Brevard County

Love a Horse Project

Level III Achievement

Version 1.0

Name _____

Club Name _____ **Club Leader** _____

Date of Birth _____ **4-H Age** _____ **# of Years in 4-H** _____

Welcome to the Brevard County 4-H Horse Program Love a Horse Level III Achievement activity. This book is the first of four levels to assist Florida 4-H youth members who do not own or lease a horse to participate in the 4-H horse program education system. Each book is meant as a progression and builds off one another to give youth the ablity to continue to learn and gain useful skills and knowledge on horses and horse husbandry.

These books serve as tools to document a 4-H'ers knowledge. They do not contain reference information.

The following references are cited to assist in finding answers to posed questions. Your County Extension Office should have access to some or all of these materials, so please ask your County Agent and Leader for assistance in locating these materials. As the number of horse related references is exhaustive, any further references materials may be used to assist in answering questions.

Colorado State University, Department of Animal Sciences (2008). 4-H Horse Project Manual. Retrieved January 20, 2011, from http://equineextension.colostate.edu/files/4h_horse_projects/Horse_Project_Manual.pdf

Coloring Atlas of Horse Anatomy, Kainer and McCraken. Alpine Publications, Inc., 38262 Linman Road, Crawford, CO 81415.

Equine Science: Basic Knowledge for Horse People of All Ages, Jean T. Griffiths. ISBN # 978-1-929164-42-4. www.HorseBooksEtc.com

Feeding and Care of the Horse, 2nd Ed., by Lon Lewis. ISBN# 0-6830-4967-4. Published by Blackwell Publishing Limited, Commerce Place, 350 Main St., Malden, MA 02148.

Florida State 4-H Horse Show Official Rules, revised to current year.

Government of Alberta, Agricultural and Rural Development (2005). 4-H Horse Reference Manual. Retrieved January 20, 2011, from http://www1.agric.gov.ab.ca/$department/deptdocs.nsf/all/4h7933

Horse Industry Handbook, American Youth Horse Council. 4093-A Iron Works Pike, Lexington, KY 40511-8434. www.ayhc.com.

Illustrated Dictionary of Equine Terms, New Horizons Education Center, Inc. Alpine Publications, Inc., 38262 Linman Road, Crawford, CO 81415. www.alpinepub.com.

Youth Leaders Manual, American Youth Horse Council. The Horse, 2nd Edition by Evans, Borton, Hintz, Vanvleck. ISBN# 0-7167-1811-1. Published by W.H. Freeman, New York.

TABLE OF CONTENTS

LEVEL III GOALS

By enrolling in the Love a Horse Project, you have expressed an interest in learing about horses and equine husbandry. This Level III Achievement activity is the first step along that path. At the beginning of this activity, list your goals and what you need to do to achieve each goal. At the completion of this Level III Achievement activity, define the progress you made toward meeting each goal.

Goal	What I need to do to reach my goal.	Progress toward reaching my goal.

