

# Species – Horse

## Module – Classes of Nutrients

### Targeting Life Skills

#### Beginner

- Critical thinking
- Learning to Learn

#### Intermediate

- Critical Thinking
- Planning and organization
- Decision making
- Teamwork

#### Senior

- Critical Thinking
- Learning to Learn
- Goal setting
- Planning and organization
- Communication
- Service learning
- Decision making

### Learning Objectives

#### Beginner

- List the five classes of nutrients.
- Identify common sources for each nutrient.

#### Intermediate

- Explain functions of common nutrients in horses.
- Discuss the difference between micro- and macro-nutrients.

#### Seniors

- Discuss the concept of “most limiting nutrient.”
- Identify the most limiting nutrient under common physiological stages.
- Describe how to collect feed samples correctly for nutrient analysis.
- Read and interpret a feed analysis.

### Learning Activities

Age Level	Learning Activities	Materials Needed	Source
Beginner	<ul style="list-style-type: none"> <li>• Identify the six essential nutrient groups in a horse’s diet.</li> </ul>	<ul style="list-style-type: none"> <li>• “Horse Nutrient Groups” Worksheet</li> </ul>	KHVCR Manual
	<ul style="list-style-type: none"> <li>• Match the primary nutrient card supplied with a sample of a common feed.</li> </ul>	<ul style="list-style-type: none"> <li>• Feed samples</li> <li>• “Nutrient Group Matching Activity” Cards of six nutrient types (Nutrient labels: cut apart cards, answers on sheet)</li> </ul>	KLVCR kit KHVCR Manual
	<ul style="list-style-type: none"> <li>• Writing mnemonics.</li> </ul>	<ul style="list-style-type: none"> <li>• Mnemonic worksheet</li> </ul>	KHVCR Manual
Intermediate	<ul style="list-style-type: none"> <li>• Match the name of different concentrates with the primary nutrient supplied.</li> </ul>	<ul style="list-style-type: none"> <li>• “Why Feed Me?” worksheet</li> </ul>	KHVCR Manual
	<ul style="list-style-type: none"> <li>• Complete crossword puzzle with information about nutrient function.</li> </ul>	<ul style="list-style-type: none"> <li>• “Horse Nutrient Function” crossword puzzle</li> <li>• Pencils</li> </ul>	KHVCR Manual
	<ul style="list-style-type: none"> <li>• Develop a poster that lists the micro and macro minerals required by horses.</li> </ul>	<ul style="list-style-type: none"> <li>• Poster board</li> <li>• Markers</li> </ul>	KHVCR Manual EqSci

Age Level	Learning Activities	Materials Needed	Source
	<ul style="list-style-type: none"> <li>• Match mineral names with functions.</li> <li>• Match mineral names with micro- and macromineral labels.</li> <li>• Construct a horse food pyramid showing feeds that supply the required nutrients.</li> </ul>	<ul style="list-style-type: none"> <li>• “Mineral Function flash cards” and micro- and macro-mineral label cards</li> <li>• Category Titles (cut out)</li> <li>• Flashcards</li> <li>• Human Food Pyramid</li> <li>• Blank Pyramid Handout</li> </ul>	KHVCR Manual
<b>Senior</b>	<ul style="list-style-type: none"> <li>• Play Nutrition Jeopardy</li> <li>• List water- and fat-soluble vitamins.</li> <li>• Collect a feed/forage sample for analysis</li> <li>• Do a web search to find laboratories certified for feed/forage nutrient analysis and give a verbal report on types and costs of various analyses.</li> </ul>	<ul style="list-style-type: none"> <li>• Categories (cut out)</li> <li>• Point values (cut out)</li> <li>• Construction paper, tape</li> <li>• “Name that Vitamin!” Activity</li> <li>• List of Certified Forage Testing Laboratories: <a href="http://www.foragetesting.org/index.php?page=certified_labs">http://www.foragetesting.org/index.php?page=certified_labs</a></li> </ul>	KHVCR Manual  KHVCR Manual  Internet

## **Time Requirement**

- Each activity should be completed in 60 minutes or less
- Two to three hours per research activity

## **Best Time to Teach**

- After completing Feedstuff Identification and before Nutritional Requirements.

## **Best Location**

- Classroom

## **Evaluation**

### **Beginners**

- Score the ability to name 5 essential nutrients.
- Score the ability to identify a common feed with primary nutrient.

### **Intermediate**

- Score the completed crossword puzzle.
- Score the ability to identify nutrients with feedstuffs.
- Score the ability to properly place mineral names with the appropriate function.
- Score the ability to correctly identify micro- and macrominerals.

### **Senior**

- Score the ability to define fat- and water-soluble vitamins.
- Score the evaluation of different feed tags.

## **References**

- Horse Resource Handbook (KHVCR)
- KHVCR Kit
- Horse Discovery Website: <https://afs.ca.uky.edu/horse-discovery>
- Equine Science Reference
- Internet resources



# Horse Nutrient Groups Worksheet – Beginner

Circle the six essential nutrient groups for horses from the list below.

