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Veterinary Science

This We Believe:

- The boy and girl are more important than the projects.
- The member should be their own best product.
- No award is worth sacrificing the reputation of a member or leader.
- Competition is a natural human trait and should be recognized as such. It should be given no more emphasis than other fundamentals.
- Learning how to do the project is more important than the project itself.
- Many things are caught rather than taught.
- A blue ribbon member with a red ribbon project is more desirable than a red ribbon member with a blue ribbon project.
- To learn by doing is fundamental in any sound educational program.
- Generally speaking, there is more than one good way of doing most things.
- Every member needs to be noticed, to feel important, to win, and to be praised.
- Our job is to teach members *how* to think, not what to think.

4-H VETERINARY SCIENCE PROJECT

"I want to be a veterinarian when I grow up."

The 4-H veterinary science project provides an excellent way for young people who care for animals and may want to follow a career in veterinary medicine, explore the topic. In this project, members will learn about animal health, behavior, and visit with veterinarians.

- Learn what is normal for different types of animals.
- Learn characteristics of different breeds and why they were developed.
- Explore the different jobs veterinarians do.
- Discover what kinds of diseases an animal might show.
- Identify how to best care for an animal you own in health and disease

Starting Out *Beginner*	Learning More *Intermediate*	Exploring Depth *Advanced*
○ Keep track of what animals you see on a typical day, wild as well as domestic. ○ Keep a record of your animal's food intake. ○ Learn how much and what kind of exercise your animal needs. ○ Take a field trip to an animal shelter ○ Learn about common household poisons and other dangers to your animal and how to pet proof its environment ○ Go to a dog show, livestock show, or fair and learn about different breeds.	○ Find out how we use different species of animals for food, companionship, fiber, and labor. ○ Learn what diseases are indicated by different signs shown by an animal. ○ Create a yearly schedule for health care for several different species. ○ Design a habitat for your species, including meeting its needs for psychological health as well as physical health ○ Buy bacterial culture plate from a local vet and use them to culture surfaces in your home	○ Find out about the responsibilities of veterinarians; shadow your local veterinarian for a day. ○ Learn about diseases common in different kinds of animals and different parts of the world. ○ Explore how different animals fit into human cultures around the world. ○ Take a tour of a local vet hospital.

The activities above are ideas to inspire further project development. This is not a complete list.

4-H Thrive!

Help Youth:

Light Their Spark

A spark is something youth are passionate about; it really fires them up and gives them joy and energy. Help youth find what it is about veterinary science that excites them.

Flex Their Brain

The brain grows stronger when we try new things and master new skills. Encourage youth effort and persistence to help them reach higher levels of success.

Reach Their Goals

Help youth use the GPS system to achieve their goals.

Goal Selection: Choose one meaningful, realistic and demanding goal.

Pursue Strategies: Create a step-by-step plan to make daily choices that support your goal.

Shift Gears: Change strategies if you're having difficulties reaching your goal. Seek help from others.

Reflect

Ask project members how they can use their passion for this project to be more confident, competent and caring. Discuss ways they can use their skills to make a contribution in the community, improve their character or establish connections.

Expand Your Experiences!

Science, Engineering, and Technology

- Learn about different digestive tract adaptations used by different animals.
- Take a pet first aid course and create a pet first aid kit.
- Learn about how vaccines, antibiotics, and other medications work to prevent and cure diseases.
- Learn how different animals have different body shapes to do the jobs they need to do.
- Create an educational film about animal health and safety to share with others.

Healthy Living

- Learn about the difference between cleaning and disinfecting, as well as why they are important to human and animal health.
- Learn about the nutrition and exercise needs to maintain health in animals as well as humans.
- Learn how to do a basic health examination on an animal you might raise.
- Teach others about safe bio-security practices at your county fair.

Citizenship

- Create an educational display on animal care for your local library or community center.
- Participate in a local parade or educational fair by having a walking group or information booth.
- Encourage your local parks to plant native species which use less water and provide better wildlife habitat.
- Identify a need in your community and conduct a service learning project.

Leadership

- Be a junior or teen leader in your vet science project.
- Create a movement in your community to encourage pet owners to clean up after their pets to reduce disease transmission to other pets and people.
- Teach small children how to be safe around different kinds of animals, large and small, wild and domestic.

Resources

- AVMA www.aardvarks2zebras.org
- American Animal Hospital Association www.healthypet.com
- Centers for Disease Control www.cdc.gov/healthypets/health_benefits.htm
- Food Safety www.keepourfoodsafe.org
- Relating Animal Health to Human Health www.onehealthcommission.org/ and www.globalhealthvet.com
- Rabies Prevention www.worldrabiesday.org

Connections & Events

Presentation Days – Share what you have learned by giving a demonstration, creating an educational display or audiovisual presentation.

Field Days – These events have many activities which relate to animal care and health.

County and State Fair Many fairs have opportunities to compete with animals as well as educational displays and knowledge bowls.

Curriculum

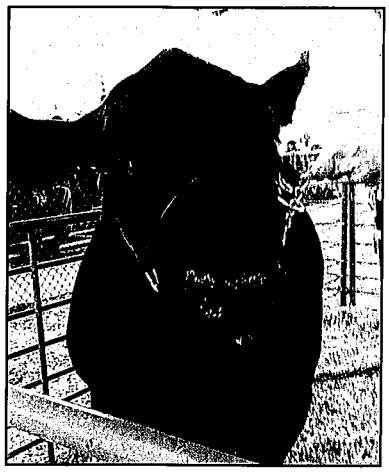
- Youth Development through Veterinary Science
- Bio-Security in 4-H Animal Science
- Observing the Normal Animal

4-H Record Book

4-H Record Books give members an opportunity to record events and reflect on their experiences. For each project, members document their personal experiences, learning, and development.

4-H Record Books also teach members record management skills and encourage them to set goals and develop a plan to meet those goals.

To access the 4-H Record Book online, visit



Veterinary Science

Sonoma County 4-H

Name: _____ Date: _____

Guidelines for Project Proficiency Award
Beginner:

	Date Completed	Leader's Initials
1. Name five behaviors that might be used to diagnose the presence of disease in an animal.	_____	_____
2. What is the normal body temperatures of the following animals. Cattle _____ Dog _____ Goat _____ Sheep _____ Cat _____ Fowl _____ Swine _____ Horse _____	_____	_____
3. What is a pulse? Where do you take the pulse on cattle and horses.	_____	_____
4. Define respiration and be able to give the respiration rate of two large animals and two small animals.	_____	_____
5. Name three factors which should be considered when choosing, locating and constructing housing for your animal.	_____	_____
6. Name three instances in which cleanliness and disinfection are important and tell why.	_____	_____
7. What are the three main parts of a cell and what is the important job each one does?	_____	_____
8. Name the four basic tissues of the animal and give each of their functions. Give an example of each.	_____	_____
9. Define the term "organ system" and give five examples.	_____	_____
10. Explain the main difference between ruminant and monogastric animals.	_____	_____
11. What is a parasite? Identify the two main types of parasites and give two examples of each of three different species.	_____	_____
12. Describe the steps that are taken to test a fecal sample of an animal for internal parasites.	_____	_____
13. What is equine colic? What are some of its signs?	_____	_____
14. Define necropsy. Why does a veterinarian perform necropsy.	_____	_____
15. Define dystocia. Give three examples of dystocia.	_____	_____
16. Give an example of a situation in which a veterinarian might use an X-Ray machine.	_____	_____

Continued on the next page

Veterinary Science

ACTIVITIES Complete al minimum of three of the following	Date Completed	Leader's Initials
1. Attend three seminars given by veterinarians.	_____	_____
2. Give a demonstration at County Presentation Day sharing your knowledge in veterinary science.	_____	_____
3. Take part and assist in a rabies vaccination clinic. (Many communities hold such clinics once or twice a year.)	_____	_____
4. Plan and follow through on a parasite control program for an animal you own.	_____	_____
5. Attend a field day event where some aspect of animal health is discussed. (This includes U. C. Davis Field Day)	_____	_____
6. Put together a display, poster, etc to enter in your local County Fair.	_____	_____

Project Leader's Signature of Completion: _____ Date: _____

Club Leader's Signature of Completion: _____ Date: _____

MINNESOTA 4-H PROJECT MEETING GUIDES

VETERINARY SCIENCE

....to develop
project and life skills

4-H CAGED BIRD PROJECT HEALTH SUPPLEMENT

4-H Veterinary Science project members investigate the normal health of several animal species. It's important that you become familiar with the normal health of your project animals so that you can recognize when one of your animals isn't well. This caged bird project health supplement should acquaint you with the basic caged bird "normals."

Think about your finch, canary, budgie, or parrot. You are important to your bird because it's your job to keep her well and to know when she needs veterinary care.

Recognition of the following normal characteristics will help you and your veterinarian work as a team to keep your pet bird in good health.

You should keep a record of any abnormalities which do occur. This record will be important as a case history when your veterinarian begins to formulate a diagnosis.

Your bird's **attitude** is a characteristic with which only you are familiar. Is your pet friendly and easy to handle? Or is he a little on the vicious side? When does your bird enjoy singing or talking most? Watch for changes in your bird's behavior. The time of day or season of the year may affect his moods. A change in personality, sleepiness, seizures, circling, or paralysis may indicate a nervous system disorder.

Your bird's **stance** or **movement** is, of course, very different from that of other animals because a bird is able to perch and fly! Observe how your bird uses its limbs for climbing and perching. How does he curl his toes for grasping? How does he use his wings and body weight to balance? Normally birds have only four toes on each foot. A bird's neck bones are modified so that it can turn its head completely around for preening or spotting danger.

Learn to handle your bird properly. Frantic movement can lead to broken wings or other injuries.

Keep track of your bird's **weight.** "Eating like a bird" actually means eating an awful lot! Some birds must eat twice their weight daily because they burn up so much energy. So even a short term loss of **appetite** could be very harmful to your bird. A good indicator of weight loss is your bird's keel-shaped breastbone or sternum. The muscles on the breast will rapidly become smaller and the keel will stick out if your bird is losing weight. Take note as to which seeds your bird prefers. Know the amount of water your bird normally drinks each day.

The **skin** of birds has many remarkable modifications - feathers, scales, claws, and preen gland. You should be familiar with the appearance of these structures in your healthy bird so they might serve as illness indicators. All birds can fluff their feathers to form air pockets which insulate them against the cold. Watch for a ruffled appearance. You may be housing your bird in a drafty area. Gently unfold your bird's wing. You should see all the flight **feathers.** Near your bird's skin are the insulating down feathers. Worn out feathers must be replaced. Shedding feathers is called molting. This a normal process. Failure to lose frayed feathers is a sign of illness.

Scales protect your bird's legs. These scales often become thick and pointed as your bird ages.

Your bird should have highly developed **eyesight.** The eyelids should be smooth, not swollen or crusty. There should be no eye discharge. The eye lining should be smooth and pink. The pupils should be the same size and shape. The cornea should be clear. White cloudiness indicates cataracts. The eye shouldn't bulge from its socket, as is common in parrots with abscesses around the eye.

Locate your bird's **ear.** It's behind and below the eye. Of course there are no heavy ear lobes! Check for discharges, swelling or cuts. If your bird appears wobbly, his inner ear balancing mechanism may have been injured.

An obvious characteristic for you to keep track of is your bird's **bodily discharges.** Your bird should not strain when defecating. He should have 25 to 50 formed, target-shaped droppings per day and no bleeding. "Urine" is excreted with your birds black or dark green feces. This creates the characteristic target-like shape. A decrease in droppings may mean your pet is not eating as much as normal. Some regurgitation may be normal.

What about your pet's **voice?** Be concerned if your bird starts talking, chirping or singing less than normal. Perhaps he's unhappy. A lack of male hormones may cause a canary to stop singing.

You can estimate your bird's **heart rate** by placing your fingers against your bird's chest. The normal heart rate is so fast, it's difficult to count. Count the number of beats in 15 seconds and then multiply by four for the beats per minute. Canaries and finches average 500-800 beats per minute, budgies 300-500, small parrots 250-350.

Check your bird's **breathing rate.** Your bird's lungs expand when the chest expands. A large parrot should take about 30 breaths per minute and a smaller bird about 100 when resting.

Practice recognizing and recording many of these normals on your bird every day. When you need to contact your veterinarian, be prepared with a complete report of all the signs you have noticed. If you'd like further information of animal health, join the 4-H Veterinary Science project. You may use your pet bird as a Veterinary Science project animal!