UNIT 1: EQUINE INTERNAL STRUCTURE

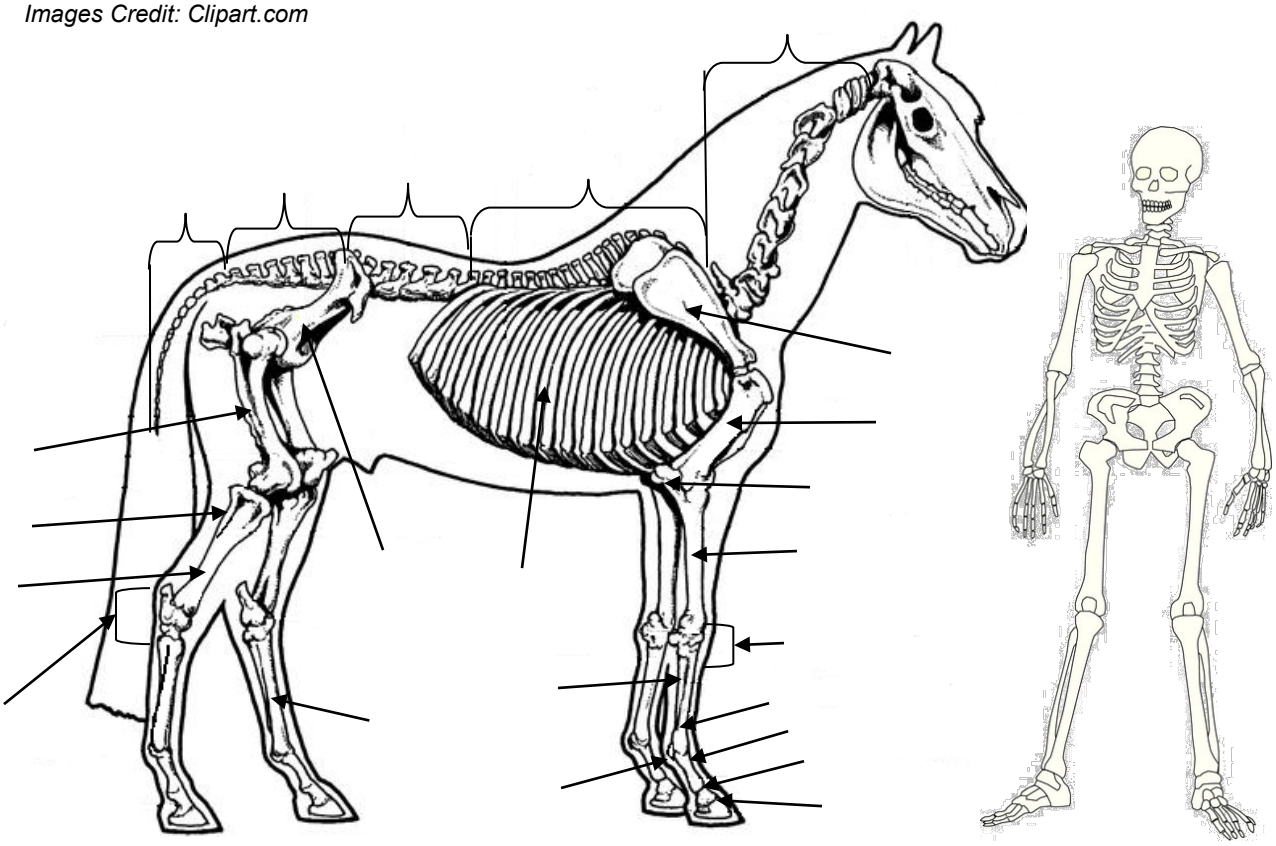
The bones of the horse's skeleton protect delicate internal organs, produce blood cells and serve as reservoirs of calcium and phosphorus. The bones also serve as the anchoring point for muscles, tendons and ligaments, which provide locomotion.

How many bones does the horse have? _____

Label the bones indicated on the diagram of the horse using the word list provided.

Cervical Vertebrae	Coccygeal Vertebrae	Radius	1st Phalange	Splint Bone
Ilium	Tibia	Scapula	2nd Phalange	Sacral Vertebrae
Lumbar Vertebrae	Fibula	Sesamoid Bone	Carpal Bones	Ribs
Femur	Tarsal Bones	Coffin Bone	Thoracic Vertebrae	
Metatarsus	Humerus	Metacarpus	Ulna	

Images Credit: Clipart.com



The horse's skeleton correlates to the human skeleton.

On the skeleton of the human label the following bones. Scapula, Humerous, Ulna, Radius, Femur, Fibula, Tibia. Circle these same names that you labeled on the horse's skeleton noting their correlating locations.

The knee in the horse is equivalent to the _____ in the human.

The hock in the horse is equivalent to the _____ in the human.

Tendons and ligaments in the horse are the "belts" and "cables" that hold bones in place and allow the muscles to do their jobs in creating propulsion. Because of the workload often put upon them, tendons and ligaments are frequent sites of injury and disease.

A _____ is a tough band of fibrous tissue that joins two bones together.

A _____ is a tough fibrous cord that joins a muscle to a bone.

The ligaments and tendons of the horse's front limb are particulary sensitive to stress and injury due to the strain that is put on the forelimbs when the horse is worked.

Label the structures in the diagram using the word list provided.

