

# Senior

## 4-H Horse Project Book

**(1st Year Senior)**

Insert Photo of you and your horse here

Name: \_\_\_\_\_ Birthdate: \_\_\_\_\_

Address: \_\_\_\_\_

Town: \_\_\_\_\_ State: \_\_\_\_\_ Zip Code: \_\_\_\_\_

Name of 4-H Club: \_\_\_\_\_

Club Leader: \_\_\_\_\_

Years in 4-H: \_\_\_\_\_ Years in Horse Project: \_\_\_\_\_

# Targeting Life Skills Model Oklahoma State University



## 4-H PLEDGE

I pledge my **HEAD** to clearer thinking,  
my **HEART** to greater loyalty,  
my **HANDS** to larger service,  
and my **HEALTH** to better living,  
for my club, my community,  
my country, and my world.



# **Activities**

Below is a list of activities you may choose from to complete your horse project. Please choose 4 and describe below or on the next 2 pages. ( Staple in additional pages if needed.)

- Record 5 mins of yourself riding. Write up a critique and go over it with your 4-H leader or instructor.
- Attend a clinic on a horse related topic that interests you.
- Teach someone how to do a simple or flying lead change.
- Visit a breeding farm.
- Discuss with a vet signs of colic, new diseases affecting area horses, and most interesting horse case they have seen.
- Develop a vaccine schedule for your horse (include in project book)
- Walk around your horses pasture. Take pictures of grasses and legumes and identify them.
- Take 5 pictures of plants that are potentially harmful to the horse.

## Activities Continued

## Activities Continued

## Information about my Horse

Name: \_\_\_\_\_ Age: \_\_\_\_\_ Gender: \_\_\_\_\_

Breed: \_\_\_\_\_ Markings: \_\_\_\_\_

### Health Care Record

Talk with your Vet and write down what shots your horse is getting/ got this year. Also make sure to write down the dates that your horse was dewormed, had a visit from the dentist and got his hooves trimmed.

	Date	Date	Date	Date	Date	Date	Date
Deworming/ Type							
Farrier							
Dentist							
Comments							

Date

Rabies							
West Nile							
WEE/EEE							
Tetanus							
Rhino Flu							
Strangles							
Potomac							

### My Horses Feeding Schedule

AM: \_\_\_\_\_

PM: \_\_\_\_\_

How long have you owned your horse? \_\_\_\_\_ Who feeds him most of the time? \_\_\_\_\_

What was your horse body condition score (BCS) at the beginning of the project year? \_\_\_\_\_

What was your horse BSC at the end of the project year? \_\_\_\_\_

Is this an optimal BCS for your horse's performance? \_\_\_\_\_

Throughout the year, did the BCS improve or deteriorate? \_\_\_\_\_

What did you do to improve your horse's body condition? Include feeding techniques and training. \_\_\_\_\_

\_\_\_\_\_  
If the BCS deteriorated, what is your plan to improve it? Include feeding techniques and training. \_\_\_\_\_

\_\_\_\_\_  
Do other people ride it, other than you? \_\_\_\_\_ If yes, why and how often? \_\_\_\_\_

# Equipment Inventory

Item	Purchase price	Expected to last how many years?	Equipment cost per year*
Saddles			
Bridles			
Saddle blanket			
Saddle pads			
Halter			
Lead rope			
Lunge line			
Tie down			
Running martingale			
Bits			
Tail set			
Harness			
Winter blanket			
Cooler			
Hoof pick			
Hoof knife			
Hoof nippers			
Hoof rasp			
Brush			
Currycomb			
Mane-tail comb			
Sweat scraper			
Shedding blade			
Sponge			
Leg wraps			
Bucket			
Feed tub			
Clippers			
Hay net			
Girth			
Whip			
Tail braces			
Tail switches			
False tails			
Splint boots			
Quarter boots			
Ribbons			
Cart			
Trailer			
Fly masks			
Supplies: Shampoo, conditioner, detangler, fly spray, hoof polish, etc.			
Other:			
Total equipment cost this year \$			

\* Divide purchase price by the number of years the item is expected to last.



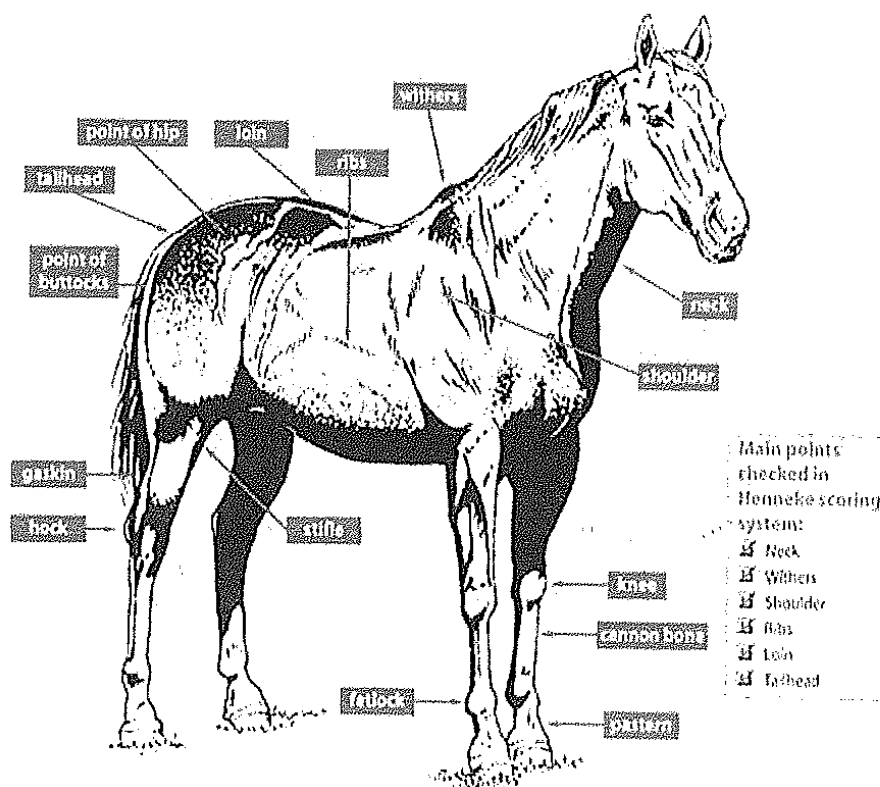
## The Henneke Body Condition Scoring System

Don Henneke, PhD, developed the Henneke Body Condition Scoring System during his graduate study at Texas A & M University. It is based on both visual appraisal and palpable fat cover of the six major points of the horse that are most responsive to changes in body fat. The Henneke Chart is a standardized scoring system, whereas the terms, “skinny”, “thin”, “emaciated” or “fat” are all subjective terms that have different meanings to different people.

The Henneke Scoring System is a scientific method of evaluating a horse’s body condition regardless of breed, body type, sex or age. It is now widely used by law enforcement agencies as an objective method of scoring a horse’s body condition in horse cruelty cases. The Chart is accepted in a court of law.

Six parts of a horse are checked in this system—the neck, withers (where the neck ends and the back begins), shoulder, ribs, loin, and tailhead. When using the Henneke system, you should always make physical contact with these parts, and the kind of touch you use is important. Simply stroking the animal lightly won’t provide an accurate idea of the horse’s condition; you have to apply pressure to each part in turn.

The pressure you apply should be much like that of a massage; if you press a horse’s side with your hand, you’ll be able to feel the fat covering his ribs, and get an idea of how much fat is present. Likewise, when checking the withers, feel all around the area, as if you were squeezing firm clay. It is possible to be firm and gentle at the same time, and both traits are necessary to properly score a horse.



After pressing each part of the horse with your hands to feel for body fat. You then assign each area of the body the numerical score that corresponds with the horse’s condition. When a horse has a long haircoat it is imperative that you use your hands to feel the horse. The horse’s long haircoat will hide the protrusion of bones, all except in the most extreme cases. The scores from each area are then totaled and divided by 6. The resulting number is the horse’s rating on the Henneke Body Scoring Condition Chart.

Conformational differences between horses may make certain criteria within each score difficult to apply to every animal. In these instances, those areas influenced by conformation should be discounted, but not ignored when determining the condition score.