4-H CAT PROJECT HEALTH SUPPLEMENT

4-H Veterinary Science project members investigate the normal health of several animal species. It's important that you become familiar with the normal health of your project animals so that you can recognize when one of your animals isn't well.

This cat project health supplement should acquaint you with the basic cat "normals."

Think about your feline. You are important to your cat or kitten because it's your job to keep her well and to know when she needs veterinary care.

Recognition of the following normal characteristics will help you and your veterinarian work as a team to keep your pet cat in good health.

You should keep a record of any abnormalities which do occur. This record will be important as a case history when your veterinarian begins to formulate a diagnosis.

Your cat's **attitude** is a characteristic with which only you are familiar. An abrupt or gradual change in your animal's behavior may be an indicator of sickness. Does your cat prefer to be alone or does she wind around your legs begging for attention? Does your cat enjoy lying on a sunny window sill or does she prefer a cool bathroom floor? Does your kitten really like playing with the puppy or does her hair stand on end and her tail swish threateningly from side to side? Take note of behavioral changes and try to identify the causes.

Your cat's normal **stance** should be well-balanced on four straight legs. Abnormal posture may indicate skeletal or muscular problems.

Normal feline **motion** should be free and effortless. A healthy cat moves with grace and strength. You may have observed your cat carefully stepping among items on a dresser top, or perhaps you've seen your kitten frightfully pounce on her mouse toy. Watch for lameness or lack of energy.

Keep track of your cat's **weight.** You should be able to feel your pet's ribs easily under a freely moveable coat of skin, fat and muscle. If you can't easily feel the ribs, your cat is too fat. Be concerned with a sudden or gradual weight loss also. This may be a sign of disease, parasitism, or improper feeding.

Your normal feline's **fur condition** is smooth and glossy. Your cat does a lot of grooming by herself, but help her with this chore. Groom your cat regularly. Watch for patches of hair loss. These may be signs of ringworm, a fungal disease which requires veterinary treatment.

Skin and mucous membrane (color and condition) are important indicators. Normally a cat's skin is soft, loose, and pliable. Tight skin may be a sign of water loss or dehydration. Mucous membranes line all body openings such as the eye, ear, nose, mouth, rectum, and vagina. These membranes should be pink and moist in a healthy cat. Dry, dark brown, gritty material in the ear canal is a sign of mites. Your cat's gums should be pink. Unhealthy gums may be pale, yellow, or red.

An obvious characteristic to notice about your project animal is her **bodily discharges.** Normal feces should be well-formed and firm. Abnormal excretions might be runny or filled with blood and mucus. Diarrhea is a sign of many disorders. Pink urine or frequent urination is important to notice. Many cats suffer from cystitis, a bladder infection.

What about your cat's **voice?** Felines are very vocal. Your cat will probably tell you if she isn't feeling well or if she's hungry. And happily, she may also purr, if she's content. Don't ignore your cat's meows. Your ability to listen is an important tool as is your power of observation. Most healthy animals have good appetites. However, this is not always the case with a finicky cat. Know your cat's diet and eating habits. Be careful if you change food. Be sure your cat's dishes are clean. Always provide plenty of water. Take note of the amount of water your cat normally consumes. An unusual increase or decrease may mean trouble. Report this to your veterinarian.

What is a cat's normal **heart beat, pulse rate,** and **temperature?** You can check these vital characteristics occasionally on your pet with the help of someone to gently restrain your cat.

You can feel the **heart beat** by placing your fingertips against your cat's chest just behind the point of elbow. The normal heart beats about 110-130 times per minute in the resting cat.

To take your cat's **pulse,** place your finger at the middle of the inside surface of rear leg near the point where the leg meets the body. This is were the femoral artery passes near the skin allowing you to feel the pulse. The heart rate and pulse rate should be the same. Count the heart beats or pulse for 15 seconds. Then multiply by four to calculate the rate per minute.

To take your cat's **temperature** shake the thermometer down to its lowest point. Lubricate it with vaseline. Insert it two inches into your cat's rectum and leave it there for two minutes. Hold your cat and thermometer firmly. Read the thermometer immediately after removing. The temperature should range from 100° to 102° F.

Practice recognizing and recording many of these normals on your cat every day. When you need to contact your veterinarian, be prepared with a complete report of all the signs you have noticed.

If you'd like further information on animal health, join the 4-H Veterinary Science project. You may use your cat as a Veterinary Science project animal!

4-H CAVY PROJECT HEALTH SUPPLEMENT

4-H Veterinary Science project members investigate the normal health of several animal species. It is important that you become familiar with the normal health of your project animals so that you can recognize when one of your animals isn't well.

This cavy project health supplement should acquaint you with the basic guinea pig "normals."

Think about your sow or boar guinea pig. If it is alert, on the move, and likes to chew, it is probably quite normal. You are important to your guinea pig because it's your job to keep it well and to know when it needs veterinary care.

Recognition of the following normal characteristics will help you and your veterinarian work as a team to keep your guinea pig in good health.

You should keep a record of any abnormalities which do occur. This record will be important as a case history when your veterinarian begins to formulate a diagnosis.

Your guinea pig's **attitude** is a characteristic with which only you are familiar. An abrupt or gradual change in your animal's behavior may be an indication of sickness. Does your guinea pig whistle when you open the refrigerator door? If she normally anticipates lettuce or carrots, a change in this behavior must have a reason. Try to find the cause.

Your guinea pig's **stance** is quite characteristic. Her short legs keep her low to the ground, although she may frequently stand on her hind legs to reach for food or water bottle.

The normal **movement** is a rapid scurrying about the cage. If your guinea pigs sits in one spot without moving for a long time, she could be hurt or sick.

Keep track of your guinea pig's **weight.** Normal weight varies with age and pregnancy. Most adult guinea pigs weigh about two pounds. You should be concerned about a sudden or gradual weight loss.

The **normal hair coat** depends on the variety of guinea pig, nutrition, disease, and age. The English variety normally has the shortest hair coat, while the Peruvian has long flowing hair when properly cared for. Yes, you do have to groom a Peruvian guinea pig! The Abyssinian has an intermediate hair coat with swirling cowlicks. All come in an array of colors, and all should be shiny, clean, and silky-smooth. A rough coat or hair loss in clumps is abnormal. You might suspect lice or mites. Some shedding is expected. Normal baby guinea pigs have hair when they are born!

Skin and mucous membranes (color and condition) are important indicators. Normal skin is soft, velvety, and pliable like elastic. The membranes which line all body openings should be moist and pink. If these are abnormal you might suspect dehydration or anemia.

Because you clean your pet's cage frequently, one of the most obvious characteristics to notice is **bodily discharges.** Fecal droppings should be firm, dry, and a little larger than rice grains. Diarrhea is often a sign of improper feeding, microorganism infection, or stress.

If your guinea pig doesn't seem to be feeling well, you might want to check her temperature. Clean a small rectal thermometer thoroughly and shake it down well below the normal range of 102.1° F. Lubricate it with KY or petroleum jelly. Be sure your pet is restrained properly. Insert the thermometer gently into the rectum and remove after one minute. Then read and record the temperature.

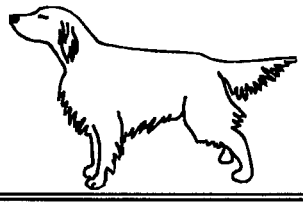
When you contact your veterinarian, be prepared with a complete report of all the signs you have noticed.

Practice recognizing normals on your guinea pig everyday.

If you'd like further information on animal health, join the 4-H Veterinary Science project. You may use your guinea pig as a project animal.

University of Wisconsin-Extension · 4-H Youth Development Programs

4-H DOG PROJECT HEALTH SUPPLEMENT



4-H Veterinary Science project members investigate the normal health of several animal species. It's important that you become familiar with the normal health of your project animal so that you can recognize when your pet isn't well.

This dog project health supplement should acquaint you with the basic "normals." Your ability to recognize the following characteristics will help you and your veterinarian work as a team to keep your dog in good health.

You should keep a record of any abnormalities which do occur. This record will be important as a case history when your veterinarian begins to formulate a diagnosis.

Your dog's **attitude** is a characteristic with which only you are familiar. An abrupt or gradual change in your pet's behavior may be an indication of sickness. Study your dog's eyes, facial expression, and body language. Tail wagging is an important mood indicator. A change in behavior must have a reason. Try to find the cause.

A dog's normal **stance** is well-balanced on four sturdy legs. His topline is normally level with his head held up proudly. Your dog may hang his head if he has been hurt or if he has done something wrong. Groveling at your feet is usually a sign of submission. This may be your dog's way of apologizing.

Some dogs prefer to sleep a lot. Others are extremely active. Some walk sluggishly. Others jump excitedly all over their owners and run until they collapse with exhaustion. All of these **movements** are normal for each individual. Know what **movement and gait** are normal for your dog's breed and age group. Limping is not normal. This is a characteristic you should be able to recognize.

Keep track of your dog's **weight.** Normal weight varies with breed, age, and pregnancy. Some dogs normally appear more "boney" such as an Afghan, while the pug is very filled out and heavily muscled. Be concerned with a sudden or gradual weight loss. This is a sign of several diseases or feeding problems. If your pet appears to be ravenous, allow him to eat. However, if he seems to be gaining weight after he has reached full growth, cut back on his food supply. The normal dog **coat condition** is smooth and glossy, although, this too varies with breed and age. Many breeds' hair coats change drastically in appearance from puppy to adult. Some breeds shed, others do not. Don't mistake normal seasonal shedding for hair loss caused by external or internal parasites, nutritional deficiencies, or other fur diseases. Flea infestation, ringworm, and dermatitis are all abnormal conditions you must recognize early so that your veterinarian can prescribe treatment.

Skin and mucous membranes (color and condition) are important indicators. Normally a dog or puppy's skin is soft, loose, and pliable. Tight skin may be a sign of water loss or dehydration. Mucous membranes line all body openings such as the eye, ear, nose, mouth, rectum and vagina. These membranes should be pink and moist in a healthy dog. Keep an eye on these areas. If any should become dry or reddened, your pet may need medical attention.

An obvious characteristic to notice on your project animal is his **bodily discharges.** Feces should be well-formed and firm. Urine is watery-yellow. Abnormal feces may be runny or may contain blood or mucus. Diarrhea is a sign of many ailments. Blood-tainted urine is also abnormal. Twice each year female dogs will have a bloody vaginal discharge. This is one of their normal signs of heat. This sign may go unnoticed if your bitch runs loose outside. The extent of this condition also varies from one female to another. A dog which drags its rectum on the ground frequently may have plugged anal glands.

What about your dog's **voice?** Most dogs (except the Basengi) use their vocal cords very effectively. Your pet's bark readily makes you aware of unexpected visitors, or perhaps his desire to go outside. You have probably learned to distinguish one type of bark from another. And, you can probably recognize your dog's bark from that of all other dogs. Your dog's yelp, whimper or whine may also let you know when he isn't feeling well. It's important that you listen to your dog. You re lucky to own a pet with such a wonderful ability to communicate with you!

A healthy dog has a good **appetite,** although some dogs like to eat too much. They don't regulate their food intake as well as some other animals do. Watch how much food your puppy or dog consumes in one sitting. Does he save some for later or gulp it all down rapidly? Know your pet's habits so you can recognize any abnormalities. Lack of appetite is a sign of illness or depression. You know you don't like to eat when you're not feeling well!

Unless your pet bites, his **teeth** may often go unnoticed. Aged dogs often have dental problems. Many veterinarians perform frequent dental checkups on canines. A puppy normally has 28 teeth. At six months a puppy normally loses and replaces these teeth with new ones bringing the final total to 42. You should recognize a tartar and calculi buildup or redness of gums. Your pet may need large dog bones and hard biscuits. Preventive dentistry is as important to your pet as it is to you.

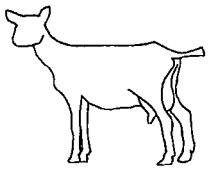
What is your pet's normal **temperature, heart rate, pulse** and **respiration?** Normal temperatures for a dog range between 100.0° and 102.8° F. You can easily take your dog's temperature. Use a rectal thermometer. Shake it down. Lubricate it with vaseline. With your dog standing, hold up his tail with one hand and insert the thermometer about two inches into the rectum. Remove after about two minutes and read the temperature.