A. Inferior Check Ligament

B. Suspensory Ligament

C. Lateral Digital Extensor Tendon

D. Superficial Digital Flexor Tendon

E. Deep Digital Flexor Tendon

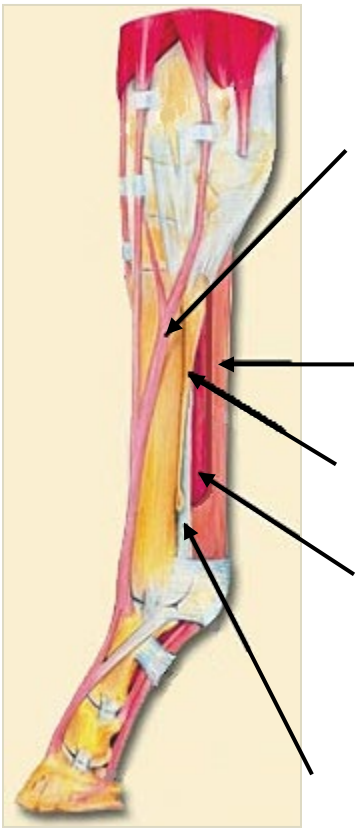
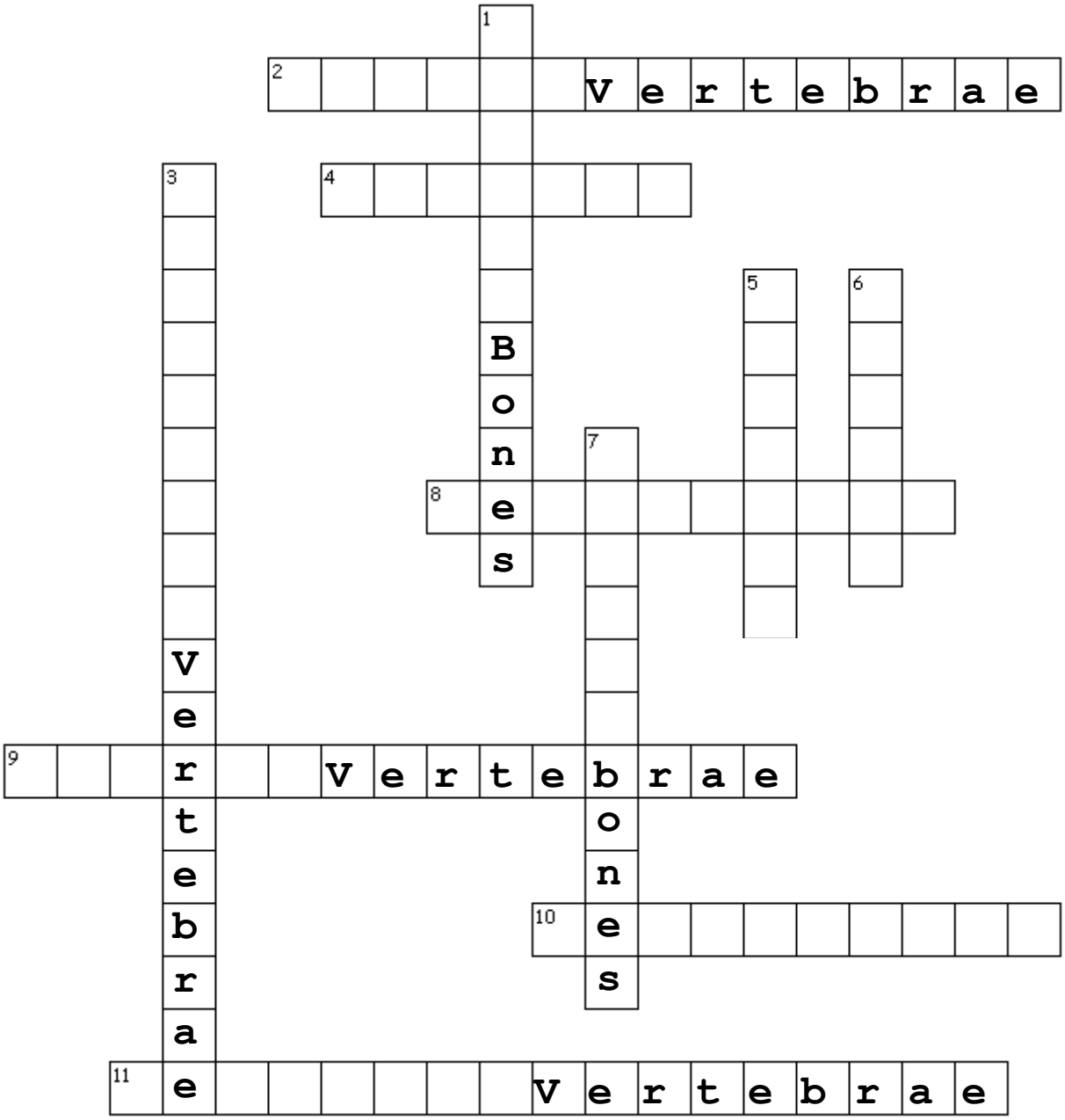


Image Credit: http://www.thehorse.com/ViewArticle.aspx?ID=7441&src=topic

Skeleton Crossword Puzzle

Name the bone that corresponds to the body part given in the clues.



Across
2. Loin
4. Shoulder
8. Rear Cannon
9. Croup
10. Front Cannon
11. Neck

Down
1. Knee
3. Tail
5. Arm
6. Forearm
7. Hock

UNIT 2: UNSOUNDNESSES AND BLEMISHES

Here are some common unsoundesses and blemishes which can be seen on horses.

Describe briefly what each is and whether it is an unsoundness (U) or blemish (B). Note that some of these may be classified as both an unsoundness and a blemish because the injury or abnormality may cause lameness based on the severity.

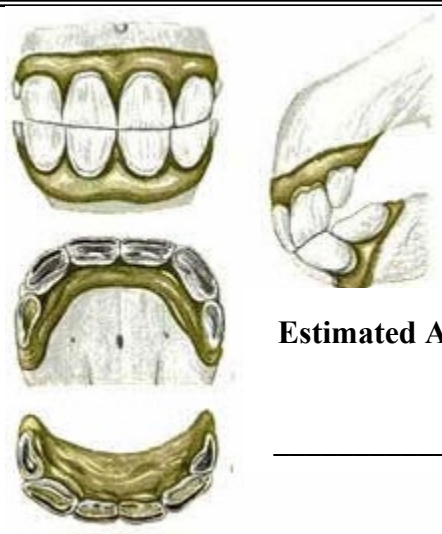
	Classification	Description
Bowed Tendon		
Bucked Shin		
Curb		
Osselets		
Ringbone		
Sidebone		
Splint		
Windpuffs		

UNIT 3: AGE DETERMINATION

Horse's teeth can be used to estimate a horse's age based on certain characteristics.