Conformation also changes in pregnant mares as they approach parturition (birth). Since the weight of the conceptus tends to pull the skin and musculature tighter over the back and ribs, emphasis is placed upon fat deposition behind the shoulder, around the tailhead and along the neck and withers in these cases.

The Chart rates the horses on a scale of 1 to 9. A score of 1 is considered poor or emaciated with no body fat. A 9 is extremely fat or obese. Horse veterinarians consider a body score of between 4 and 7 as acceptable. A 5 is considered ideal.

Condition	Neck	Withers	Shoulder	Ribs	Loin	Tailhead
1 Poor	Bone structure easily noticeable	Bone structure easily noticeable	Bone structure easily noticeable	Ribs protruding prominently	Spinous processes projecting prominently	Tailhead, pinbones, and hook bones projecting prominently
2 Very Thin	Bone structure faintly discernible	Bone structure faintly discernible	Bone structure faintly discernible	Ribs prominent	Slight fat covering over base of spinous processes. Transverse processes of lumbar vertebrae feel rounded. Spinous processes are prominent	Tailhead prominent
3 Thin	Neck accentuated	Withers accentuated	Shoulder accentuated	Slight fat over ribs. Ribs easily discernible	Fat buildup halfway on spinous processes, but easily discernible. Transverse processes cannot be felt	Tailhead prominent but individual vertebrae cannot be visually identified. Hook bones appear rounded, but are still easily discernible. Pin bones not distinguishable
4 Moderately Thin	Neck not obviously thin	Withers not obviously thin	Shoulder not obviously thin	Faint outline of ribs discernible	Negative crease (peaked appearance) along back	Prominence depends on conformation. Fat can be felt. Hook bones not discernible
5 Moderate (Ideal Weight)	Neck blends smoothly into body	Withers rounded over spinous processes	Shoulder blends smoothly into body	Ribs cannot be visually distinguished, but can be easily felt	Back is level	Fat around tailhead beginning to feel soft
6 Moderately Fleishy	Fat beginning to be deposited	Fat beginning to be deposited	Fat beginning to be deposited	Fat over ribs feels spongy	May have a slight positive crease (a groove) down back	Fat around tailhead feels soft
7 Fleishy	Fat deposited along neck	Fat deposited along withers	Fat deposited behind shoulder	Individual ribs can be felt with pressure, but noticeable fat filling between ribs	May have a positive crease down the back	Fat around tailhead is soft
8 Fat	Noticeable thickening of neck	Area along withers filled with fat	Area behind shoulder filled in flush with body	Difficult to feel ribs	Positive crease down the back	Fat around tailhead very soft
9 Extremely Fat	Bulging fat	Bulging fat	Bulging fat	Patchy fat appearing over ribs	Obvious crease down the back	Bulging fat around tailhead

# Nutrition

Horses are herbivores (animals that feed chiefly on grass and other plants) and evolved grazing on forages. As such, their digestive system is designed to consume small amounts of feed over the course of the day. Domestication has resulted in horses having to adapt to being fed two large meals each day, and this can sometimes lead to digestive problems like colic.

Our goal in feeding a horse is to meet his needs and maintain his health and condition. In order to accomplish this, the horse must receive adequate amounts of the proper nutrients on a daily basis in what is referred to as a balanced ration.

All animals need five essential types of nutrients — water, energy, protein, vitamins, and minerals. Water is considered the cheapest nutrient a horse needs. Water is essential for life; however, it is often overlooked by many horse owners. Nutrients needed for growth, keeping warm, and working are supplied to the horse in the form of energy. Proteins are important building blocks for growth and repair of tissues. Vitamins are essential for the body's chemistry and regulation and are needed in small quantities. Minerals also play an important role in the horse's body chemistry and in building teeth and bones.

These five nutrients are as essential for your horse as they are for you and other animals. Understanding nutrient function requires some basic knowledge of nutrition in order to supply nutrients in their proper form and amount at the lowest possible cost to the horse owner.

## Types and Kinds of Feed

Many times several kinds of feeds are combined in the horse's ration, or the animal's daily nutrient supply. This section will discuss the important types of feeds for horses.

### Water

Water is an essential nutrient that is often overlooked in many feeding programs. Horses should have access to fresh clean water at all times. Horses can drink 12 to 20 gallons of water per day. Care should be given to water containers to ensure that the water is fresh and clean at all times and free of ice in the winter, all of which could adversely affect the horse's daily water consumption.

### Roughage

The cheapest sources of the basic nutrients can be supplied to the horse in the form of pasture and hays. The varieties and availabilities of these forms of roughages can differ among many Ohio locations. Typically a mixture of grass/legumes such as bluegrass-white clover or orchard grass-alfalfa make excellent pastures for horses.

Usually, two acres of pasture are needed to maintain one horse if no supplemental grain is fed. Good pastures are routinely fertilized and clipped to prevent excess growth or uneven grazing patterns and have strong safe fences and a good water supply. Proper management can ensure maximum efficiency of pasture to supply your horse with its daily nutrient requirements. Extension educators can help advise horse owners on proper management practices for their specific location — for example, choosing the best mix for your soil and conditions as well as fertilizing and managing your pasture or meadow stands.

When pasture is not readily available and especially in the winter months, hay is usually fed to horses as the basic part of the ration. Mature horses manage very well on grass hay; however, a mixture of grass and legume (clover or alfalfa) is still preferred. When looking specifically at growing horses, alfalfa is an excellent choice of hay. Alfalfa is a good source of proteins, vitamins, and minerals essential to proper growth. However, care must be taken when feeding pure alfalfa, to balance the calcium to phosphorus ratio, as it is not correct for foals and weanlings. Grass hays have a correct ratio of calcium to phosphorus but do not contain enough minerals for foals and weanlings.

Hay quality is an extremely important factor to consider when feeding horses. Good hay is clean, bright, leafy and free of dust, mold, and decay. Moldy, musty, or rotten hay can cause respiratory diseases and digestive upsets like colic when fed to horses. Examine each portion of hay fed to horses to ensure feeding safety. Many kinds of hay can be fed to horses with successful results as long as the hay is of good quality and free of problems.

### Concentrates

Concentrates are feeds that, by weight, are relatively high in nutrients and low in fiber. As an example, corn and hay can be used to supply energy nutrients to horses. Roughage — hay — supplies lower quantities of energy per pound and has more bulk or fiber. Corn, on the other hand, is higher in energy on a pound basis and is usually a cheap source of energy. Many of today's horse rations are built on a hay base with concentrates (grains) added accordingly to meet the specific needs of the horse.

The most common grains used in today's horse rations are corn and oats, but barley and other grains or grain by-products high in energy are also included. These concentrates are typically fed to provide extra energy when the pasture or hay portion of the ration cannot adequately meet the horse's current energy needs.

Corn is the most concentrated energy supplier among horse feeds. Oats are a very popular horse feed simply because they are very palatable — meaning, horses like them — and are slightly higher in protein than corn. You can find these two feeds, corn and oats, fed mixed and included in almost every commercially prepared horse feed in today's market.

Soybean meal, cottonseed meal, and linseed meal are common protein supplements used in horse rations. They are high in energy but are fed as a concentrated supply of protein, typically 30 to 40% digestible protein by weight, and therefore should be fed only in small amounts.

Mature horses very seldom need protein supplements in their rations, except when lower quality grass hay is fed. Since growing horses have a higher protein requirement, this increase in protein is usually met by feeding a high-quality

legume hay, such as alfalfa, or by adding one of these supplements to the grain ration. Economically speaking, soybean meal provides the highest quality protein when compared to the other sources of protein.

## How Much to Feed

To have a successful feeding program, you must first select the best and most economical feeds to supply the needed nutrients for your horse and, second, provide each individual horse with the proper amount of feed.

When formulating rations, it is very important to think in terms of weight rather than volume. Not all feedstuffs are created equal. For example, you have two horses, each receiving a can full of grain — one horse gets a can of corn and the other a can of oats. Due to the fact that corn by volume is heavier than oats and higher in energy per pound, the first horse is fed more than twice as much energy as the second. Therefore, it is a good management practice to occasionally weigh grain and hay bales (think in pounds) to ensure that you are adequately meeting your horse's specific needs.

