.

Indigenous: Originating in a particular region or country.

Infection: Affected with disease-producing germs.

Infestation: Overrun by a large number of something troublesome (like fleas).

Inflammation: Redness, swelling, heat, and/or tenderness of a part of the body.

Ingesting: Taking into the body, such as food or liquid.



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Isolate: Keep separate from other animals.

Lactating: Producing milk.

Lithe: Flexible; limber.

Longevity: The length or duration of life.

Lubricate: To make slippery or smooth.

Malnutrition: Food materials not properly balanced or not enough to be taken in and utilized effectively; malnourishment.

Miliary dermatitis: Small, red, crusty skin wounds.

Mucous membrane: Lining of an inner part of the body that discharges mucus.

Musculature: The system of muscles of the body.

Mutation: The change of a characteristic caused by a change in a gene or chromosome.

Obese: Extremely overweight.

Parasite: An animal or plant that lives and feeds in or on another animal or plant.

Pedigree: The line of ancestors of a purebred animal or the document recording this.

Physiology: Processes or functions of a body or a part of the body.

Pigmentation: Coloration of the skin.

Polydactyl: Having more than the normal number of toes.

Progenitor: Ancestor; forefather.

Protein: A substance made up of amino acids required for all life processes in animals.

Purebred: An animal whose ancestors are all from the same recognized breed.

Regurgitation: The return of partially digested food from the stomach to the mouth.

Reproduction: The natural process by which new individuals are created.

Respiratory: Pertaining to breathing.

Retractable: Able to be drawn back.

Salivating: Producing the watery fluid in the mouth.

Sedentary: Sitting or resting a great deal with little exercise.

Seizure: A sudden attack characterized by fits of convulsions.

Self-mutilation: To injure or disfigure oneself.

Sinus hairs: Sensitive hairs located on the muzzle (whiskers), above the eyes, and on the back of the front legs (carpal hairs).

Spontaneous: An unplanned result coming from a natural process.

Susceptible: Capable of becoming ill or injured.

Symptom: A sign or indication of a disease or disorder.

Toxins: Poisonous substances.

Tranquilizer: A drug that has a calming effect.

Vaccination: The implanting of a disease in an animal by the introduction of germs or virus, as through a puncture, in order to produce a mild form of the disease and thereby securing immunity.

Virus: A disease-producing micro-organism that causes many of the most serious cat diseases and cannot be treated with antibiotics.

Section 1: Introduction

The purpose of this document is to provide a comprehensive overview of the project's objectives and scope.

This document is organized into several sections, each addressing a specific aspect of the project.

The first section discusses the background and motivation for the project.

The second section details the project's goals and the expected outcomes.

The third section describes the methodology and the tools used in the project.

The fourth section presents the results of the project and discusses their implications.

The fifth section concludes the document and provides a summary of the key findings.

Finally, the sixth section lists the references used throughout the document.

The project was supported by the following organizations and individuals:

Special thanks go to the project manager for their leadership and guidance.

We also thank the team members for their hard work and dedication.

The project was completed on time and within budget.

We look forward to future projects and collaborations.

Section 2: Objectives

The primary objective of this project is to develop a robust and scalable system.

Secondary objectives include improving user experience and reducing operational costs.

The project also aims to ensure data security and compliance with industry standards.

Key performance indicators (KPIs) will be used to measure the success of the project.

The project team will regularly report progress and any challenges encountered.

The project is expected to be completed by the end of the fiscal year.

The project budget is estimated to be within the allocated funds.

The project will be a significant contribution to the organization's growth.

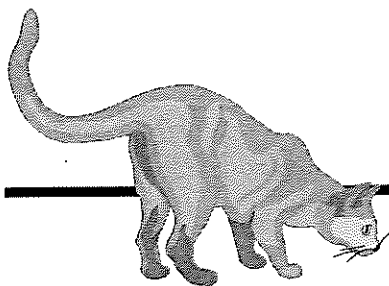
The project team is confident in the ability to achieve all objectives.

The project will be a model for future initiatives.

The project will be a testament to the team's capabilities.

The project will be a source of pride for the organization.

The project will be a landmark achievement.



RESOURCES/REFERENCES

Books:

The Cornell Book of Cats, 2nd Edition, edited by Mordecai Siegal, Villard, New York, revised 1997.

The Cat Fancier's Association Complete Cat Book, Edited by Mordecai Siegal, Harper Collins, New York, 2004

Legacy of the cat—The Ultimate Illustrated Guide, Gloria Stephens, Chronicle Books, San Francisco, 2001

Web sites:

Breed Associations:

CFA www.cfainc.org
ACFA www.acfacats.com
TICA www.tica.org

Pet Food Web sites:

www.royalcanin.us/
www.purina.com
www.friskies.com
www.iams.com
www.hillspet.com

There are many other interesting web sites. Check the last page of any 4-H CCS Cat Project Series for an extensive list of web sites and other references.

In case of conflicting information dealing with anatomy and/or physiology of the cat, *The Cornell Book of Cats* will be considered the ultimate authority.



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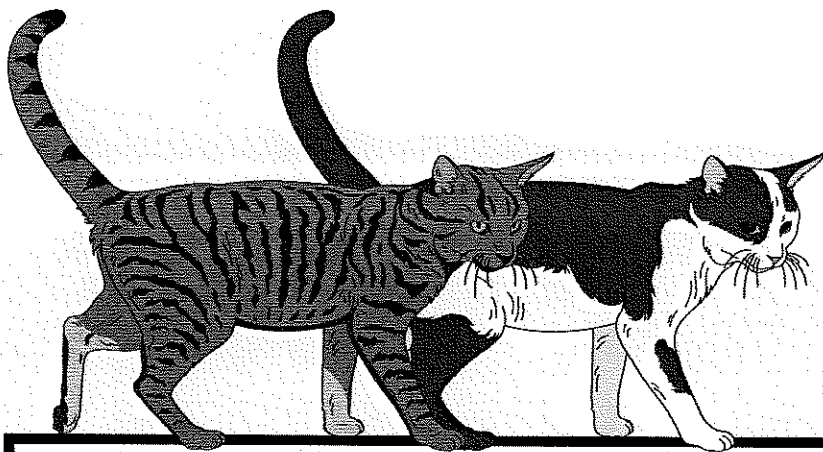
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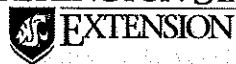


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