List for Quiz Bowl -- lists may not be complete due to overlaps and differences in sources.

Please email additions or corrections to **mcdavis511@comcast.net IN NO PARTICULAR ORDER!!**

Zoological Classification

Kingdom – Animalia
Phylum – Chordata
Class – Mammalia
Order --- Perissodactyla
Family – Equidae
Genus – Equus
Species – Equus caballus

Evolutionary Stages:

Pre-horse (5 toes)
Eohippus (4 toes front, 3 hind1 foot tall, 58 million yrs ago)
Mesohippus (3 toes, collie/mini horse size, 38 million yrs ago)
Merychippus (3 toes, only middle touched the ground, size of Shetland pony)
Pliohippus (first 1 toed horse, pony sized)
Equus

3 serous membranes and where they are found:

pleura – chest	for each of these visceral = next to the organ, and parietal =
peritoneum – abdomen	next to the body wall [all are double layers with a thin
pericardium – around the heart	layer of lubricating fluid between the layers])

Fat soluble vitamins

A, D, E, K

Water soluble vitamins

B complex (see below) & C

B complex vitamins:

B1 (Tiamin)
B2 (Riboflavin)
B6 (Pyroxidine)
B12 (Cobalamin)
Biotin
Folic Acid
Niacin
Pantothenic Acid

Vitamins that are essential in the diet (horse cannot synthesize its own)

Vitamin A
Vitamin E

Microminerals

Cobalt
Copper
Iodine

Iron
Manganese
Selenium
zinc

Macrominerals

Calcium
Chloride
Magnesium
Phosphorus
Potassium
Sodium
Sulfur

Essential amino acids

Arginine
Methionine
phenylalanine
Isoleucine
Leucine
Lysine
Threonine
Pheylaanine
Histadine
Valine
Tryptophan

Mnemonic=TV till PM & arginine histadine OR "Any horse is lame like my timid thoroughbred victor"

Plant sources of high protein

Soybean meal
Canola meal
Linseed meal
Cottonseed meal
Corn gluten meal
Sunflower meal
Brewers yeast
Rice bran

Animal protein sources

Milk protein (whey protein)
Egg protein
Fish protein
Meat industry waste products

Reasons to give supplemental vitamins

Horse that is on or has been receiving prolonged antimicrobial drug therapy
When feeding high grain, low forage diet
Feeding poor quality hay or hay stored for more than one season
Horses under stress (racing, traveling, heavy showing, etc.)
Nervous, hyperactive horses

Horses in hard training
Horses not eating well (due to illness, strange surroundings following surgery
Anemic horses
Horses known to have a specific deficiency or medical condition

Abbreviations related to feed and nutrition

PPM – parts per million
CP = crude protein
DCP = digestible crude protein
DE = digestible energy
DM – dry matter (the weight of the feed without any moisture)
Ca++ -- calcium
K – potassium
Ca:P of Ca – Ph = calcium to phosphorus ratio (must be 1:1 – 2:1 especially for growing horses)

Grasses

Fescue
Timothy (considered one of the most palatable grasses)
Bluegrass/Kentucky Bluegrass (considered one of the most palatable grasses)
Bahaigrass (a digit grass)
Bermuda grass (a digit grass)
Digit grasses
Orchard grass
Brome grass
Bent grass
Reed canary grass
Rye grass
Bluestem
Millet
Rhodes grass
Others...
(sudan grass, sorghum, Johnson grass and sudex are OK but if not properly cured and stored can cause cyanide poisoning)

Legumes (higher in protein than grasses due to bacteria in the roots that obtain nitrogen which is then turned into proteins)

Alfalfa
Vetch
Clovers (white, red, ladino, etc)
Lespedeza
Birdsfoot trefoil

Grains that are suitable for horse feed

Barley
Corn
Millet
Oats
Rice
Rye
Sorghum (milo)

Wheat
Not sweet feed or pelleted/complete –these are a compilation of feeds.

Characteristics of good pasture

adequate size for number of horses
Sufficiently dry, adequate drainage
Free of obstacles, holes, debris
Smooth fence of adequate height – no barbed wire
Ready access to water
Ready access to shade
Adequate shelter – not necessarily man-made
Adequate forage – free ofweeds and toxic plants
Ready access to salt lick

Reasons to keep horses off pastures

Wet weather/muddy
Overgrazed
Poisonous plants
Recently seeded
Recently treated with herbicides or pesticides

Sudden Death Inducing Plants

Service berry/Saskatoon berry	cyanogenic glycosides
Wild blue flax	cyanogenic glycosides
Chokecherry	cyanogenic glycosides
Elderberry	cyanogenic glycosides
Johnson grass	cyanogenic glycosides
Sudan Grass	cyanogenic glycosides
Arrow, pod, or goose grass	cyanogenic glycosides
Milkweed	cardiac glycosides
Foxglove	cardiac glycosides
Be-still or lucky nut tree	cardiac glycosides
Oleander	cardiac glycosides
Yellow oleander	cardiac glycosides
Dogbane	cardiac glycosides
Lily of the Valley	cardiac glycosides
Larkspur	Diterpenoid alkaloids
Monkshood	Diterpenoid alkaloids
Hemlock (poison, European and spotted)	piperadine alkaloids
Larkspur	piperadine alkaloids
Water hemlock	cicutoxin alkaloids
Yew	taxine alkaloids
Death camas	digadenine alkaloids
Avocado	unknown toxin (in plant not fresh fruit)

Mnemonic for sudden death causing plants

Milkweed
Oleander

Larkspur (or Lily of the Valley)
Elderberry
Serviceberry (or Saskatoon berry)

Sudan grass
Avocado (or Arrow grass)
Yew

B (Be-still is all one plant. Also called Lucky nut tree)
e
still

So: MOLES SAY "Be-still"! There is obviously a ton of the plants in there, so if you can't remember some of them, you should be okay. Again, I know it is really weird and makes absolutely no sense...but it should help us remember!! (credit to Leah Varney)

Mycotoxins (molds found in feeds/plants/forages)

Moldy corn disease
Fescue Poisoning
Grass stagers
Ergot poisoning (mostly from Rye)
Aflatoxin
Slobbering disease (mostly from clover with black spots)
Sweet clover poisoning (moldy sweet clover hay or haylage)
Stachybotriotoxicosis

Signs of black walnut poisoning

Decreased feed intake
Lethargy/depression
Laminitis
Respiratory distress
Edema (swelling) of the legs
Colic
Rarely death

Diseases and poisons that cause neurologic symptoms in groups of horses

Moldy corn disease
Rabies
Rhinopneumonitis/EHV
Botulism
Sleeping sickness (VEE, WEE, EEE)
Aflatoxicosis
Tick paralysis
Pyrrolizidine Alkaloid Liver Damage

Physiological Water Loss Routes

Urine
Sweat
Respirations
feces

Reasons for applying a bandage to a wound:

Keep wound clean
Control bleeding
Prevent infection
Prevent further injury
Promote healing
Absorb drainage
Hold medication against wound
Reduce swelling (by applying pressure)

Hock Unsoundnesses and Blemishes

Bone spavin
Bog spavin
Occult/blind spavin
Blood spavin
Curb
thoroughpin

Front Limb Joints Proximal to Distal

Shoulder
Elbow
Knee/carpus
Fetlock/ankle
Pastern
Coffin reverse for distal to proximal

Muscle classifications

Smooth
Skeletal
cardiac

Hind Limb Joints Proximal to Distal

Hip
Stifle
Hock
Fetlock/ankle
Pastern
Coffin reverse for distal to proximal

Salivary glands

Parotid
Sublingual
Submaxillary
Mandibular
Buccal gland (pronounced buckle)

Directional terms (descriptive anatomy)

Ventral – toward the underline (belly)
Dorsal – toward the topline (back)
Distal – toward the end of a limb
Proximal – away from the end of a limb and toward the torso

Rostral – toward the nose (used for parts of the head)
Cranial – toward the head (used for "front to back" descriptions)
Caudal – toward the tail (used for "front to back" descriptions)
Palmar – caudal side of the front lower limb (the "back" of the leg)
Plantar– caudal side of the back lower limb (the "back" of the leg)

These terms are used comparatively – a laceration might be said to be 2 inches distal to the knee; the hind chestnut is proximal to the fetlock and distal to the hock...)

Parts of the topline

Withers
Back
Loin or coupling
Croup

Body systems

Skeletal
Muscular
Respiratory
Circulatory
Digestive
Endocrine
Nervous
Reproductive
Integumentary
Urinary

Breakdown of bones by area:

Vertebral – 54
Thoracic (front) limbs – 40
Pelvic (hind) limbs – 40
Sternum – 1
Ribs – 36 (18 pair)
Skull – 34.....total = 205

Joint types

Ginglymus – hinge (a type of synovial or true joint) -- elbow
Enarthrisis – ball and socket (a type of synovial or true joint) -- hip
Pivot – the allantoaxial joint between C-1 and C-2 (a type of synovial or true joint)
Sliding joint – such as in the carpus (knee) a "plane" joint (a type of synovial or true joint)
Ellipsoid joint (biaxial movement—in two planes) anteobrachialcarpal joint – between the upper carpal (knee) bones and the forearm
Fibrous – sutures in the skull and syndesmosis between shafts of some long bones (cannon and splint bones, radius and ulna for example)

# of vertebrae in different sections

Cervical – 7
Thoracic – 18
Lumbar –6
Sacral – 5 (fused)
Caudal or coccygeal – 15-21

Bone classification by shape

Short (bones in complex joints such as carpus, tarsus...)
Long (many bones of the limbs)
Flat (primarily bones of the skull & ribs)
Irregular (vertebrae fall into this category)

Pathway of blood into and through the heart and lungs (valves not included)

Vena cava carries deoxygenated blood →
Right atrium →
Right ventricle →
Pulmonary arteries (still deoxygenated) → **only artery to carry deoxygenated blood**
Lungs where blood is oxygenated →
Pulmonary vein (oxygenated blood) → ** only vein to carry oxygenated blood**
Left atrium →
Left ventricle →
Aorta → carries blood to other arteries that distribute it throughout the body
Arteries
Capillaries
Veins → back to vena cava.....

Types of blood cells:

Erythrocytes (red blood cells)
Eosinophil (a type of white blood cell)
Lymphocytes (a type of white blood cell)
Basophils (a type of white blood cell)
Monocytes (a type of white blood cell)
Neutrophils (a type of white blood cell)
Thrombocytes (platelets) (essential for blood clotting)
The non-cellular component of blood is plasma, which consists of water, ions, proteins and lipids; serum is similar to plasma but is the portion remaining after the blood has clotted

Bones in the head of the horse

Frontal bone
Incisive bone (premaxillary)
Mandible
Maxillary bone/Maxilla
Basisphenoid
Occiptal bone
Nasal bone
Orbit
Temporal fossa/Temporal Bone
Pterygoid
Zygomatic
Parietal
Lacrimal

Cranial Nerves

Olfactory (smell)
Optic (sight)
Oculomotor (eye movements)

Trochlear (eye movements)
Trigeminal (facial sensory)
Abducent (eye movement)
Facial (facial muscle movement)
Vestibulocochlear (hearing and balance)
Glossopharyngeal (tongue, palate and throat movement)
Vagus (parasympathetic control of smooth muscles of neck, chest and abdomen)
Accessory (shoulder muscle movement)
Hypoglossal (tongue movement)
MNEMONIC: #1 On, On, On, They Traveled And Found Voldermort Guarding Very Ancient Horcruxes
#2 Odor Of Orangutan Terrified Tarzan After Forty Voracious Gorillas Viciously Attacked Him

Complex joints of the horse

Hock/tarsus
Knee/carpus
Fetlock
Stifle

Unsoundnesses that do NOT cause lameness

Cataracts
Blindness
Broken Wind/Heaves/COPD
Roaring/Laryngeal Hemiplegia
Infertility
Poll Evil
Fistulous Withers
Saddle sore/girth gall
Monkey mouth (undershot jaw/underbite)
Parrot mouth (overshot jaw/overbite)
Tying up (HyPP, PSSM etc.)
Colic (on the list but not generally considered an unsoundness)
Respiratory infection
Tipped vulva
There may be others!!

Unsoundness terms

Sound – free from any condition that impairs usefulness (would include breeding, riding, work, etc)
Serviceably sound – not sound for ALL work, but sound for the intended purpose (for example a horse that cannot jump but can do flat work)
Breeding/Reproductive soundness – addresses whether a horse is free of conditions that would impair reproduction (a mare with a tipped vulva or a cryptorchid are NOT breeding sound)

Types of hernias

Umbilical – located at or near the umbilicus/naval – a weakness in the abdominal wall muscles through which abdominal organs may protrude
Inguinal hernia – a protrusion of abdominal material through the inguinal ring, usually into the scrotum of the male horse; rarely an inguinal hernia can occur in a female
Scrotal hernia – same as inguinal hernia but can only occur in males (mares do not have a

scrotum!)

2-beat gaits

trot
pace
back/rein back

4-beat gaits

walk
gallop
running walk
rack
amble
stepping pace/slow gait
tolt
fox trot
paso
most other artificial gaits

Dressage Levels

Introductory
First
Second
Third
Fourth
Prix St. Georges
Intermediate
Grand Prix

Walk varieties in Dressage

Collected
Extended
Free
Working
Medium

Nematodes (roundworms)/internal parasites

Threadworms -- Strongyloides Westeri
Lg. Strongyles (3 main varieties are S. vulgaris, S. edentates and S. equinus)
Sm. Strongyles (cyasthostominae – 40 species)
Ascarid (Parascaris equorum) – large roundworm
Bots – gasterophilus (G. nasalis, G. hemorrhoidalis and G. intestinalis)
Pinworms (Oxyuris, Probstymaria vivipara)
Tapeworms (Anoplocephala magna, A. perfoliata and Paranoplocephala mamillanea)
Stomach worms (Habronema)
Lungworms (primarily in horses pastured with or near donkeys) Dictyocaulusarnfeldi)
Most serious/Problematic are Ascarids Strongyles, Bots and Pinworms

Internal parasites that primarily affect young horses (but generally NOT adults – they develop immunity)

Ascarids
Threadworms
Note: large and small strongyles and occasionally other parasites are problematic in both young and mature horses

Flies

Face fly (non-biting)
House fly (non-biting)
Stable fly (biting)
Horse fly (biting)
Deer fly (biting)
Horn fly (biting)
Black fly (biting)
Gnat (biting)
Bot fly (3 types)
Bomb fly
Heel fly
Blow fly (feeds on dead/decaying tissue in wounds or on dead animals)

Other external parasites

Lice (Bloodsucking – Haematopinus asini and biting – Damalina equi)
Mange mites
Habronemiasis (cause summer sores)
Mosquito (Carries VEE, EEE, WEE, WNV, EIA, others)
Ticks (many varieties – carry Lyme Disease, Babesiosis, Tick bite paralysis carried by Rocky Mountain wood tick Fever, others.)
Ringworm (a fungus, not truly a parasite nor a worm)

Factors of natural environment essential to assess when planning a farm:

Topography (slope and shape of land)
Wind intensity and direction of prevailing winds
Sun angle and intensity in different seasons
Vegetation
Precipitation
Soil characteristics

Predisposing causes of bowed tendon

Calf knees
Long weak pasterns
Long toe & low heel
Improper shoeing
Tied in at the knees
Repeated, excessive or fast work on hard surfaces
Repeated, excessive work on soft, boggy footing
Genetic

Foundation sires of TB

Byerly Turk
Godolphin Arabian
Darley Arabian

"4th" foundation sire Curwyn Bay Barb

Causes of excessive slobbering

Dental problems
Poisonous plants
Choke
Poorly fitting bits
Trauma to the mouth (often from awns or sharp areas on forages)
Improperly used bits
Bitterweed in shavings
Infectious disease such as vesicular stomatitis

Striding leg interference (hind limb hits the "folding" forelimb on the same side at the trot; in the pace diagonal fore and hind legs hit)

Forging
Cross firing (pacers)
Scalping
Speedy cutting
Shin hitting

Supporting leg interference front or hind limb hits the opposite front or hind limb

Brushing (gentle)
Striking (harder hit that causes a wound)

Gait defects – deviation in the flight of the toot

Paddling (toe in/pigeon toed horses)
Winging out(exaggerated paddling)
Dishing or winging in (toe out/splay footed horses)
Rolling (wide fronted horses)
Winding or rope walking
Trappy
Pounding

Evaluation of semen

Morphology (the "conformation" of the spermatozoa)
Motility (can they swim well)
Concentration (how many spermatozoa per cc)
Volume (how much total volume in the ejaculate)

Advantages of castration

Can turn out with mares
Can turn out with other geldings
Easier to handle
Less prone to injury
Prevent unintended pregnancy
More suitable for novices
Easier to transport

Visual means of identifying horses

Color

Chestnut patterns (on the chestnuts of the legs)
Markings
Tattoos
Brands
Cowlicks/wohrls
Scars
Blemishes
Sex/Gender
Height
Muscular dimples (prophet's thumb)

Genetic modifications of coat colors

Spotting
Roaning
Graying
Dilutions

Dilutions

Palomino
Buckskin
Dun
Cremello/Cream (double)
Perlino (double)
Champagne
Silver dapple
Grulla/grullo

# of chromosomes in Equids

Horse 64 (32 pair)
Przewalski's horse 66 (33 pair)
Donkey 62 (31 pair) ranges from 50-63 depending on species of ass (???63 is an odd # so that may be a typo ES pg 89)
Grants zebra 44 (2 2pair) other zebras range from 32 to 46 depending on species
Onager (Asiatic wild ass) 66 (28 pair)

Behavior with examples

Contactual – seeking affection or protection (huddling together during bad weather or danger)
Ingestive – eating
Eliminative – urination and defecation
Sexual – mating and associated courtship behavior/signs of estrus
Epimeletic – giving of care and attention primarily mare to foal or bonded horses
Et-epimiletic – signaling for care and attention (nickering for a herd-mate)
Allelomimetic – mimicry (one horse running starts the entire herd running)
Investigative – checking out the area or a new herd member (sniffing objects or piles of feces)
Agnostic – conflict or fighting (includes aggression, submission and escape attempts)
Dominance – closely related to agnostic, used to establish dominance hierarchies or pecking order

Note about vices -- different books categorize them differently so there is overlap

Vices dangerous to humans

Biting

Kicking
Striking
Rearing
Charging
Crowding

Vices dangerous to horses

Cribbing
Wood chewing
Eating bedding, manure or dirt
Fighting
Bolting feed
Shying

Nuisance habits

Weaving
Stall walking
Pawing
Mane and/or tail rubbing
Halter pulling

Escape vices

Pawing/digging
Trying to jump out
Kicking wall
Stall or fence walking
Weaving
Head nodding

Oral vices (note does not include biting – oral vices satisfy – at least partially – a horse's need to chew; biting is an aggression not a chewing activity)

Wood chewing
Cribbing/wind sucking
Tail or mane chewing
Eating feces or bedding

Fight or flight vices

Aggression
Lunging
Crowding
Biting
Rearing
Striking

FCH also mentions Self aggression or mutilation, shying or bolting, balking or freezing

Saddle Types

English – close contact
All purpose
Dressage

Saddle seat (flat or cut-back)

Western -- barrel racing

Roping

Pleasure/trail

show/equitation

Endurance

Reining

Cutting

(Note:there are others listed in IDET)

Martingales

Standing (attaches from girth through neck strap to cavesson) English equivalent to Western tie-down

Running (attaches from girth through neck strap to reins via rein rings)

Irish (reins pass through martingale rings and are held together by leather strap)

German (attaches from girth through neck strap through bit rings to reins)

Packing

Decker and sawbuck are purpose made for packing; McClellan and Stock can be modified); sawbuck is double rigged; decker is single rigged

Modification to make a stock or McClellan saddle useable for packing -- breeching and breast collar/breastplate (and know the breeching holds the load from sliding forward going down hills; breast collar holds load from sliding back going up hills)

hitches used to tie a load -- single diamond, double diamond, half diamond, squaw, arizona

kitchen panniers type of panniers used for food prep --

manta -- a covering for a load (basically a canvas tarp specifically for covering/wrapping a pack load)

Parts of the horseshoe nail

Head

Neck

Shank

Bevel

Point

Inner face

Outer face

Types of corrective/therapeutic shoes

Half rim

Square toe

Calk at first outside nail hole

Heel calks

Lateral toe extensioin

Trailer

Half shoe

Bar across break over point

Rolled toe

Bar shoe

Slippered heels

Chadwick spring
Heart bar

Dental milestones

Birth – 1 week – temporary centrals erupt; first few weeks temporary premolars erupt
4-6 weeks – temporary intermediates erupt
5-6 months – wolf teeth (first premolar) erupt
6-9 months – temporary corners erupt
2 ½ years – perm. Central incisors erupt
3 ½ years -- perm. intermediate incisors erupt
4 ½ years – perm. Corner incisors erupt
5 years – full mouth; Canines erupt at 4.5 – 5 years in males
6 years – cups disappear from central incisors
9-10 years – Galvayne's groove appears at gum line of upper corner incisor
12 years – smooth mouth (all cups gone from incisors)
20 years – Galvayne's groove reaches bottom of upper corner incisor