## Here Are Some Rules to Consider When Deciding How Much to Feed Your Horse

- Most horses consume roughly 2% of their body weight in dry feed each day. This is also equal to 2 pounds of feed per 100 pounds of horse. This means the average 1,000-pound horse should consume around 20 pounds of food (hay/pasture only or hay and grain combined). Most mature idle or lightly worked horses can consume a ration comprised of only roughage — hay or pasture — to meet their daily nutrient requirements.
- When horses are asked to do various levels of work — growth, pregnancy or lactation, and moderate to heavy work — grain is typically substituted for a portion of the total ration. For most horses, 1/8 to 1/2 of the total ration is substituted with grain. For an example, a 1,000-pound mature horse, ridden an average of two hours daily, would be fed roughly 15 pounds of hay and 5 pounds of grain on a daily basis.
- At least 1/2 of the horse's diet should be forage. So our 1,000-pound horse should get at least 10 pounds of hay or pasture each day. This is a minimum, not a maximum!
- Horses should not get more than 0.5% of their body weight in grain per feeding. This is because the horse's stomach is relatively small, and more grain at one time could lead to colic.
- Horses should be allowed access to clean water, trace mineralized salt, and grass forage at all times.

Don't forget that horses are individuals. Some horses of the same age and size, in similar situations, may respond differently to the same feed levels. Watch for changes in each horse's body condition. Feeding changes (increase/decrease in volume) should be adjusted gradually to maintain an ideal body condition.

## Sample Rations

The daily rations presented here illustrate the variety of means by which the nutritional needs of horses can be met. These rations should be used only as a guide. The best ration for your horse depends on such factors as the availability and market price of feeds, your horse's needs and responses, and your facilities for storing and handling feed. Free-choice water and trace-mineralized salt should be available with each of the rations given.

**Situation 1: A six-year-old Quarter Horse gelding ridden an hour each day that stays in good condition on a minimum amount of grain.**

### Ration A

Free Choice Pasture  
1 pound of grain daily

### Ration B

16 pounds alfalfa/orchard grass hay  
4 pounds grain (50% corn, 50% oats)

### Ration C

15 pounds timothy hay  
4-1/2 pounds corn  
1/2 pound soybean meal

\*\*\*Free choice water and trace-mineralized salt supplement.\*\*\*

**Situation 2: A 600-pound yearling Morgan filly that will mature at 1,000 pounds.**

### Ration A

Free choice pasture, grass and legume  
4 pounds oats  
1 pound soybean meal

### Ration B

9 pounds alfalfa hay  
3 pounds corn  
1-1/2 pounds soybean meal

### Ration C

8 pounds mixed hay  
3-1/2 pounds grain (75% corn, 25% oats)  
1-1/2 pounds soybean meal

\*\*\*Free choice water and trace-mineralized salt supplement.\*\*\*

**Situation 3: A 600-pound mature Welsh pony ridden two hours daily.**

### Ration A

Free choice pasture, good quality grass/legume mixture

### Ration B

Free choice pasture, poor quality  
1 pound grain

### Ration C

Free choice mixed hay, or about 12 pounds

### Ration D

10 pounds mixed hay  
2 pounds oats

\*\*\*Free choice water and trace-mineralized salt supplement\*\*\*

## Rules for Feeding Management

- Do not over feed — obesity is an enemy of performance.
- Never feed moldy, musty, dusty, or decayed hay or grain.
- Keep feed and water containers clean.
- Have all horses checked and treated for internal parasites.
- Check mangers and feed boxes for nails, splinters, holes, and obstructions.
- Check after each feeding to see that feed is not being refused. Besides eliminating waste, a horse that is *off feed* is often showing the first symptom of illness.
- Never feed more grain than the horse will clean up in 30 minutes.
- Take extra precautions against horses breaking into grain storage. Overeating grain is the most common cause of founder, or laminitis, a hoof disease that can cripple a horse.
- Do not feed or water when your horse is overheated. Walk the horse until he has cooled, then offer small quantities of feed.
- Do not allow your horse to bolt his feed or eat too rapidly. A few egg-sized stones in the feed box will prevent this dangerous practice.
- Feed at regular times each day. Most horsemen feed twice daily, but no hard-and-fast rule is needed if a regular schedule is followed.
- Select the combination of feeds that provides needed nutrients at the lowest possible cost.

## Study Questions

1. How much feed will the average horse eat in a day?  

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2. To what two things should horses be allowed access all the time?  

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3. What is meant by "maintenance"?  

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4. List three types of horses that have a higher nutritional requirement than maintenance.  

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5. What are four factors that will affect the nutritional requirements of the horse?  

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6. What is the difference between concentrates and forages?  

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# Developing Ration Plans

Develop 2 different ration plans for your horse and place them in the space below. Also describe which is more ideal and does this differ from what you are currently providing.

# Equine Science

## How to Read a Feed Tag

Use the feed tag below to answer the questions.

FEED TAG:	
50 lb. (22.7 Kg)	
Net Wt.	
GENERIC NUTRITION	
PERFORMER-10 SWEET HORSE FEED	
Description/Use: A texturized horse feed, formulated to be fed to horses over 2 years old when their forage (hay or pasture) is over 50% alfalfa or clover.	
GUARANTEED ANALYSIS	
CRUDE PROTEIN, MINIMUM	10.00%
CRUDE FAT, MINIMUM	4.50%
CRUDE FIBER, MAXIMUM	7.00%
CALCIUM (CA), MINIMUM	0.20% MAX. 0.60%
PHOSPHORUS (P), MINIMUM	0.60%
MAGNESIUM (MG), MINIMUM	0.20%
MANGANESE (MN), MINIMUM	60 ppm
IRON (FE), MINIMUM	200 ppm
COPPER (CU), MINIMUM	50 ppm
ZINC (ZN), MINIMUM	120 ppm
SELENIUM (SE), MINIMUM	.5 ppm
VITAMIN A, MINIMUM	5,000 IU/lb.
VITAMIN D, MINIMUM	500 IU/lb.
VITAMIN E, MINIMUM	70 IU/lb.
THIAMINE (B-1), MINIMUM	7 MG/lb.
INGREDIENTS	
CRIMPED OATS, HEAT PROCESSED FLAKED CORN, CRACKED CORN, WHEAT MIDLINGS, MAIZE DISTILLERS DRIED GRAINS, DRIED WHEY, CANE MOLASSES, VEGETABLE OIL, L-LYSINE, DL-METHIONINE, CALCIUM PHOSPHATE, CALCIUM CARBONATE, SALT, MAGNESIUM OXIDE, MANGANOUS OXIDE, MANGANESE SULFATE, FERROUS SULFATE, COPPER SULFATE, ZINC OXIDE, POLYSACCHARIDE COMPLEXES OF IRON, COPPER, ZINC, AND MANGANESE, COBALT SULFATE, ETHYLENEDIAMINE DIHYDRIODIDE, SODIUM SELENITE, VITAMIN A SUPPLEMENT, VITAMIN D-3 SUPPLEMENT, VITAMIN E SUPPLEMENT, THIAMINE MONONITRATE, RIBOFLAVIN SUPPLEMENT, NIACIN SUPPLEMENT, BIOTIN, D-CALCIUM PANTOTHENATE, CHOLINE CHLORIDE, VITAMIN B-12 SUPPLEMENT, FOLIC ACID, ASCORBIC ACID.	
See Back of Bag for Feeding Directions	
SKILLATHON FEED	
SOMEWHERE, OH 99999	

1. What is the main ingredient (or group of ingredients) in this feed?
2. What is the 4th main ingredient (or group of ingredients) in this feed?
3. What is the minimum % of Crude Protein in this feed?
4. What is the minimum % of Crude Fat in this feed?
5. Does this feed contain salt?