Watch your dog's rib cage rise and fall or place a mirror in front of his nose. Count the number of breaths in 15 seconds and multiply by four. Your dog is breathing properly if he takes 12-20 breaths per minute. Normally your dog's heart will beat 100-140 times per minute. You can check this by placing your palm on the left side of the chest wall just behind the point of elbow to feel the beat. In larger breeds, with massive chest walls, you can check your dog's pulse by placing your palm inside his hind leg. By pressing lightly you can feel the blood pulsing through the femoral artery. This should be the same as the heart beat.

Practice recognizing and recording many of these normals on your dog everyday. When you need to contact your veterinarian, be prepared with a complete report of all the signs you have noticed.

If you'd like further information on animal health, join the 4-H Veterinary Science project. You may use your dog as a Veterinary Science project animal!

4-H DAIRY GOAT PROJECT HEALTH SUPPLEMENT



4-H Veterinary Science project members investigate the normal health of several animal species. It's important that you become familiar with the normal health of your project animals so that you can recognize when one of your animals isn't well.

This Dairy Goat project health supplement should acquaint you with the basic dairy goat "normals."

Think about your doe, buck, or wether. If your dairy goat is normal, she's probably lively, capricious (unpredictable), gregarious (sociable), hardy and resistant to disease. You are important to your goat because it's your job to keep her well and to know when she needs veterinary care.

Recognition of the following normal characteristics will help you and your veterinarian work as a team to keep your dairy goat in good health.

You should keep a record of any abnormalities which do occur. This record will be important as a case history when your veterinarian begins to formulate a diagnosis.

Your dairy goat's **attitude** is a characteristic with which only you are familiar. An abrupt or gradual change in your animal's behavior may be an indication of sickness. Does your doe normally come when you call her? Is she normally waiting for you by the gate at milking time? A change in this behavior must have a reason. Try to find the cause.

Your dairy goat's **stance** should be on squarely set, widely spaced, strong, straight legs. Her topline should be level and her head should be alertly carried. These traits will vary with breed and genetic background. However, disease or pain will also cause abnormal conformation. An arched back may indicate abdominal pain. An outstretched neck and sawhorse stance may imply breathing problems. When your doe hangs her head and looks depressed you can probably guess just how awful she feels.

The normal **gait** is a third characteristic with which to be familiar. Your doe should walk gracefully, your buck majestically and your wether probably obstinately! But whatever the movement, it should be well-coordinated. Jerking, limping or circling are signs of leg, feet or nervous system disorders. Keep track of your dairy goat's **weight.** Normal weight varies with breed, age, pregnancy, and stage of lactation. A pregnant doe soon to freshen will of course be heavier, but don't let your dry does get too fat. This could lead to various reproductive disorders. On the other hand, be sure to increase a heavily lactating doe's feed ration so she doesn't become too thin. You should be concerned with a sudden or gradual weight loss. This is a sign of several common dairy goat diseases, such as Johne's disease.

The normal dairy goat **hair coat condition** is smooth and glossy, although this also varies with breed and age. A Saanen exhibits a much shaggier coat than that of the slick-haired Nubian, for example. And we know a young kid's coat is soft and fluffy compared to the bristly hairs which remain on a body-clipped adult. If one of your animals has a rough coat or hair loss, you may start thinking of nutritional disease or parasitism.

Skin and mucous membrane (color and condition) are important indicators. Normally skin is soft, velvety-smooth and pliable like elastic. These traits can be easily observed on the mammary system. Some udder textures are better than others due to genetics, but a sick animal may have skin with hot spots due to infection and tight skin due to water loss or dehydration. Mucous membranes line all body openings such as the eye, ear, nose, mouth, anus, and vagina. Normally, these membranes should be moist and pink. Some membranes, such as those in your nose, possess tiny hair-like structures called cilia. Cilia prevent dust particles from traveling down your trachea to your lungs. If a membrane is dry or white rather than pink, your goat is not normal. When you press you goat's gum, color should return rapidly. If it does not, your animal may be anemic.

One of the most obvious characteristics to notice about your project animal is her **bodily discharges.** Normal discharges are from the anus and vulva. Fecal droppings should be round, firm and dry. Intestinal problems may cause droppings to become moist. Scours (diarrhea) with blood,

mucus or bad odor may even result. This may be caused by improper feeding, microorganisms, infection or stress. Whatever the reason, your ability to recognize the discharge abnormality may prevent dehydration and further trouble. Two normal discharges are released into the vulva. The urethra and vagina end just inside the vulva. So urine and vaginal secretions are kept separate until they exit the goat. Urine should be clear to yellow, not bloody. Vaginal secretions normally occur during the heat period (estrus) and vary from clear to cloudy. A thicker white discharge may be released after breeding. A thick mucous or bloody vaginal discharge may precede the water bag during kidding.

Your ability to recognize changes in these excretions may mean the difference between getting your doe bred or not.

Most discharges from the eyes, ears or nose are signs of irritation or infection and are not normal. Teary eyes or runny nose may be due to dusty hay or something more serious. You must keep track of these occurrences and use your best judgment.

Goats can't talk like people but they can be very **vocal,** some breeds more than others. For example, a Nubian owner must realize his animals "maa" at the slightest inconvenience. Saanen owners appreciate the calm manner and quiet **voice** for which their breed is known. A doe "bleats" more at milking time, when she's in heat, ready to freshen or separated from her kids. Your goat may call you if she isn't feeling well.

A healthy goat has a good **appetite.** She eats well, but doesn't like dirty or stalky hay. She can be very fussy about her feed. Dairy goats are browsers not grazers as are other ruminants. They can successfully digest twigs and bark but certainly prefer delicate alfalfa leaves. They don't like to eat things close to the ground. You've probably caught your goat stretching up the trunk of a tree to reach the leaves!

You should know if your doe devours her feed ravenously or gingerly minces through her grain. Know what is normal for your goat, so when her appetite changes you'll be aware that her health may have changed.

The first and largest compartment of your goat's stomach is the rumen, and it should be active if all is well. **Rumination** is easy to check. Watch the left side of your goat's abdomen or press and feel if you can't see movement. The rumen should rotate about twice each minute. If your doe's rumen isn't working she won't have a cud to chew either. Cud-chewing is called mastication. Belching of gas in the stomach is called eructation. Mastication, rumination and eructation are three processes necessary for proper digestion.

And you know how important digestion is to **milk production.** Do you know the average milk yield of your doe? Milk yield is influenced by genetic background, but a drop in milk production may signal disease such as mastitis. Five pounds or 2 1/2 quarts of milk per day is common for many does. This results in a record of 1,500 pounds of milk in 305 days or 10 months. Some do produce five pounds every day for 10 months, others peak in 30 to 90 days after freshening and drop off slowly.

This record depends on breed, age, lactation, genetics, and environment. Consider all these factors when you determine what is normal for your doe. You have a great influence on your doe's production. Proper management can improve milk yield and flavor. Inability to recognize normal yield, consistency, color or flavor can lead to disease.

Dairy goat milk is normally whiter than dairy cattle milk. (Yellow carotene is present in cow milk but is converted to Vitamin A in goat milk.)

Goat milk tastes delicious but may vary in richness depending on the breed of the goat. Nubians have a higher butter fat percentage (as do Guernseys), whereas Saanens produce larger yields and lower fat content (as do Holsteins). Protein content also affects flavor due to lipase enzyme activity. Feeding weeds, poor sanitation and improper cooling can off-flavor milk also.

It's important that you understand these relationships so that you can distinguish them from milk problems caused by disease. Mastitis causes lumpy, stringy, watery, bloody or off-flavored milk.

The following set of normals should be checked when any of the previous characteristics are noted to be abnormal.

Whenever you see an abnormal sign you can check your goat's **temperature** with a rectal thermometer. Clean the thermometer thoroughly and shake it down well below the normal range of 101° to 103° F. Lubricate it with KY or petroleum jelly. Be sure your goat is restrained properly.

Insert the thermometer gently into the rectum and remove after one minute. The normal temperature should be 102° F.

Hold you hand or mirror in front of your goat's nostrils to check her **respiration rate.** Twelve to 20 and sometimes 50 breaths per minute is normal. Warm weather may cause panting which is about 250 breaths per minute.

Listen for congestion with your ear against your goat's ribs or with a stethoscope. Congestion is a sign to report to your veterinarian.

Your goat's **pulse** should be strong and steady. Place your hand over the heart at the floor of the chest. Feel the pulse with your fingers, not your thumb. Your thumb has its own conflicting pulse. Fifty to 115 beats per minute is normal. Seventy-five is average.

Normal **blood pressure** is like yours, 120/80. This is difficult to check on a goat.

If membranes have indicated an abnormality to you, such as, anemia (pale pink or white), lack of oxygen (bluish) or jaundice (orange or yellow) your veterinarian may want to do a **blood count.** The normal hemoglobin content is 13 grams per milliliter of blood or 4.1 mg per 1,000 cells. The normal white cell count is 7,400 to 8,940 cells per milliliter. White blood cells are important in fighting disease. It's important that your veterinarian know these dairy goat normals because changes in any of these can help with diagnosis.

When you contact your veterinarian, be prepared with a complete report of all the signs you have noticed.

Practice recognizing normals on your dairy goat everyday.

If you'd like further information on animal health, join the 4-H Veterinary Science project. You may use your dairy goat as a project animal.

4-H FISH PROJECT HEALTH SUPPLEMENT

4-H Veterinary Science project members investigate the normal health of several animal species. It's important that you become familiar with the normal health of your project animals so that you can recognize when one of your animals isn't well.

This fish project health supplement should acquaint you with the basic fish "normals."

Think about your goldfish, tropical fish, or scavengers. You are important to them because it is your job to keep them well and to know when they need medical care.

Recognition of the following normal characteristics will help you and your veterinarian work as a team to keep your fish in good health.

You should keep a record of any abnormalities which do occur. This record will be important as a case history when your veterinarian begins to formulate a diagnosis.

Close observation and early recognition of problems is especially important to fish, as they tend to die more quickly when ill than other species. Fish owners often find their pets floating - underside up- before they even realize their pets weren't feeling well! Remember this important health fact: It is much easier to keep fish healthy than it is to cure them.

You are the person most familiar with your fish's normal **attitudes** and **behavior.** Does your fish hide behind plants? Healthy fish are active and keep their dorsal (back) fins erect. Folded fins suggest poor health. Fish constantly at the top of the aquarium indicate foul water and lack of oxygen. So take note of your fish's **movements** of individual fins and swimming habits about the fish bowl or aquarium.

Some sick fish may "shimmy." This wagging movement without changing position is usually the result of a chill affecting digestive organs.

Different species of fish have different **temperaments.** You should be aware of these when placing various species together in one tank.

Goldfish, for example, are peaceful. Rosy Barbs are peaceful, but also very active so they should not be kept with shy fish, such as, the Pearl Gourami. Tiger Barbs are fin nippers and shouldn't be kept with Angels.

Watch for changes in **behavior.** Never give your fish more food than they can clean up in 10 minutes. Your fish may prefer a varied diet, fed sparingly several times a day. The Swordtail does best on a variety of foods. The Peppered Catfish is a scavenger and will normally cleanup leftover food from the bottom. Another scavenger, the Sucker mouth, prefers to eat at night. The Silver Dollar fish will eat most plants except Java fern. You see how important it is that you know your fish's normal eating habits to keep them in good health.

Healthy fish have **skin** covered with beautifully colored, often ornamental, **scales.** This decorative characteristic may be the reason you chose your particular fish. The condition of your fish's body coverings is important to their health. Observe bodies, fins, mouths, and abdomens closely and daily. Notice signs of disease early. "Ich" is a contagious disease which appears as small white specks on fins and body. These cause your fish to itch and become listless. The condition can be easily treated. A white, cottony growth near the mouth is caused by a fungus and can also be treated. If your fish becomes gray, is listless, and refuses to eat, it may have Gill Rot. Medication will help this situation; but if not caught early your fish may die of suffocation.

Other important normals to be aware of are whether your fish species is a **live bearer** or **egg layer.** You may need to provide special equipment for your fish's form of **reproduction.** Also take note, all fish are more prolific during warm weather.

Different species require different, but very specific, **temperature** ranges. Goldfish shouldn't be kept with warm water fish since they prefer a temperature of 68° F. Most popular tropical fish thrive in 75° F water and slightly acid water of pH 6.8. Carefully maintaining this temperature and pH is your most important job.