Signs of dental problems

Slobbering badly when eating
Tilting head when chewing
Dropping grain Quidding/
incomplete chewing
Weight loss
Flushing mouth
Fussing with bit
Sharp edges
head tossing
poor performance/bucking

Ways of aging by teeth:

Eruption times
Presence of cups/wear of cups
Presence of Dental stars
Presence of hooks
Galvayne's groove
Shapes of occlusal (biting) surfaces
Angle of incidence – the way the teeth meet in the front goes from nearly upright to very angled as age increases

Numbers of teeth in adult horses (total 40-42 for males; 36-38 for females)

12 incisors (6 in each jaw – 2 centrals, 2 intermediates, 2 laterals)
4 canines (tushes, tusks, bridle teeth, bit teeth, fangs) MALES only, very rare in females
2 Wolf teeth possible – small inconsistent premolar that is often removed or falls out by adulthood
NOTE: canine teeth and wolf teeth are **NOT** the same
12 premolars (not including wolf teeth) (6 in each jaw; 3 in each side of each jaw)
12 molars (6 in each jaw; 3 in each side of each jaw)

Reproductive System Times:

21-23 days Length of estrous cycle in mares (the entire cycle)
5-7 days Length of estrus (heat) cycle in mares (when the mare is receptive to the stallion)

8 = number of stages of spermatogenesis
12.2 days Total length of spermatogenesis (from start until fully formed → but not done yet, still has to move through the epididymis & four "cycles" of the seminiferous epithelium therefore.....
54 – 65 days – total number of days from beginning of spermatogenesis until mature sperm are ready for ejaculation (this is why it takes so long for a stallion to recover fertility after a high fever) Evans 54 days; FCH 65 days
12- 24 hours Length of time ovum is viable in the reproductive tract of the mare (Evans 396)
48 hours (up to 5 days at the max) Length of time after mating spermatozoa is viable and could fertilize an ovum
Day 2-3 of estrus (heat) – day to breed if no ultrasound or palpation (then breed every other day)
6 days – time from fertilization until implantation of the embryo into the uterine wall
150 days – time it takes for the placenta to be fully formed

Other reproductive "pearls"

Silent heat = mare in heat without behavioral signs
Fallioian tube (AKA oviduct) = where fertilization occurs
Uterine horn = where the fertilized ovum implants and develops into a fetus
Diestrus = the part of the cycle when the mare is NOT in heat
Anestrus = no heat cycles are occurring (normal during the winter/when light conditions are low)
Seasonally polyestrus = how mares are classified (they have many heat cycles only seasonally)

Placental membranes

Chorion (outermost, against the uterine lining [endometrium])
Allantois (middle)
Amnion (innermost, against the fetus)

Factors That Affect Semen

Season (amount of light)
Age of stallion
Frequency of breeding/ejaculation
Health of stallion

Criteria For Evaluating Semen

Concentration (how many spermatozoa per ml)
Motility (can they swim normally)
Morphology (are they the correct "conformation")
Volume (what is the total ejaculate volume)

Foaling timeline:

2-4 weeks before foaling – distended udder
1-3 weeks before foaling – drooping of abdomen
4-7 days before foaling – teats filled with watery secretion
1-4 days before foaling – secretion from teats more cloudy and wax-like/ waxing over of teats
½ - 1 ½ days before foaling -- vulva becomes loose and relaxed and no evening temperature drop in mare
2-5 hours before delivery – mare is restless, stops eating, shows signs of labor and discomfort
½ - 1 hr before delivery – membranes rupture
5-15 min before delivery -- forelimbs (sole down) and amnion appears, then foal's nose
foal is delivered

1-3 min after birth – foal lifts and shakes head, shortly (within 10 min) rolls up onto sternum
3-13 min after birth – umbilical cord breaks
2-20 min after birth – foal will suck at fingers placed in its mouth
5- 25 min after birth – mare gets up
10 – 40 min after birth – foal will follow movement and noise with ears and head
15-90 min after delivery –placenta is delivered
15 minutes – 3 hours after birth – foal stands (average 40 for fillies, 65 for colts) walking well within 9 minutes of standing
10 – 20 min after standing – foal seeks care/follows mare
30 – 90 min after standing – foal nurses and passes meconium (will pass manure every 10 hours initially, increasing to 3-5 times per day)
½ - 1 ½ hours after nursing – foal lies down and eventually sleeps on its side
4 hours after birth – foal stretches, trots, gallops and grooms itself
3- 15 hours after birth – foal urinates

Classification of mares

Barren – not in foal (may also be used to describe infertility or a mare that has never been bred)
Open – not in foal (sometimes used to describe a mare that was bred but did not get pregnant or lost the pregnancy)
Pregnant/in foal
Lactating/wet – producing milk
Maiden -- never been bred
Yeld – did not produce a foal in the current season

Predisposing factors for foal pneumonia

Poor ventilation
Poor sanitation
Overcrowding
Dust
Stress
Parasites
Temperature or humidity extremes
Temperature fluctuations
Secondary to other diseases
Poor nutrition
Prematurity
Failure of passive transfer/lack of colostrum
Hereditary diseases

Problems associated with broodmare grazing endophyte infected tall fescue in late pregnancy

Prolonged gestation
Weak foals
Thickened placenta
Abortion
Lack of milk production (agalactia)

Foal problems that result in altered behavior/consciousness

Sleeper foal – foal with septicemia (blood infection) and is semi-comatose
Shaker foal – foal with botulism infection (so called due to marked muscle tremors)

Barker/dummy/wanderer foal – foal with convulsions or altered awareness due to circulatory dysfunction (likely the foal was deprived of oxygen during delivery maybe due to early separation of placenta and resulted in temporary or permanent brain damage)

Genetic diseases: (genetic is INHERITED due to receiving a "defective" gene from one or both parents; congenital is present at birth but not necessarily inherited.....may be acquired some other way such as "accident of nature", malposition in uterus, etc.)

LWFS, Lethal White Foal Syndrome, Megacolon -- must have at least one overo parent
HYPP, Hyperkalemic Periodic Paralysis – a form of tying up due to high potassium passed down by QH sire Impressive; in stock horse breeds with Impressive in pedigree
Hemophilia A – blood clotting disorder in TB, Standardbred and QH affects only colts
SCID or CID – combined immunodeficiency. In Arabians and half Arabs.
ENB/Equine Night Blindness – in Appaloosas
Rhabdomyolisis or Tying up, Monday Morning Disease, Azoturia. One form is Polysaccharide Storage Myopathy (PSSM). Primarily in Draft and Draft cross
OC or Osteochondrosis – a type of DOD (Developmental Orthopedic Disease) mostly seen in RV, Standardbred, Warmblood, QH during periods of fast growth causing abnormal bone Growth and/or bone cysts
EDM or Equine Degenerative Myeloencephalopathy – affects brain and spinal cord, causes ataxia Affects many breeds including standardbred, QH, Morgan, TB, Arab, paso fino, Appy, zebra and przewalski's horse
NI – Neonatal Isoerythrolysis – incompatibility of mare with foal blood types similar to Rh disease in humans -- causes destruction of foals blood cells. Prevent foal from receiving colostrum to avoid symptoms

Body fluids that can be tested for Doping (illegal drugs)

Saliva
Urine
Blood

Factors in choosing flooring for stalls

Cost
Durability
Non-slip
Easy to clean
Resistant to pawing
Amount of bedding needed/stress on legs (concrete is harder on legs than packed clay for ex)
Availability
Drainage/absorbancy

- note this question is about flooring NOT bedding

Traits of good bedding

Readily available
Affordable
Dust free
Inexpensive
Provides comfort (cushioning)
Provides secure footing
Easy to handle/store
Absorbs liquid and odors

Horse positions in a 6-horse hitch

Wheelers (closest to vehicle)
Swing team
Leaders (the additional team in an 8 horse hitch is the point team behind the leaders)

Signs that a horse is afraid

Eyelids wide open
Snorting
Whinny of distress
Defense (kicking, striking, biting, etc.)
Nostrils flared
Tail tucked between legs
Flight
Raised/Flinging head

Breeds that are divided into two or more distinct classes within the breed (not registry/pedigree/paperwork divisions, but readily identifiable by body type or gait)

American Saddlebred (3-gaited & 5-gaited)
Standardbred (trotter & pacer)
Hackney (cob-tail/hackney class & long-tail/harness class)
Shetland (Classic/Island & American/Modern)
Minature (Arabian type and Stock type)

UNIQUE functions of the foot of the horse (we see this question repeatedly and these exact answers are what is accepted....other functions are not considered UNIQUE function of the foot!)

support weight
resist wear
replenish itself
absorb shock
provide traction
conduct moisture
assist in pumping blood
("protection" – not unique function) ??!!??

Difference between horse and ass (below are ass characteristics)

Longer, larger ears
More cow-like tail
Muzzle and underbelly usually in light in color
No chestnuts on the inner sides of the hind legs
smaller hooves (also generally more elongated)
Sparser mane and tail; upright coarse mane
chromosomes
vocalization (bray vs. whinny)

Characteristics of a hoof/foot with chronic founder

Distance between growth rings at toe is less than at quarter within same ring
Evidence of abnormal growth rings on the hoof
Front of the hoof wall ma have a dished/concave shape

Rotation of the coffin bone
Sole is flattened and thinner
Toes may curl upward, especially if not kept trimmed
Widening of the white line

Factors that predispose foals to pneumonia

Dust, mold in environment
Fluctuations in temperature
Heat & humidity
Parasites
Poor nutrition
Stress (overcrowding, weaning, handling)
Failure of passive transfer/no colostrum

Considerations when choosing a tow vehicle for a horse trailer

Size of vehicle
Electrical system
Engine size
Type of hitch/ball size
Towing capacity
Brake system
Weight capacity of vehicle (ie. ½ ton, ¾ ton, 1 ton, etc.)
Type, length & weight of trailer to be pulled

Causes/predisposing factors for hyperthermia (elevated temperature that could lead to life threatening heat stroke)

High humidity
Hot weather
Obesity
Overwork
Poor stable ventilation
Prolonged exposure to direct sun light
Transport

Equine careers that do not involve working directly with horses

Barn builder
Breed Association or Horse council Representatives
Cooperative Extension personnel
Department of Agriculture Personnel
Equine Insurance
Equine Lawyer
Feed Industry (nutrition, sales, education)
Horse show Judge
Horse Show Organizer
Horse Show/Race Track announcer
Nutritionist
Tack Store worker (clerk/cashier, owner, advisor, client relations, etc.)

Barn Fire Prevention Strategies (* = electrical)

Wiring meets national electric electrical code *

Electric panels in a dry, dust-free area and weather-proofed *
Wiring in conduit *
Moisture proof, dust proof outlets and switches *
Turn off electricity with master switch at night (or when unattended) *
Unbreakable covers, dust and moisture proof on lights *
Use only UL listed intermittent current solid-state electric fence chargers*
Avoid use of heating elements (heat lamps, cooking appliances, dryers) in high risk areas *
Improperly used heat lamps must be avoided*
Heat tapes and water tank heaters must have a thermostat*
No smoking
Keep cobwebs and dust cleaned up
Install lightening rods
Use fire retardant construction materials and fire walls
Store hay, bedding and other highly combustible material in a separate building (and not with machinery or ignition sources)
Do not store flammable materials such as paint in stables

Sound-alike words

Ilium and ileum; ilium =part of the pelvis "expansive front portion of the hip bone" and ileum =distal portion of small intestine
Epistasis and epistaxis; epistasis= genetic term for a pair of genes on one pair of chromosomes that affect the phenotypic expression of another pair of genes on another chromosome; epistaxis = nosebleed
Antipruritic and antipyretic; antipruritic = anti-itch; antipyretic = anti-fever
Jugging and jibbing and jigging; jugging = administering a solution of vitamins, glucose, amino acids and electrolytes prior to strenuous exercise; jibbing = balking and refusal to move forward; jigging – nervous trot/jog without a lot of forward motion
Estrus and Estrous -- estrous is the entire (approximately 21 day) cycle of the mare, including diestrus and estrus; estrus is the portion of the cycle during which the mare is receptive to the stallion
Hyperthermia and hypothermia = hyper is elevated; hypo = lowered therefore hypothermia = lowered body temperature; hyperthermia = elevated temperature (usually not due to illness – the term would be fever in that case) be VERY careful of pronunciation of these words, emphasizing the ER or O

BITS

Bits are clasified primarily as LEVERAGE (curb) and NON-LEVERAGE (snaffle)

- Leverage bits act on
  - the bars
  - lips
  - chin groove
  - poll
  - possibly the roof of the mouth (depends mouthpiece style)
  - Amounnt of pressure applied to the pressure points is greater than the amount of pull on the reins – longer shanks = more pressure
- Non-Leverage bits act on
  - the bars
  - lips
  - possibly the roof of the mouth (depends mouthpiece style)
  - Amount of pressure applied to pressure points is the same as the amount of pull on the reins

Bits are further categorized by:

- Shape and size of RINGS, SHANKS and CHEEKS (what's outside the horse's mouth, attached to the bridle and reins)
- Style of MOUTHPIECE
- MATERIAL used to make the bit

Bitless bridles

- Bosal hackamore
- Mechanical hackamore (leverage)
- Other bitless bridles (Dr. Cook, others)
- Used for young horses in training, horses who cannot tolerate a bit, personal preference
- Not allowed in many disciplines

There are many, many possibilities for the needs of different people, horses and horse sports.

Choosing a bit

- size of horse's mouth
  - Width of bit should be approximately ¼ inch wider than the horse's mouth (1/8 inch per side)
  - Adjust cheekpieces of bridle to allow 1-2 wrinkles in corners of horse's mouth
  - Adjust curb strap (on leverage bits) so it makes contact when pressure is applied to reins (shank at about 45 degrees to mouth)
- training of horse
- special needs of horse (conformation faults or injuries to mouth and head, etc.)
- training of rider
- sport (and popular styles and rules)
- trial and error to find the perfect bit for you and your horse

BIT MOUTHPIECES

Style:

- Shape
- Joints
- Smooth vs. twisted
- Thickness of mouthpiece
- Height of port if present
- Rollers, keys or other features

Materials:

- Stainless steel
- German silver
- Never rust (nickel)
- Rubber
- Happy mouth (plastic with apple flavoring)
- Leather

Rings:

- D or Dee ring
- O ring or Loose ring
- Eggbutt

Cheeks:

- Full cheek
- Half cheek

Shanks:

- Length – short vs. long (often given in inches)
- Shape – grazing, straight, S shaped, etc.
- Style (plain, fancy)

Horse and Pony Breeds from HIH, Evans and IDET

Guide to what is included below:
Breed name Country of origin. Additional information (in some) Registry name and date started if published

Alter-real Portugal

Americana US a "synthetic breed" began in 1962 by crossing Shetland and Hackney

American Albino: US. Foundation sire is Old King. (not true albinos, which do not exist in horses) American Albino Registry name changed to American White and Crème Horse Registry (1937)

American Bashkir Curly US considered a "native breed" (Evans) Do not confuse with the true Bashkir Curly, which originated in Russia.

American Indian Horse US. considered a "native breed" (Evans) American Indian Horse Registry (1961)

American Mustang US. Considered a "native breed" (Evans) American Mustang Association (1957)

American Warmblood: U.S. (eligible for registry if horse/pony achieves minimum scores in Sport Horse/Pony In-hand, Dressage, Eventing, Show Jumping, Combined Driving, Inspection or have Dam or Sire registration performance waiver). American Warmblood Society (1983)

American Walking Pony US – results from xrossing TWH with Welsh pony to form a walking pony breed. (differs from "walking pony" in that a walking pony is just a pony-sized TWH)

Andalusian Spain often used as a bull fighting or dressage horse

Appaloosa: U.S. (by Nez Perce Tribes in the Northwest Palouse region of Idaho and Washington)Offspring of Appaloosa or Appaloosa cross with QH, TB or Arabian; 4 traits = coat pattern, mottled skin, vertically striped hooves, white sclera; Appaloosa Horse Club (1938)

Arabian: Middle Eastern by Beaudoin Tribes Arabian Horse Association (2003) as a result of merger of International Arabian Horse Assoc with Arabian Horse Registry of America. First breed registry in US was 1908

Ardennais France Very powerful draft breed

Asiatic Wild Horse AKA Przwalski Horse the last truly wild horse

Auxois: French draft breed; brand TX on the left side of the neck

Avelignese Italy a light pony breed

Azteca: Mexico a result of crossing QH with Andalusian

Bashkir Russia a hardy riding pony, do not confuse with American Bashkir Curly

Basque Pony Spain – hardy pony breed

Basuto South Africa heavy hardy pony

Belgian: Belgium sorrel and roan colored draft horses; most popular draft breed in US. The "American Belgian" is larger than other Belgians. Belgian Draft Horse Corporation of America (1887; current name 1937)

Breton/Draft Breton France a Draft Breed

Brumby Australia – a feral/wild horse

Buckskin: U.S. traced back to Spain and Norway; International Buckskin Horse Association (1971)

Canadian Cutting Horse Canada closely related to the QH

Caspian pony Iran

Chicksaw Horse: U.S. Bred by the Chicksaw Indians of Tennessee and North Carolina considered a "native breed" (Evans)

Cleveland Bay Great Britain always solid bay with black legs Cleveland Bay Horse Society of North America

Connemara: Ireland a pony breed but many horses are now 15 hands or more. Connemara Pony Breeders Society (1923);

Clydesdale England; Feathered, often bay or roan with extensive white markings famous for Budweiser and other advertising gigs. Clydesdale Breeders Association of America

Cream Draft Horse (American Cream Draft): U.S—Iowa and region. (only draft with US origin) must be draft type with pink skin and cream color with white manes and tails and amber or hazel eyes. American Cream Draft Horse Association (1944)

Dartmoor British (one of the "native British pony breeds) American Dartmoor Pony Association

Dale British (one of the "native British pony breeds

Danubian Bulgaria light draft breed

Donkey and Mule: not a true breed; American Mammoth or Standard Jack or Jennet are the largest Asses; Burro is a natove/feral ass; American Spotted Ass is a pinto donkey; Miniature donkeys are less than 38 inches high. Association = American Donkey and Mule Society (1967)

Dutch Warmblood Netherlands descends from 2 other Dutch breeds – Groningen and Gelderland

Exmoor pony:England. Ponies are always brown/dark bay; mealy muzzle and ring around the eyes and underbelly; wide muzzle, wide forehead "hoded eyes". White markings or white hairs throughout the coat are not allowed registry. North American Exmoors (Canada) /Exmoor Pony Society (UK)(1921)

Falabella: Argentina a miniature horse breed (1868)

Fell British (one of the "native British pony breeds

Fjord/Norwegian Fjord Norway: A large draft pony always dun with primitive markings; used for riding, driving and packing

French Trotter France – a racing trotter

Galiceno: Spain (Evans) or Mexico (IDET). Imported to the US from Mexico. Has a running walk similar to TWH and Paso. Galiceno Horse Breeders Association (1959)

Galloway Australia 14-15 hands (a show category in Australia for animals 14-15h)

Gidran Arabian Hungary – a popular athletic saddle horse

Gotland Sweden American Gotland Horse Association

Hackney: Great Britain (descendants of the Darley Arabian and his son Flyng Childerns) "Aristocrat of the Show Ring". (pony = "prince of Ponies")American Hackney Horse Society (1891)

Haflinger Austria. Resemble small Belgians. Haflinger Association of America

Hanoverian Germany. A warmblood American Hanoverian Society

Holstein (Holsteiner) Germany. A warmblood American Holstein Horse Association (late 1970s)

Irish Draft (Irish Draught) Ireland Farm and Coach horse, popular as a sport horse

Jutland Denmark two types medium (similar to a warmblood) and heavy (similar to Shire)

Kladruber: Czechoslovakia carriage horse gray or black

Latvian Russia

Lipizzan: Spain and Austrua Lipizzan Association of North America (1992 from other clubs staring in 1968)

Maremmana Italy poplar for working cattle

Miniature Horse: Origin from English and Dutch mine horses and Falabellas. Max height 34 inches at the withers (last hairs of the mane) (American Miniature Horse Association 1978) (Evans states 32 inches, with some up to 36 inches in height)

Missouri Fox Trotter: U.S. as a result of migration from Kentucky, Tennessee and Virginia bringing horses as they migrated. Smooth Diagonal 4-Beat Gait "every person's pleasure horse" Missouri Fox Trotting Horse Breed Association (1948)

Morgan: U.S. Foundation Sire: Figure, later named Justin Morgan (bred in Masachusetts, later moved to Vermont). American Morgan Horse Association (1894)

Morab: U.S. Cross between Morgan and Arabian or Morab parentage (Morab Horse Registry 1973)

Mustang US Wild/feral horses descendants of horses that escaped from captivity and roam areas of the US. The Bureau of Land Management rounds up mustangs for adoption; those horses and their offspring are eligible for registry in the North American Mustang Association and Registry

Naragansett Pacer: US (Rhode Island)

National Show Horse: US Cross of Arabian And Saddlebred. National Show Horse Registry