# Fire Prevention

*Check hay for warm spots. If hay temperature is noticeably warmer than when it was put in, watch it closely. If the temperature reaches 150°F, take the hay out and divide it into small, shallow stacks.*

*Oily rags should be disposed of immediately after use. Don't store flammable materials (paint, gasoline, etc.) in the barn.*

*Check all electrical wiring for frayed ends, double-up extension cords, etc. Get them fixed immediately. Never use lightweight extension cords—buy the heavy-duty cords. If a fuse blows, check for shorts and other faults. Always use the correct size fuse. All electrical wiring should be encased in metal conduit and electrical boxes.*

*Inspect all motors, heaters, and electrical devices frequently.*

*Establish ongoing and effective rodent control programs—rats do chew wires.*

*Keep aisles clear of equipment, etc.*

*Ideally, all barns should be constructed of noncombustible materials. If you are building a new barn, look for pressure-treated wood so it will burn more slowly.*

## Procedures To Be Followed in the Event of Fire

- *Call the fire department—the phone number should be posted next to every phone. In a calm, clear voice, give your name, farm name, and location. Do not hang up until you are sure the information has been understood.*
- *Open one door of the stable only. As long as possible, keep the flow of fresh air and oxygen to a minimum so the fire will not explode. If the fire is spreading rapidly and there is heavy smoke, stay out of the barn.*

## Evacuate Horses

- *Halters and lead ropes should be on each door. Lead each horse out of the barn to a predetermined area. If you turn him loose, he will probably run right back to his stall.*
- *If the horse won't lead, blind him using a towel, handkerchief, or gunny sack. Wet the sack in the water bucket in each stall before putting it on the horse's head.*
- *Put the horses in a paddock a safe distance from the barn and out of the way of the fire-fighting equipment. Make sure horses are contained so that in their panic they don't return to their blazing stall.*
- *Open all access gates to the barn area for fire equipment. Save equipment only after all horses are out.*
- *Use available fire-fighting equipment to contain the fire until help arrives, i.e., fire extinguishers, hoses, wet gunny sacks, or shovels and dirt.*

- *Keep roads clear for fire equipment.*
- *Once help arrives, immediately check your horses for injuries. Call a vet if horses are burned or have inhaled a lot of smoke. Check the eyes, and if you notice any burned areas, cover the eyes with a clean, moist cloth.*
- *Check for burns around the nostrils, and if you find any, apply Vaseline or mineral ointment. Keep any burned areas on the body or legs moist with a cold, wet cloth. Do not medicate the burns unless necessary.*

## Fire Safety—Plan Ahead

*Put the phone number for the fire department by each phone.*

*Be sure you have adequate and appropriate fire-fighting equipment for your barn. Ask your fire department for recommendations. Know how to use them.*

*Know where large quantities of water can be obtained (farm ponds or swimming pools). Have adequate water outlets with horses in the barn.*

*Install smoke detectors or heat detectors and connect them to a high-decibel resonant horn so that you can hear it. Clean the detector frequently because heavy dust and bugs can deactivate the alarm.*

*Know the location of electrical master switches.*

*Keep a halter and lead rope by each stall. Never lock stall doors.*

*Have fire drills several times a year to practice getting the horses out of the barn and so everyone knows what to do.*

*Have a supply of empty feed sacks available for blindfolds. Wet the sacks in the water bucket in each stall before using.*

*Know where you will secure the horses if you have to evacuate the barn.*

## Fire Prevention Measures

### No smoking in the barn.

*Clean up all debris and properly dispose of it. Never leave loose hay or straw in aisles.*

*Store feed, hay, straw, or shavings in a separate building away from the barn. If this is not possible, be sure your loft is well ventilated and that the hay is properly cured—don't store "heavy" bales.*



# Fire Safety

Fire safety may not be on every horse owner's mind, but it should be in order to prevent a tragedy from occurring. Here are some fire facts:

- "Fire has 3 basic need: Oxygen, Fuel and Heat"
- The burning rate of loose straw is 3 times that of gasoline.
- The burning time of 12' by 12' stall is approximately 90 seconds.
- You have 30 seconds to get a horse from a stall after the stall ignites.

1) Name 5 ways that a fire could be prevented in a barn or stable

2) Even though you have done everything you could to prevent a fire, there are always ways you can be prepared if a fire does occur. List 5.

3) In the event of a fire, what would you do and who would you call?

4) What other types of emergencies should you try to prevent and be prepared for when working with a horse?

Choose one of your ideas and list 3 ways you would prepare yourself

# Equine Science

## Horse Parts

Advanced level: Write in the name that corresponds to the correct part of the animal.

### Identification

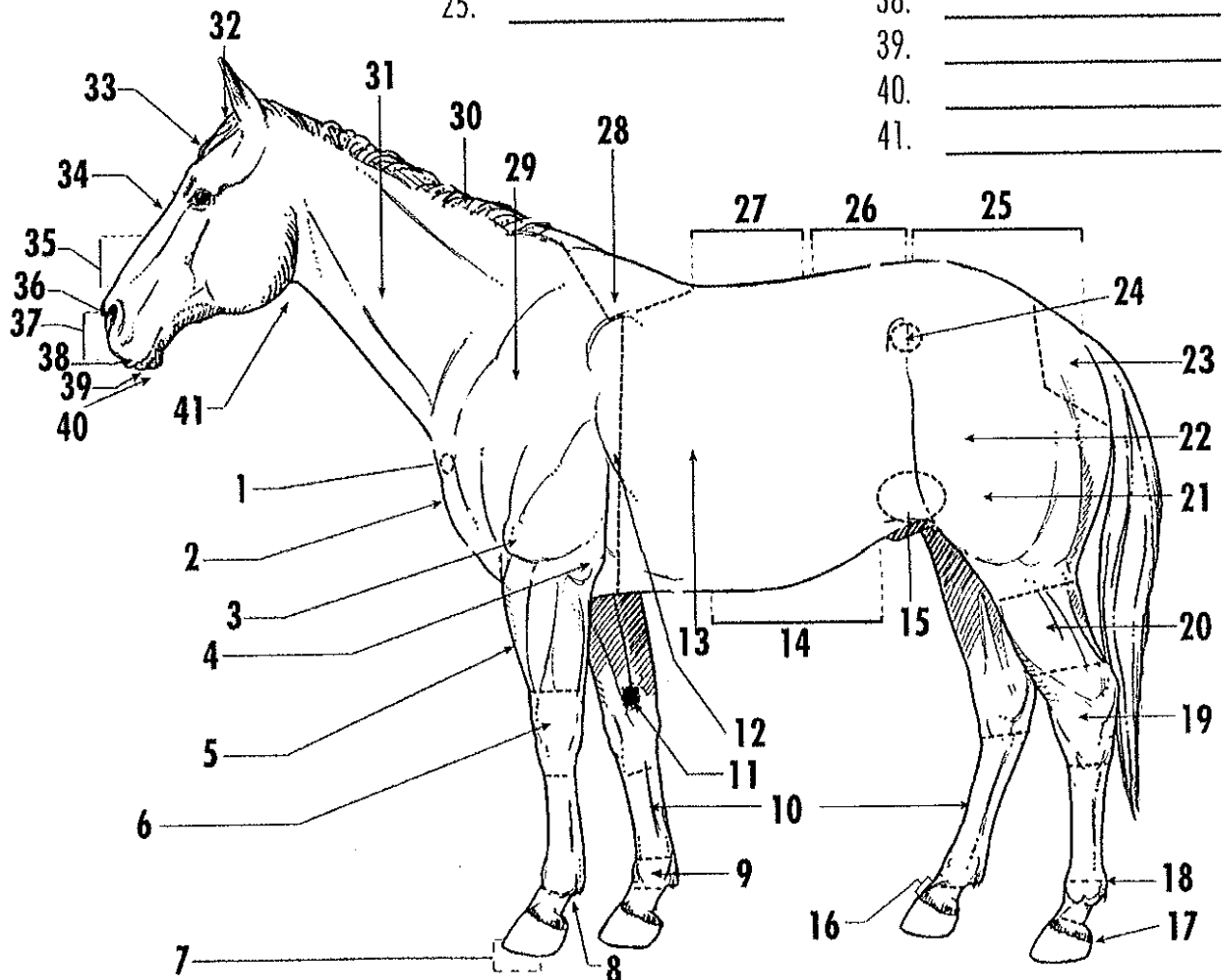
In this activity you will:

- learn the parts of a horse.

1. \_\_\_\_\_
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# How to Choose a horse

Horse ownership is an exciting prospect! You are now at the point where you know that you have the means to support your horse, you have the knowledge on how to care for the horse, and you are able to ride. Now you want to own your own horse that will meet your riding goals and needs.

When purchasing a horse you should always try to have a veterinarian do an exam or be with you especially if you are a novice owner. The veterinarian will be there working for you – not for the seller. Consider additional tests like x-rays to be performed by the veterinarian. Even if you trust and love the person selling you a horse – a pre-purchase veterinarian exam is still a smart idea. When purchasing a horse, there are two types of considerations regarding the horse: behavioral traits and conformation. Behavioral traits have to do with the overall attitude of the horse while conformation concerns the way he is put together. Ideas for “screening” your new horse are below, listed under these categories.