Fish also have normal bodily discharges. They can even become constipated.

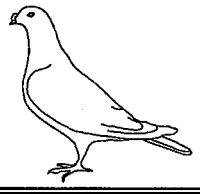
Observing your fish may not be enough. Keep track of the entire **aquarium condition.** Only growing and healthy plants liberate oxygen. Your fish's home may need additional aeration. Watch for algae. This fine, green plant growth is caused by an excess of light. Algae should be removed and light reduced.

You can estimate your fish's **breathing rate** by observing and counting the gill openings and closings. An increase in your fish's normal count may indicate lack of oxygen in the water.

Practice recognizing and recording many of these normals on your fish every day. When you need to contact your veterinarian or consult a fish care guide, you will be prepared with a complete report of all the signs you have noticed.

If you'd like further information on animal health, join the 4-H Veterinary Science project. You may use your fish as a Veterinary Science project animal!

4-H PIGEON PROJECT HEALTH SUPPLEMENT



4-H Veterinary Science project members investigate the normal health of several animal species. It's important that you become familiar with the normal health of your project animals so that you can recognize when one of your animals isn't well.

This pigeon project health supplement should acquaint you with the basic pigeon "normals."

Think about your racing, homing, meat, or exhibition pigeons. You are important to them because it's your job to keep them well and to know when your flock needs veterinary attention.

Recognition of the following normal characteristics will help you and your veterinarian work as a team to keep your pigeons in good health.

You should keep a record of abnormalities which do occur. This record will be important as a case history when your veterinarian begins to formulate a diagnosis. This is one reason why it is important to band your birds.

Your bird's **attitude** is a characteristic with which only you are familiar. Who is your bird's mate? How do they relate to each other? Are they in their courting, egg producing, or squab rearing stage? Watch for changes in your bird's behavior. Ill health, time of day, or season of the year may affect his moods. Normally pigeon mates are paired to each other for life. However, if a mating is broken by death or separation, the birds will mate again with other birds.

A pigeon's normal **behavior** from courting to squab rearing generally follows specific stages. After mating, a pair will build a nest and lay two eggs, each one day apart. It's important that you provide more than one nest because pigeons will lay eggs in a second nest while feeding squabs in the first.

Egg incubation takes 17 days. The second egg laid hatches 24 hours after the first. Therefore, one bird is older and often dominates the younger.

Pigeons feed their young "pigeon milk" - a combination of the parents crops' secretions and partially digested feed.

The parent pigeons push their fat, full size, 4-week old squabs out of the nest to start another pair of eggs. The squabs become sleek and trim while learning to eat on their own.

Your bird's **stance** or **movement** is, of course, very different from that of other animals because a bird is able to perch and fly! Observe how your bird uses its limbs for climbing and perching. How does he curl his toes for grasping? Notice a pigeon has four toes on each foot. How does he use his wings and body weight to balance?

You can train your pigeon to stand more erect, to hold its tail upright, and to carry its wings and head properly by applying slight pressure to specific areas with a "show stick." Your bird may begin to "show" herself normally whenever someone comes near to observe her.

You will probably notice that each of your pigeons has its own characteristic flight pattern. Some breeds are known for their fancy maneuvers, loops, and tumbling.

Be aware of each bird's normal movements so that you will recognize any problems early.

Keep track of your bird's **weight.** As we've mentioned, squabs are normally fat until they're pushed out of the nest. Pigeons eat a lot of food but keep their stream-lined appearance by burning up a lot of energy. A loss of **appetite** could be very harmful to your bird. Take note of your pigeon's water intake. Pigeons drink by dipping their beak as chickens do. So, you must make sure that their water is at least 3/4 of an inch deep.

Bird **skin** has many remarkable modifications: feathers, scales, claws, and the preen gland. You should be familiar with the appearance of these structures in your healthy bird so they might serve as illness indicators should they become abnormal.

All birds can fluff their **feathers** to form air pockets which insulate them against the cold. Watch for a ruffled appearance. You may be housing your birds in a drafty area. Gently unfold your bird's wing. You should see all the flight feathers. Near

your bird's skin are the insulating down feathers. Worn out feathers must be replaced. Shedding feathers is called molting. This is a normal process. Pigeons molt in the fall and produce very few young during this time. Failure to lose frayed feathers is a sign of illness.

Protective leg **scales** often become thick and pointed as your bird ages. This is normal.

Pigeons like to take baths once each week to keep their skin and feathers clean.

Your pigeons should have bright, alert **eyes.** They should not be watery or puffy - signs of a cold. The eye lining should be smooth and pink. The pupils should be the same size and shape. The cornea should be clear.

Locate your bird's **ear.** It's behind and below the eye. Of course there are no heavy ear lobes! Check for discharges, swelling or cuts. If your bird appears wobbly, his inner ear balancing mechanism may have become injured.

An obvious characteristic for you to keep track of is your bird's **bodily discharges.** Your bird's droppings may become loose if you're feeding only pellets. A mixture of grain and pellets will correct this. Your bird excretes urine as a part of its feces. A decrease in droppings may mean your pet is not eating as much as normal. Regurgitation is normal in pigeons when they are feeding their young.

What about your pet's **voice?** Pigeons make beautiful cooing sounds. A male coos to his mate before breeding and may "talk angrily" to her to drive her into the nest.

You can estimate your bird's **heart rate** by placing your fingers against your bird's chest. The normal heart rate is fast and difficult to count.

Check your bird's **breathing rate.** Your bird's lungs expand when the chest expands.

Practice recognizing and recording many of these normals on your birds everyday. When you need to contact your veterinarian, be prepared with a complete report of all the signs you have noticed.

If you'd like further information on animal health, join the 4-H Veterinary Science project. You may use your pigeons as a Veterinary Science project.

MINNESOTA 4-H PROJECT MEETING GUIDES

VETERINARY SCIENCE

....to develop
project and life skills

VETERINARY SCIENCE

SELECTING 4-H VETERINARY SCIENCE PROJECT MEETING TOPICS

THOMAS D. ZURCHER
Extension Specialist, 4-H Youth Development

IMPORTANCE OF THE TOPIC

This project meeting guide is designed to help you and your 4-H project members identify the topics you will explore at your five or more yearly project meetings. Following each activity is a (1), (2), or (3) to give you an indication of the degree of experience it will usually require for a 4-H'er to be able to demonstrate this skill to others. The higher the number the more experience needed. If your learn-by-doing activities can be sequenced so your members may build on what they already know, a better learning experience will result. You will find a line preceding each topic for you to write in the date of the meeting at which your members will explore that particular topic. Check with your extension agent for the availability of project meeting guides for the topics you and your members choose.

The project meeting guide "Planning The Project Group's Yearly Program" will help your group get off to a good start.

VETERINARY SCIENCE

The 4-H veterinary science materials are divided into three units with 8-9 lessons per unit.

Unit I, The Normal Animal

____Comparing Attitudes & Behaviors Of Animals
____Investigating The Skin, Membranes & Intestinal Discharges
____Taking Body Temperature, Pulse & Respiration Rate
____Maintaining Animal Health
____Cleaning & Disinfection
____Understanding The Cells Of The Animal Body
____Comparing The Tissues Of The Animal Body
____Discovering The Organs & Cysts Of The Animal Body

VETERINARY SCIENCE

VISITING A VETERINARIAN

Thomas D. Zurcher
Extension Specialist, 4-H Youth Development
Michael M. Pullen
Extension Veterinarian

IMPORTANCE OF THE TOPIC

The veterinarian plays an important role in maintaining the health of farm animals and pets. A visit to a veterinary clinic or riding on rounds with a veterinarian is an opportunity for 4-H'ers to explore possible career opportunities as well as to become more interested and knowledgeable about the welfare of animals.

WHAT THE 4-H'ers WILL ACCOMPLISH

1. Discover parasite eggs under a microscope.
2. Listen to the heart sounds of an animal.
3. Find out what a veterinarian does.

PREPARING FOR THE VISIT

Several opportunities are available for the members to develop important life skills as they prepare to visit a veterinarian at a clinic. As much as possible you will want them to make the appointment; prepare a list of questions to ask; and discuss ahead of time what they believe a veterinarian does.

Whoever makes the appointment will want to help the veterinarian prepare for the visit by asking to do or see specific procedures and parts of the clinic. Possibilities include:

- Check a feces sample for parasite eggs.
- Look at a slide of a blood sample.
- Observe the various parts of the clinic.
- See how animals are restrained.
- See examples of hearts with heart worm disease.
- Follow an animal through a typical physical exam.
- See what's included in a mobile unit (large animal).
- Find out the vaccinations that are needed for their pets.
- Listen to a heart beat.
- See a broken bone or evidence of pneumonia, or a foreign body on an x-ray.
- Check on animal's eyelids, eardrum, and nostrils.
- Take an animal's temperature.
- Observe cleaning an animal's teeth
- Observe how to give medication.

Members interested in exploring career possibilities related to medicine may want to prepare a separate set of questions such as the following:

- Why did you want to become a veterinarian?
- What kind of education do you need to become a veterinarian, veterinary technician, receptionist, or assistant?
- How can I best prepare myself for one of these positions?
- What job opportunities or volunteer work is available in order to see if I would enjoy medicine?

VISITING THE CLINIC

Know ahead of time, if possible, the procedure the veterinarian would like to follow so the time will be used wisely. You and your junior leader(s) may want to volunteer to assist if the group is large and a rotation through the various activities is planned. Nametags will help the veterinary staff relate to each 4-H'er.

4-H ANIMAL SCIENCE
PROJECT MEETING GUIDE, AS-120, '85

VETERINARY SCIENCE

EXAMINING A HEALTHY ANIMAL

Thomas D. Zurcher
Extension Specialist, 4-H Youth Development
Michael M. Pullen
Extension Veterinarian

IMPORTANCE OF THE TOPIC

To recognize when something is wrong with their animals the members need to know their animals' normal attitudes, habits, temperatures, skin conditions, movements, appetites, and sounds.

WHAT THE 4-H'ers WILL ACCOMPLISH

By closely examining an animal the members will develop the following:

1. The ability to observe closely and make comparisons
2. The ability to recognize a normal animal
3. A stronger human-animal bond

PREPARE FOR THE MEETING

Read: This guide plus the guide on taking temperature, pulse and respiration rate and the 4-H Veterinary Science Unit I material if available.

Supplies: One or more species of animal, a rectal thermometer, lubricant (Vaseline petroleum jelly), copies of the animal examination chart for each team of 2-3 members.

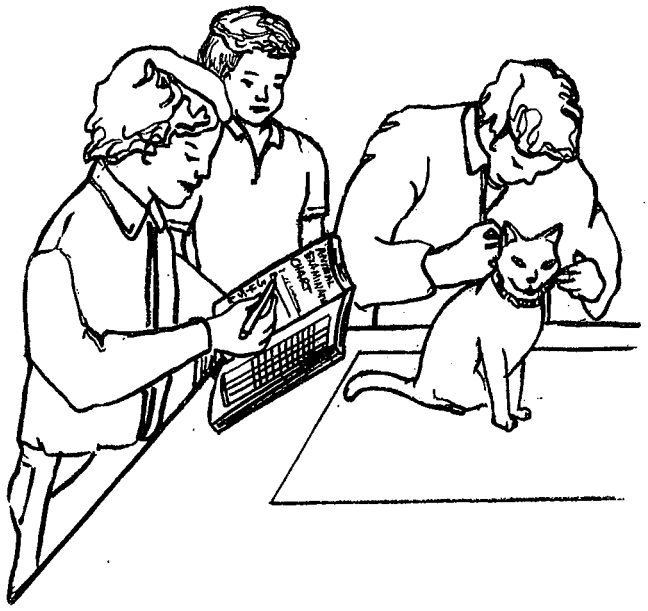
Making an animal examination chart. The charts may be made up ahead of time or you may simply have one team member write the following information down on an $8\frac{1}{2} \times 11$ piece of notebook paper:

Animal Examination Chart

4-H'ers name_____

Animal's name_____

Characteristics to Examine	*Observations*
1. Animal's attitude	
2. Stance and movements	
3. Sounds	
4. General condition	
5. Skin (texture, color)	
6. Coat (type, length of hair, shiny or dull, parasites)	
7. Head and neck	
8. Mucous membranes	
9. Ears	
10. Eyes	
11. Respiration rate	
12. Heart beat (pulse rate)	
13. Temperature	



INVOLVING THE 4-H'ers

Roll call idea: Have the members respond by telling how they know when their animal is really happy and contented.