Oldenburg West Germany a warmblood

Paint: (American Paint Horse): U.S. from QH stock with too much with to allow registry as well as other colorful stock-type horses. Parentage must be paint, TB or QH. American Paint Horse Association (1965)

Pinto:: U.S. color-specific registru. Pinto Horse Association of America (1956)

Palomino: Color U.S. breed for registry of golden horses between 14-17 hands. Palomino Horse Breeders Association (1930s; Incorporated 1946). Palomino Ponies can be registered with Palomino Ponies of America

Paso Fino: Spain. Known for gaits "the horse with the fine walk" (4-beat paso – 3 speeds; paso fino, paso corto, paso largo. Spotted horses may be registered. Paso Fino Horse Association (1972)

Percheron: France draft breed "the breed of the blacks and grays" Percheron Horse Association of America

Peruvian Paso: Peru from Spanish stock. Same gaits as Paso Fino; does not allow spotted horses to be registered. Peruvian Paso Horse Registry of North America (1970)

Plantation Horse former name of Tennessee Walking Horse

Pony of the Americas: U.S. Foundation sire is Black Hand #1 (Shetland X appaloosa/Arab) 44-56" height (11-14 hands) Pony of the Americas Club (1954-1955 sources vary)

Quarter Horse/Amemrican Quarter Horse: U.S. Janus a TB was an important foundation sire.Parents must be QH or one may be TB (Appendix registry). U.S. American Quarter Hose Association (1940)

Quarter Pony US: Pony-sized QH, not eligible for registry due to size. American Quarter Pony Association (1964) and National Quarter Pony Association (1975)

Rangerbred/ Colorado Rangerbred; U.S. considered a "native breed" (Evans) Foundation sires are Leopard, Linden Tree and Max. Colorado Ranger Horse Association (1938)

Rocky Mountain Horse US (eastern Kentucky) known for its ambling gait. Rocky Mountain Horse Association

Saddlebred/American Saddlebred: U.S. with British roots; initially known as Kentucky Saddler. TB sire Denmark was the most important foundation sire. 3-gaited or 5-gaited (addition of slow gait and rack [AKA single foot)) American Saddlebred Horse Association(1891)

Shetland: England/Shetland Isles. Maximum height 46 inches (11.2 hands) Native Shetland differs from the American Shetland, which is much finer and more refined. American Shetland Club (1888)

Shire England One of the tallest Draft Breeds; often black or bay, also gray, chestnut, brown with extensive feathers. American Shire Horse Association

Spanish-Barb U.S. considered a "native breed" (Evans) Spanish-Barb Breeders Association (1972)

Spanish Mustang: U.S. from Horses brought to the "new world" by Spaniards. considered a "native breed" (Evans)Spanish Mustang Registry (1957)

Standardbred: U.S. trace back to Messenger a TB foaled in Britain in 1780; Hambeltonian 10 is an important sire. Known for Harness Racing "the sport of the people" United States Trotting Association (1938)

Suffolk: the only British draft breed to not have feathers. Chestnut (mane and tail chestnut or slightly lighter than coat color). Few/unobtrusive white markings if any. American Suffolk Horse Registry

Swedish Ardennes Sweden and Norway (draft breed from Belgain and French Ardennais

Tennessee Walking Horse: US in Central Tennessee known for its running walk. Standardbred stallion Allan F-1 or Black Allan was an important Foundation Sire. Tennessee Walking Horse Breeders and Exhibitors Association (1935) (pony-sized TWHs are Walking Ponies; American Walking Ponies are a synthetic breed resulting from crossing TWH with Welsh)

Thoroughbred: England. Known for flat racing and as a sport horse and popular as a polo pony .3 Foundation sires are Godolphin Arabian, Darley Arabian, Byerly Turk (Curwyn Bay Barb is known as the "4th foundation sire")Jockey Club (1894)

Trakehner: Germany (East Prussia). A warmblood known for its ability as a sport horse. American Trakehner Association (1974) (Evans says North American Trakehner Association)

Trottingbred: US A synthetic breed Standardbred, Shetland, hackney and Welsh crossed 51 inch height limit (IDET). International Trotting and Pacing Association (1960s)

Viatka Russia used for light farm work

Walking pony: US A pony sized Tennessee Walking Horse

Welsh Pony and Cob: Wales/England. Section A 12.2 hands and under (Welsh Mountain Pony); Section B up to 14.2 hands; Section C and D are also known as Welsh Cobs...section C up to 13.2 and Section D over 13.2. Welsh Pony and Cob Society of America (1907)

Westphalian Germany popular sport horse

Definitions:
Synthetic: a breed that starts by crossing two or more breeds then by breeding the resulting offspring.

Cold blood – draft horses

Hot blood – Arabians, Barbs, Turks and the breeds that resulted (Thoroughbred)

Warmblood – breeds that combine the traits of cold bloods and warmbloods or actual crosses of cold bloods and warmbloods (Trakehner, Holsteiner, Dutch Warmblood, Selle Francais, etc.)

Horse Coat Color Genetics: Much is still being learned about horse coat color genetics. Here is what we think is true!

Genotype the horse's genetic make-up (what the genes say the horse will look like)	**Phenotyope** what the horse actually looks like

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Basic Coat Colors:

every horse has a basic coat color – a horse can only have ONE basic color

Black
Brown
Bay
Chestnut
White

The above colors are MODIFIED by other genes – a horse that is genetically chestnut might have modification genes so that it does not appear chestnut at all.

Dominance:
Bay is dominant over black . Both bay and black are dominant over chestnut.

Melanocytes:

Melanocytes: the color pigments cells which control the melanin

Eumelanin controls black and brown.	**pheomelanin** controls red and yellow.

Extension and Agouti Genes:

Extension gene – regulate color differences within the colors E = increases the amount of eumelanin (black) and decreases the amount of pheomelanin e= increases the amount of pheomelanin and decreases the amount of eumelanin so.... EE or Ee = black, brown, bay – black pigment in both skin and hair Ee = chestnut or red – black pigment in the skin but not the hair	**Agouti gene** = controls the distribution of eumelanin in the hair and restricts the distribution to the points AA = eumelanin is restricted to the points aa = eumelanin is NOT restricted to the points
Combining extension and agouti genes we get these results (bear in mind color can be further modified): EEaa or Eeaa = black EEAA, EeAA, EEAa, EeAa = bay or brown (because of this effect, bay is dominant over black) eeAA, eeAa, eeaa = chestnut or sorrel	

Dilution:

There are three different dilution genes known, but to keep it simple, a horse can have either a single dilution gene or a double dilution gene. A single dilution gene will result in the following:

Single Dilutions:	
Bay	buckskin, dun,
Black or dark (seal) brown	Grullo/grulla
Chestnut	palomino or red dun
Double Dilutions:	
Bay, black or brown	perlino
Chestnut	cremello

A note about the dilution **silver/silver dapple and champagne**: The silver or silver dapple (designated S [Z in HIH]; 2 names, 1 gene) gene in certain breeds results in silver dapple color (primarily in Shetlands and Minis). Not all silver dapple horses actually have dapples, thus the alternative name silver. Another specific gene results in champagne (American Crème Draft nearly 100% champagne; also found in other breeds TWH, ASB, Rocky Mountain Horse/Kentucky Mountain Horse, Spanish Mustang, QH, Mini, others)

Other genetic modifications of coat colors:

(see above for dilutions)

Graying:	born solid colored and gets progressively lighter with age
Roaning:	mix of white and solid color (basic coat color) often darker head, legs, mane, tail; does not change with age but may change seasonally
Spotting:	either pinto type spotting or appaloosa type spotting controlled by a variety of genes

Genetic symbols for various colors and traits:

Bb or BB	black
bb	chestnut
Ww	white (WW is lethal)
GG or Gg	gray (Gg may gray faster than GG; gg no graying)
Rnrn	Roan (RnRn is lethal; rnrn = recessive no roaning)
Dn	"line backed dun" per HIH
TT or TOTO or Toto	Tobiano (T or TO are two different letter designations for the same gene)
Oo or OO	overo
LPLP	few spot leopard
LPlp	varnish roan, snowflake, leopard or frosted; Evans calls Sl the gene for varnish roan
Cc	single dilution (CC has no effect on basic color)
cc	double dilution (CC has no effect on basic color)

White markings = genetic and non-genetic factors (this is why clones do not always have identical markings); the genetic make-up may code for presence of white markings but NOT the exact location of the markings

Sources: Equine Science p 92-97; Evans p 472-498; HIH 1040-1-1040-4

Defects and their results

- Base narrow in front → wear on lateral hoof wall (Anat 39)
- Base wide in front → wear on medial hoof wall (Anat 39)
- Offset (bench) knee → uneven wear on medial splint bone causing "splints" and carpitis (Anat 39, Evans 147 & 163)
- Toe out conformation → winging in (Anat 39) and sidebone (Evans 160 & FCH 403)
- Toe in conformation → paddling/winging out (Anat 39) and sidebone (Evans 160 & 181, FCH 403)
- Base narrow toe out → plaiting/rope walking (Anat 39)
- Calf knees → ligament strain on the palmar aspect and increase in chip fractures and radius fracture (anatomy 39), bowed tendon (evens 160), carpitis/popped knee (evans 163)
- Base narrow behind → strain on the lateral structures of the limb (Anat 40)
- Cow hocked → bone spavin (Anat 40 & Lewis 404)
- Cow hocked and base wide → interference (Evans 155)
- Sickle hocked → strain o the long palmar ligament (curb) and short striDe (Anat 40, Evans 154)
- Post legged behind → bog spavin and upward fixation of patella ("stifled") Anat 40 & Evans 163
- Short upright pasterns → ringbone and navicular disease (Anat 40, FCH 401, Evans 162)
- Short straight shoulder/mutton wither → short inelastic stride and pounding gait (Evans 146 & 181)
- Coon foot → strain on tendons, bones and suspensory ligaments (Evans 150), bowed tendon (Evans 160)
- Over at the knee → splints (Evans 159)
- Ewe neck → awkward, unsightly, unathletic and unable to flex at the poll (Evans 145)

Disease name	Common name	Causative agent	Type	Vector/ spread	Vaccine ?
Anthrax	Anthrax	Bacillus anthracis	Bacteria	spores in environment	Yes, not often used
Borreliosis	Lyme disease	Borrelia burgdorferi	Bacteria	ticks	no
Botulism	bacteria	Clostridium botulinum	bacteria	contaminated feed	yes, not common
Babesiosis			protozoa	ticks	no
Brucellosis	several including poll evil & fistulous withers	Brucella abortis	Bacteria	feed/body fluids	No
Enteritis or enterocolitis		Clostridium perfringens	Bacteria	umbilical cord of newborn	no
Equine ehrlichiosis			protozoa	tick	no
Equine Encephalomyelitis (EEE, WEE, VEE)	sleeping sickness		virus	blood sucking insects (birds are reservoir)	yes (EEE and WEE recommended in US)
Equine Infectious Anemia	EIA/Swamp fever	retrovirus	virus	blood sucking insects from carrier animals	no (Coggin's test determines carriers)
Equine influenza	Flu	H7N7 & H3N8	virus	respiratory (airborne), secretions	yes
Equine Protozoal Myeloencephalitis	EPM	Sarcocystis neurona	protozoa	opossum feces	no
Equine viral arteritis	EVA	equine arteritis virus (formerly thought to be a herpes virus)	virus	airborne and respiratory secretions; breeding	yes, used only in problem areas and with breeding animals
foalhood or neonatal septicemia	joint ill	bacteria	many (Streptoccus, salmonella, E. coli...)	umbilical cord of newborn	no for most causes
Giardiasis	Giardia		protozoa	feces contaminates water	no

Leptipirosis	None; Causes periodic ophthalmia (moon blindness)		Bacteria	urine/water	no
Salmonellosis/ Salmonella enterocolitis		Salmonella (several types)	bacteria	fecal contaminated feed, water or carrier animals	no
Streptoccus equi infection	strangles/ distemper	Streptococcus equi	bacteria	airborne & secretions	yes
Potomac Horse Fever (Equine monocytic ehrlichiosis)	same	Ehrlicchia risticii	protozoa (rickettsia)	arthropod (tick) suspected	yes
Rabies	hydrophobia	rhabdovirus	virus	bite from infected animals (or saliva in broken skin)(usually wild)	yes
Rhinopneumonitis	Rhino	Equine Herpes Virus(EHV-1, EHV-2 & EHV-4)	virus	airborne & respiratory secretions; tissue from aborted fetuses	yes
Tetanus	lockjaw	Clostricium tetani	bacteria	spores in environment	yes
Vesicular stomatitis			virus	unknown, possibly insect	yes, used only in problem areas
Viral enteritis		rotavirus	virus	feces of infected animals, possibly carrier animals	no
West Nile Virus (West Nile Encephalitis)	WNV		virus	blood sucking insects (birds are reservoir)	yes

Horse (Equus caballus) vs. Donkey (Equus assinus)

Visual:

Donley has longer ears
Donkey lacks chestnuts on the HIND legs
Donkey has more cow-like (tufted) tail
Donkey has more upright/coarse mane
Donkey has smaller boxier hooves; Horses hooves more rounded
Donkeys are generally (but definitely not always) smaller than horses
Donkey is usually straight faced or roman nosed
Donkey's neck is straight and shoulder more upright
Donkeys have a flatter topline without prominent withers or saddle dip

Non-visual

Bray vs. whinny
Chromosomes horse 64 (32 pair); Donkey 62 (31 pair)
Gestation period of Jenny (jennet) about 30 days longer than mare

Terminology:

- Jack – male donkey
- John – "gelded" male donkey (source needed)
- Jennett or Jenny – female donkey
- Burro, Ass and Donkey are relatively synonymous. Burro is often used to refer to the wild donkeys found in the western U.S. In some areas Donkey is used to refer to small asses
- American Jack, Mammoth Jack and Standard Jack are large Jacks popular with crossing with Mares to get a larger mule
- **M**ule = **M**are crossed with a Jack
- **H**inny = Stallion (**H**orse) crossed with a Jennett
- NOTE: either Mule or Hinny can be male or female – the terminology depends on their parentage not their gender!
- Miniature donkeys are 28-38 inches high (mini Horses height max 34" by most sources)
- Classifications of Donkeys by size for registry = Miniature, small standard, standard, Large Standard, Mammoth
- Classification of Mules for registry = Miniature, Saddle and Draft (Mule or Hinny) ....some people argue that Mules have more donkey traits and Hinnys have more horse traits but this genetically does not seem possible

Equine Science 20-22; Evans 75-80; HIH 156B-1

Farrier tools and equipment:

Anvil: heavy block used for shaping the shoes (70 lb for cold shoeing; 125-150 lb for handmade shoes)
Apron: protective garment worn to prevent injury to the legs from nails, etc.
Clinchers: pliar-like device used to bend over and set the clinches (AKA clinching tongs)
Clinch block: set against the head of the nail while the clinches are bent over
Clinch cutter: struck with the hammer to cut the clinches; the two parts are the blade (used to cut the clinches) and the point (used to punch nails and broken nail stubs from the hoof)
Crease nail puller: used to remove nails from the fullering of the shoe
Driving hammer: used to drive the nails and bend the clinches (AKA shoeing hammer)
Forge: used for heating shoes and other metal to allow them to be more easily bent and shaped
Hardy: a tool (comes in various shapes) for cutting hot metal. Inserted into the hardy hole on the anvil
Hoof gauge: a tool for measuring hoof angle – looks like a horseshoe with a protractor attached (may also be called hoof leveler)
Hoof knife used to trim sole and excess/dead tissue from frog and remove foreign bodies; note: Although the terms are sometimes incorrectly interchanged, the sole knife is a different tool than hoof knife – see below & Evans pg 724 (x) for a picture
Hoof pick: for cleaning the feet ☺ (surprise!!)
Hoof stand: used by some farriers to hold up the hooves for finishing
Hoof tester: used to test the hoof for areas of tenderness by applying pressure to select areas
Nippers: used to trim the hoof wall (can be distinguished by feel or visually from pinchers by the rounded knobs on the end of the handles). NEVER used to cut nails or anything but hoof
Pincers: used to pull off shoes (also called pull-offs); distinguished from nippers by lack of rounded knobs on the end of the handles (as well as the shape and sharpness of the jaws); may also be used to cut nails or spread shoes
Pritchel: used to punch nail holes into shoes
Rasp: used to level the bearing surface after trimming with the nippers and used to remove burrs under the clinches or finish the hoof
Shoeing box used to carry all the items needed by the farrier
Sole knife: used to remove dead sole from hard brittle dry hooves – held in one hand and struck with the driving hammer
Rasp: used to level the hoof after it is trimmed by the nippers
Rounding hammer: used to shape shoes (hot or cold)
Tongs/fire tongs: used for grasping items to place in forge or remove hot items from the forge

Minimum tools to trim a hoof:

- Hoof pick
- Hoof knife
- Nippers
- Rasp

Reasons for shoeing a horse:

- Protection from excess wear
- Protection from tenderness
- Provide traction
- Correct stance/gait (modify action/treat conformation problems)
- Correct abnormal/pathological conditions (treat diseases/unsoundnesses)

Steps in removing a shoe: (after inspecting the hoof and old shoe if applicable)

- Cut clinches
- Insert pinchers/pull-offs in the heel of the shoe

- ❖ Using a rocking motion loosen one heel then the other, moving forward to the quarters until the nails are all loosened and the shoe comes off

Shoe parts & features:

Block: similar to a calk or sticker for the hind shoe; a block is set lengthwise on the heel
Borium (AKA drill tech or tungsten carbide) – added to the shoe to increase traction, especially in ice and snow
Calks – features added to the shoe to improve traction – may also increase injury in race horses; Sometimes the term calk is used for screw-in studs
Clips – features added to the toe or quarter (side) to add stability and take stress off the nail holes (occasionally used at the heel); toe clips more common on front shoes, side clips more common on hind shoes
Fullering or crease – the indentation in which the nail heads rest – accumulates dirt to increase traction – may go all the way around the shoe or just in the area of the nail holes.
Grabs – same as calks or sometimes narrower, especially at the toe to increase traction, but may increase injury in race horses
Heel – the hind part of the shoe corresponding to the heel of the hoof
Heel nail hole – the rear-most nail hole on each side of the shoe
Quarter – the part of the shoe corresponding to the quarter (sides) of the hoof
Quarter nail holes – the two nail holes between the toe nail hole and the heel nail hole
Sticker: mud-calk that goes across each heel of the shoe to increase hind foot break-over
Studs – traction devices that screw into holes in the shoe to improve traction – various studs are added just before the athletic endeavor (usually jumping or eventing) depending on the terrain/footing
Toe – the part of the shoe that corresponds to the toe of the hoof
Toe nail hole – 1st nail hole on each side toward the toe
Trailer – an extension added to the heel of the shoe to reduce brushing/striking or otherwise alter the stride
Web - the width of the shoe from inner to outer edge

Shoe style selection:	**Shoe size selection**
Type of work done by horse Terrain Integrity of horse's foot (problems to be addressed) Size and weight of horse Variety of ground surface (shoe) patterns available	Size of hoof Length of shoe heels Position of heel nail hole (at or forward of widest part of quarter) Web or width (about twice wall thickness) Nail hole size Nail hole position Weight or thickness of shoe

Types/styles of shoes and their uses:

- ❖ Barrel racing shoe – has outside rim higher than inside rim
- ❖ Chadwick spring shoe— applies outward pressure to the bars to improve contracted heels/force walls outward
- ❖ Concave or rim shoe – fullering goes all the way around the shoe and the ground surface inner border is concave to help debris fall out of the foot; increases traction and is somewhat narrower and lighter than most keg shoes
- ❖ Egg bar shoe – oval shaped shoe that supports the heel of horses with heel pain such as navicular disease or horses with collapsed or under-run heels

- Extension shoes – medial or lateral toe extensions are used to correct gait or stance in growing horses but not for working horses; put more stress on leg during breakover
- Glue on shoes – used with horses with thin, broken or painful hoof walls; are generally made of plastic or composite, but occasionally metal with a fabric web attached to adhere to the hoof wall
- Half round shoes – the ground surface of the shoe is half round) allowing equal breakover advantage in any direction. Most common in reining, harness racing at trot or horses in training.
- Heart bar shoe – transfers weight to the frog to allow the hoof wall to heal, particularly in horses with laminitis/founder or horses with serious hoof wall cracks
- Keg shoe – standard pre-manufactured shoe (saddle horse, western and cowboy are three types of keg shoes)
- Mule shoe: a keg shoe shaped to fit a mule – narrower and longer than a horseshoe
- Patten shoe – used to elevate the heels in a horse on stall rest to take tension off injured tendons; often used in conjunction with rocker toe
- Polo shoe – has inside rim higher than outside rim; fullering goes all the way around the shoe
- Racing plate – aluminum shoe designed for race horses (AKA running plate)
- Rocker toe— reduces tension on deep flexor tendon during breakover; used in horses with heel pain, navicular, stumbling, forging; often combined with egg bar
- Sliding plate – used on the hind feet of horses that perform sliding stops such as reining horses. The shoe is long and U-shaped, extended to the bulb of the heel, with the inside heel narrower and longer than the outside heel
- Square toed shoe – on hind feet to stabilize breakover, but sometimes used on front feet. Set back from the toe, causing similar action to the rocker toe shoe.
- Wedge heels – used to raise the angle of the foot; popular in hunters and jumpers and some straight-pasterned horses
- Weighted shoe – used to enhance action, primarily in gaited or high stepping breeds

Horseshoe Nails:

- City – smaller, with a smaller head
- Regular – larger with a larger head than city
- Frosthead – increased traction on icy surfaces

Nail parts:

- Bevel – the slanted side of the pointed end of the nail
- Head: the part that gets hit by the hammer and sits in the fullering when finished
- Inner face – the side with the bevel (the head of the nail is concave and roughened on this side, which should face inward/center of the foot when driving the nail)
- Neck – between the head and the shank
- Outer face – opposite of inner face – smooth and flat

Final inspection of the healthy shod foot:

- Opposite feet should match
- No "dubbing" of toes (chopping off/rasping) ; shoe should fit the foot (hoof never fitted to shoe)
- Flares of hoof wall should be removed
- Foot should be balanced in relation to the leg
- Hoof and pastern angles should match and be the same as the shoulder
- Nails and clinches evenly spaced at the proper height with clinches flat and smooth
- Shoe branches should be the proper length (not too long or too short)
- Frog and bars should not touch a firm ground surface (ok if ground is soft/giving)
- Horse should move soundly without gait defects that are caused by shoeing

Shoe materials

- Aluminum – lightweight but wears quickly; used when weight is a concern or to encourage low action (lack of action??) in a "daisy cutter" such as a hunter or western pleasure horse; most popular in race horses due to the lower weight of the shoe.
- Plastic or composite – expensive, specialized – may allow for improved shock absorption, but poor wear; these are usually glue-on shoes but may be nail-on
- Steel – strong but relatively heavy – wears very well and is what most shoes are made from.