Some aspects to consider:

## **Behavioral Traits**

**Look for signs of behavioral problems in the horse's stall** such as chewing, cracked/broken walls, “tracks” worn in the floor, paint scraped off the bars, grain or half chewed hay in bedding, and/or diarrhea.

1. Does this horse have a cribbing or wind sucking problem? If so, how is it currently managed?
4. Does this horse grind his teeth on the bars?
5. Can the horse easily be haltered in the stall?

**Consider the horse's outdoor living space** (look for isolation while others are grouped, look for signs of chewing or pushing on fences if horse is kept alone, look for discrepancies between equipment in or size of paddock) and ask the following questions:

1. Why is this horse isolated from the herd? Is he aggressive or very passive?
2. Does the horse like to chew or push on his fence?
3. Why does this horse not have a hay feeder (for example) and all others do – does this mean he climbs in it?
4. Why is this horse in a really small paddock – does he jump out if given enough room to run?

**Take in the horse's general appearance** - is he relaxed, does he stand square? Look for obvious disfigurements, check for balance and look for overdevelopment of one side. Does sudden movement or sound distract him? Look for a horse that is bright, alert and responsive. Ask the following questions:

1. Why does this horse look so tense? Does he have any health problems that are making him uncomfortable?
2. Does this horse bite or kick? How is this horse around equine professionals like the vet or farrier? How is this horse around young children?
3. Has this horse ever been injured and if so what was his treatment plan? Was the plan followed? Was a veterinarian called and did he revisit? Has this injury resulted in any chronic problems?
4. How “spooky” is this horse? Is there any sound or visual cue that really makes him scared? Has he been out on the trail? What do you know about his behavior in “active” or new situations?

**Observe the horse's movement and attitude under saddle** – Watch the horse for attentiveness – is he relaxed or tense? Watch for head tossing which could indicate resistance or mouth problems. Look for signs of stiffness as mentioned earlier. At the lope or canter look for smooth rhythm and make certain he/she takes the correct lead in both directions easily. Refusal to take a lead could mean he/she is sore. After 5-10 minutes of cantering or loping – listen to breathing – which should be relaxed, regular and in time with his striding. When he/she is stopped, notice recovery time – which should not be longer than time spent cantering.

1. In general does the horse enjoy going to work? Does he willingly leave the barn area?
2. Do you feel this horse has a soft or hard mouth? What bit are you using right now? What bit is this horse SHOWN in? What training aids are being used on this horse? Has this horse been trained with or shown in spurs? Do you use a crop or whip on this horse?
3. What lead does this animal favor and what do you do to assist him in taking and/or keeping his more difficult lead? Does he move with more collection and balance in one direction as compared to the other?
4. How often does this animal get worked and for what general duration? In what discipline(s) does this animal work? How quickly do you feel this horse recovers after vigorous work? Have you noticed any breathing difficulties?
5. Has this horse been worked out of the arena? Has it been worked up and down hills? Does it exhibit any weaknesses when being worked on difficult terrain?

### **Conformation**

**Examine the horse's head** – Check eyes, slowly pass a hand by each eye and look for blinking response (don't touch whiskers or create a breeze). Look for a bluish film covering the eye. Look at teeth – check for misalignment. Sniff the horse's breath for foul odor which could be an indication of infection or illness. Look at the tongue for signs of past damage. Check underside of jaws looking to see that glands on each side are not swollen or sensitive and check for strong and regular pulse.

1. Does this horse have any blindness or cataract issues? How is his night vision? Does he have moon blindness? Is there a discharge from his/her eye?
2. Has the vet mentioned any problems with regard to this horse's teeth?
3. Does the horse have bit damage? Do the upper and lower teeth meet squarely?
4. Has this horse been checked for strangles – his glands seem swollen?
5. Does the horse have a discharge from the nostrils?

**Examine the horse's neck** – Move fingers down neck feeling rings of trachea – they should feel evenly spaced. At mid neck – press in on jugular vein – obstructing blood flow for a moment, see if they fill equally on both sides. Ideally, the neck should be long and flow smoothly into the shoulder. The underside of the neck should not be more developed than the topline of the neck.

1. If you feel that the rings are uneven, may this horse have had a kick or rope injury?
2. Are you aware of any injury to this horse's neck in general?

**Examine the horse's legs** – look for joints that do not point in the same direction. Feel for the digital pulse leading into the hoof – on both sides – see that it is even. Look for any bony growth near a joint. Look for hard bumps or soft lumps, they may not be damaging, but you should inquire as to their origin.

1. Does this horse have any trouble with lameness? How often have you seen this horse lame? How much work does it take to cause this horse discomfort?
2. Has this horse been foundered? If so when and what does your vet/farrier say about the prognosis with regard to soundness?
3. Has this horse been nerved, or do you know of any navicular problems with this animal.
4. Are any of the bumps/lumps new? What do you feel caused them? Has a veterinarian checked them?
5. Does this horse have corrective shoes and if so, why? How is this horse's behavior for the farrier?
6. Does the horse have hooves that are different sizes or angles? Does the horse have rings around the hoof wall? Are they irregular (indicative of a previous episode of founder or interruption in hoof growth)? Are they even (indicative of a high nutrition plane)?
7. Does the horse have small scars on inside of pastern immediately below the sesamoids? (indicative of interference or other problems)

**Examine the horse's topline** – Starting at withers – run your hand firmly down back all the way to tail and feel for heat. Look for the horse to dip slightly from pressure. Look for sign of anger or discomfort like ear pinning, flinching or arching. Watch the horse breathe in and out – make certain breathing is regular. If it is irregular there may be an obstruction or chronic respiratory problem. It is desirable for the horse to have a short back, good coupling and long croup.

1. Does this horse have a sore back? Does this happen often and what do you believe causes this?
2. Does this horse have heaves or any other respiratory problem, allergies or bronchitis?
3. Evaluate the angle of the shoulder (should be 45-50°)

**Observe the horse's movement in hand** – Watch horse being led – watch for coordination and willingness. Incoordination may be a sign of neurological problem. While walking the horse in a circle, push the horse's hip outward. A normal horse should regain balance quickly. While at a walk – look at the foot fall pattern. Check for paddling and winging which can cause interference. Watch horse at the jog on hard level ground moving both in a straight line and tight circle. Look for head nodding or hip dropping which can indicate pain. Listen to rhythm of the gait – it should be a 1-2 tempo at a trot. Next closely watch head, look for signs of nodding or for the head being held very high throughout the stride. Next watch hip, while jogging if the hip pops up one limb may not be supporting the horse properly. Sinking and rising of the hip could indicate a problem with ligaments, tendons and muscles, and in general, a rear quarter lameness. Next watch the feet and legs for equal striding in both distance and flight pattern and equal time on the ground. Be aware that horses which are sore in both feet may move equally, but with a short, stilty, trappy stride. If anything has made you wary - ask the handler to work the horse on uneven ground (including up and down hill) or soft grass – as some problems will become more evident under these conditions.

1. How coordinated do you feel this horse is? How much in hand training has this horse had? If it lacks coordination, has this horse been checked for EPM or any other neurological condition?
2. Does this horse interfere – if so at what gait(s) is it most prevalent? Does this horse have trouble stepping on itself and pulling shoes off?
3. Has this horse exhibited lameness? If so in which leg, and what caused this condition? Request to be informed of any leg injuries this horse has received in the past few years.

**Review Health Records** – Review the horse's deworming and vaccination records. Ask if health records are kept on the horse and if yes, ask to see them.

1. Does the horse have a negative Coggins test? (to determine if the horse has equine infectious anemia, if positive the horse must be quarantined or euthanized)
2. Has it been vaccinated for West Nile Virus?
3. Has it ever had a reaction to a vaccination?
4. When was this horse's last dental exam? How old is this horse and does he have chronic dental issues?
- 5.

By looking at your prospective horse objectively and asking these questions, you have a better chance of making the right decision in purchasing a horse. Be sure to ask as many questions as you can. It is best to enlist the aid of a trained professional if you do not have previous experience in purchasing horses.

## Buying a Horse

What are some questions to keep in mind when buying a horse?

1. \_\_\_\_\_
2. \_\_\_\_\_
3. \_\_\_\_\_
4. \_\_\_\_\_
5. \_\_\_\_\_

What are some things that a vet should check for you?