See if you can determine the age of the horse based on the view of their mouth. Give at least 2 characteristics of the teeth that led you to make that determination for each view.

Images Credit: http://www.localriding.com/horses-age.html



Estimated Age _____

_____

_____

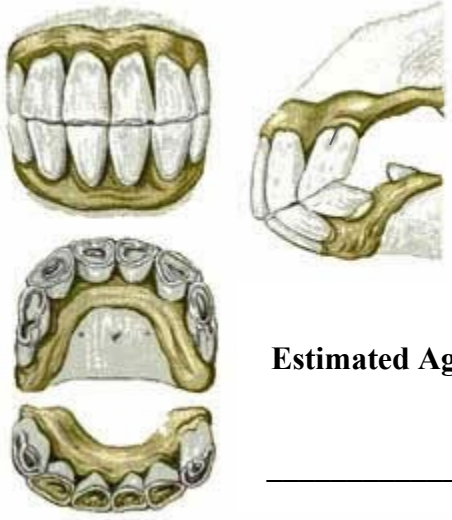
_____

Estimated Age _____

_____

_____

_____



Estimated Age _____

_____

_____

_____

Estimated Age _____

_____

_____

_____

UNIT 4: BITS

The bit we ride our horse in is an essential tool in controlling our mount. Different types of bits serve different purposes.

A non-leverage bit is most commonly called a snaffle bit.

Match the non-leverage bit with its name (Hint: Non-leverage bits are identified by both the mouth piece and the cheek pieces).

Slow Twist Egg Butt Snaffle

Waterford D Ring Snaffle

Full Cheek Hollow Mouth Snaffle

Rubber Mouth O Ring Snaffle

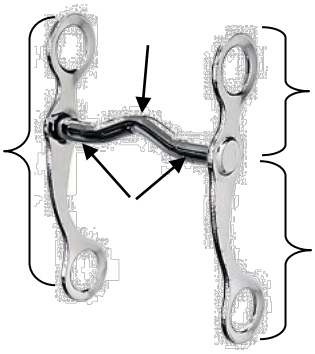
Corkscrew D Ring Snaffle

French Link Loose Ring Snaffle

Mullen Mouth Egg ButSnaffle

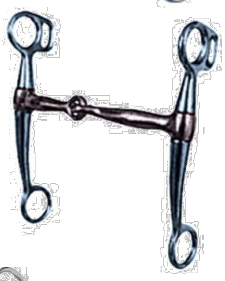
Images Credit: http://www.statelinetack.com/

Identify the parts of a shanked bit.



Match the leverage bit with its name.

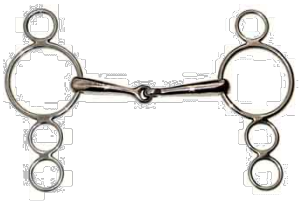
Correction bit



Rutledge Roper

Three Ring Elevator

Copper Roller Curb



Tom Thumb Snaffle

Images Credit: http://www.statelinetack.com/

What 3 parts of the horse's mouth does the non-leverage bit exert pressure on?

1. _____

2. _____

3. _____

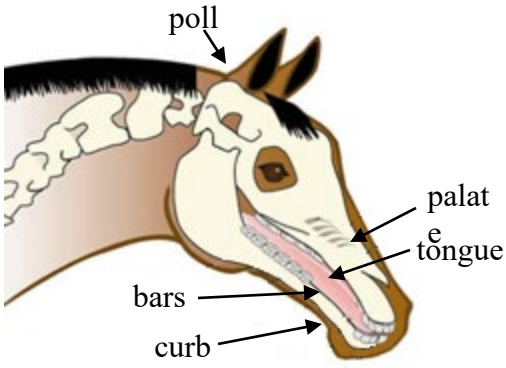


Image Credit: http://www.equine-training.co.uk/Horsetalk100.htm

What 5 parts of the horse's mouth and head does the leverage bit exert pressure on?

1. _____

2. _____

3. _____

4. _____

5. _____

Relative to a leverage bit, what determines how much leverage the bit will exert when the reins are pulled on?

_____

_____

_____

_____

_____

Copper, sweet iron, and stainless steel are all metals used in _____.

UNIT 5: DIGESTION

On the diagram, label the parts of the Horse's digestive system using the word list provided.