Pad materials

- Hospital plate – removable pad that screws to the shoe to allow application of medication on a regular basis (abscesses, puncture wound's, laminitis, severe bruising)
- Leather – breathable, protects the sole and allows moisture transfer but not very strong
- Plastic – stronger than leather, resist penetration and offer good protection, but not breathable

Terminology:

- Boxed, beveled or safed – the edge of the shoe is angled/shaped to protect other limbs from injury and prevent pulling off
- Breakover – the portion of the stride during which the foot is on the ground
- Foot vs. hoof – the foot is the entire distal portion of the limb, including the horny hoof and internal sensitive structures; the hoof is just the horny part of the foot.

Sources: HIH sections 505, 510, 515, 525, 530, 535, 540; Evans 720-752, IDET

Feeds

Cereal grains: all are relatively high in energy and protein ("concentrates") and low in fiber

- Barley
  - Looks a lot like oats, but much harder hull
  - Should be fed crimped or rolled due to hard hull, especially horses w. poor teeth
  - Lower energy than corn, higher than oats; lower fiber than oats, higher than corn
- Corn
  - High in energy
  - Prone to mold and possible mycotoxins (mold toxins)
- Wheat
  - Has small, hard hulls
  - Should be cracked, ground or steam flaked
  - Higher energy than corn; protein about the same as oats
  - Should not make up more than 50% of grain mix due to stickiness and chance of "dough ball" causing an impaction (blockage)
- Oats:
  - Higher in fiber
  - Lower in energy
  - Less chance of molds and mycotoxins than other cereal grains
  - Very safe to feed
  - Very palatable (horses like the taste)

Feed additives:

- Beet pulp – midway between a concentrate and a forage (lower energy and higher fiber than cereal grains, but higher than hay) – often fed as a fiber supplement or the sole source of fiber for horses with respiratory problems or those with poor teeth.
- Soybeans and other oil seeds (safflower, sunflower, rapeseed [canola], coconut)
  - Generally added as soybean meal or other meals to increase protein
- Molasses
  - Increases palatability
  - Reduces dust
- Flax seed or linseed (2 names for same thing)
  - High in fat
  - Laxative

Commercial grain mixes – generally three formulations

- "sweet feed" – ingredients are mixed and coated with molasses. Horses can pick through and avoid eating less palatable portions
- "pellets" – feed is mixed, cooked and put through a die to make pellets
- "extruded feed" – feed is mixed, cooked and put through a die with steam and air to make "puffed up" pellets (texture of dog chow)

Several "types"

- "complete feed" everything a horse needs except water and possibly salt – major disadvantage is boredom if hay is not also fed. This is often pellet, although it may come as extruded or sweet feed.
- Grain mix – designed to be fed with good quality hay. Available in any of the above formulations.
- Supplement – a feed (often pelleted) high in vitamins, minerals and/or fat for horses with specific needs.

Grain companies formulate their commercial mixes for the following

- Growth and lactation
- Mature horses
- Performance horses
- Senior horses
- Other special needs

Forages: -- two general species (grass and legume; third species is cereal grass hay [oat hay, etc. not as common)

Grass forages

- Timothy
- Bluegrass
- Wheatgrass
- Bromegrass
- Orchardgrass
- Etc.

Legume forage – higher in protein

- Alfalfa
- Clover
- Biredsfoot trefoil
- Lespedea
- Vetch
- Cowpeas
- Etc.

Harvesting methods:

- Bales – longstem. Square or round, large or small
- Chopped
- Cubes
- Haylage or silage –popular in some areas. Use caution due to chance of toxins and molds

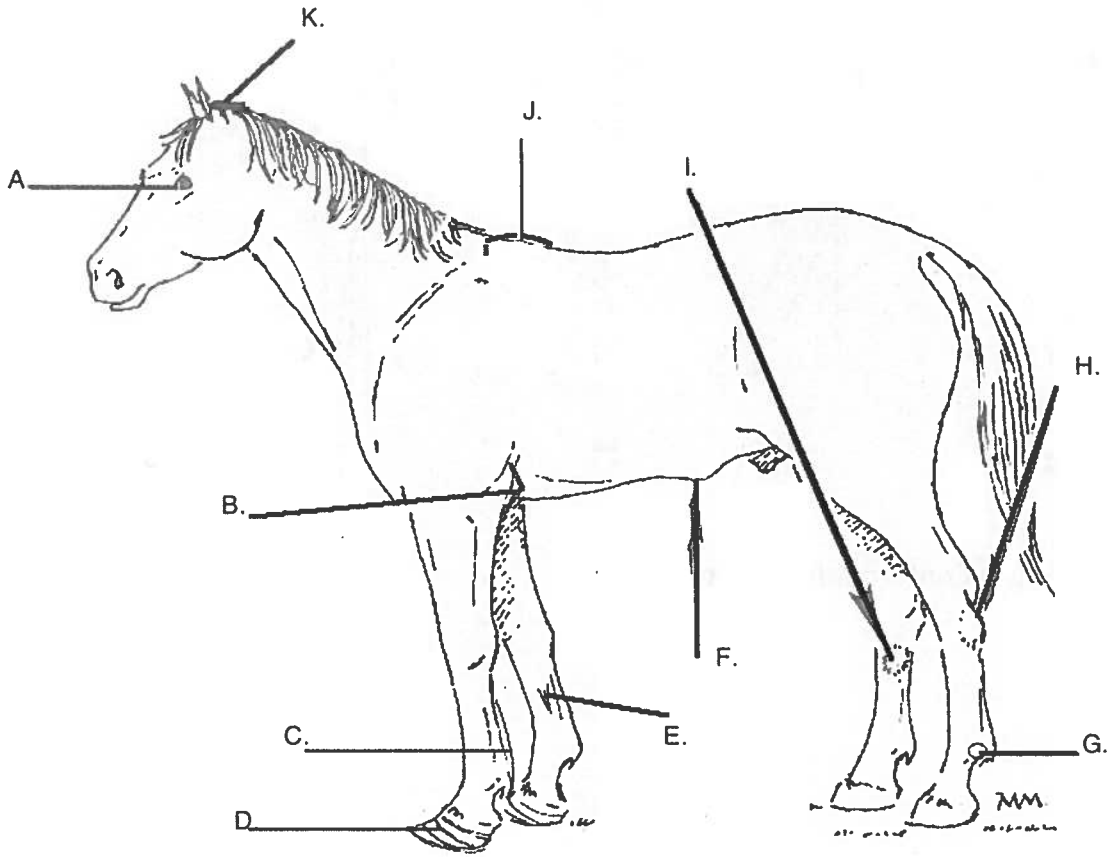
2013 NH Hippology Team Study Diagrams # 1

How to use this study aid:

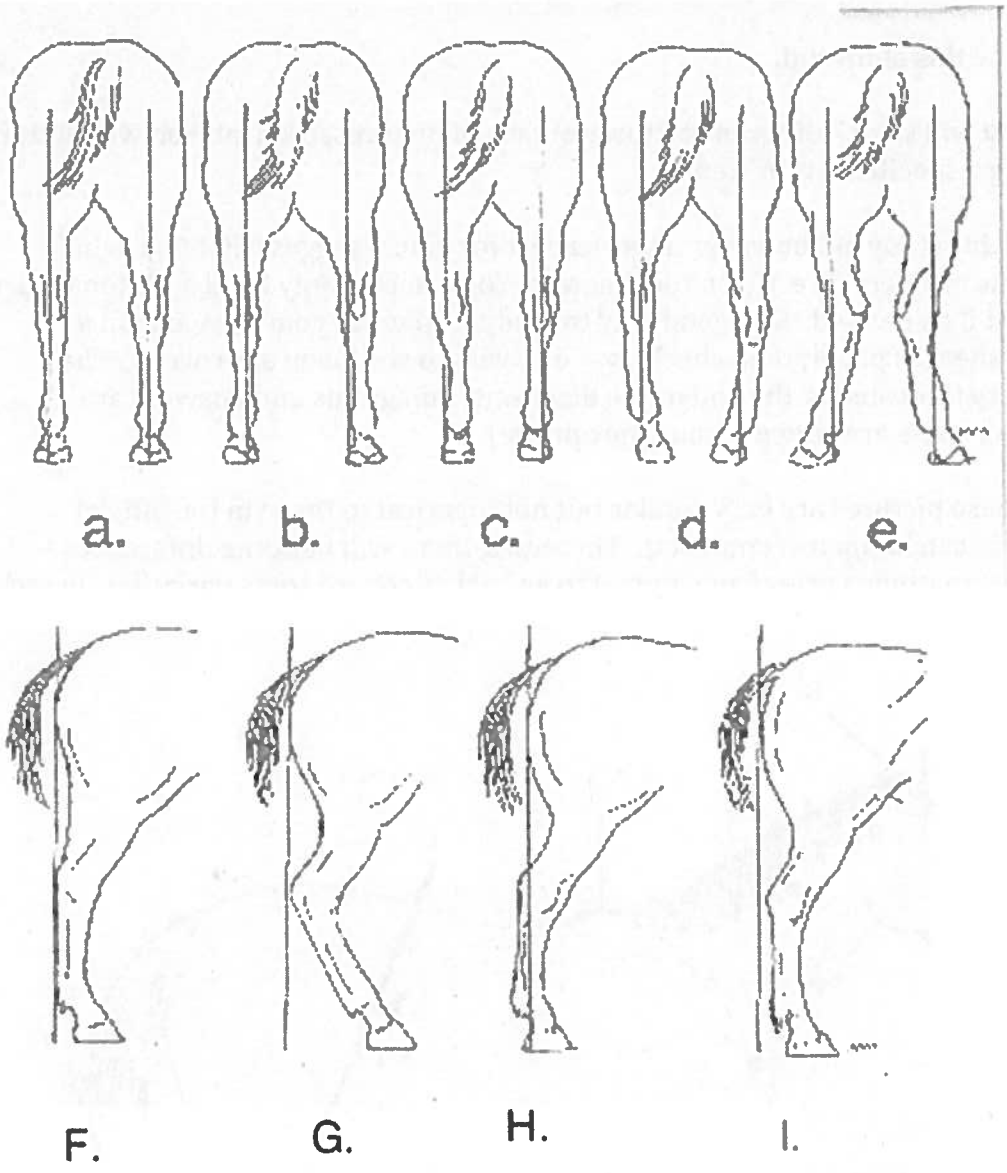
Below you will see 17 different pictures or sets of pictures, each labeled with letters indicating a specific part or item.

You may this study aid however it works best for you. I suggest that you avoid writing the answers directly on the diagram. You can certainly label additional parts and adjust it as desired. One good way to study is to write your answers on a separate sheet of paper, then check your answers to see if you are correct. The answer key is located at the end of the diagrams. (diagrams and answers are numbered, notes are added when appropriate).

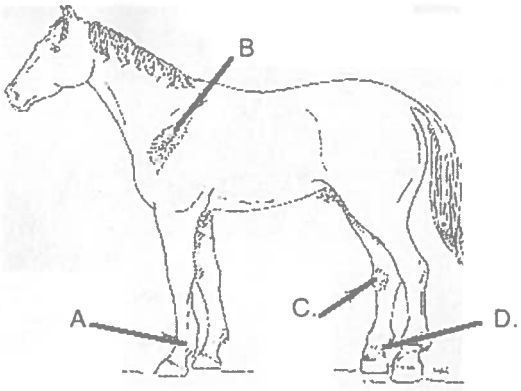
NOTE: These pictures are very similar but not identical to those in the official sources (as can happen at contests). Therefore, there will be some differences – remember anatomy varies from animal to animal, there are some variations in tack, etc.

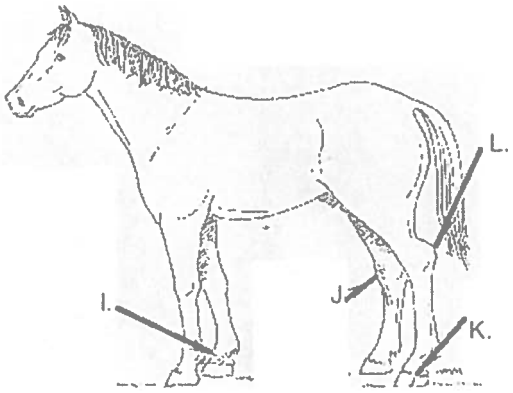


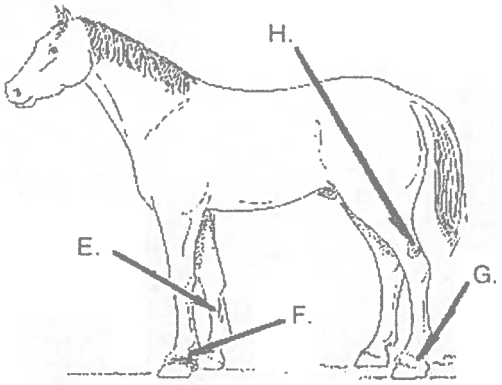
1. Unsoundnesses and Blemishes

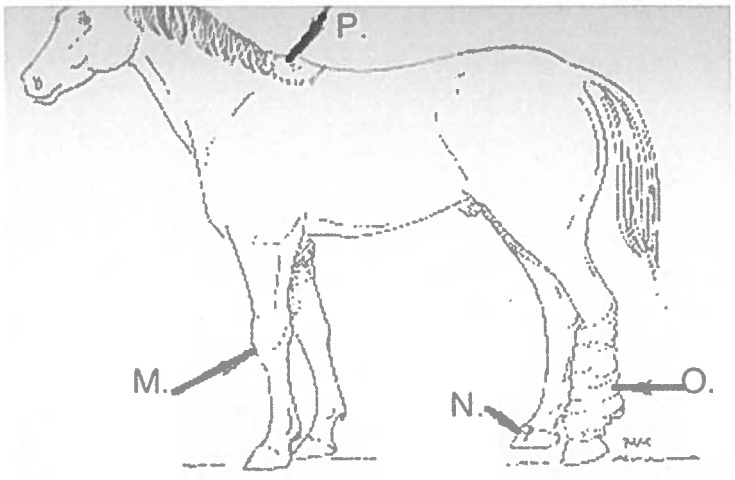


2. Hind Leg Conformation Faults



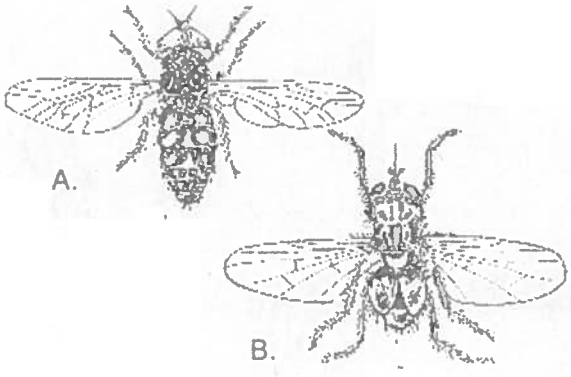


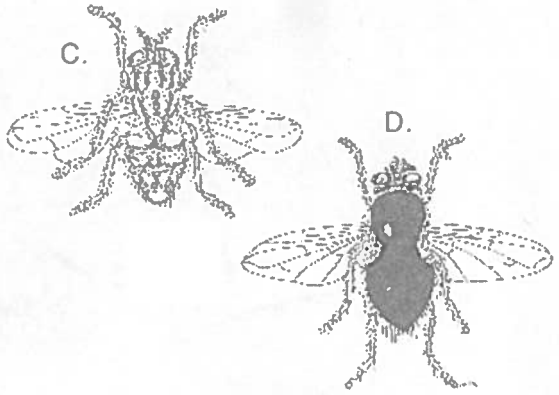




3. Unsoundnesses and Blemishes #2

Magnified 6X





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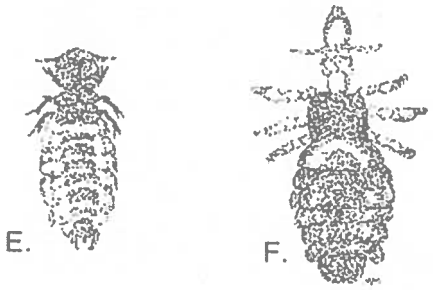

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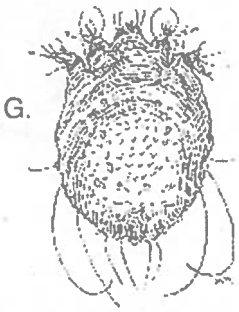