1. \_\_\_\_\_
2. \_\_\_\_\_
3. \_\_\_\_\_
4. \_\_\_\_\_

Where might you look for horses? (in order of importance)

1. \_\_\_\_\_
2. \_\_\_\_\_
3. \_\_\_\_\_

Identify these problems and what might have caused them:

Cribbing: \_\_\_\_\_

Stall walking \_\_\_\_\_

Weaving \_\_\_\_\_

Pawing \_\_\_\_\_

Kicking \_\_\_\_\_

Biting \_\_\_\_\_

Rearing \_\_\_\_\_

# Equine Science

## Horse Feet and Leg Structure

On the blanks, write the letter of the term that corresponds to the diagram below.

Side view of the rear legs:

- A. Ideal
- B. Sickie Hocked
- C. Camped Out

Front view of the front legs:

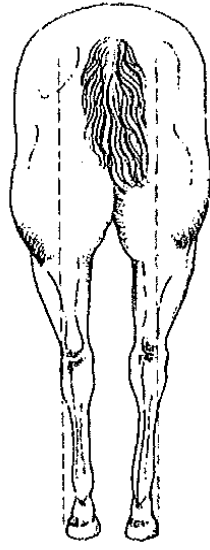
- D. Ideal
- E. Knock Knees
- F. Pigeon Toed
- G. Splay Footed

Rear view of the rear legs:

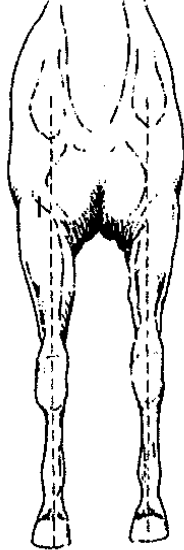
- H. Base narrow
- I. Cow Hocked
- J. Bow/Bandy Legs



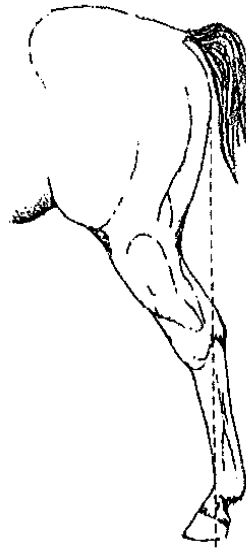
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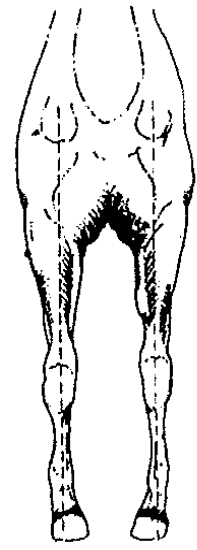
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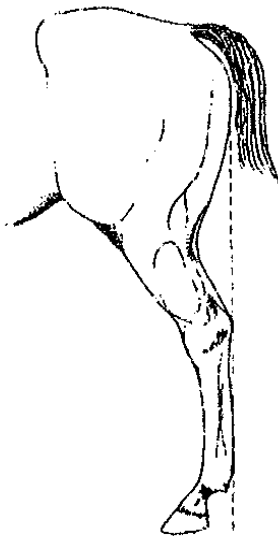
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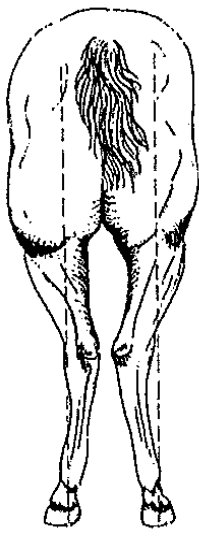
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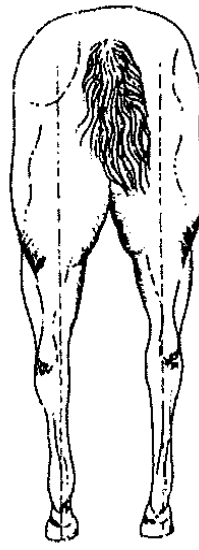
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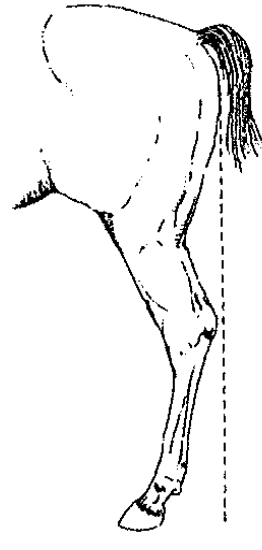
\_\_\_\_\_



\_\_\_\_\_



\_\_\_\_\_



\_\_\_\_\_

## Conformation Defects

*Explain the following conformation term that can be used when judging horses:*

*Base narrow-* \_\_\_\_\_

*Base wide-* \_\_\_\_\_

*Calf kneed-* \_\_\_\_\_

*Buck kneed-* \_\_\_\_\_

*Camped in-* \_\_\_\_\_

*Camped out-* \_\_\_\_\_

*Coon-footed-* \_\_\_\_\_

*Cow-hocked-* \_\_\_\_\_

*Ewe-neck-* \_\_\_\_\_

*Goose (knife)-necked-* \_\_\_\_\_

*Bull necked-* \_\_\_\_\_

*Mutton withered-* \_\_\_\_\_

*Pigeon breasted-* \_\_\_\_\_

*Pigeon toed-* \_\_\_\_\_

*Splay-footed-* \_\_\_\_\_



## **The Skeletal System**

The basis of support and movement of the horse is made possible by the combined effort of the skeletal and muscular systems. In this article we will look closely at what constitutes the skeletal system. The skeletal system includes all bones attached at joints, cartilage between the joints & fibrous ligaments. The system has several roles in the physiology of the horse, these are -

- support of the soft tissues, providing the framework of the horse's body
- protection of delicate internal organs
- leverage - providing attachment for ligaments, muscles and tendons
- mineral storage - especially calcium and phosphorus
- blood cell production takes place in the marrow of many long bones

A bone is a living tissue with nerves and blood vessels. It contains proteins and minerals, particularly calcium and phosphorus. To achieve and maintain a healthy skeleton the horse must receive adequate amounts of these minerals. Bone consists of the hard outer cortex, encasing an inner area of spongy bone, called the medullary cavity. Within this cavity is the marrow, where new blood cells are made. The entire surface of the bone is covered by a thin membrane called the periosteum.

On the basis of shape, bones are classified as either -

- long bones such as the cannon or radius
- short bones such as the carpal and tarsal bones
- flat bones such as the scapula
- irregular bones such as the vertebrae

A joint (or articulation) is a point of contact between bones or between cartilage and bones. Joints allow movement. They may be classified into the following types -

- fibrous joints - bones held by fibrous connective tissue, with no joint cavity (e.g. the skull).  
Allow little or no movement. (Left - synovial joint)
- cartilaginous joints - bones held by cartilage, with no joint cavity (e.g. the vertebrae). The articulating bones are held together tightly, allowing little movement.
- synovial joints - contain a joint (synovial) cavity, articular cartilage and a synovial membrane (e.g. the fetlock). A fully moveable joint.

Cartilage is a gristly connective tissue containing collagen and elastic fibres covering the ends of bones at some joints. It contains no blood vessels or nerves.