A. Esophagus
B. Stomach
C. Small Intestine
D. Cecum
E. Large Colon
F. Small Colon
G. Rectum

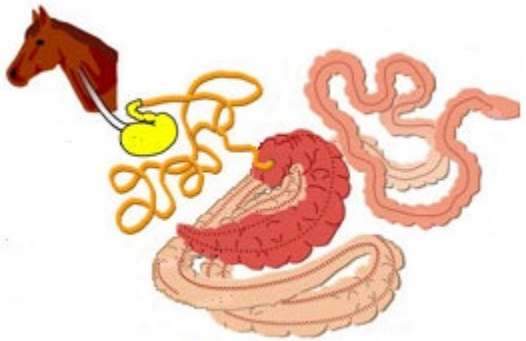


Image Credit: http://www.ecmagazine.net/Vol4_2/digestion.asp

For each section of the digestive tract, define the capacity and length as applicable:

	Capacity	Length
Esophagus		
Stomach		
Small Intestine		
Cecum		
Large Colon		
Small Colon		
Rectum		

True or False

1.	Horses salivate at the sight or smell of feed.	
2.	Horses can not vomit or belch gas.	
3.	The horse has no sense of "feeling full" after a meal.	
4.	The rate of food passage from mouth to anus takes approximately 24 hours.	
5.	The best way to keep a horse warm is to give it free access to hay.	
6.	The feces from your horse can be an indication of their health.	

Match the section of the digestive tract with it's function.

Section	Function
Esophagus	This section secretes hydrochloric acid, pepsin, and gastric lipase to begin breaking down the food particles.
Stomach	50-70% of simple carbohydrate digestion and absorption and almost all amino acid absorption occurs in this section.
Small Intestine	Wavelike muscular contractions move the food from the mouth to the stomach in this section.
Cecum	This section continues the bacterial fermentation of fiber and absorption of water that was started in the Cecum.
Large Colon	This section is a storage area for waste materials.
Small Colon	This section is the primary site for fiber breakdown and digestion by bacterial fermentation.
Rectum	This section continues the water absorption and forms the fecal balls.

Fill in the blank:

The stomach and small intestine are collectively called the _____.

The cecum, small colon and large color are collectively called the _____

or the _____.

The small intestine contains three regions: _____, _____

and _____.

Circle the words in the puzzle (words go in every direction -- up, down, diagonally, backwards and forwards)

COLON	ENERGY	GRAIN
RECTUM	HERBIVORE	ESOPHAGUS
HAY	SALIVA	LARGEINTESTINE
MICROBE	MOUTH	TEETH
SMALL INTESTINE	STOMACH	WATER