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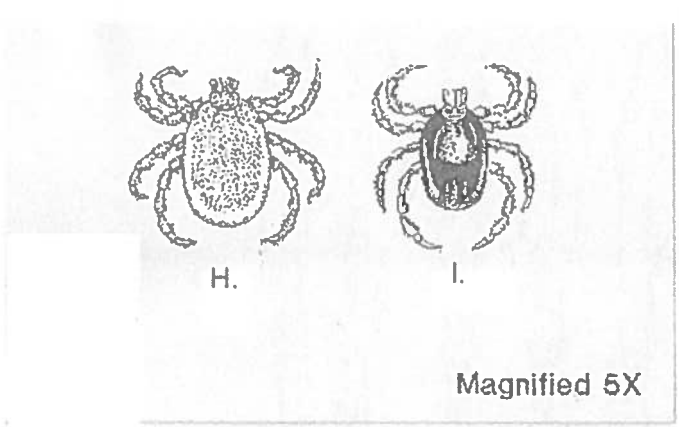
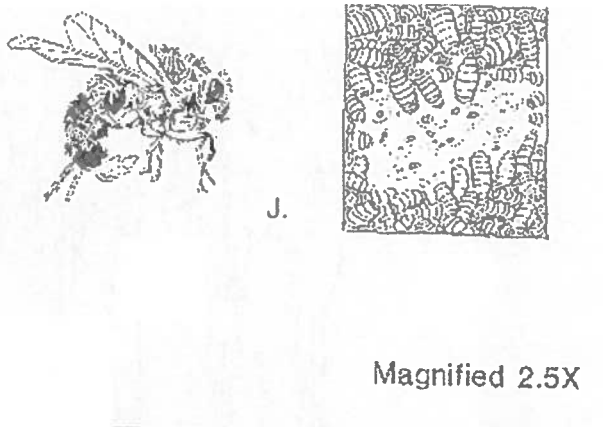
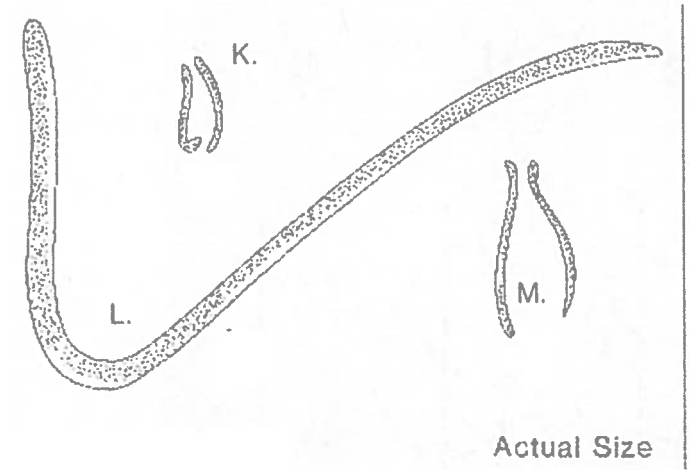
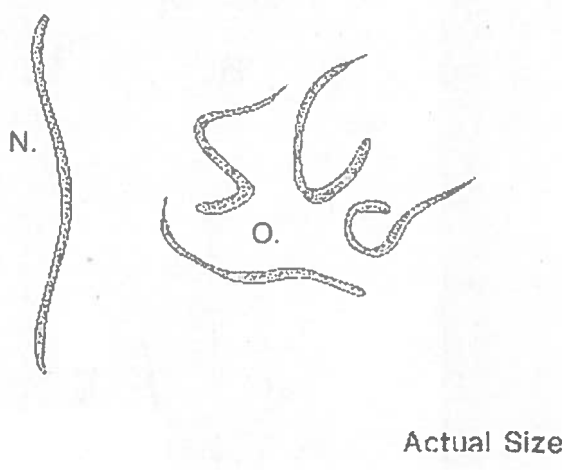
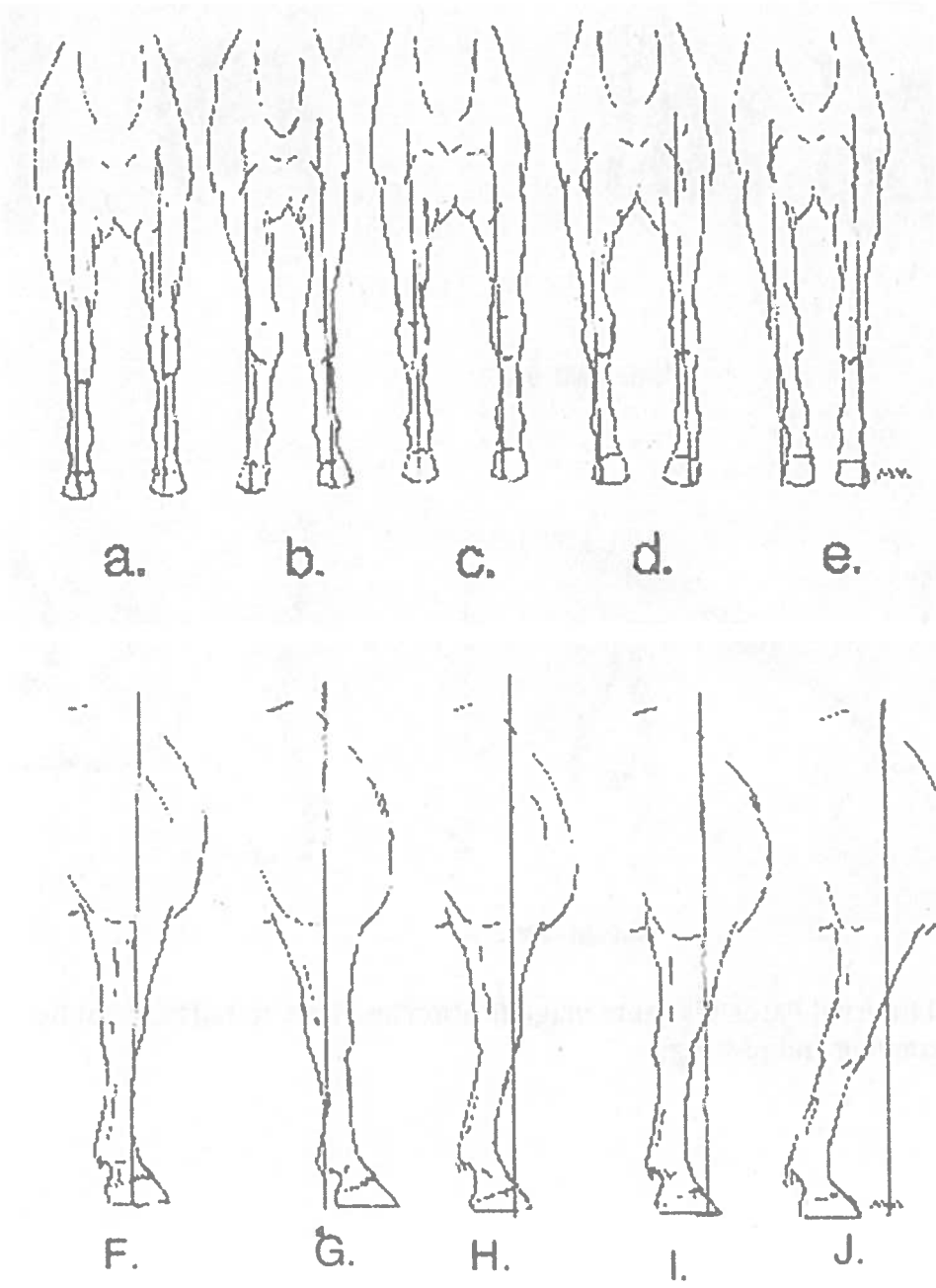




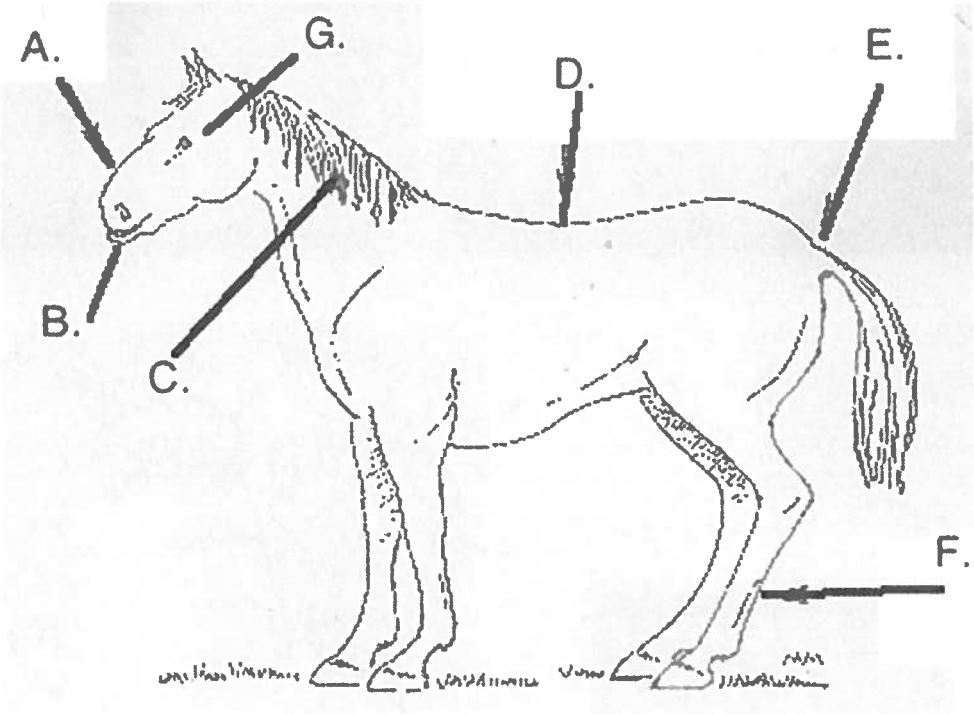




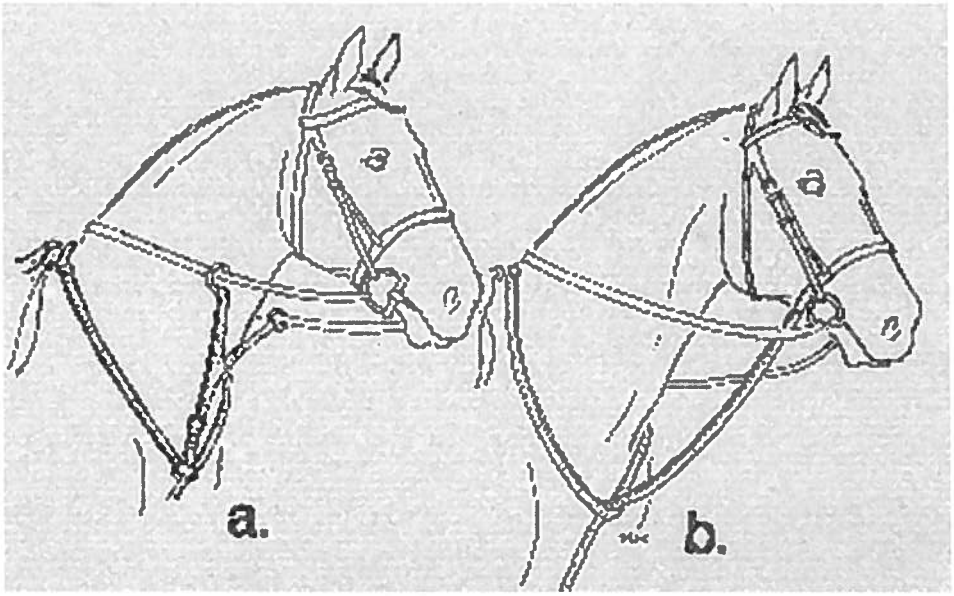
4. External and Internal Parasites (note magnification amounts stated may not be correct due to copying and pasting)



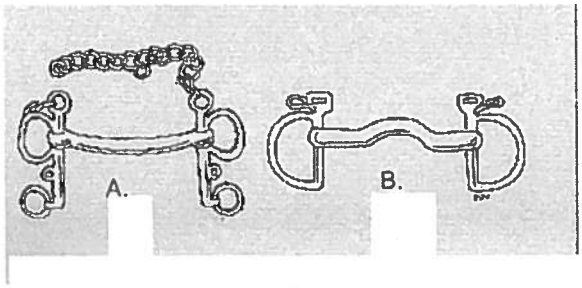
5. Front Leg Conformation Faults

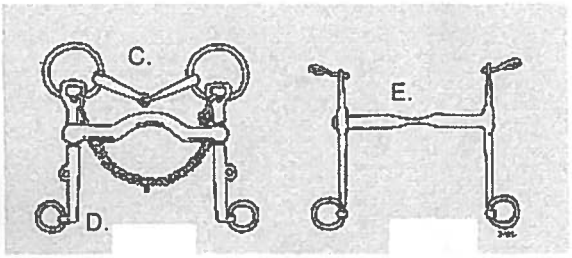


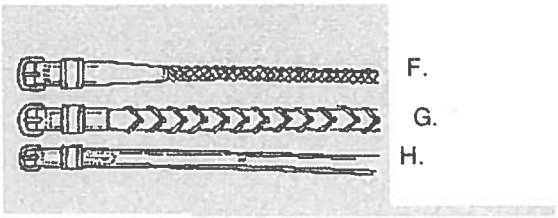
6. Conformation Faults

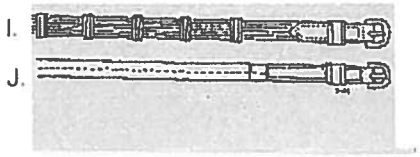


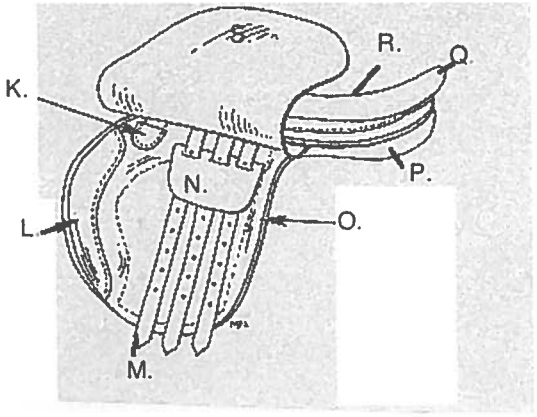
7. Martingales



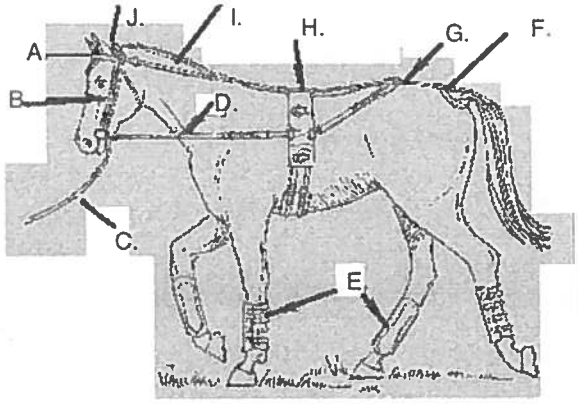


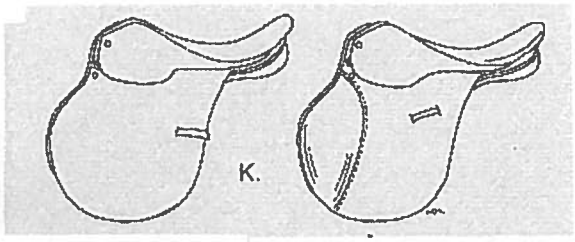


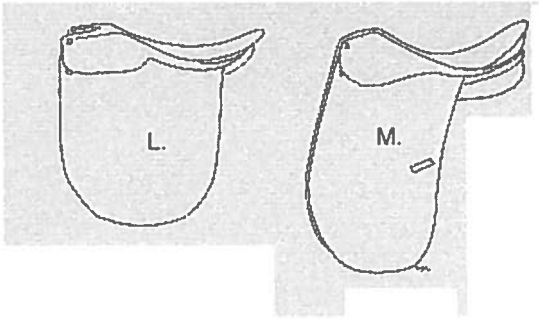


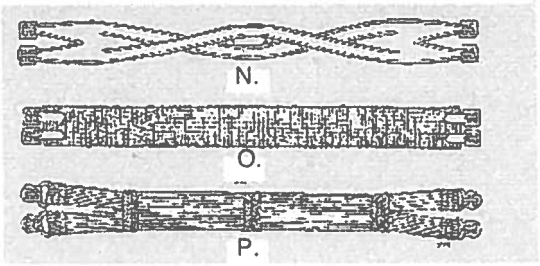


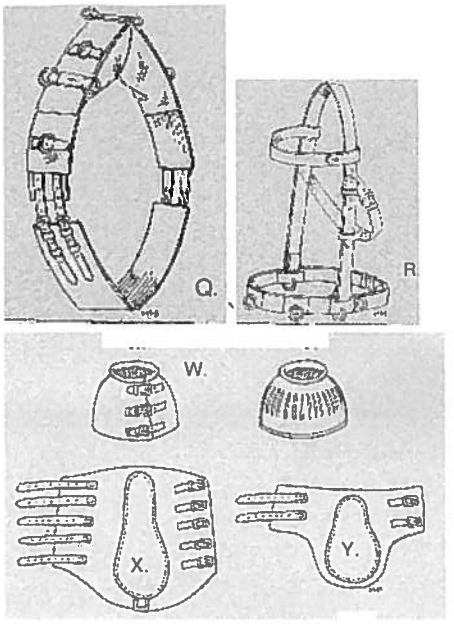
8. Tack

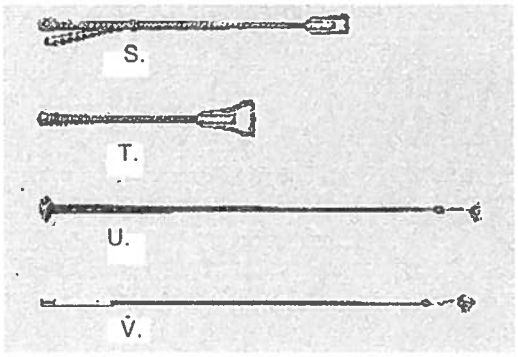




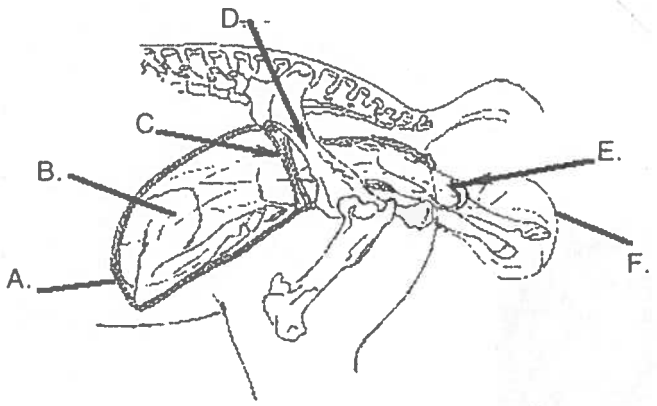


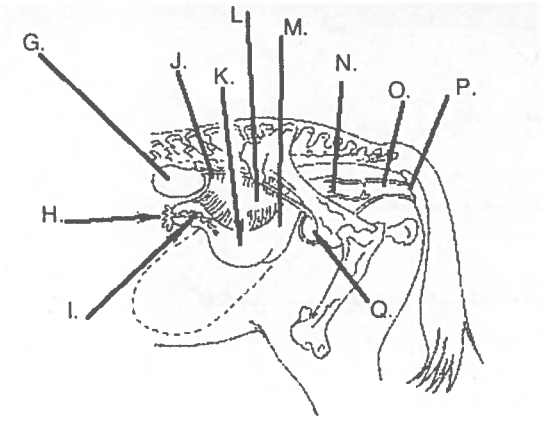




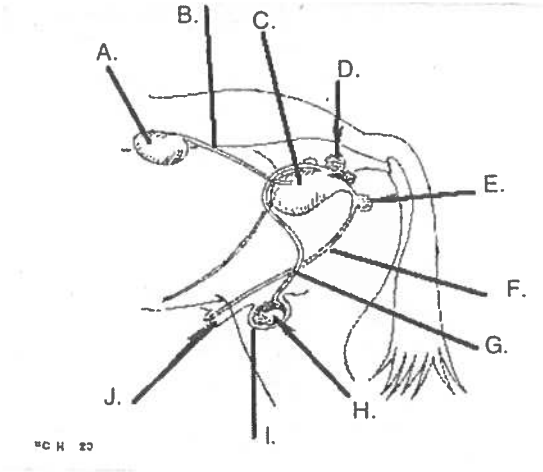


9. TACK #2

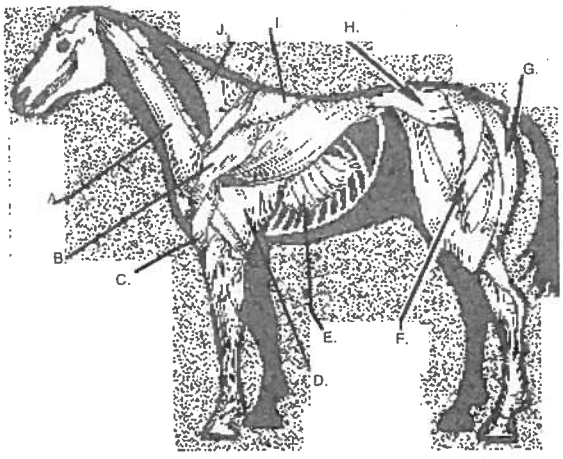




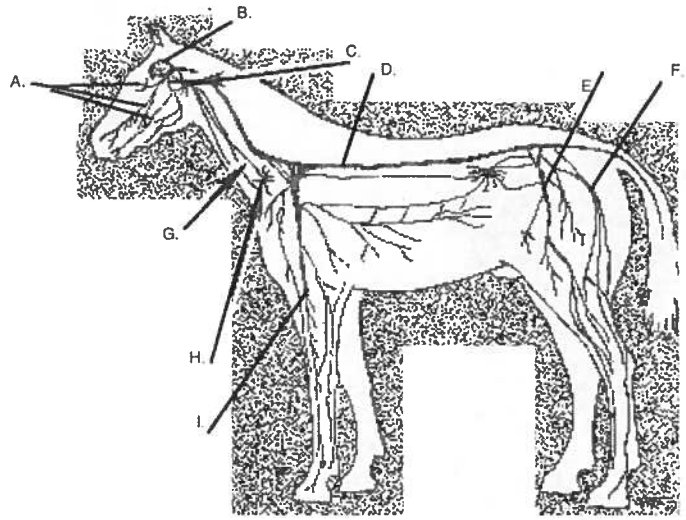
10. Mare (pregnant and non-pregnant) Reproductive Anatomy