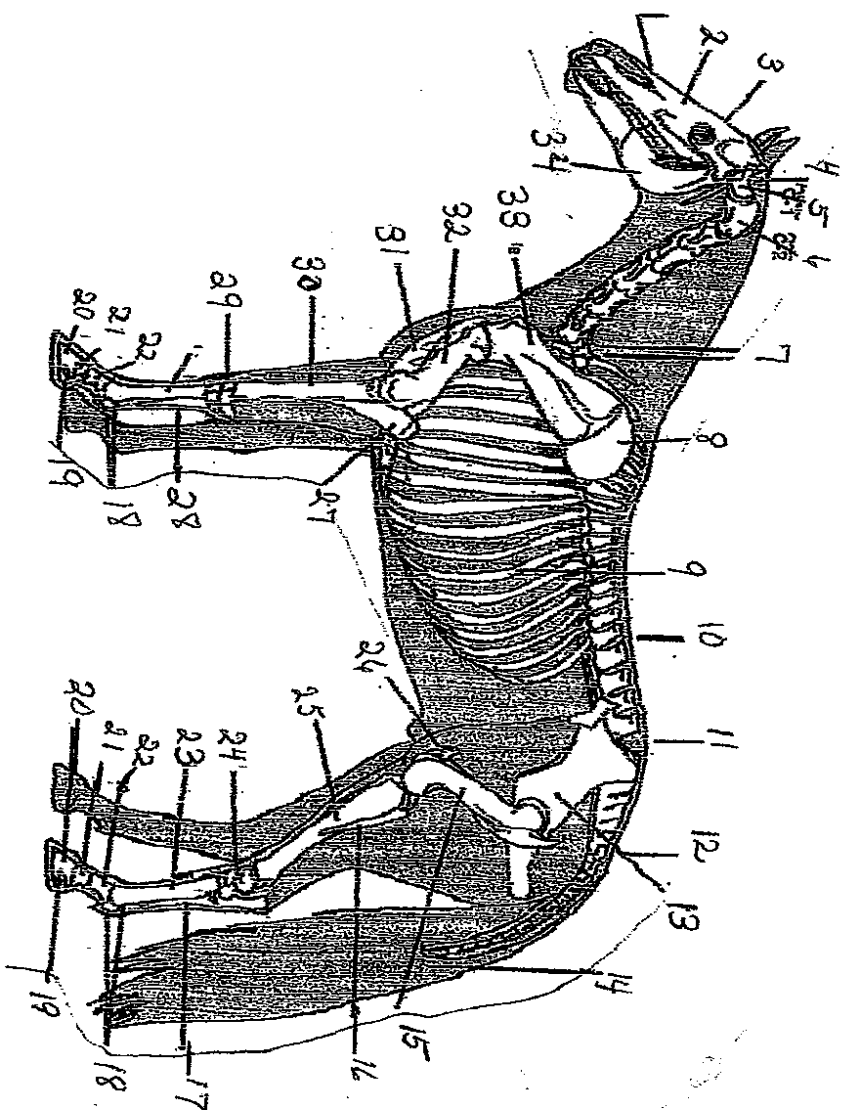
A ligament is a dense fibrous tissue that connects bone to bone. Horses also have "check ligaments" which connect some bones & tendons and form part of the horse's "stay mechanism". They lock the limbs and joints so that the horse can relax and sleep in a standing position.

Tendons connect muscle to bone and help control the movement of bones and joints. In the horse there are no muscles below the knee or hock. All movement of the pastern and foot is transferred by tendons connected to muscles in the upper limbs.

Both tendons and ligaments have a poor blood supply, making healing difficult following injury.

The skeletal system consists of approximately 205 bones divided into -  
the axial skeleton includes all but the limbs - the skull, vertebrae, sternum and ribs and the appendicular skeleton - including the four limbs of the horse. There is variation in the number of bones, as some fuse together as the horse matures. Even in adult horses there can be variation in the number of bones. E.g. anything from 15 to 21 coccygeal or caudal (tail) vertebrae

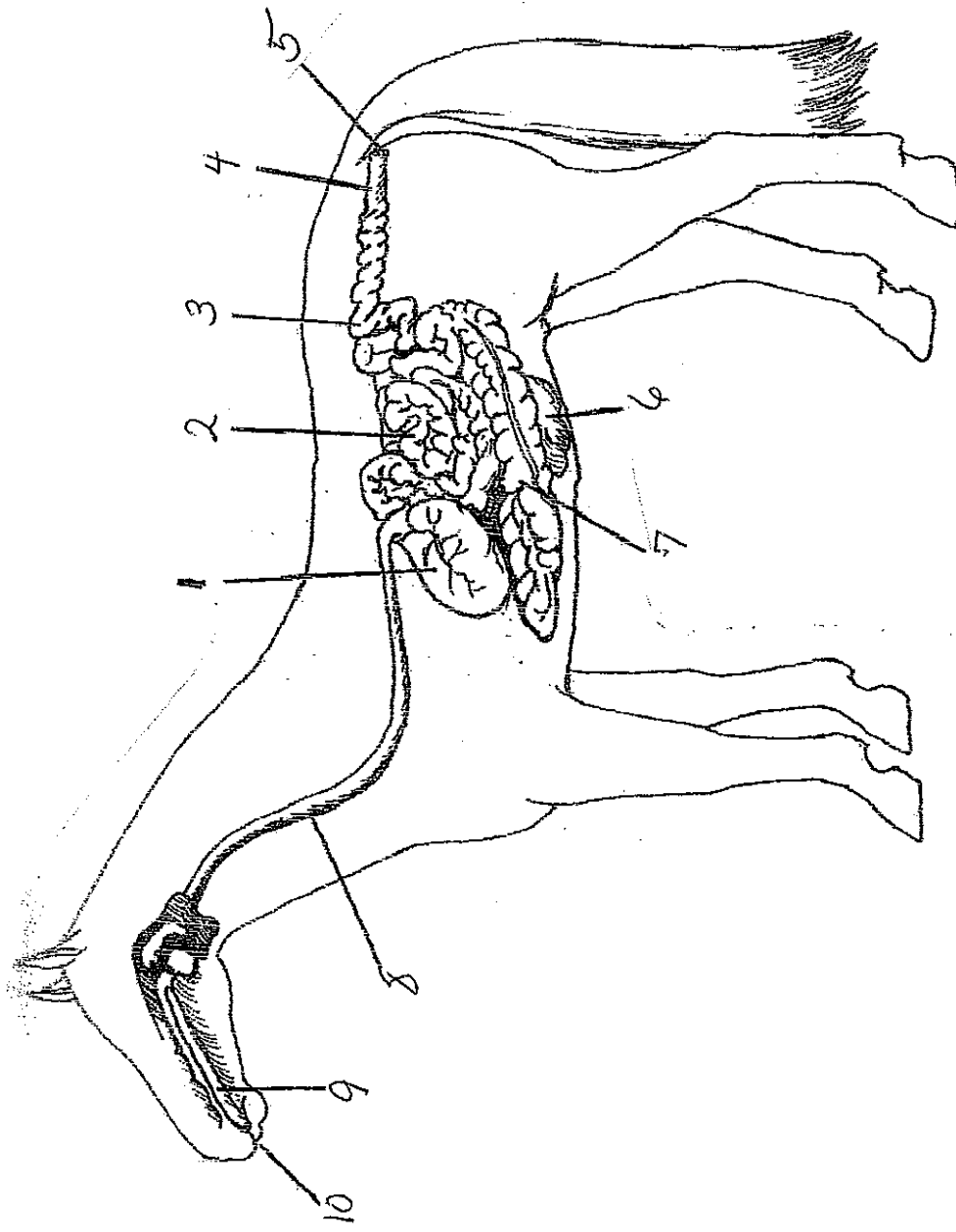
## The Skeletal System



Put the correct number in front of the correct body part: (At least 20)

- \_\_\_\_ skull \_\_\_\_ scapula \_\_\_\_ radius \_\_\_\_ Thoracic vertebrae (18) \_\_\_\_ Lumbar vertebrae (6) \_\_\_\_ ulna \_\_\_\_ femur  
 \_\_\_\_ carpal joint \_\_\_\_ Coccygeal vertebrae (18-23) \_\_\_\_ nasal bone \_\_\_\_ fibula \_\_\_\_ Sacral vertebrae \_\_\_\_ sternum  
 \_\_\_\_ frontal bone \_\_\_\_ patella \_\_\_\_ ulna \_\_\_\_ large metacarpal (cannon bone) \_\_\_\_ long pastern bone \_\_\_\_ tibia  
 \_\_\_\_ navicular bone \_\_\_\_ short pastern bone \_\_\_\_ pelvis \_\_\_\_ sesamoid bones \_\_\_\_ small metatarsal (splint bone)  
 \_\_\_\_ small metacarpal (splint bone) \_\_\_\_ coffin bone \_\_\_\_ large metatarsal (cannon) \_\_\_\_ Atlas \_\_\_\_ mandible \_\_\_\_ humerus  
 \_\_\_\_ short pastern bone \_\_\_\_ navicular bone \_\_\_\_ ribs (18 pairs) \_\_\_\_ Cervical vertebrae (7) \_\_\_\_ Axis \_\_\_\_ tarsal joint

# The Digestive System



Choose the correct number off the digestive system and place it before the correct part.