Your 4-H'ers will enjoy the opportunity to discover on their own or as a part of a team what the signs of a normal animal are rather than being told or shown. One way to do this is to have the 4-H'ers divide into teams and play the role of veterinarians. If a calm animal which can be easily restrained is available for each team of 2-3 members this works best. Simply divide them into teams, give them the supplies previously mentioned and a realistic situation and task to do.

Situation: You have been asked to carefully examine this animal and record your findings.

Your Task: Enter on the chart what you observe.

After a brief look at the various categories on the chart your members will be ready to see what they can find. By simply moving from team to team you will be able to answer their questions with questions and think of followup questions to ask after each team has presented its report. This experiential learning approach is summarized in the following diagram.

VETERINARY SCIENCE

TAKING AN ANIMAL'S TEMPERATURE, PULSE, AND RESPIRATION RATE

Michael M. Pullen
Extension Veterinarian
Thomas D. Zurcher
Extension Specialist, 4-H Youth Development

IMPORTANCE OF THE TOPIC

A change in an animal's body temperature, pulse rate and respiratory rate may occur as a result of the body's response to an infection or a noninfectious problem. The ability of your members to note these changes along with the signs will result in earlier identification of the problem and earlier treatment.

WHAT THE 4-H'ers WILL ACCOMPLISH

By actively participating in this meeting, member will do the following:

1. Take, then record an animal's temperature, pulse and respiration rate (TPR)
2. Compare TPR of different farm animals.
3. Develop the life skills of relating to others, critical observation, and comparing information.

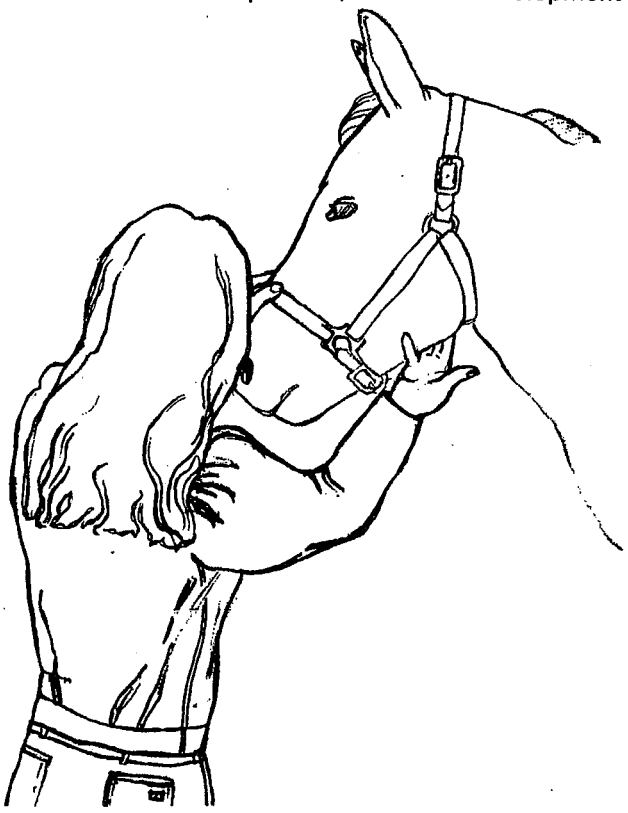
PREPARE FOR THE ACTIVITY

Equipment: veterinary rectal thermometer with string and clip, human oral thermometer, watch with sweep second hand, stethoscope, animal, paper, and pencils.

If you are not sure how to take TPR after studying this guide and other materials available such as the 4-H Veterinary Science manual, you may want to visit with your veterinarian or another knowledgeable person.

FACILITATE THE ACTIVITY

1. To find out how much your 4-H'ers know about the topic ask them to first practice taking TPR on themselves and then recording the results. These results can then be compared later to the animal's. The difference between a human and veterinary thermometer can also be discussed. If some members do not know how to take any of the measurements, attempt to pair them up with someone who does so development of leadership skills can be encouraged. As followup, ask the members to explain how they obtained their results.
2. In order to make the activity even more realistic, consider dividing your members into teams of 2-4 and give them a situation and task to respond to plus the equipment necessary to satisfactorily complete it. Here is an example:



Situation: Your animal does not appear normal and you decide to check its vital signs (TPR).

Your Task: Take your animal's temperature, pulse, and respiratory rate and compare them with those of a normal animal (see graph).

By giving the members the responsibility for determining on their own, without first being told or shown how, they will not only work together to develop TPR skills but also valuable life skills they can apply to other situations. The following model suggests additional steps which you as the leader will find helpful as you help 4-H'ers build on this initial experience.

3. If available, have the members take TPR on different species and different sizes of animals in the same species. Have each one record findings and compare results with each other and the chart contained in this guide.

The questions and answers plus the accompanying table listing the vital functions for different species will assist you.

4-H ANIMAL SCIENCE
PROJECT MEETING GUIDE, AS-122, '85

VETERINARY SCIENCE

ADMINISTERING MEDICATION TO ANIMALS

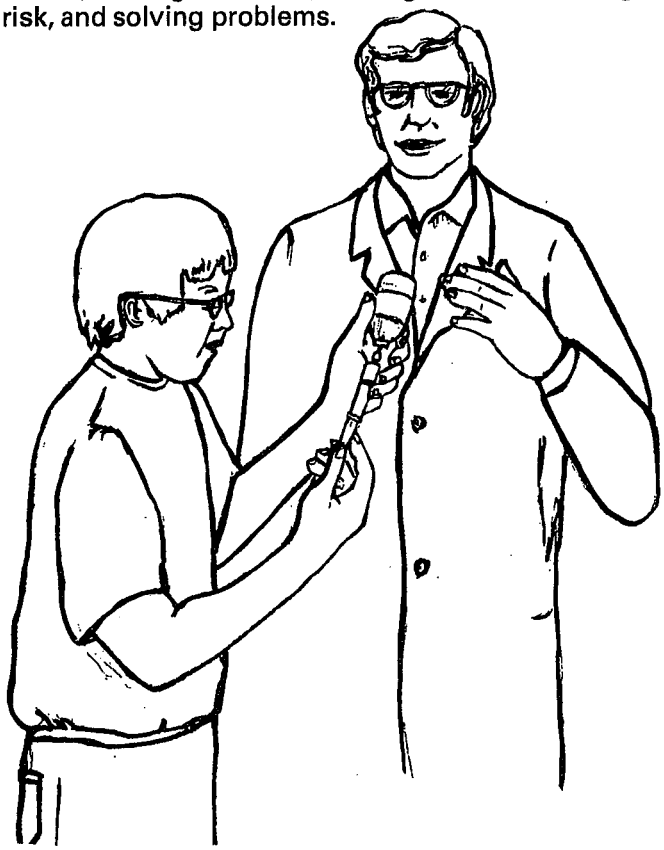
Michael M. Pullen
Extension Veterinarian
Thomas D. Zurcher
Extension Specialist, 4-H Youth Development

IMPORTANCE OF THE TOPIC

Several routine management practices require that medication be given to animals. Some types should only be given by a veterinarian while others may be given by 4-H members when the need arises. The 4-H'er who is familiar with the different terminology and procedures will be ready to respond to situations as they occur.

WHAT YOUR 4-H'ers WILL ACCOMPLISH

1. Read a medication label and explain the essential information.
2. Demonstrate how to administer at least five different drugs important to their animals.
3. Further develop the life skills of expressing themselves, making decisions, reading directions, taking risk, and solving problems.



PREPARE FOR THE MEETING

A little time spent planning the meeting, reviewing the resource material and collecting the supplies required will often mean the difference between a very hectic meeting and a very exciting one for both you and your members. Most all the activities suggested in this guide may be done in the kitchen or living room.

Supplies: *Drug containers calling for different administration procedures; one or more model animals such as those made from University of Minnesota 4-H Animal Patterns and/or oranges.

*Collect or ask the 4-H'ers to collect examples of as many of the following medications and applicators as possible for the meeting:
Topical Medications—Ointment, aqueous solution, powder, aerosols
Oral Medications—tablet, pill, capsule (balling gun, drenching gun, dose syringe)
Injectable Medications—variety of bottled medications plus 1, 5, 10, and 20 cc syringes and 22 gauge 1 inch and 18 gauge 1½ inch needles.

Leaders have found that by asking each 4-H'er to bring one or more of the supplies to the meeting more interest is generated.

INVOLVING THE MEMBERS

The goal of the following activities will be to help the 4-H'ers figure out the many ways drugs can be administered, the meaning of each of these sometimes confusing words, reading a drug label, and finally practicing administering an assortment of drugs in different ways. As with any 4-H group activity the more the members can learn by doing before being told or shown how, the greater the opportunity for them to develop important personal life skills as they develop animal management skills. Your role is that of a coach or encourager—one who helps others learn for themselves—rather than an up-front teacher who lectures or demonstrates and then has the members repeat what was just said or shown.

VETERINARY SCIENCE

SELECTING 4-H VETERINARY SCIENCE PROJECT MEETING TOPICS

THOMAS D. ZURCHER
Extension Specialist, 4-H Youth Development

IMPORTANCE OF THE TOPIC

This project meeting guide is designed to help you and your 4-H project members identify the topics you will explore at your five or more yearly project meetings. Following each activity is a (1), (2), or (3) to give you an indication of the degree of experience it will usually require for a 4-H'er to be able to demonstrate this skill to others. The higher the number the more experience needed. If your learn-by-doing activities can be sequenced so your members may build on what they already know, a better learning experience will result. You will find a line preceding each topic for you to write in the date of the meeting at which your members will explore that particular topic. Check with your extension agent for the availability of project meeting guides for the topics you and your members choose.

The project meeting guide "Planning The Project Group's Yearly Program" will help your group get off to a good start.

VETERINARY SCIENCE

The 4-H veterinary science materials are divided into three units with 8-9 lessons per unit.

Unit I, The Normal Animal

___Comparing Attitudes & Behaviors Of Animals
___Investigating The Skin, Membranes & Intestinal Discharges
___Taking Body Temperature, Pulse & Respiration Rate
___Maintaining Animal Health
___Cleaning & Disinfection
___Understanding The Cells Of The Animal Body
___Comparing The Tissues Of The Animal Body
___Discovering The Organs & Cysts Of The Animal Body

VETERINARY SCIENCE

VISITING A VETERINARIAN

Thomas D. Zurcher
Extension Specialist, 4-H Youth Development
Michael M. Pullen
Extension Veterinarian

IMPORTANCE OF THE TOPIC

The veterinarian plays an important role in maintaining the health of farm animals and pets. A visit to a veterinary clinic or riding on rounds with a veterinarian is an opportunity for 4-H'ers to explore possible career opportunities as well as to become more interested and knowledgeable about the welfare of animals.

WHAT THE 4-H'ers WILL ACCOMPLISH

1. Discover parasite eggs under a microscope.
2. Listen to the heart sounds of an animal.
3. Find out what a veterinarian does.

PREPARING FOR THE VISIT

Several opportunities are available for the members to develop important life skills as they prepare to visit a veterinarian at a clinic. As much as possible you will want them to make the appointment; prepare a list of questions to ask; and discuss ahead of time what they believe a veterinarian does.

Whoever makes the appointment will want to help the veterinarian prepare for the visit by asking to do or see specific procedures and parts of the clinic. Possibilities include:

- Check a feces sample for parasite eggs.
- Look at a slide of a blood sample.
- Observe the various parts of the clinic.
- See how animals are restrained.
- See examples of hearts with heart worm disease.
- Follow an animal through a typical physical exam.
- See what's included in a mobile unit (large animal).
- Find out the vaccinations that are needed for their pets.
- Listen to a heart beat.
- See a broken bone or evidence of pneumonia, or a foreign body on an x-ray.
- Check on animal's eyelids, eardrum, and nostrils.
- Take an animal's temperature.
- Observe cleaning an animal's teeth
- Observe how to give medication.

Members interested in exploring career possibilities related to medicine may want to prepare a separate set of questions such as the following:

- Why did you want to become a veterinarian?
- What kind of education do you need to become a veterinarian, veterinary technician, receptionist, or assistant?
- How can I best prepare myself for one of these positions?
- What job opportunities or volunteer work is available in order to see if I would enjoy medicine?