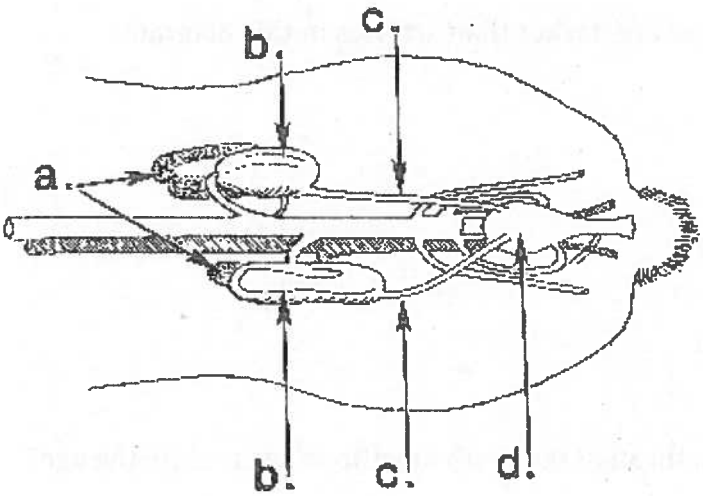
11. Stallion Reproductive Anatomy



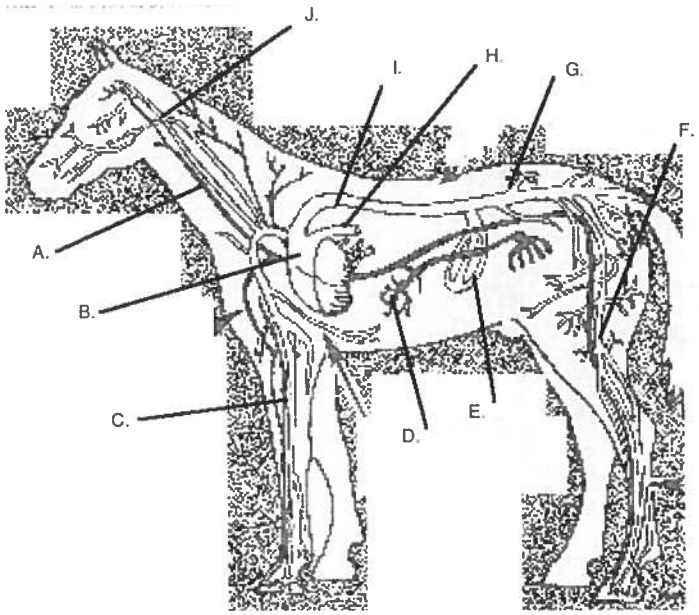
12. Muscles



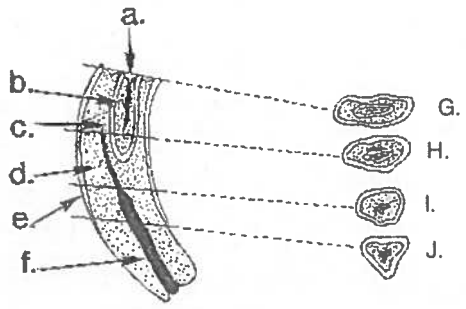
13. Nervous system anatomy



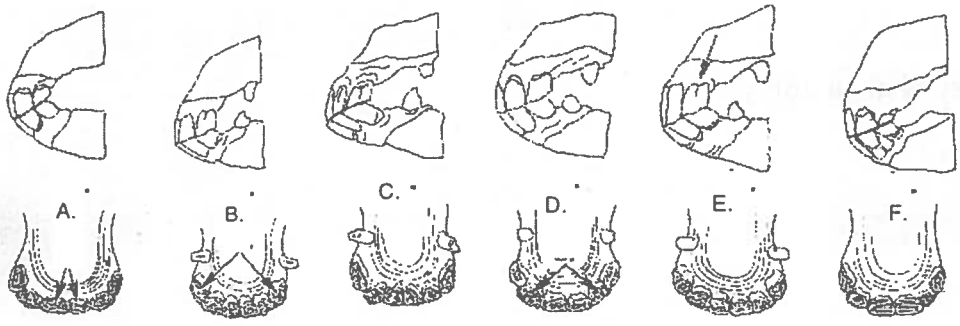
14. Urinary system anatomy



15. Cardiovascular anatomy (veins are darker than arteries in this diagram)



16. Dental (G-J are cross sections through the tooth at various ages –state the age)



17. DENTAL AGING

1. Unsoundnesses and blemishes

A. PIG EYE, CATARACT, BLINDNESS (picture unclear)
B. CAPPED ELBOW or SHOE BOIL
C. BOWED TENDON
D. FOUNDER
E. SPLINT
F. HERNIA
G. WINDPUFF
H. CURB
I. BONE or JACK SPAVIN
J. FISTULOUS WITHERS
K. POLL EVIL

2. **HIND LEG CONFORMATION**

A. IDEAL
B. BASE WIDE/STANDS WIDE
C. BASE NARROW/STANDS CLOSE
D. BOW LEGGED
E. COW HOCKED
F. IDEAL
G. SICKLE HOCKED (STANDS UNDER)
H. CAMPED OUT
I. POSTE LEGGED/LEGS TOO STRAIGHT

3. **UNSOUNDNESSES AND BLEMISHES #2**

A. BOWED TENDON
B. SWEENEY
C. BOG SPAVIN (or WINDPUFF note: windpuffs are more commonly located in the fetlock/ankle joint)
D. UPRIGHT PASTERN/COCKED ANKLE (diagram unclear)
E. SPLINT
F. SIDEBONE
G. RINGBONE
H. THOROUGHPIN
I. HIGH RINGBONE
J. BOG SPAVIN
K. CRACK/QUARTER CRACK/SAND CRACK
L. CAPPED HOCK
M. POPPED KNEE/CARPITIS
N. TOE CRACK/CRACK/SAND CRACK
O. STOCKED UP/EDEMA/LYMPHANGITIS
P. FISTULOUS WITHERS

4. **EXTERNAL AND INTERNAL PARASITES**

A. HORSE FLY
B. STABLE FLY
C. HOUSE FLY (Musca domestica)

D.BLOW FLY
E. BITING LOUSE
F. SUCKING LOUSE
G. MANGE MITE (sarcoptic mange mite)
H. TICK (non-specific species) male
I. TICK (non-specific species) female
J. BOT (GASTEROPHILUS)
K. STRONGYLE
L. ASCARID
M. STOMACH WORM
N. THREADWORMS
O. PINWORMS

5. **FRONT LEG CONFORMATION FAULTS**
   A. IDEAL
   B. NARROW CHEST, KNOCK KNEED AND TOES OUT (SPLAY FOOTED)
   C. BOW LEGGED
   D. PIGEON TOED (TOES IN)
   E. BASE NARROW (STANDS CLOSE)
   F. IDEAL
   G. CAMPED OUT
   H. BUCK KNEED (OVER AT THE KNEE)
   I. CALF KNEED (BACK AT THE KNEE – MORE SERIOUS THAN BUCK KNEED)
   J. STANDS UNDER (CAMPED UNDER)

6. **CONFORMATION FAULTS**
   A. ROMAN NOSE
   B. MONKEY MOUTH, UNDERBITE, SOW MOUTH OR PROGNATHISM
   C. EWE NECK (TURKEY NECK, UPSIDE DOWN NECK; note: this picture shows overdevelopment of the underside of the neck but not the typical crest profile of ewe neck; this condition may be called bull neck)
   D. LONG BACK
   E. GOOSE RUMP
   F. SICKLE HOCKED/STANDS UNDER

7. **MARTINGALES**
   A. RUNNING MARTINGALE
   B. STANDING MARTINGALE (similar to western tie-down)

Note: other types of martingale: Irish – rings through which the reins pass with a short leather strap connecting them. Attaches only to the reins and not to the girth; German – strap runs from the girth, through the neck strap and the rein ring to the reins. Acts as a combination martingale/draw rein

8. **TACK**
   A. MULLEN MOUTH PELHAM BIT (SHORT SHANKS)
   B. LOW PORT KIMBERWICK BIT

C. WEYMOUTH SET – includes low port Weymouth curb bit and jointed loose ring bridoon

E. WEYMOUTH CURB BIT (tongue relief, straight mouth)

F. BRAIDED REIN

G. LACED REIN

H. PLAIN REIN

I. WEB REIN (likely made from canvas or similar heavy duty material)

J. RUBBER REIN (may also be considered web – leather covered with rubber)

K. POINT POCKET

L. KNEE ROLL

M. BILLET

N. BUCKLE GUARD OR BILLET GUARD

O. SWEAT FLAP

P. PANEL

Q. CANTLE

R. SEAT

9. **TACK #2**

A. BROWBAND

B. CHEEKPIECE

C. LUNGE LINE

D. SIDE REIN

E. BOOTS (GALLOPING BOOTS, BRUSHING BOOTS, SPLINT BOOTS, hard to tell from picture)

F. CRUPPER

G. BACK STRAP

H. SURCINGLE

I. SIDE CHECK OR OVERCHECK REIN

J. CROWNPIECE

K. HUNT SEAT SADDLE (also acceptable jumping saddle, all purpose saddle, balance seat saddle – picture not specific)

L. SADDLE SEAT SADDLE (AKA cutback saddle or flat saddle)

M. DRESSAGE SADDLE

N. BALDING GIRTH

O. WEB GIRTH

P. STRING GIRTH

Q. SURCINGLE

R. LUNGE CAVESSON

S. CROP

T. BAT, JUMPING BAT

U. DRESSAGE WHIP

V. SADDLE SEAT (or dressage) WHIP

W. BELL BOOTS (2 styles –pull on and buckle)

X. BRUSHING OR GALLOPING BOOTS

Y. ANKLE BOOTS

10. **MARE ANATOMY**
    - A. UTERUS (MYOMETRIUM = uterine muscle)
    - B. FETUS
    - C. UTERUS (or round ligament)
    - D. PELVIS/PELVIC BONE
    - E. PRESENTING PART OF FOAL
    - F. AMNIOTIC SAC
    - G. KIDNEY
    - H. OVARY (or fimbriae – fingers that funnel egg into fallopian tube)
    - I. FALLOPIAN TUBE (OVIDUCT)
    - J. URETER
    - K.. UTERUS (horn)
    - L. ROUND LIGAMENT
    - M. UTERUS (body)
    - N. CERVIX (diagram a bit indistinct OK to state uterus or cervix)
    - O. VAGINA
    - P. VULVA
    - Q. BLADDER

11. **STALLION ANATOMY**
    - A. KIDNEY
    - B. URETER
    - C. BLADDER
    - D. PROSTATE GLAND
    - E. COWPER'S GLAND (BULBOURETHRAL GLAND)
        - Note: 3rd accessory gland = seminal vessicle
    - F. URETHRA
    - G. VAS DEFERENS
    - H. TESTICLE
    - I. SCROTUM
    - J. PREPUCE (SHEATH) also could be head of penis

12. **MUSCLES**
    - A. BRACHIOCEPHALUS
    - B. DELTOID
    - C. PECTORAL (or biceps brachi – diagram hard to decipher)
    - D. TRICEPS
    - E. ABDOMINAL OBLIQUE
    - F. FEMORAL BICEPS
    - G. SEMITENDONOUS
    - H. SUPERFICIAL GLUTEAL
    - I. LATISSIMUS DORSI
    - J. TRAPEZIUS

13. **NERVOUS SYSTEM**
    - A. CRANIAL NERVES

B. BRAIN (CEREBRAUM)
C. BRAIN (CEREBELLUM)
D. SPINAL CORD
E. LUMBAR PLEXUS
F. SACRAL PLEXUS
G. VAGUS NERVE
H. STELLATE GANGLION (*not in official sources)
I. BRACHIAL PLEXUS

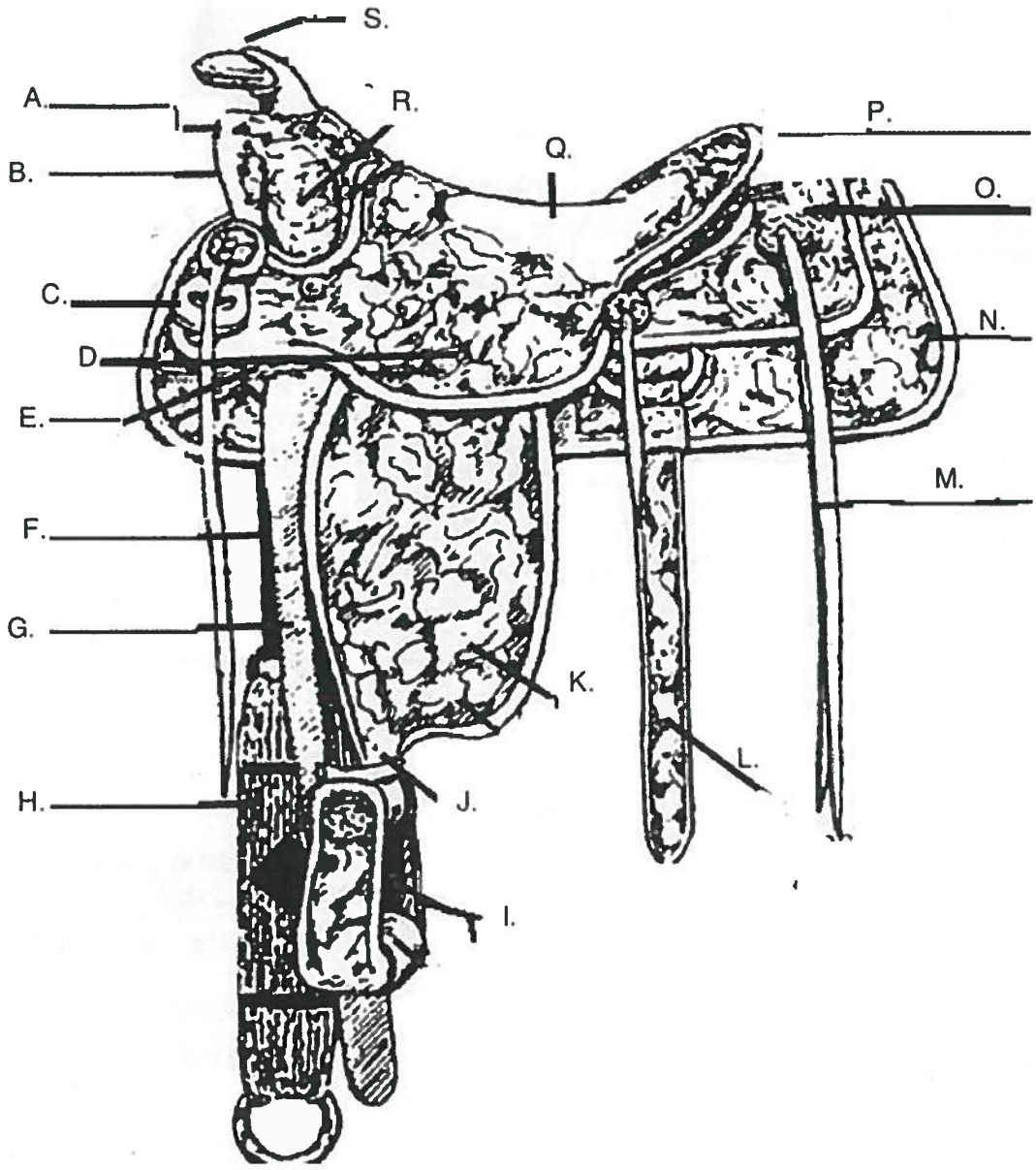
14. **URINARY SYSTEM ANATOMY**
A. ADRENAL GLANDS
B. KIDNEY
C. URETER
D. BLADDER

15. **CARDIOVASCULAR SYSTEM ANATOMY**
A. JUGULAR VEIN
B. HEART
C. BRACHIAL ARTERY
D. HEPATIC VEIN
E. MESENTERIC ARTERY
F. FEMORAL ARTERY
G. RENAL ARTERY
H. PULMONARY ARTERY
I. AORTA
J. CAROTID ARTERY

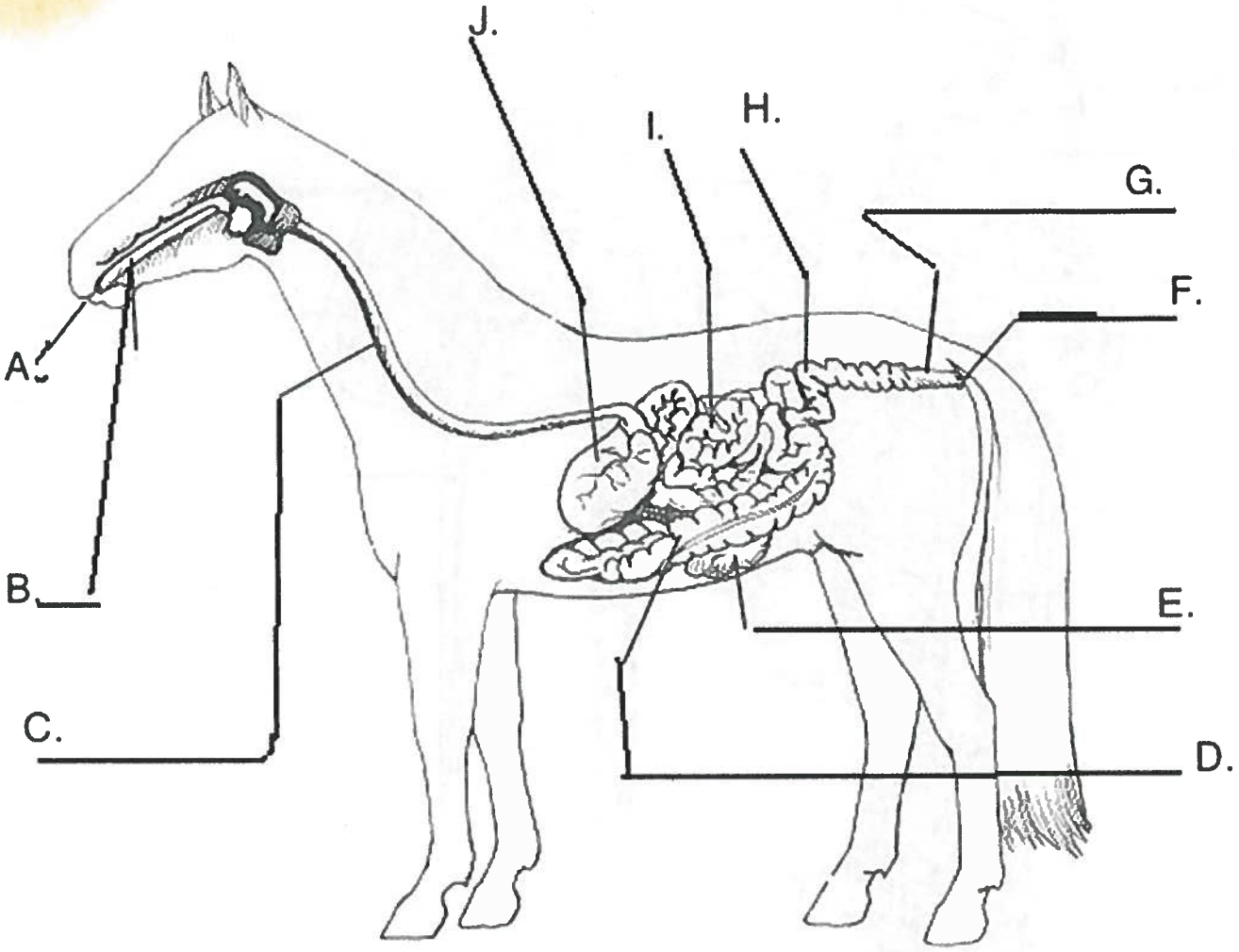
16. DENTAL
A. CUP
B. CEMENT
C. CENTRAL ENAMEL
D. IVORY
E. ENAMEL
F. PULP
G. 5 YEARS
H. 9 YEARS
I. 15 YEARS
J. 20 YEARS

17. DENTAL AGING
A. 2 YEARS
B. 15 YEARS (dental star is smaller; Galvayne's groove is approximately half way down the tooth)
C. 21 YEARS (note the triangular cross section)
D. 5 YEARS (full mouth – all permanent incisors are in wear)
E. 10 YEARS (arrow indicates Galvayne's groove)

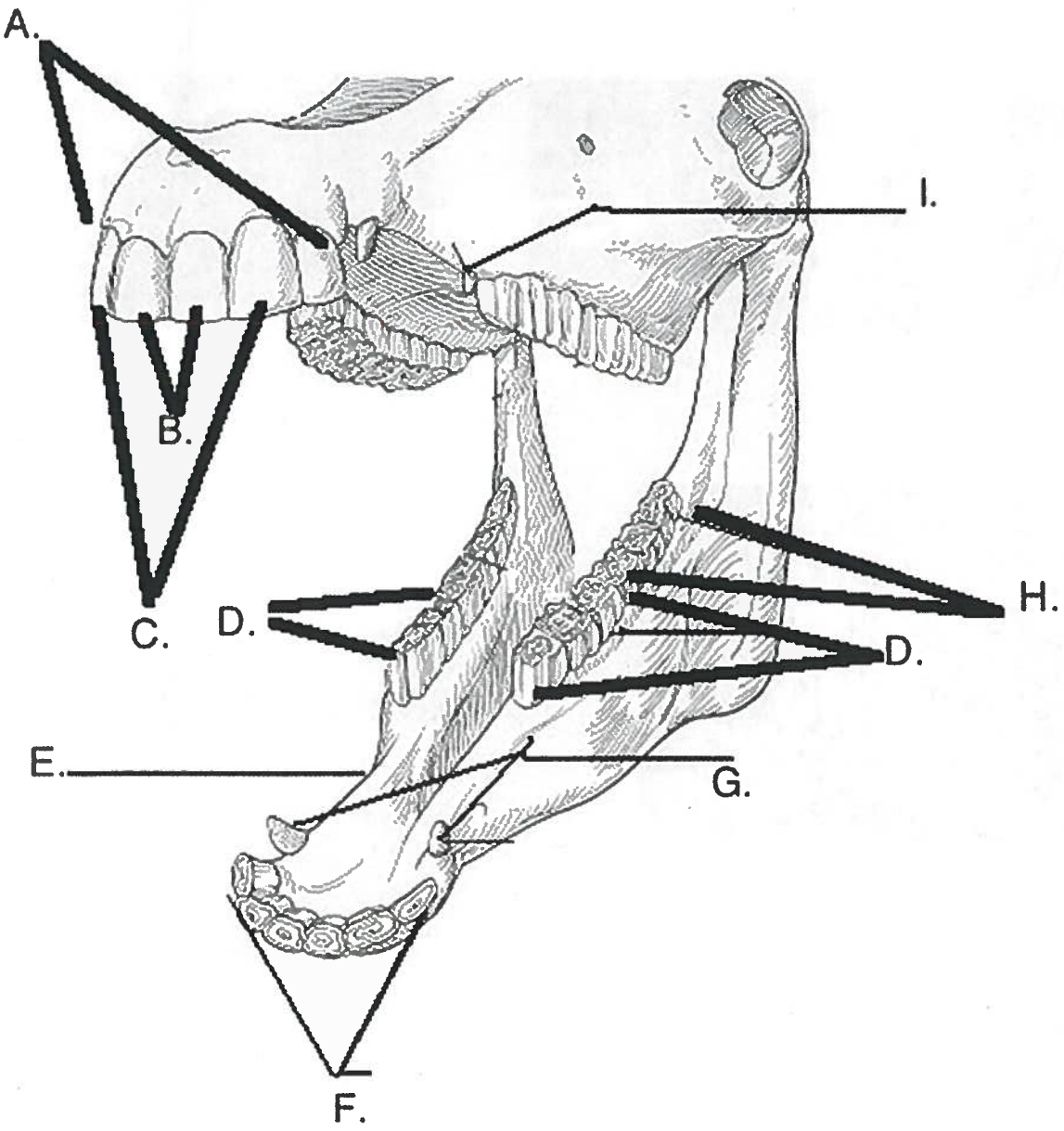
F. 3 YEARS (note permanent centrals are in wear)