L Q H M O U T H A D F E D S S

A C E E P L E N E R G Y V E T

R T B H A R Q Y M I L L N O O

G R A I E N E E U R G I Y Z M

E J K T P S B O T O T E E H A

I R A C T O A O C S F Q U W C

N W H U R T E C E B P V Y A H

T U M C O I N T R N L O V F O

E N I R Y G N R S P Q I B L N

S M I C R I O B E S L I V I N

T K C O L O N E S A L M A I T

I G I L O R E C S L G R A P E

N I A E A T E E T V G S E Q E

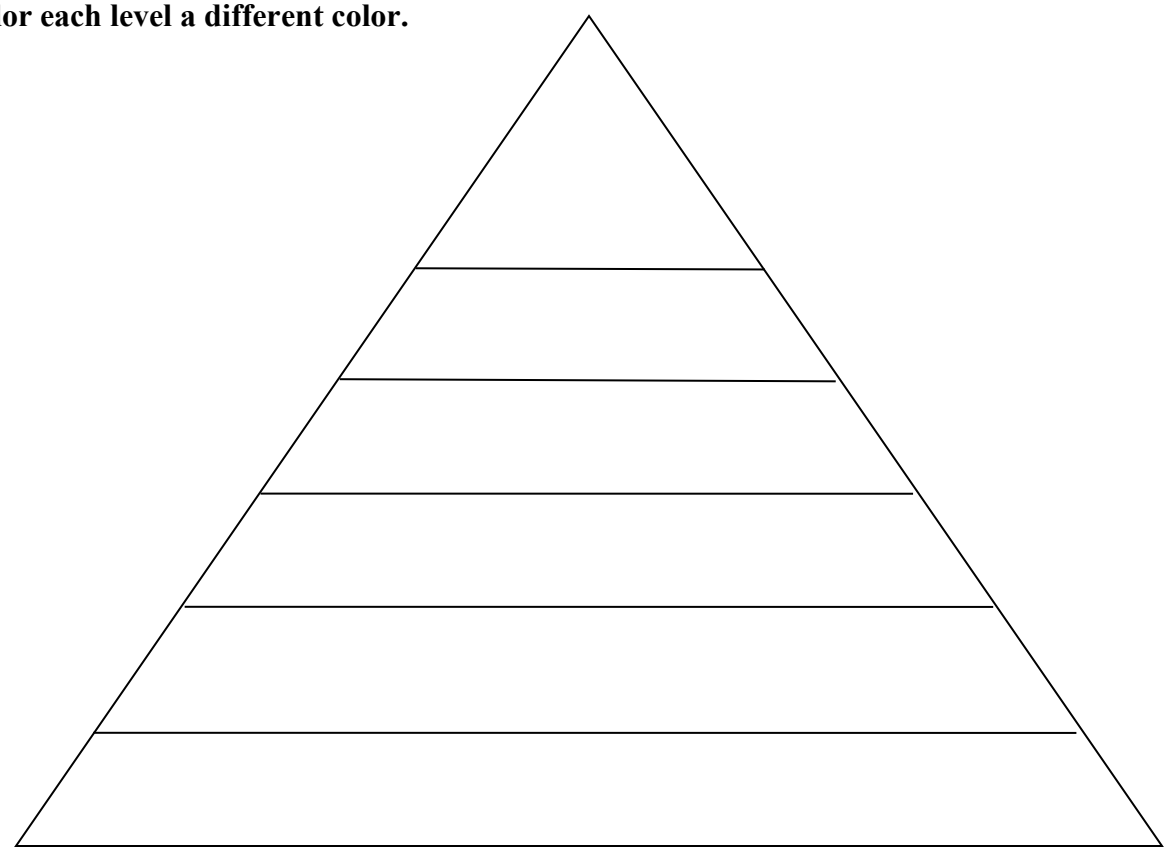
E M N H E R B I V O R E V W T

S M A G E S O P H A G U S A H

UNIT 6: NUTRITION

Label each section of this pyramid with one of the 6 nutrient classes that horses require. The base of the pyramid represents the nutrient class most needed and utilized by horses and the top of the pyramid represents the nutrient class least needed and utilized by horses.

Color each level a different color.



Horses consume nutrients by eating grains and forages. Forages can be classified as either grasses or legumes

Unscramble these grain names and classify each into one of the five nutrient classes.

	Grain Name	Classification
STAO		
RCNO		
RNGAIMSOURGHG		
TEWAH		
YER		
YLERAB		

Unscramble these forage names, classify each into one of the five nutrient classes, and identify the forage as a grass or legume type.

	Forage Name	Classification	Type
ROCHRDASASGR			
AOSTLBEMRUADAC			
FLAAFAL			
LEVOCR			
YHIMOTT			

True or False

1.	Grain processing increases the digestibility of the raw grain.	
2.	Beet pulp is a highly digestible fiber source.	
3.	Vitamins A and E are vital nutrients in the horse's diet because they can not be manufactured in the horse's body.	
4.	The horse requires large amounts of minerals.	
5.	Most of the nutrients in hay are contained in the fibrous stems.	
6.	Legume hays tend to be dustier than grass hays.	
8.	Excess carbohydrates consumed are flushed by the digestive system.	
9.	Fresh, green pasture is approximately 10% water.	
10.	A horse's requirement for protein changes with age.	
11.	You can't feed too much vitamin and mineral supplements.	
12.	The same volume of two different types of grains will weigh the same amount.	
13.	Corn has the highest digestible protein percentage of all the grains.	
14.	Bran is highly palatable and slightly laxative.	
15.	Grain Sorghum is also called Milo.	
16	Forage provides significant carbohydrates to horses.	

UNIT 7: FEEDING IN THE 21ST CENTURY

All horse owners have a responsibility to ensure that the animals entrusted to their care are healthy and happy. As care givers, we must be cognizant of the preventative measures we can take to maintain healthy animals and the plethora of products manufactured today that can support our efforts.

Some of the more important preventative measures include:

1. Feed your horse a nutritionally balanced ration, in sufficient quantities in the correct manner
2. Execute a planned immunization and parasite control program
3. Provide clean, safe, and roomy quarters for your horse
4. Keep your horse well groomed and exercised

Feeding your horse in the 21st Century is complicated. Give 3 reasons why this is the case.

1.	
2.	
3.	

Next you are going to develop a balanced daily ration for a yearling, a show horse, and a retired senior horse. In order to do this, you will need to do some research on commercial feeds either by searching online or visiting a feed store.

The following two online articles will provide valuable information that you may want to read before doing this exercise:

- *"Understand Horse Feed Labels"* by Rhonda Hoffman PhD
- *"Straight Talk about Equine Feed Labels"* by Kathy Anderson, PhD

Here are the instructions for completing this exercise.

There are multiple lines in the table to allow for more than one type of hay or commercial feed.