VISITING THE CLINIC

Know ahead of time, if possible, the procedure the veterinarian would like to follow so the time will be used wisely. You and your junior leader(s) may want to volunteer to assist if the group is large and a rotation through the various activities is planned. Nametags will help the veterinary staff relate to each 4-H'er.

4-H ANIMAL SCIENCE
PROJECT MEETING GUIDE, AS-120, '85

VETERINARY SCIENCE

EXAMINING A HEALTHY ANIMAL

Thomas D. Zurcher
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Michael M. Pullen
Extension Veterinarian

IMPORTANCE OF THE TOPIC

To recognize when something is wrong with their animals the members need to know their animals' normal attitudes, habits, temperatures, skin conditions, movements, appetites, and sounds.

WHAT THE 4-H'ers WILL ACCOMPLISH

By closely examining an animal the members will develop the following:

1. The ability to observe closely and make comparisons
2. The ability to recognize a normal animal
3. A stronger human-animal bond

PREPARE FOR THE MEETING

Read: This guide plus the guide on taking temperature, pulse and respiration rate and the 4-H Veterinary Science Unit I material if available.

Supplies: One or more species of animal, a rectal thermometer, lubricant (Vaseline petroleum jelly), copies of the animal examination chart for each team of 2-3 members.

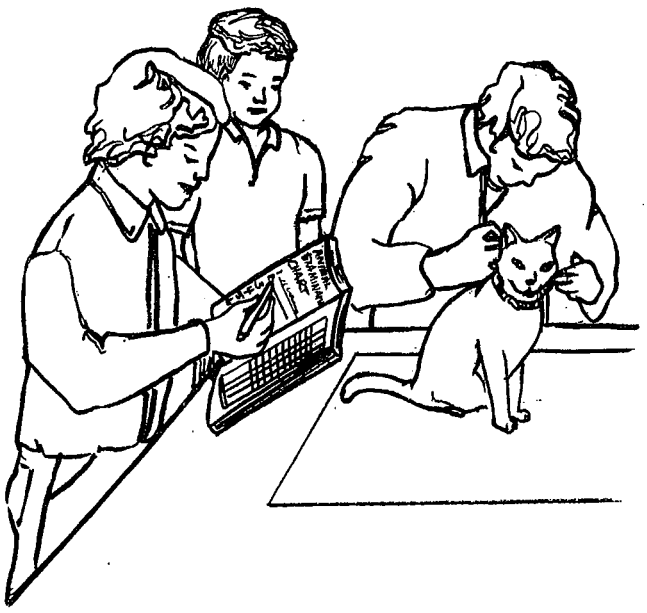
Making an animal examination chart. The charts may be made up ahead of time or you may simply have one team member write the following information down on an 8½ × 11 piece of notebook paper:

Animal Examination Chart

4-H'ers name_____

Animal's name_____

Characteristics to Examine	*Observations*
1. Animal's attitude	
2. Stance and movements	
3. Sounds	
4. General condition	
5. Skin (texture, color)	
6. Coat (type, length of hair, shiny or dull, parasites)	
7. Head and neck	
8. Mucous membranes	
9. Ears	
10. Eyes	
11. Respiration rate	
12. Heart beat (pulse rate)	
13. Temperature	



INVOLVING THE 4-H'ers

Roll call idea: Have the members respond by telling how they know when their animal is really happy and contented.

Your 4-H'ers will enjoy the opportunity to discover on their own or as a part of a team what the signs of a normal animal are rather than being told or shown. One way to do this is to have the 4-H'ers divide into teams and play the role of veterinarians. If a calm animal which can be easily restrained is available for each team of 2-3 members this works best. Simply divide them into teams, give them the supplies previously mentioned and a realistic situation and task to do.

Situation: You have been asked to carefully examine this animal and record your findings.

Your Task: Enter on the chart what you observe.

After a brief look at the various categories on the chart your members will be ready to see what they can find. By simply moving from team to team you will be able to answer their questions with questions and think of followup questions to ask after each team has presented its report. This experiential learning approach is summarized in the following diagram.

VETERINARY SCIENCE

TAKING AN ANIMAL'S TEMPERATURE, PULSE, AND RESPIRATION RATE

Michael M. Pullen
Extension Veterinarian
Thomas D. Zurcher
Extension Specialist, 4-H Youth Development

IMPORTANCE OF THE TOPIC

A change in an animal's body temperature, pulse rate and respiratory rate may occur as a result of the body's response to an infection or a noninfectious problem. The ability of your members to note these changes along with the signs will result in earlier identification of the problem and earlier treatment.

WHAT THE 4-H'ers WILL ACCOMPLISH

By actively participating in this meeting, member will do the following:

1. Take, then record an animal's temperature, pulse and respiration rate (TPR)
2. Compare TPR of different farm animals.
3. Develop the life skills of relating to others, critical observation, and comparing information.

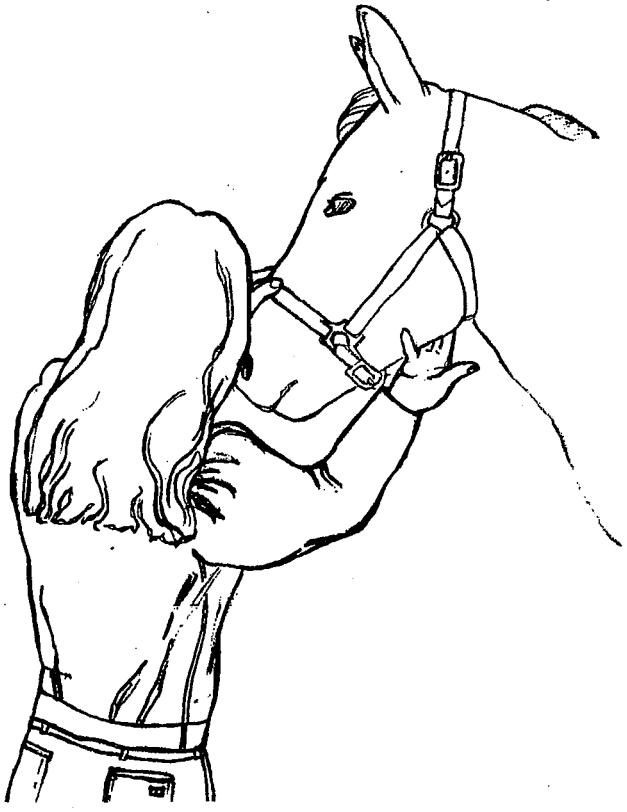
PREPARE FOR THE ACTIVITY

Equipment: veterinary rectal thermometer with string and clip, human oral thermometer, watch with sweep second hand, stethoscope, animal, paper, and pencils.

If you are not sure how to take TPR after studying this guide and other materials available such as the 4-H Veterinary Science manual, you may want to visit with your veterinarian or another knowledgeable person.

FACILITATE THE ACTIVITY

1. To find out how much your 4-H'ers know about the topic ask them to first practice taking TPR on themselves and then recording the results. These results can then be compared later to the animal's. The difference between a human and veterinary thermometer can also be discussed. If some members do not know how to take any of the measurements, attempt to pair them up with someone who does so development of leadership skills can be encouraged. As followup, ask the members to explain how they obtained their results.
2. In order to make the activity even more realistic, consider dividing your members into teams of 2-4 and give them a situation and task to respond to plus the equipment necessary to satisfactorily complete it. Here is an example:



Situation: Your animal does not appear normal and you decide to check its vital signs (TPR).

Your Task: Take your animal's temperature, pulse, and respiratory rate and compare them with those of a normal animal (see graph).

By giving the members the responsibility for determining on their own, without first being told or shown how, they will not only work together to develop TPR skills but also valuable life skills they can apply to other situations. The following model suggests additional steps which you as the leader will find helpful as you help 4-H'ers build on this initial experience.

3. If available, have the members take TPR on different species and different sizes of animals in the same species. Have each one record findings and compare results with each other and the chart contained in this guide.

The questions and answers plus the accompanying table listing the vital functions for different species will assist you.

4-H ANIMAL SCIENCE
PROJECT MEETING GUIDE, AS-122, '85

VETERINARY SCIENCE

ADMINISTERING MEDICATION TO ANIMALS

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IMPORTANCE OF THE TOPIC

Several routine management practices require that medication be given to animals. Some types should only be given by a veterinarian while others may be given by 4-H members when the need arises. The 4-H'er who is familiar with the different terminology and procedures will be ready to respond to situations as they occur.

WHAT YOUR 4-H'ers WILL ACCOMPLISH

1. Read a medication label and explain the essential information.
2. Demonstrate how to administer at least five different drugs important to their animals.
3. Further develop the life skills of expressing themselves, making decisions, reading directions, taking risk, and solving problems.

PREPARE FOR THE MEETING

A little time spent planning the meeting, reviewing the resource material and collecting the supplies required will often mean the difference between a very hectic meeting and a very exciting one for both you and your members. Most all the activities suggested in this guide may be done in the kitchen or living room.

Supplies: *Drug containers calling for different administration procedures; one or more model animals such as those made from University of Minnesota 4-H Animal Patterns and/or oranges.

*Collect or ask the 4-H'ers to collect examples of as many of the following medications and applicators as possible for the meeting:
Topical Medications—Ointment, aqueous solution, powder, aerosols
Oral Medications—tablet, pill, capsule (balling gun, drenching gun, dose syringe)
Injectable Medications—variety of bottled medications plus 1, 5, 10, and 20 cc syringes and 22 gauge 1 inch and 18 gauge 1 1/2 inch needles.

Leaders have found that by asking each 4-H'er to bring one or more of the supplies to the meeting more interest is generated.

INVOLVING THE MEMBERS

The goal of the following activities will be to help the 4-H'ers figure out the many ways drugs can be administered, the meaning of each of these sometimes confusing words, reading a drug label, and finally practicing administering an assortment of drugs in different ways. As with any 4-H group activity the more the members can learn by doing before being told or shown how, the greater the opportunity for them to develop important personal life skills as they develop animal management skills. Your role is that of a coach or encourager—one who helps others learn for themselves—rather than an up-front teacher who lectures or demonstrates and then has the members repeat what was just said or shown.

4-H RABBIT PROJECT HEALTH SUPPLEMENT

4-H Veterinary Science project members investigate the normal health of several animal species. It's important that you become familiar with the normal health of your project animals so that you can recognize when one of your animals isn't well.

This rabbit project health supplement should acquaint you with the basic "normals."

Think about your doe or buck. If your rabbit is normal she/he is probably quite sturdy, gentle, content, and unexcitable. It's easy to ignore such a quiet pet. Observe your bunny daily to maintain her good health. You are important to your rabbit because it's your job to keep her well and to know when she needs veterinary care.

Recognition of the following normal characteristics will help you and your veterinarian work as a team to keep your rabbit in good health.

You should keep a record of any abnormalities which do occur. This record will be important as a case history when your veterinarian begins to formulate a diagnosis.

Your rabbit's **attitude** is a characteristic with which only you are familiar. An abrupt or gradual change in your animal's behavior may be an indication of sickness. Is your doe normally crabby when you handle her? Does your buck regularly stomp in his cage when he wants fresh water or pellets? Most rabbits carry a look of continuous disinterest as their facial expression. It's difficult to measure attitude from a rabbit's eyes. But maybe your bunny is different. Do you think she smiles or scowls? A change in behavior must have a reason. Try to find the cause.

Your rabbit's **stance** varies. Most rabbits sit with hind legs hidden under their bellies, and forelegs in front of their chests. A doe often rests her head on her fluffy dewlap as if it were a built in pillow! Some rabbits "flip" onto their sides to sleep when they're really tired. You should know whether or not your rabbit does this, or should you suddenly see your bunny flat out on its side you would be needlessly alarmed!

Your rabbit may often "sit up" on her hind legs for a special carrot treat or as a request to be released from her cage. A rabbit's topline is normally rounded. Ears may be erect or flop down depending on breed. Abnormalities in these characteristics may be genetic or due to disease. Myxomatosis causes a rabbit's ears to fall down and nose to appear rounded due to fluid accumulation. However, the French and English Lop rabbits normally have roman noses and floppy ears.