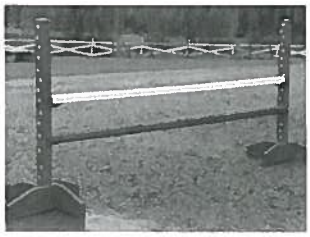
1. WESTERN SADDLE



2. DIGESTIVE SYSTEM



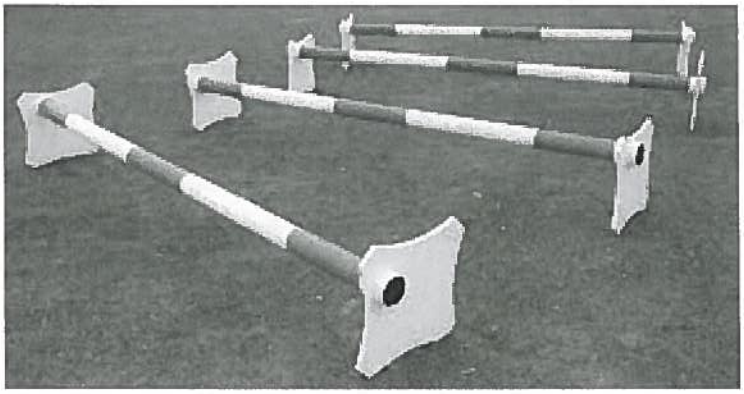
3. DENTAL (A-C refer to the specific pairs of teeth; D – I refer to the classification or type of tooth)



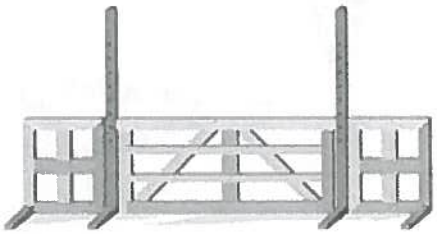
A.

B

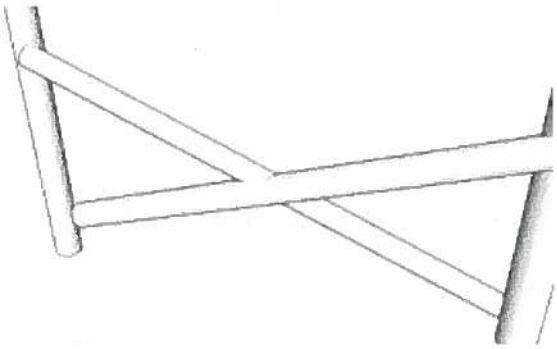
C.



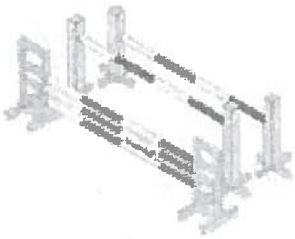
D.



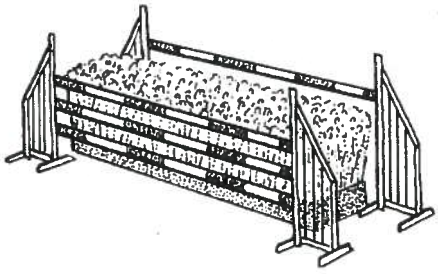
E



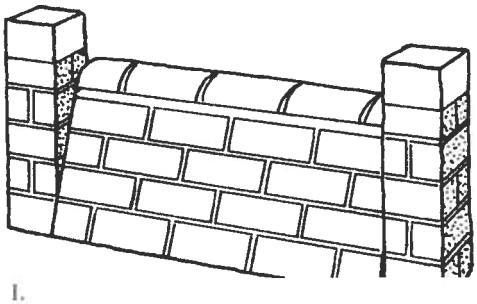
F.



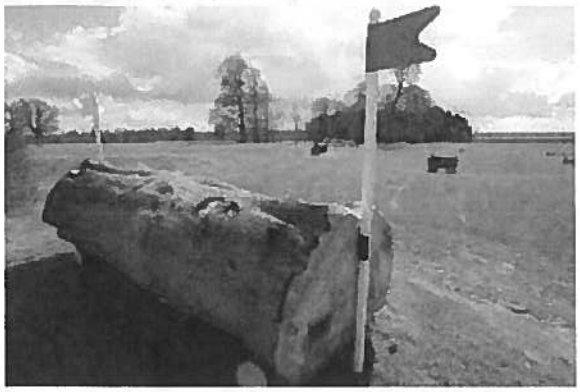
G.



H.



I.

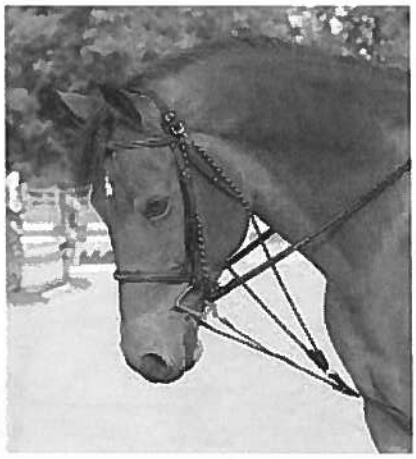


J.

K.

4. **JUMPS:** What is the term for each type of jump shown?

A



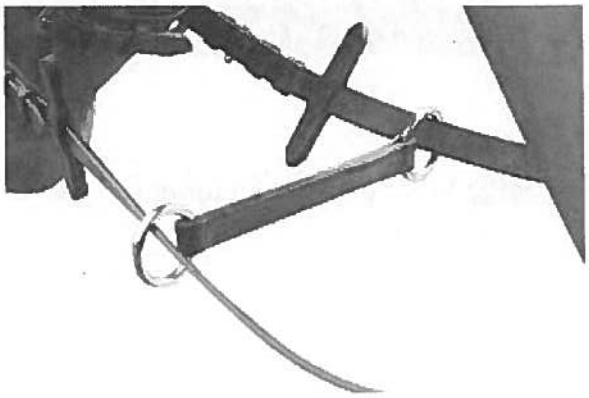
B.

C.

D.

E.

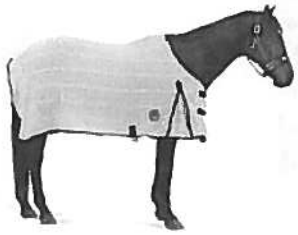
F.



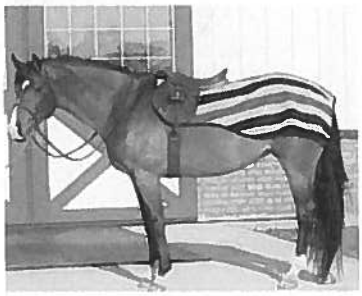
G.

5. TRAINING GEAR

A.



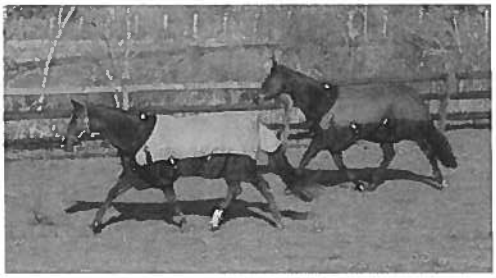
B.



C.

F.

D.



E.

F.

G.

H.

J.

I.

K.

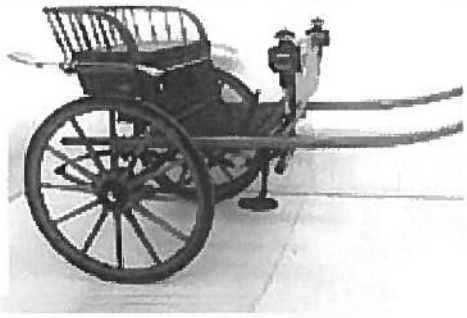
6. Horse clothing and boots

L.

M.

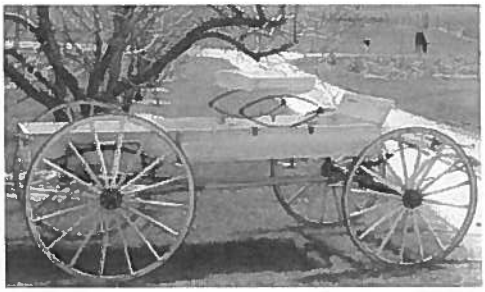
7. HORSE DRAWN VEHICLES

A



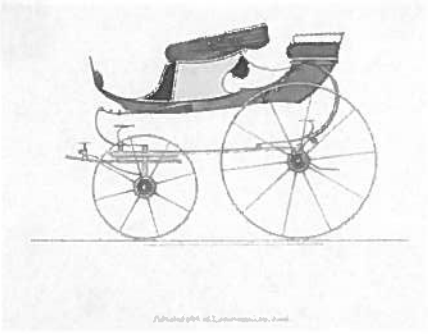
B.

c.

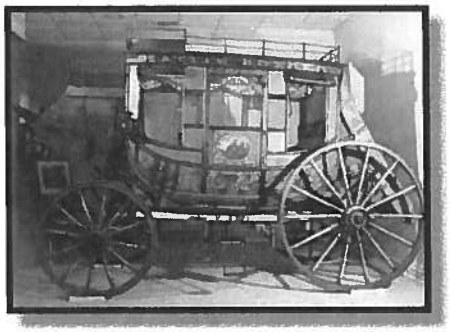


D.

E



F.



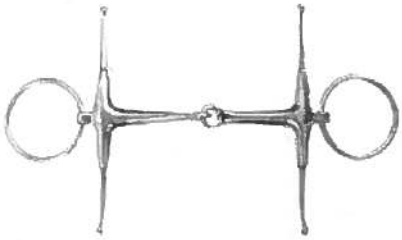
G.

8. **Bits (general name of bit)**

A

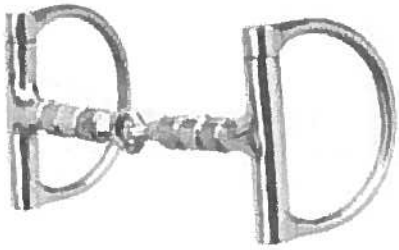
B.

C.



D.

E.

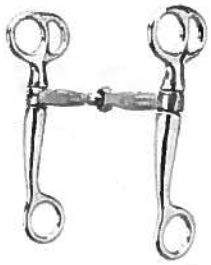


F

G.

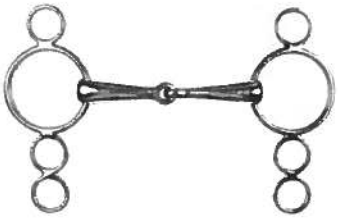
H.

I

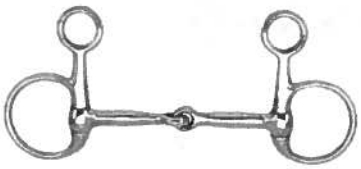


J.

K.



L.



M.

9. Bit mouthpieces (shape and design of the mouthpiece ONLY)

A

B.

C.

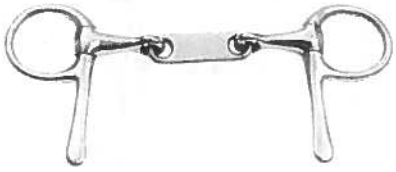
D.

E

F.

G

H.



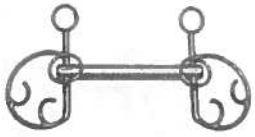
I.

J.

K

L.

M.



N.

O.

P.

Q.

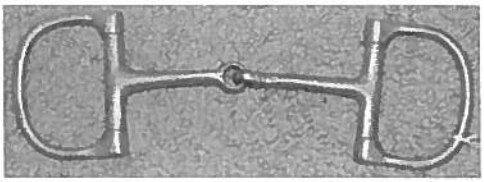
10. Bit mouthpiece materials (mouthpiece material ONLY regardless of style/shape)

A.

B

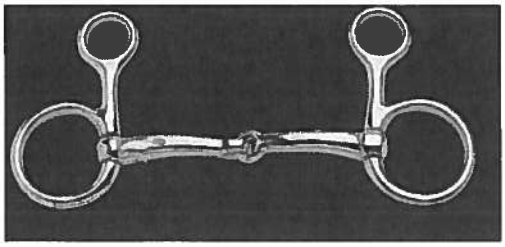
C.

D.



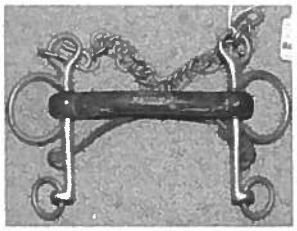
E

G.



F.

H.



I.

1. WESTERN SADDLE

A. POMMEL
B. GULLET
C. LATIGO CARRIER
D. SEAT JOCKEY
E. RIGGING DEE OR RIGGING RING
F. BILLET OR LATIGO (OFF SIDE)
G. LONG LATIGO OR FULL LATIGO
H. GIRTHH OR CINCH
I. STIRRUP
J. STIRRUP LEATHER KEEPER (HOBBLE STRAP)
K. FENDER
L. REAR BILLET
M. SADDLE STRINGS
N. SKIRTS
O. CONCHA
P. CANTLE (note the top or rear portion of the cantle is the Cheyenne roll)
Q. SEAT
R. SWELLS
S. HORN (HORN CAP)

2. DIGESTIVE SYSTEM

A. MOUTH
B. TONGUE
C. ESPOPHAGUS
D. LARGE COLON
E. CECUM
F. ANUS
G. RECTUM
H. SMALL COLON
I. SMALL INTESTINE
J. STOMACH

3. TEETH

A. LATERAL OR CORNER INCISOR
B. INTERMEDIATE INCISOR
C. CENTRAL INCISOR
D. PREMOLAR
E. INTERDENTAL SPACE OR BAR
F. INCISOR
G. CANINE TEETH (BIT TEETH, FANG, TUSH, TUSK, BRIDLE TOOTH)
H. MOLAR
I. WOLF TOOTH (classified as a premolar)
**** do not confuse wolf teeth and canine teeth, NOT the same!!***

4. Types of jumps

a. Vertical
b. Liverpool

c. Bank or Drop
d. Cavaletti
e. Gate
f. Crossrail
g. Hogs back
h. Oxer (with brush)
i. Wall
j. Log
k. Roll top

5. **Training gear**
   a. Chambon
   b. deGogue
   c. Side reins
   d. Running martingale
   e. Standing martingale
   f. GERMAN martingale
   g. IRISH martingale

6. **Horse clothing and boots**
   a. Cooler
   b. Irish cooler
   c. QUARTER SHEET or exercise sheet
   d. Stable blanket
   e. Turnout blanket
   f. hood
   g. Bonnet or fly bonnet (fly mask)
   h. Galloping boot
   i. Open front jumping boot
   j. Bell boot
   k. Splint boot
   l. Skid boot

7. **Horse drawn vehicles**
   a. Sulky
   b. Gig
   c. Mail coach
   d. Buckboard
   e. Hansom cab
   f. Phaeton carriage
   g. Stage coach (note a stage coach and a mail coach are very similar, but a stage coach is bigger drawn by 6-8 horses; mail coach is drawn by 2-4 horses)

8. **Bits**
   a. Weymouth curb
   b. Bridoon
   c. Full cheek snaffle (not a fulmer)
   d. Fulmer snaffle (loose ring full cheek)

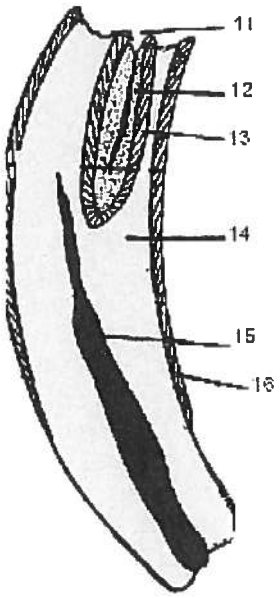
e. Loose ring snaffle
f. D ring snaffle
g. Eggbutt snaffle
h. Pelham
i. Spade
j. Tom thumb curb
k. Grazing bit
l. 3-ring elevator
m. boucher bit

9. <u>Bit mouthpieces (shape/design)</u>

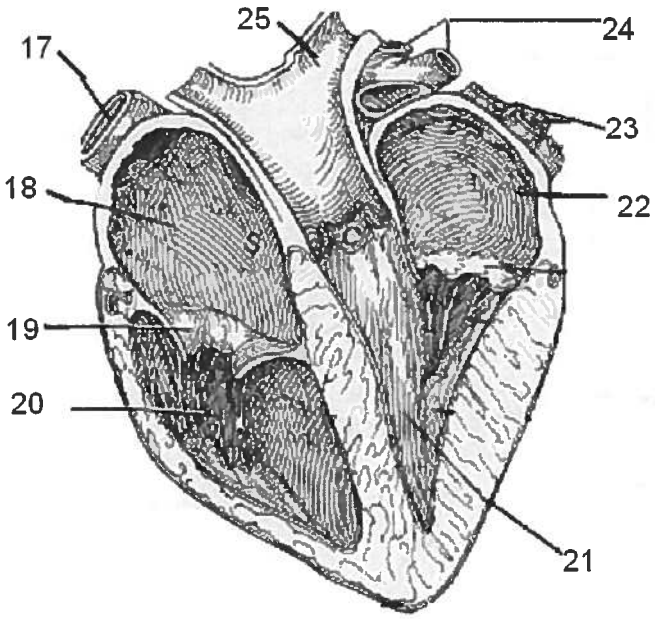
a. Low port
b. Medium port
c. High port
d. Low port with roller or cricket
e. Single jointed (smooth)
f. Single Jointed twisted wire
g. Slow twist (single joint)
h. French link
i. Dr. Bristol
j. Spade
k. Cathedral
l. Frog mouth
m. Double twisted wire
n. Straight
o. Mullen
p. Waterford

10. <u>Bit mouthpiece materials</u>

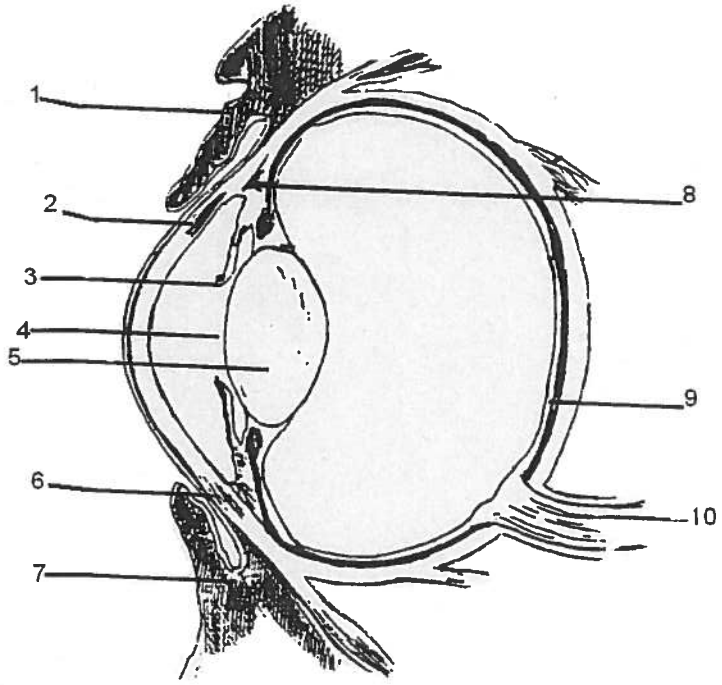
a. Happy mouth
b. Rubber
c. Stainless steel
d. Copper
e. Nickel (never rust)
f. German silver
g. Leather
h. Sweet iron
i. Vulcanite