Pasture

- Type – document the type of grass that is planted in the horse's pasture, such as bahia or bermuda; if this is a typical Florida pasture, then the type of grass will be "native"
- Hrs/day – document the number of hrs/day that the horse is turned out
- You can assume that the horse will consume 1 to 1.4 lbs of grass per hr of grazing
- You can assume unlimited access to at least 5 acres of improved pasture

Hay

- Type – document the type of hay such as coastal, timothy, alfalfa, peanut
- Lbs/day – document the quantity of hay in lbs/day; this will take some research to correlate a "pad" of hay to a weight in lbs
- Protein content of hay can be assumed as follows: Grass = 8%; Mixed 50/50 = 12%; Legume = 16%

Commercial Feed

- Type – you can either give a generic type such as oats, pellets, sweet feed, or you can give the name of a manufactured brand such as Manna Pro Performance 10 or Seminole Wellness Perform Safe
- Analysis (Crude Protein, Crude Fat, Crude Fiber) – these % values will come from the feed statistics if you are specifying a manufactured brand or they will represent target values if you are spedifying a generic type.
- Lbs/day – you will calculate this value based on the animals weight and their nutritional requirements

Now explain how the ration meets the horse's nutritional needs. For example how does the yearling's ratio support his attempt to grow; how does the athlete's ration provide the energy he needs to perform well; how does the senior's ration help him stay slim and healthy.

HINT: As a general rule, a horse needs 1 to 2 lbs of foragae (hay + pasture) per 100 lbs of body weight daily. Depending on age and performance level a horse will also need .25 to 1.5 lbs of concentrates per 100 lbs of body weight daily. The crude protein, crude fat, and cude fiber analysis will depend on the age of the horse and the level of activity.

Develop a balanced daily ration for a yearling whose body weight is 800 lbs.

Pasture		Hay		Commercial Feed				
					Analysis			
Type	Hrs/day	Type	Lbs/day	Type	Crude Protein%	Crude Fat%	Crude Fiber%	Lbs/day

Explain how this daily ration of forage and commercial feed will meet the youngster's nutritional needs.

Develop a balanced daily ration for a 6 year old hunter who is training and competing heavily. We want to maintain a body weight of 1000 lbs.

Pasture		Hay		Commercial Feed				
					Analysis			
Type	Hrs per day	Type	Lbs per day	Type	Crude Protein%	Crude Fat%	Crude Fiber%	Lbs per day

Explain how this daily ration of forage and commercial feed will meet the athlete's nutritional needs.

Develop a balanced daily ration for a retired, mature gelding. We want to maintain a body weight of 1100 lbs.

Pasture		Hay		Commercial Feed				
					Analysis			
Type	Hrs per day	Type	Lbs per day	Type	Crude Protein%	Crude Fat%	Crude Fiber%	Lbs per day
					10%	3%		

Explain how this daily ration of forage and commercial feed will meet the senior's nutritional needs.

UNIT 8: UNRAVELING THE MYSTERY OF SUPPLEMENTS

Well if you thought that figuring out what to feed a horse and how much to feed was complicated just wait until you try this exercise!

Look back at your feed rations for the yearling, performance horse, and retired horse and determine what supplements you need to feed them if any. You can assume that there are no illnesses or injuries to be managed. So your task is to see if theie daily ration is deficient in some key vitamins or minerals that are essential for their nutritional needs or continued soundness.

Complete the following table.

- Supplement – this may be a generic name such as Biotin or a brand name such as Select Best Nu Hoof
- Qty/day – typically supplements are measured in ounces; in the case of a salt or minerl block, the Qty/day would be "free choice"

Yearling		Performance Horse		Retired Horse	
Supplement	**Qty/day**	**Supplement**	**Qty/day**	**Supplement**	**Qty/day**
Why are these needed?		**Why are these needed?**		**Why are these needed?**	

UNIT 9: POISONOUS PLANTS

Many wild and cultivated trees and plants can be dangerous for horses, particularly if equines actually eat the vegetation. These poisonous plants may include flowers, ground vegetation, shrubs and trees. In some cases, only certain parts of a plant may prove toxic to horses. For example, the blossoms, fruit, leaves, nuts, roots, stems or seeds may be poisonous. With other flora, the entire plant may be dangerous to equines.

Define 5 symptoms of poisoning in horses.

1. _____

2. _____

3. _____

4. _____

5. _____

If you suspect poisoning, what is the first thing you should do and why?

_____

_____

_____

_____

_____

If you discover toxic plants in your horse's environment, how should you eliminate them?

_____

_____

_____

_____

_____

There are approximately 60 poisinous plants that flourish in the southern United States. The following list represents only a handful.

Match the picture with the name/description.