The rabbit's normal **gait** is to hop. Your rabbit may also appear to walk when moving very slowly to nibble grass or sniff flowers. Take note if your rabbit stumbles or drags a limb. A rabbit's light bone structure injures easily. Problems with movement could imply paralysis due to a neurological disorder. Handle your rabbit properly so she doesn't struggle and fall. She could easily damage her back or spinal column.

Keep track of your rabbit's **weight.** Normal weight varies with breed, age, and pregnancy. A tiny adult Polish rabbit weighs about 2 1/2 pounds, while a French Angora may surpass 8 pounds, and a Flemish Giant tips the scale at 22! Increase feed gradually to maintain your pregnant doe's weight. Be concerned with a sudden or gradual weight loss. This is a sign of several rabbit disease problems, such as, parasitism or pseudotuberculosis.

The normal rabbit **fur condition** is smooth and glossy, although this varies with breed and age. Don't mistake normal seasonal fur shedding for hair loss caused by ticks or other fur diseases. A six to fifteen week old rabbit normally molts. This is not abnormal, but adding one-half teaspoon of vegetable oil to the diet per day will help replace lost natural oils.

Scruffy fur may indicate mucoid enteritis. Circular patches of hair loss are signs of ringworm, a fungal disease. Formation of crusts in the ears are signs of ear mites. You should notice these abnormal conditions early so that your veterinarian can prescribe treatment.

Skin and mucous membranes (color and condition) are important indicators. Normally a rabbit's skin is soft, loose, and pliable. Tight skin may be a sign of water loss or dehydration. Mucous membranes line all body openings, such as, the eye, ear, nose, mouth, rectum, and vagina. These

membranes should be pink and moist in a healthy rabbit. Skin rash or scabs may indicate rabbit pox or vent disease. Wet dewlap or hutch burn may redden skin.

An obvious characteristic to notice on your project animal is her **bodily discharges.** Fecal droppings should be round, firm, black, and dry during the day. However, a rabbit releases two types of droppings. At night softer, more brown, moist droppings are released and re-ingested by your rabbit. This practice is called coprophagy. It is not only normal but necessary. These "super" droppings contain many nutrients and vitamins which would be lost if your rabbit were not able to eat them. This practice is necessary because of the unique design of your rabbit's digestive system. Abnormal feces would contain blood or mucus. These may be signs of mucoid enteritis, coccidiosis or pneumonia.

A rabbit's urine is normally more copious (thicker and whiter) than a dog or human, for example.

What about your rabbit's **voice?** Rabbits can grunt and growl when they're provoked and angry. They can also scream when subjected to severe pain. However, when content, your pet probably doesn't have much to say.

A healthy rabbit has a good **appetite.** She enjoys pellets, lettuce, celery, and carrots. A rabbit doesn't like dusty or dirty food, however. Watch how much food your rabbit consumes in one sitting. She probably saves some for later in the day or at night. Many rabbits prefer to eat at night or early morning.

Know your pet's habits so you can recognize any abnormalities. You know you don't like to eat when you're not feeling well!

Observe your rabbit's **nails.** Hold her paw toward a light. The tip of the nail should protrude only slightly beyond the "quick" or nail blood supply. Lack of contact with a solid surface eliminates the friction which would normally wear down your rabbit's nails. Too long nails break easily, often causing digital abscesses, and are dangerous. Trim with human nail clippers within 1/4 inch of the quick.

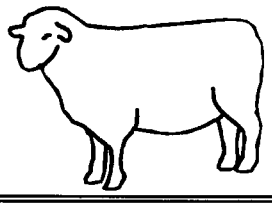
Normal **teeth** are necessary to keep your rabbit in good health. Provide her with items for constant chewing and gnawing. Malocclusion or wolf teeth is a genetic problem where the lower jaw is shorter or longer than the upper jaw. A rabbit with this problem cannot eat properly. Your veterinarian may correct this temporarily by cutting back the teeth.

The normal **temperature** of a domestic rabbit is 102.5° F (plus or minus 10). You can measure this with a rectal thermometer. Lubricate the thermometer with vaseline and insert to about one inch. Remove after two or three minutes and read the temperature.

Practice recognizing and recording many of these normals on you rabbit every day. When you need to contact your veterinarian, be prepared with a complete report of all the signs you have noticed.

If you'd like further information on animal health, join the 4-H Veterinary Science project. You may use your rabbit as a Veterinary Science project animal!

4-H SHEEP PROJECT HEALTH SUPPLEMENT



4-H Veterinary Science project members investigate the normal health of several animal species. It's important that you become familiar with the normal health of your project animals so that you can recognize when one of your animals isn't well.

This sheep project health supplement should acquaint you with the basic sheep "normals."

Think about your ewe, ram, lamb, or wether. You are important to it because it's your job to keep it well and to know when a member of your flock needs veterinary attention.

Recognition of the following normal characteristics will help you and your veterinarian work as a team to keep your sheep in good health.

You should keep a record of any abnormalities which do occur. This record will be important as a case history when your veterinarian begins to formulate a diagnosis.

Your sheep's **attitude** is a characteristic with which only you are familiar. Any change in your animal's behavior may be an indicator of sickness. Does your wether come running at feeding time? Is your ewe a submissive or aggressive member of the flock? A change in this behavior must have a reason. Try to find the cause.

Your sheep's **stance** should be on squarely set, strong legs, and pasterns with heavily muscled rear quarters. Ideally the animal should be long and tall with a straight back. The general appearance should be trim and thrifty. Abnormal stance may be due to poor conformation or may be a sign of illness.

Normal **movement** (gait) is a third characteristic with which you should be familiar. Your sheep should move free and easy with no hesitation (unless she has a stubborn streak). Jerking, limping, or circling are signs of leg, feet, or nervous system disorders.

Sheep can't communicate like people can, but they can be very **vocal.** An ewe nuzzling her young lambs makes soothing, gentle sounds, while a sheep in distress can "baa" very loudly and repeatedly. Learn to distinguish sounds of contentment and fear. Take note if you hear your sheep sneeze or cough. Abnormal sounds may indicate pain or respiratory disease.

A healthy sheep has a good **appetite.** How much does your project animal normally eat in one day? Most sheep prefer leaves and fine stems, so it's normal for coarse hay to be wasted. It's important that you recognize the proper normal condition of your ewes so that you can regulate feed intake appropriately. Be sure to provide fresh water continuously. A normal sheep may eat and drink several times a day. You should be aware of a sudden loss of appetite.

If you're raising sheep for their fleece, their **skin and hair coat** are your livelihood. A sheep's wool coat and how you care for it varies with breed, age, and season. However, any time hair is lost in patches or skin becomes dry and cracked, disease, nutritional problems, or parasitism should be considered. Lanolin in a sheep's wool makes it feel very oily and also attracts dirt. Therefore, a normal, healthy sheep may appear dirty. Some wool breeds should not be washed because washing gives fleece a loose, open appearance. So do a good job of currying and trimming to maintain the fleece.

Skin and mucous membranes (color and condition) are important health indicators. Normal skin is smooth and pliable like elastic. Dehydration or water loss may cause "tight" skin. Mucous membranes line all body openings, such as, the eye, ear, nose, mouth, anus, and vagina. Normally, these membranes should be moist and pink. If they are dry or white your sheep may be abnormal.

Some obvious characteristics to notice on your animal are the **bodily wastes** or **discharges.** Normal sheep feces are pellet-like. Pasty feces may indicate that the sheep needs deworming. This is why lambs' tails are docked. A feces--coated tail attracts disease carrying insects. You should be able to recognize scours or diarrhea. Waste material with blood, mucus, or bad odor may be a sign of intestinal problems. Your sheep's urine should be clear to yellow in color. Bloody urine is abnormal and your early recognition may prevent serious urinary tract difficulties.

Whenever you see an abnormal sign you can check your sheep's **temperature** with a rectal thermometer. Clean thermometer thoroughly and shake it down well below the normal temperature of 102° F. Lubricate it with KY or petroleum jelly. Be sure your sheep is restrained properly and insert the thermometer into the rectum gently. Wait at least one minute and remove the thermometer. Read it immediately. A normal temperature may vary from 101.5° F to 104° F depending on weather and fleece coat.

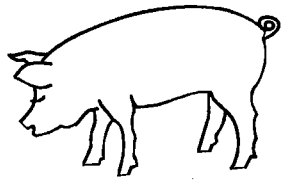
The **pulse rate** (heart rate) of your sheep should be strong and steady. It's very difficult to get an accurate count because the rate increases when the animal becomes excited. Place your hand over the heart at the floor of the chest. Feel the beat with your fingers, not your thumb. Your thumb has its own conflicting pulse. Seventy to 80 beats per minute is normal. You may also feel the femoral pulse at the inner thigh of a rear leg.

Hold your hand or a mirror in front of your sheep's nostrils to check her **respiration rate.** Twelve to 20 breaths per minute is normal. Warm weather may cause fast panting. This is a normal process, but a sign to you. You should get your sheep into cooler surroundings if possible.

Practice recognizing normals on your sheep every day. When you notice an abnormality, contact your veterinarian. Be prepared with a complete report of all the signs you have noticed. A veterinarian calls this a "history."

If you'd like further information on animal health, join the 4-H Veterinary Science Project and you may use your sheep as a project animal.

4-H SWINE PROJECT HEALTH SUPPLEMENT



In the 4-H Veterinary Science Project, Unit 1, members investigate the normal health of several animal species. It is important for you to become familiar with the normal health of your project animals so that you can recognize when one of your animals isn't well.

This swine project health supplement should acquaint you with the pig "normals."

Think about your sow, boar, or piglet. If your pig is normal, it's probably lively, curious, hungry, hardy, and resistant to disease. You are important to your pig because it's your job to keep them well and to know when to provide veterinary care.

Recognition of the following normal characteristics will help you and your veterinarian work as a team to keep your pig in good health.

You should keep a record of any abnormalities which do occur. This record will be important as a case history when your veterinarian forms a diagnosis.

Your pig's **attitude** is a characteristic with which only you are familiar. Any change in your animal's behavior may be an indicator of sickness. Does your pig normally come running at feeding time? Does it get along well with other pigs? A change in this behavior must have a reason. Try to find the cause.

Your pig's **stance** should be squarely set, widely spaced with strong, straight legs. The top line should be slightly arched while the head is alertly carried. An abnormal stance doesn't always indicate a disease, but if accompanied by other signs, it may show the location and seriousness of an illness.

Normal **movement** (gait) is a third characteristic with which to be familiar. Your hog should move freely and easily with no hesitation. Jerking, limping, or circling are signs of leg, feet, or nervous system disorders.

Pigs can't talk like people, but they can be very **vocal.** When your pig is happy it makes a gentle, low-pitched grunt noise. This sound of contentment is easy to distinguish from rapid high-pitched squeals of fear or pain. Have you ever heard your pig sneeze or cough? These abnormal sounds may indicate respiratory disease or an irritation. Get to know the sounds your pig makes. It's an easy way to recognize a potential problem.

A healthy pig has a good **appetite.** Have you ever noticed how much your pig eats in one day? Daily feed consumption should average between 3 and 4 percent of your pig's body weight, up to a maximum of 6 lbs/day. It's also very important to maintain a continuous supply of fresh water. Many pigs eat small amounts of food and water several times each day. Does your pig tend to eat at similar times everyday? Learn to recognize these eating habits so you can realize when abnormalities occur. There are several reasons for a sudden loss of appetite and your pig's health depends on your close observations.

A normal pig has a smooth and glossy **skin and hair coat.** It is slightly oily with no bald spots, cracks, or wrinkles. If your animal has a rough coat or hair loss, you may start thinking of possible nutritional disease or parasitism. Lumps, swelling, cuts, and bruises are also abnormal skin conditions to watch out for. Can you recognize skin problems, such as, mange, lice, abscesses, and sunburn?

Skin and mucous membranes (color and condition) are important health indicators. Normal skin is smooth and pliable like elastic. A sick animal may have skin with discoloration due to infection and tight skin due to water loss or dehydration.

Mucous membranes line all body openings such as the eye, ear, nose, mouth, anus, and vagina. Normally, these membranes should be moist and pink. If a membrane is dry or white rather than pink, your pig is not normal.

Some obvious characteristics to notice on your project animal are **bodily wastes** or **discharges.** Fecal droppings should be semi-firm and shaped like human feces. Intestinal problems may cause feces to become moist. Scours (diarrhea) with blood, mucus or

bad odor may even result. This may be caused by improper feeding, microorganism infection, or stress. Whatever the reason, your ability to recognize the discharge abnormality may prevent dehydration and further trouble. Your pig's urine should be clear to yellow in color, also like a human's. Bloody urine is abnormal and indicates urinary tract difficulties.