\_\_\_\_\_ esophagus \_\_\_\_\_ cecum \_\_\_\_\_ tongue \_\_\_\_\_ large colon \_\_\_\_\_ anus \_\_\_\_\_ small intestine

\_\_\_\_\_ mouth \_\_\_\_\_ small intestine \_\_\_\_\_ rectum \_\_\_\_\_ small colon

## Explain how the digestive system works:

[illegible]

What is colic? \_\_\_\_\_

---

How can a horse get colic? \_\_\_\_\_

---

What are some of the symptoms? \_\_\_\_\_

---

What can you do till the vet comes? \_\_\_\_\_

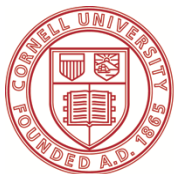
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What does TDN stand for? What does it mean?

What does TDN stand for? What does it mean?

---

\_\_\_\_\_



**Cornell University**  
**Cooperative Extension**  
**Cattaraugus County**

Education Center

28 Parkside Drive  
Ellicottville, NY 14731  
t. 716-699-2377  
f. 716-699-5701

cattaraugus.cce.cornell.edu

## 4-H Youth Horse Program

### COMMITMENT TO EXCELLENCE

- I believe that participation in the 4-H Horse Program should demonstrate my own knowledge, ability and skill as a caretaker and exhibitor of equines.
- I will do my own work to my fullest extent that I am safely capable and will accept advice and support from others.
- I will not use abusive, illegal, fraudulent, deceptive or questionable practices in the feeding, fitting and showing of my animal(s), nor will I allow my parents or any other individuals to employ such practices with my animal(s).
- I will read, understand and follow the rules put forth by the Cattaraugus County 4-H Horse Program, without exception, for all horse shows in which I am a participant, and I will ask that my parents and supervisors of my project do the same.
- I wish for my horse project to be an example of how to accept what life has to offer, both good and bad, and how to live with the outcome.
- I realize that I am responsible for:
  1. The grooming, and care of my project animal(s),
  2. The proper care and safe, humane treatment of my animal(s),
  3. The safe handling of my animal(s) at all times,
  4. Demonstrating strong moral character as an example to others.
  5. Supporting and respecting all the youth and volunteers at any and all 4-H events

---

4-H Youth's Signature

---

Date

---

Parent/Guardian Signature

---

Date

---

4-H Educator's Signature

---

Date

# NYS 4-H HORSE CERTIFICATE

\_\_\_\_ Personally owned

Date \_\_\_\_\_ 20\_\_\_\_

\_\_\_\_ Family owned



\_\_\_\_ Non-owned  
(See non-ownership policy/reverse side)

Name of Animal \_\_\_\_\_

Date Animal Born (Mo.) \_\_\_\_\_ (Day) \_\_\_\_\_ (Yr.) \_\_\_\_\_ Sex M ☐ G ☐

Name of Sire \_\_\_\_\_

Name of Dam \_\_\_\_\_

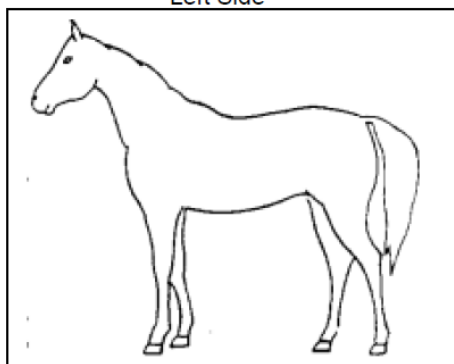
Registry/Breed \_\_\_\_\_

Reg. No. \_\_\_\_\_

Date of Purchase \_\_\_\_\_

Member County \_\_\_\_\_

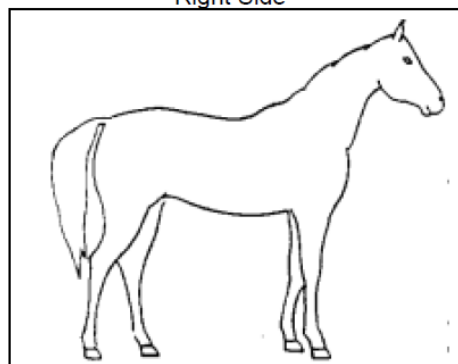
Left Side



Draw markings on each side and face identical to your horse



Right Side



Color \_\_\_\_\_

Owner \_\_\_\_\_

Height \_\_\_\_\_

Address \_\_\_\_\_

Weight \_\_\_\_\_

(Zip) \_\_\_\_\_

Signature of Owner \_\_\_\_\_

This animal has been officially designated as the 4-H project animal of the 4H'er as of June 1 of the current project year.

Name of 4-H'er \_\_\_\_\_

4-H Leader Name \_\_\_\_\_

Address \_\_\_\_\_

Address \_\_\_\_\_

\_\_\_\_\_ Zip \_\_\_\_\_

\_\_\_\_\_ Zip \_\_\_\_\_

Telephone \_\_\_\_\_ Email \_\_\_\_\_

Telephone \_\_\_\_\_ Email \_\_\_\_\_

Member's Signature \_\_\_\_\_

Leader's Signature \_\_\_\_\_

Parent/Guardian \_\_\_\_\_

Educator \_\_\_\_\_ County \_\_\_\_\_

Address \_\_\_\_\_

Address \_\_\_\_\_

\_\_\_\_\_ Zip \_\_\_\_\_

\_\_\_\_\_ Zip \_\_\_\_\_

Telephone \_\_\_\_\_ Email \_\_\_\_\_

Telephone \_\_\_\_\_ Email \_\_\_\_\_

Parent/Guardian Signature \_\_\_\_\_

CCE Educator Signature \_\_\_\_\_

Remember to include a copy of your current Coggin's test - test dated this year or last year. \*Proof of rabies vaccination required - must be current, given more than 14 days prior to arrival at fairgrounds, and remain current for duration of the Fair.

\*See reverse side for important information\*

# My 4-H Project Story

Include:

- Activities you did with your club
- Different programs/clinics you attended
- What you and your horse learned this year
- Fun things you did
- What part of your project you liked best
- What you gained out of being in the 4-H program

# Horse Terminology

1. **Horse** – any equine that is above 14.2 hands high.
2. **Pony** – any equine that is 14.2 hands high or shorter
3. **Mare** – a female horse
4. **Filly** – a young female horse under 4 years of age.
5. **Broodmare** – a mare that is used for breeding purposes **Stallion** – a male horse that has not been castrated. Do not buy one of these if you don't know what you're doing.
6. **Stud** – a slang-ish term for a stallion, often used for one that is kept for breeding purposes.
7. **Colt** – a young male horse under 4 years of age
8. **Gelding** – a male horse that has been castrated. Can be used for any age of horse.
9. **Foal** – a horse of either sex under one year of age.
10. **Weanling** – a young horse under a year old that has been weaned from its mother. Usually happens 3 to 6 months of age.
11. **Yearling** – a horse that is between 1 and 2 years old. Usually not broke to ride, although Thoroughbred racehorses are often started under saddle late in their yearling year.
12. **Grade** – a horse of unknown ancestry
13. **Draft horse** – one of a number of large horse breeds developed to haul cargo wagons. They range in size from 16 to 18 hands high, usually, and include breeds such as the Clydesdale, Shire, Belgian and Percheron.
14. **Gaits** – the various "speeds" of the horse.
15. **Walk** – the slowest of all gaits. This is the same as all other animals walk – each foot is picked and moved forward one at a time. A 4 beat gait.
16. **Trot** – the "medium" speed. Bouncy. The horse picks up and moves forward the diagonal pairs of legs together. 2 beat gait. Term used mainly in the hunt seat.
17. **Jog** – a slow, much less bouncy version of the trot. The legs move the same way, but the speed is lessened. A 2 beat gait. Term mainly used in stock seat.
18. **Pace** – a relative of the trot, but in this case, the horse moves the pair of legs on each side together. – Called a **lateral** gait. Seen in Standardbred Harness race horses
19. **Canter** – the "run" or the "fast" speed of horses, this is a gait that has a 3 beat gait. Term used in hunt seat.
20. **Lope** – the term for the canter used in Western riding in the United States. It's a slower form of the canter
21. **Gallop** – a very fast canter
22. **Tack** – all the various equipment used to ride, drive, and care for horse. Saddle, Bridle, Halter, Harness, Bucket, Brushes, etc