Images Credit: http://www.caf.wvu.edu/~forage/library/poisonous/content.htm

Azaleas – shrub; tough, glossy, evergreen leaves; large, showy flowers with five white, pink or red petals.	
Deadly Nightshade – leaves are dark green and toothed; very small clusters of small, white flowers; fruit looks like a large black current	
Bracken Fern - coarse fern; triangular in outline	

Crotolaria - branched stems are hairy; simple almost round leaves; upper leaf surface hairy; yellow flowers have very small petals; fruits (seed pods) are smooth and about 1" long. Crotalaria is commonly known as rattlebox. These plants get their name from the sound made when their pod-like fruit is shaken, causing the seeds to "rattle" around inside.	
Hemlock- pointed leaves; Flowers white; borne in compound, flat-topped umbels at the ends of stems and branches; fruits ovoid, prominently ribbed, two-parted	
Lantana - erect or spreading shrub; leaves opposite or whorled, ovate to lanceolate, margins toothed; aromatic when crushed; flowers initially cream, yellow or pink changing to orange or; fruit greenish-blue or black, one seeded.	
Oleander - ornamental shrub or small, densely branched tree; elliptical leaves; flowers showy, white, pink, red or yellow occuring in large terminal clusters	

UNIT 10: IMMUNIZATION AND PARASITE CONTROL

Preventing disease is more effective than treating your horse after he becomes ill. Good animal husbandry can reduce the risk of exposure to infecting organisms. But we are rarely able to eliminate all such exposure. A regular vaccination program will raise a horse's resistance to many diseases.

Design a vaccination program that will immunize an adult performance horse located in Florida against the most prevalent diseases.

Disease	Vaccination Schedule

A parasite is a plant or animal living in, on, or with another living organism (its host), at whose expense it obtains food and shelter. Almost all horses harbor some internal parasites. Therefore all horses should be on a parasite prevention program.

Name four (4) types of internal parasites that can be controlled with a regularly executed deworming schedule.

1. _____

2. _____

3. _____

4. _____

Design a parasite control program that will minimize the risk of a parasite infestation for an adult performance horse located in Florida.

Dewormer (by brand name or active ingredient)	Administration Method (oral paste, feed additive or stomach tube)	Administration Schedule

UNIT 11: FACILITIES

Paramount in all farm plans, be they a small one-horse set-up or a large hundred-horse operation, is horse safety. Horses are amazing creatures in that their size and substance lead you to believe that somehow they should also be sturdy, stable and not easily damaged. But every horse owner knows that this is not necessarily true. Horses are also extremely curious, relatively thin skinned, and held together by tender tendons and ligaments. In addition, their evolution into domestication did not include their sensitive digestive tract. Blending the horse's need to accommodate his wild horse instincts of constant movement, grazing and flight from predators is frequently contradicted by our need to house them in stalls, control their turn-out and train them in an arena.

If you were looking into boarding a horse, list 10 features of the facility that you would require for the health and safety the animal.

1	
2	
3	
4	
5	
6	
7	
8	
9	
10	

List 5 features of the facility that you would consider a bonus, that is, great to have but not necessarily a basic requirement

1	
2	
3	
4	
5	

So now let's put your artistic talent and equine knowledge to work.

Design a barn for 4 horses.

Floor Plan (indicate doors, windows, light switches, electrical outlets, fixed overhead fans)

Front View
Back View

Cirlce the construction material that comprises the bulk of the material used.

Wood **Metal** **Concrete** **Other:**_____

UNIT 12: HURRICANE PREPAREDNESS

We choose to live in Florida with our horses. So we must be prepared to deal with a hurricane event. Dealing with a hurricane is much more difficult when you have to consider the welfare of large animals. Fortunately we now have very good advance warning systems that can alert us to the dangers of an approaching hurricane and we can therefore make informed decisions about what precautions we need to take to preserve everyones well being.

List 5 things that you should do as a horse owner at the beginning of the hurricane season.

1	
2	
3	
4	
5	

If you decide to evacuate with your horse, what is the single most important thing you need to do?

_____

If you plan for your horse to weather the storm at home, the choice of keeping your horse in a barn or an open field is entirely up to you. Use common sense, taking into consideration barn structure, trees, power lines, and the condition of surrounding properties.

In the case where you plan for your horse to weather the storm at home, list 10 things you need to do to prepare your facility and your animal.

1	
2	
3	
4	
5	
6	
7	
8	
9	
10	

UNIT 13: 4-H PARTICIPATION

Record participation in any clinics, field trips, club meetings, club speeches, or club demonstrations.

Date	Activity	What I Learned

Record participation in any competitive events or fair exhibits.

Date	Activity	Level of Competition (County, Area, or State)	Placing or Award

Record your volunteer hours at 4-H sponsored events, including horse shows, fundraising, arena clean up, etc.

Date	4-H Activity	Hours

PROJECT PICTURES

PROJECT PICTURES

SIGNATURES

Periodic Review

Periodically your leader will check your progress in this. Please bring your book to every club meeting.

By signing below, I am stating that I have reviewed this book with the 4-H member for completeness to date.

Club Leader Signature	Date

Activity Completion Sign Off

By signing below, I am starting that I have completed this book myself.

4-H Member Signature	Date

By signing below, I am stating that I am familiar with this work and, to the best of my knowledge, the member completed this book.

Title	Signature	Date
Parent		
Club Leader		