Whenever you see an abnormal sign you can check your pig's **temperature** with a rectal thermometer. Clean the thermometer well and shake it down well below the normal temperature of 102.5° F. Lubricate it with KY or petroleum jelly. Be sure your hog is restrained properly and insert the thermometer gently into the rectum. Wait at least one minute and remove the thermometer. Remember that many factors, such as, hot weather, exercise, or excitement may make the normal temperature closer to 104° F.

The **heart rate** of your pig should be strong and steady. It's very difficult to get an accurate count because the rate increases when the animal is excited. Place your hand over the heart at the floor of the chest. Feel the beat with your fingers, not your thumb. Your thumb has its own conflicting pulse. Sixty to 80 beats per minute is normal.

Hold your hand or a mirror in front of your pig's nostrils to check its **respiration rate.** Eight to 18, and sometimes up to 40 breaths per minute, is normal. Warm weather may cause panting, which greatly increases the rate. Watch and listen for signs of abdominal thumping, sneezing, or coughing. These signs should all be reported to your veterinarian. Practice recognizing normals on your pig everyday. When you notice an abnormality, contact your veterinarian. Be prepared with a complete report of all the signs you have noticed.

If you'd like further information on animal health, join the 4-H Veterinary Science Project and you may use your pig as a project animal.

THE NORMAL ANIMAL OBSERVATION CHART

Record observations of your project animal on this chart for one week. Use the health supplement to help you with normals and words to use. When complete, review your observations and note differences from day to day. Continue to observe your animal daily. You may see significant differences from month to month and season to season.

	OBSERVATIONS						
CHARACTERISTICS	**Day 1**	**Day 2**	**Day 3**	**Day 4**	**Day 5**	**Day 6**	**Day 7**
1. ATTITUDE							
2. STANCE							
3. MOVEMENT							
4. VOICE							
5. APPETITE/WEIGHT							
6. SKIN AND HAIR COAT							
7. MUCOUS MEMBRANES							
8. BODY WASTE AND DISCHARGES							
9. TEMPERATURE (Normal)							
10. PULSE RATE (Normal)							
11. RESPIRATION RATE (Normal)							
12. OTHER OBSERVATIONS							

OBSERVING THE NORMAL ANIMAL

Purpose: Learn to use your senses to develop skill in recognizing the normal healthy animal.

Your project animal's health depends on you. You must be able to recognize normalities in order to recognize abnormalities. A systematic way to observe normals is by performing a **physical exam** on your project animal. Be gentle and calm when handling your animal!

THE BASIC PROCEDURE FOLLOWS.

Step 1: Be sure your equipment is handy. You may need: containers with food, water, brush, grooming tools; thermometer, vaseline; stethoscope, watch with second hand.

Step 2: Try to evaluate mental condition. Comparison or familiarity with the animal's normal behavior is important. Does the animal's attitude seem sad or unusually excited?

Step 3: Observe stance. Is the animal's posture normal? Does it hunch its back? This may indicate abdominal pain.

Step 4: Observe movement (gait). Is there evidence of limping (e.g., stiff joints may indicate arthritis)?

Step 5: Listen to voice. Is the cat purring? Is the dog whining?

Step 6: Is appetite normal? Perhaps offer food and water. Keep a record. Mark the water bowl.

Step 7: Observe sexual activity when it occurs. Record heat periods on your calendar.

Step 8: Observe general body condition. Is the animal too fat or too thin?

Step 9: Skin and coat condition. Is hair falling out? Is skin dry and flaky? Does coat shine?

Step 10: Skin color. Press gums. Pink color should come back rapidly. If area remains whitish, animal could be anemic.

Step 11: Examine mucous membranes. Check eyelids, nostrils, mouth, anus, vulva opening. These tissues should be moist and pink. If these areas are not clean it may be because the animal is not feeling well and neglecting itself.

Step 12: Examine discharges. Feces and urine should be normal in color consistency when the animal is healthy. Vulva secretions may indicate infection or sexual activity (in heat).

Step 13: Check body temperature, pulse and respiration rates

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Issued in furtherance of Cooperative Extension work, acts of May 8 and June 30, 1914, in cooperation with the U.S. Department of Agriculture. Cari O'Connor, Director, Cooperative Extension, University of Wisconsin-Extension, Madison, WI 53706.

Developed by Jodie Gruenstern, Robb Hall, Sue Malkowski, and Kathy Smith. This information is produced by the Department of 4-H Youth Development and is for educational purposes only. If you need this material in another format, please contact the Department of 4-H Youth Development, University of Wisconsin-Extension, 431 Lowell Hall, 610 Langdon St., Madison, WI 53703; phone 608-262-1067.

E-11-991.5C-R

I'm a 4-H Project Leader: Now What Do I Do?

How do I know who is in my project?

- Your club organizational leader will provide you with the names, addresses and phone numbers of the members enrolled in the project for which you are the leader.
- If you are working on the county level, contact the UCCE for the list of project members.
- The organizational leader may indicate to you if any of the youth have special needs. At your first project meeting, note any other youth that may have special needs.
- You may wish to consult with the parent or your 4-H Youth Development Agent as to how to work with a special needs child.

How often should I hold project meetings?

It is recommended you hold 4-6 meetings that each last 1½ to 2 hours in length. Some projects require more meetings or a longer meeting time to accomplish your goals. Some projects, such as leathercraft, may lend themselves to individual project work as members progress on their projects. In this case, you should hold several introductory meetings for all members and then set up a schedule of time for them to sign up for individual help.

When do I start?

Get started as soon as possible! Members' interest in a project is most keen when they are signing up for a project and when they get their project books.

How do I cover the cost of project meetings?

- There is a wide variety of means for covering the cost of project meetings. Some methods used include:
- Each member pays for their share of the expenses or provides a portion of the supplies.
- The club agrees to cover expenses using funds from their treasury. Approval in advance is needed for this.
- Members and leaders can solicit donations/supplies from area businesses.
- Sometimes funds from sources outside your club may be available to cover your project meeting costs.

How do I establish a project meeting schedule?

First, determine when you are available to work with project members. Then determine an initial project meeting date by consulting with your project members.

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Publicize the date using one of the following means:

- County and/or club newsletter
- Club meeting or leader association meetings
- Postcards or phone calls to project members

You may not be able to schedule an initial meeting that everyone can attend. Establish a time to meet with those unable to attend before you hold your second project meeting.

Where do I hold project meetings?

Typically project meetings are held at project leader homes, schools, or community buildings. For more information on facility adaptability and liability concerns contact your 4-H Youth Development Agent.

What safety precautions do we need to consider?

Consider the type of safety issues your particular project involves. Request and secure necessary safety items such as ear protection, eye protection and head protection.

How do I let others in my club or other clubs know I am a project leader?

Prior to enrollment ask for time on your club's meeting agenda to let families in your club know you're a project leader and to share some things the kids could do in the project if they enrolled in it. When the project materials are handed out, take the opportunity to inform or remind members that you are their project leader and set an initial meeting date with the group. If no one in your club is in your project, you may wish to offer your services to a neighboring club. Talk to your club organizational leader or county 4-H Youth Development agent about this opportunity.

How do I prepare for the first meeting?

You may want to establish a 4-H resource box where you keep your project materials and any additional resources you will be using. Take time to become familiar with your project literature and talk to others who were project leaders for this project to find out what activities the members enjoyed.

What should I do at the initial project meeting?

- At the initial project meeting, here are some ideas of what you might want to cover:
- Find out what the members want to learn and accomplish in the project. The project literature is an excellent source of ideas.
- Review the safety practices that members will need to follow.

Thanks to 4-H Youth Development Programs, UW-Extension, Cooperative Extension for use of these materials.

- Do an introductory activity related to the project so the members get to know one another
- Have a small project the members can complete and take home
- Talk about how the project meeting supplies will be paid for. Experienced leaders have found it easiest to charge a small fee to cover the cost of the expenses.
- Assess when members are available for additional meetings. You may wish to ask the parents or members to bring along their calendars of family activities.
- Encourage parents to participate in project meetings, especially the initial meeting.

What does a typical project meeting look like after the initial orientation?

Use the experiential learning model (found in the introductory pages of your Helper's Guide) to plan your project meeting. The project helper's guide will provide suggestions for designing a project meeting. Here are some suggestions for each section of the model:

Do

- Plan an activity to focus the project members on what they'll be doing today. Work on the project for that meeting.

Reflect

- Review the process completed
- Discuss what worked and didn't work.
- Talk about how any problems that arose were solved.
- Assist members in documenting their project work for inclusion in their record books/portfolios.

Apply

- Ask the project member the following questions:
- What else have you seen that is similar to this?
- How can you apply what you learned today to other situations?

What resources are available to help me?

- 4-H Project Literature – You will receive project literature through your 4-H club or the UW-Extension office. Typically there is a helper's guide and member literature for three to four levels.
- Other People in my Club & County – There are a number of people in your county who would be willing to share project ideas and tips with you.

Thanks to 4-H Youth Development Programs, UW-Extension, Cooperative Extension for use of these materials.

These include:

- Project leaders in other clubs
- County Staff
- Older youth who have been involved in the project

- Media Collection & Public Libraries – Additional resources can be obtained from the Cooperative Extension Media Collection. They have videos, skillathons, displays and resource packages available to support a variety of projects. There is a user fee per item you or your club will be responsible for. You can view their catalog at their website http://www.uwex.edu/ces/media/. Check with your local public library to find out what resources they may have or that you can obtain through inter-library loan.
- 4-H Website – Wisconsin 4-H is continually adding more information and activities to their website. Visit this site at www.uwex.edu/ces/4h/onlinepro/. You may wish to check out websites from other state 4-H programs also.
- Volunteer Leaders Conferences – Review each issue of your county's newsletter to learn about training sessions for project leaders offered by your county, district or at statewide events. Sessions focusing on new project literature are typically offered at the State 4-H Volunteer Leader Conference held every other year. Periodically statewide conferences focusing on specific project areas are offered in addition to sessions at the volunteer conferences. You can also exchange ideas with other leaders at statewide Field Day.
- Field Trips – Youth always enjoy the opportunity to see firsthand how things are done and how they work. Consider taking your project group on a field trip or tour of a local business or company to enhance their project experience. An example would be taking your dairy members to a cheese factory or your foods group to a local bakery.
- Local Experts – Bring in a local "expert" to share their ideas and experiences with your group. One example would be asking a Master Gardener to share information on choosing perennial or trimming shrubs at one of your project meetings.
- Magazines – Many leaders have found creative ideas to supplement those in the project literature in magazines they have or those at the public library.

Thanks to 4-H Youth Development Programs, UW-Extension, Cooperative Extension for use of these materials.

How can I incorporate activities not included in the project guide?

We encourage you to use the ideas in the project literature as they have been successfully used with youth. If you have some additional activities you would like to incorporate, consider the following criteria:

- Of interest to kids
- Developmentally appropriate
- Incorporate the experiential learning model
- Youth and adults are involved in determining what will be done
- Enhances the development of member life and project skills
- Research based source of content utilized

What is the relationship between project work and the county fair?

The County Fair is an opportunity for an independent evaluation of life and project skills a member learned through completing a project. County fair entries typically match the activities included in the project literature and may include other activities that are being emphasized in your county. One of your roles is to help maintain the focus of members and parents on the goal of 4-H, which is to develop blue ribbon kids. Talk with members about what they learned about each of their fair entries from the judging process. Help members celebrate their accomplishments regardless of the color of ribbon each project member received at the fair. This may be done through individual encouragement or at a meeting following the fair. While entering and displaying a project at the County Fair is the traditional method of public affirmation, there may be other means of exhibition such as a club tour, open house, community celebrations or others.

Who can I go to if I need someone to help me during the project meetings?

If you are leading beginning level project meetings, ask older members in the project to help you. This is a great leadership experience for them! Parents are another excellent source of help. Don't hesitate to ask them to stay for the meeting and be actively involved in their child's project work.

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Texas 4-H Veterinary Science Project:

http://texas4-h.tamu.edu/project_veterinary

Wisconsin 4-H Veterinary Science Project:

http://www.uwex.edu/ces/4h/onlinpro/vetscience.cfm