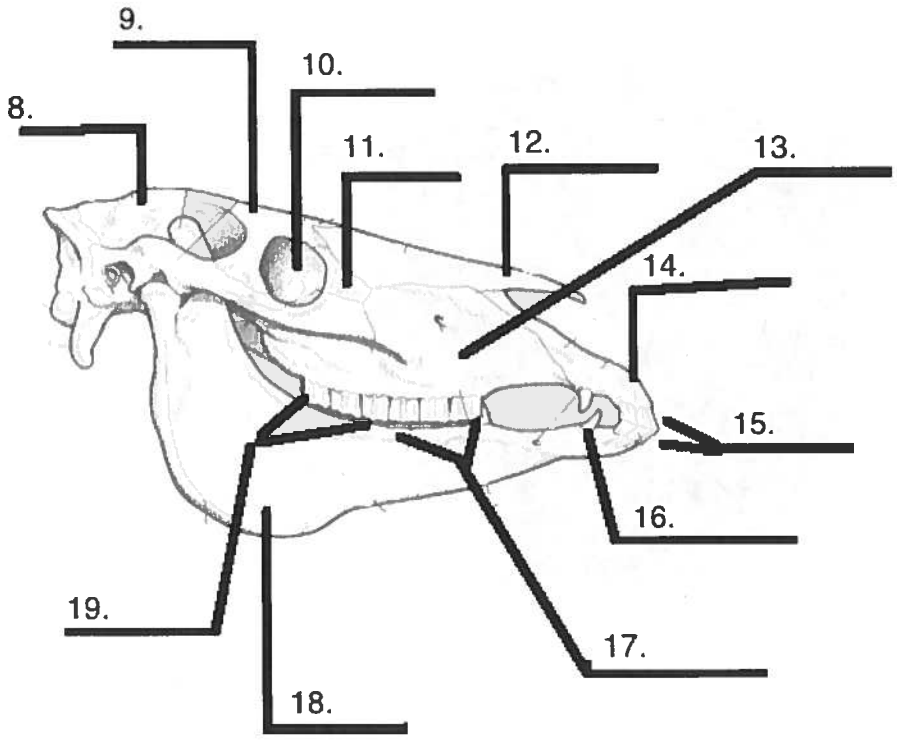
A: The Tooth



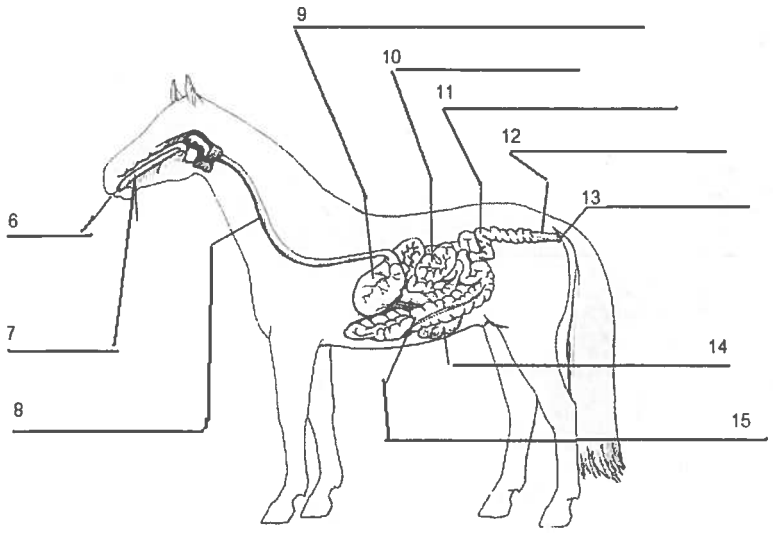
B: The Heart



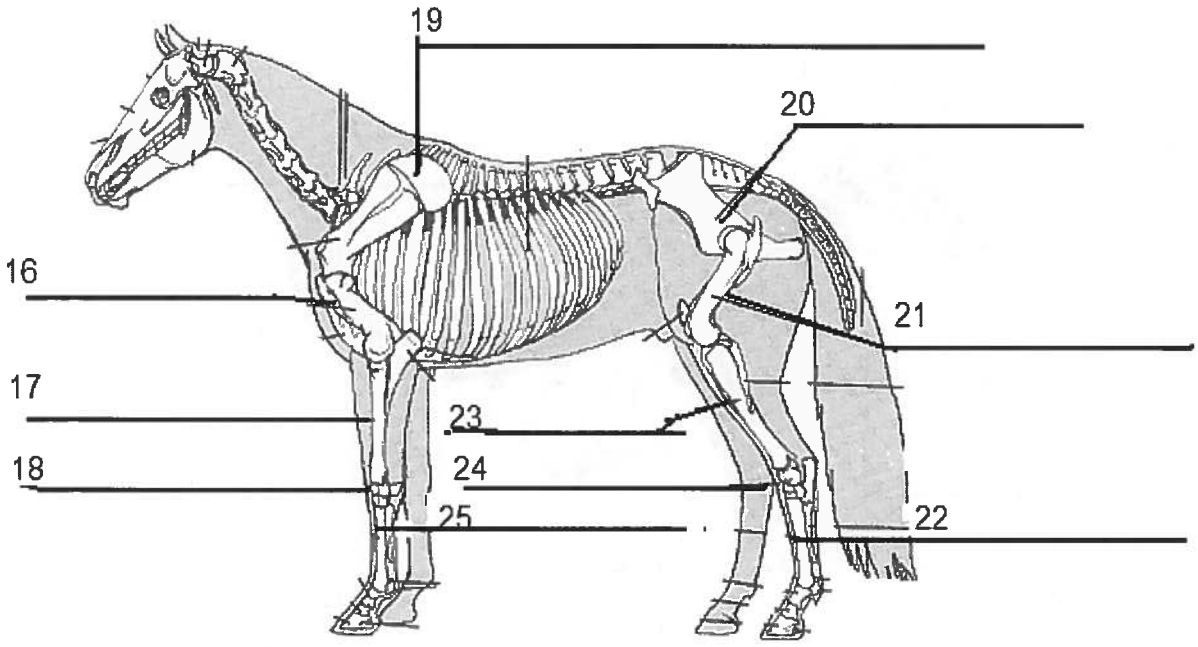
c: The Eye



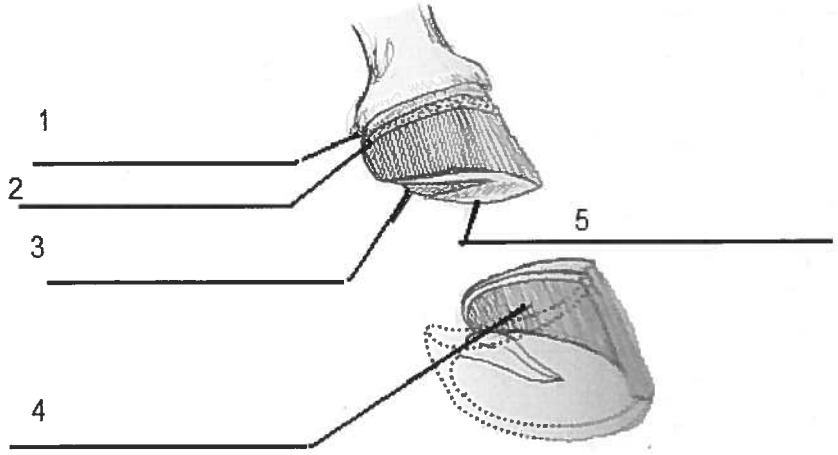
D: Skull



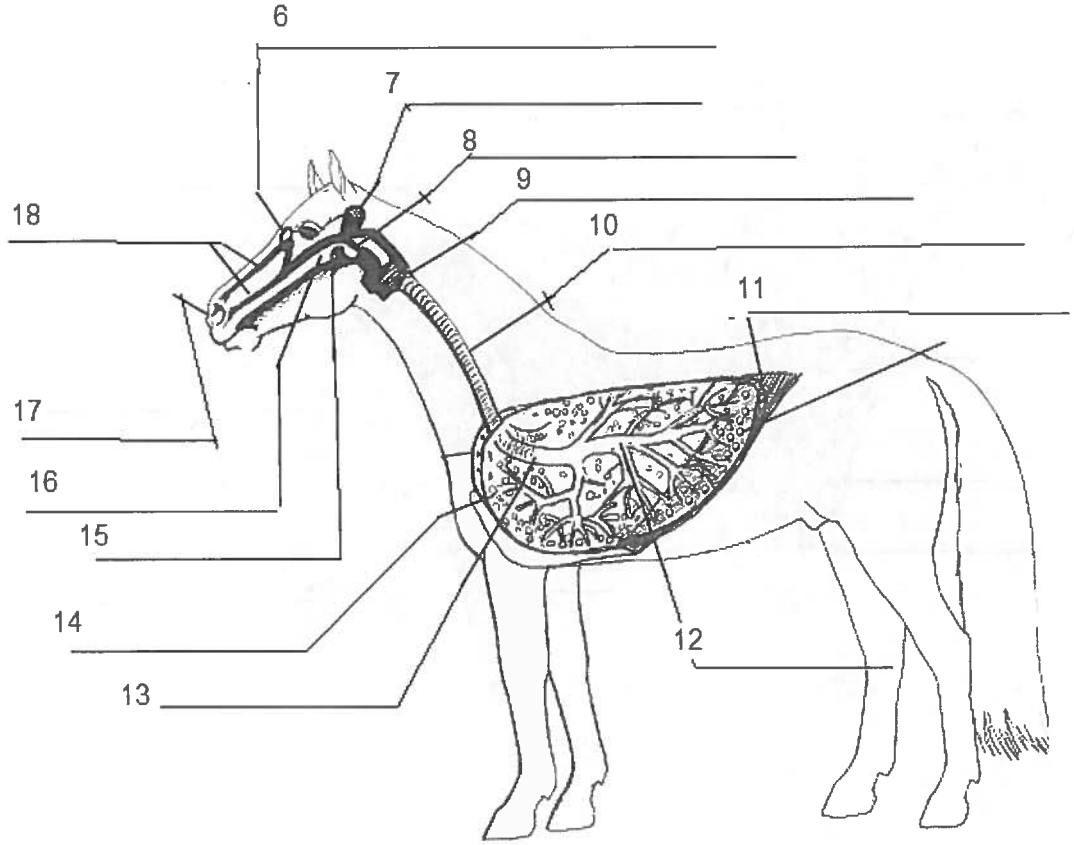
E: Digestive



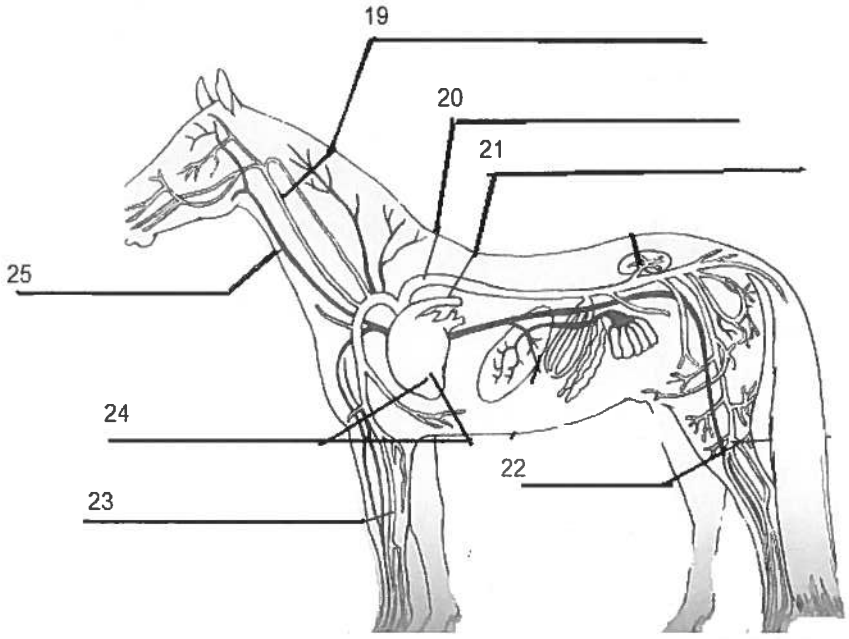
F: Skeleton



G: Hoof internal structures

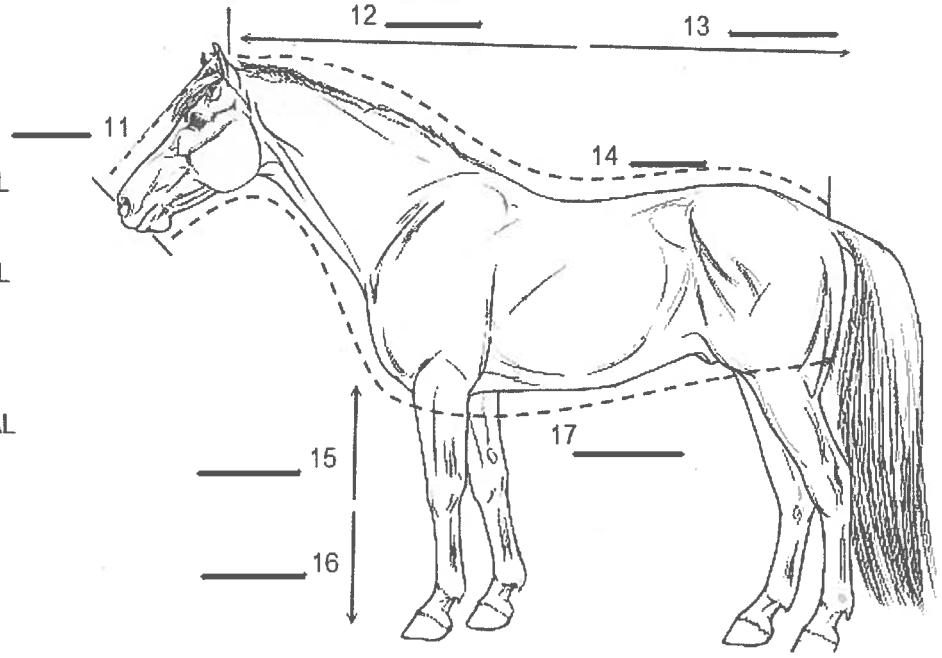


H: Respiratory System



I: Cardiovascular system

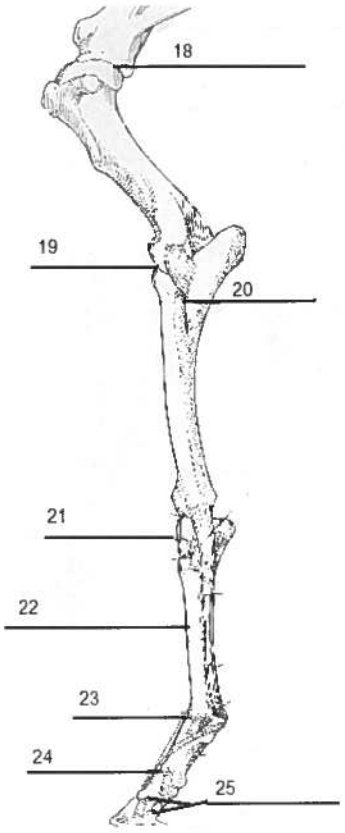
J: Directional Anatomy



A. VENTRAL
B. MEDIAL
C. CAUDAL
D. ROSTRAL
E. CRANIAL
F. LATERAL
G. DISTAL
H. DORSAL
I. PROXIMAL

K: Bones and joints of the forelimb

A ILIUM
B FETLOCK JOINT
C CARPUS
D RADIOULNAR JOINT
E COFFIN JOINT
F SHOULDER JOINT
G TIBIA
H CANNON
I ELBOW JOINT
J PASTERN JOINT



Answers

A: Tooth

11. cup
12. cement
13. central enamel
14. ivory
15. pulp cavity
16. outer enamel

B: Heart

17. vena cava
18. right atrium
19. right a-v valve
20. right ventricle
21. left ventricle
22. left atrium
23. pulmonary veins
24. pulmonary arteries
25. aorta

Hints about the heart: the right side of the blood receives deoxygenated blood from the body and pumps blood to the lungs; blood is oxygenated in the lungs (and gets rid of CO2); the left side of the heart receives oxygenated blood to the lungs and pumps blood out to the entire body – this is why the left ventricle muscle is so thick and strong – it has to pump blood a long distance!

C: Eye

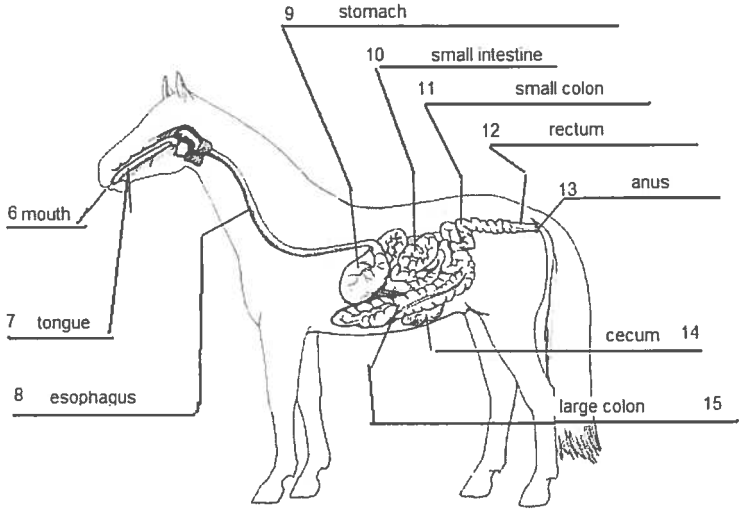
1. upper eyelid
2. cornea
3. iris
4. pupil
5. lens
6. sclera
7. lower eyelid
8. ciliary muscle
9. retina
10. optic nerve

D: Skull and Teeth

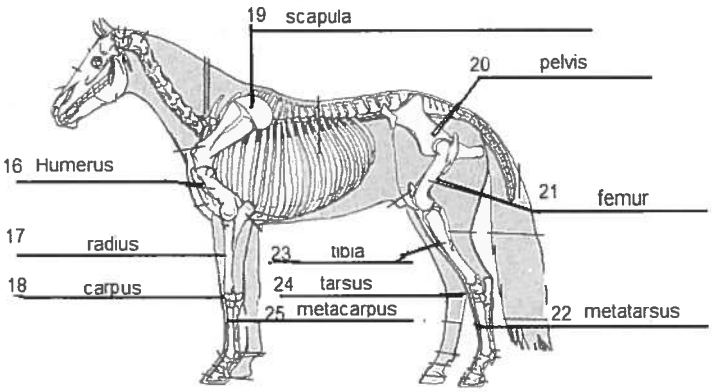
8. Parietal bone
9. Frontal Bone
10. Orbit
11. Lacrimal bone
12. Nasal Bone
13. Maxilla
14. Incisive Bone

15.Incisors
16. Canine Teeth
17. Premolars
18. Mandible
19. Molars

E: Digestive



F: Skeleton



G: Hoof internal structures

1. periopilic corium
2. coronary corium
3. sensitive frog
4. insensitive laminae
5. sensitive sole

H: Respiratory system

6. olfactory bulv
7. gutteral pouch

8. pharynx
9. larynx
10. trachea
11. diaphragm
12. bronchi
13. left mainstem bronchus
14. left lung
15. epiglottis
16. soft palate
17. nostril
18. nasal passages

I: Cardiovascular

19. carotid artery
20. aorta
21. pulmonary artery
22. femoral artery
23. median artery
24. heart
25. jugular vein

J: Directional

A. VENTRAL
B. MEDIAL
C. CAUDAL
D. ROSTRAL
E. CRANIAL
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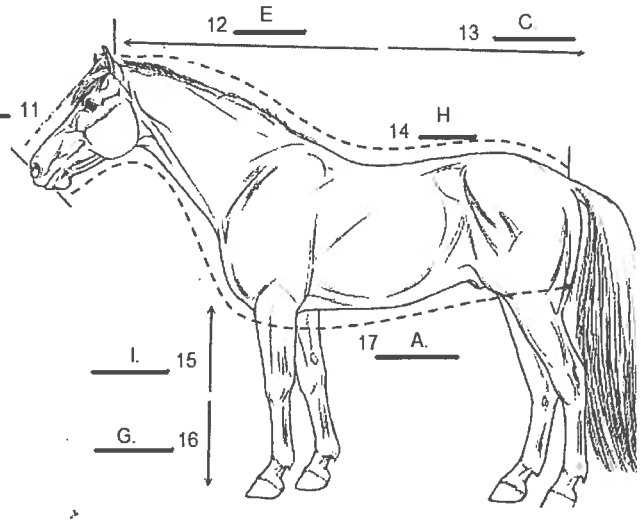

K: Forelimb bones and joints

A. ILIUM
B. FETLOCK JOINT
C. CARPUS
D. RADIOULNAR JOINT
E. COFFIN JOINT
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G. TIBIA
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