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Protein

Carrots

Corn

Molasses

Barley

Carbohydrates

Air

Alfalfa

Sunshine

Oats

Soybean Meal

Vitamins

Sugar

Beet pulp

Water

Peppermints

Limestone

Minerals

Salt

Timothy

Corn oil

Wheat

Fat

Energy

# Horse Nutrient Groups Worksheet – Beginner

## Answer Sheet

What is a nutrient? A specific *chemical element or compound* supplied by or derived from the *diet* and absorbed into the *blood* from the *gastrointestinal tract* to be used by the body tissues to *support physiological processes* such as growth, production and work.

The six nutrient groups are in large bold print and circled. All the other items are tagged with explanations as to why are *not* essential nutrient groups.

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### **Protein**

Corn-a feedstuff, not a nutrient

Barley-a feedstuff, not a nutrient

Air-not part of diet

Sunshine-not part of diet

Soybean Meal-a feedstuff, not a nutrient

Sugar-compound in a feed broken down by the body to produce energy

### **Water**

Limestone-a feedstuff, not a nutrient

Salt-two nutrients that are part of the mineral group

Corn oil-a feedstuff, not a nutrient

### **Fat**

Carrots-commonly used as a treat or reward

Molasses-a feedstuff, not a nutrient

### **Carbohydrates**

Alfalfa-a feedstuff, not a nutrient

Oats-a feedstuff, not a nutrient

### **Vitamins**

Beet pulp-a feedstuff, not a nutrient

Peppermints-commonly used as a treat or reward

### **Minerals**

Timothy-a feedstuff, not a nutrient

Wheat-a feedstuff, not a nutrient

Energy-results from the digestion (breakdown) of Carbohydrates and Fats

## Horse Feeds in KHVCR Kit and Nutrients Provided

The KLVCR kit contains 30 labeled bottles of commonly-used livestock and horse feeds. Only the feeds listed below will be discussed during all Horse Nutrition modules. These feeds are listed along with the primary nutrients provided by each and notes on any processing that has been done with that feed.

Abbreviations:      PRO = Protein      CHO = Carbohydrates      VIT = Vitamins  
                          MIN = Minerals      FAT = Fats

Feed	Primary Nutrient Provided	Other Major Nutrients Provided	Processing Procedure	Purpose of Processing
Barley (whole)	CHO			
Cracked Shelled corn	CHO		Shelled, cracked (dry rolled)	Increase digestibility
Crimped Oats	CHO	Fiber Source	Crimped (steam rolled)	Increase digestibility
Dicalcium Phosphate	MIN			
Dried Beet Pulp	CHO	Fiber Source	Dried by-product of sugar production	Ease of handling
Ground limestone	MIN		Ground (powdered)	Improve mixing qualities
Ground shelled corn	CHO		Shelled, ground (dry rolled)	Increase digestibility
Liquid molasses	CHO	Increases palatability	By-product of sugar production	
Oats (whole)	CHO	Fiber Source		
Shelled (whole kernel) corn	CHO	FAT	Shelled (removed from cob)	Increase nutrient concentration
Soybean meal	PRO		By-product of oil extraction	
Steam rolled oats	CHO		Steam rolled	Increase digestibility
Trace mineralized salt	MIN			
Vegetable Oil	FAT	CHO	Oil extracted from plant seeds	Increase nutrient concentration
Vitamin supplement	VIT		Mixed with filler/extender	Improve mixing qualities
Wheat (whole)	CHO			
Wheat middlings	CHO		By-product of flour milling	
White salt	MIN			

**Caution:** Volunteer Leaders please note: The vitamin supplement included in this kit is just one form of many in which vitamins can appear. Vitamin supplements consist of primarily carrier materials and those are frequently chosen because they are locally inexpensive and easy to acquire.



## Nutrient Group Matching Activity – Beginners

<b>Nutrient Labels</b>	Cut apart the six labels below and have Beginners match the nutrient group with feeds that supply significant amounts of that nutrient.	
<b>Carbohydrates</b>	<b>Water</b>	
<b>Vitamins</b>	<b>Protein</b>	
<b>Minerals</b>	<b>Fat</b>	
For this lesson we suggest using the following samples from the feed/mineral samples in the kit: Corn, Oats, Wheat, Barley, Beet Pulp, Soybean Meal, Salt, Dicalcium Phosphate, Trace Mineralized Salt, Limestone, Molasses, Vegetable Oil, Vitamin Supplement	<b>Answer Key:</b> Carbohydrates: Corn, Oats, Wheat, Beet Pulp, Barley, Molasses, Protein: Soybean Meal Minerals: Salt, Ground Limestone, Dicalcium Phosphate, Trace Mineralized Salt Vitamins: Vitamin Supplement Fat: Vegetable oil	



# Writing Mnemonics

## Nutrient Group Worksheet

What in the world does “mnemonic” mean? And why do we need to use it when talking about horse feed?!

The word “mnemonic” (pronounced “ni-mah-nik”) means “assisting or intended to assist memory. In other words, a mnemonic device is something we can use to help us remember something.

In this lesson, we have something important we need to remember. That is, the six nutrient groups, which are:

***Water Protein Vitamins Minerals Carbohydrates Fat***

Using a mnemonic device can help us remember those five nutrient groups.

Here are two examples of mnemonic devices. We make silly sentences that are easy to remember using five words. It is most helpful if your sentence makes you see a clear and funny picture in your mind. That will make it easier to remember. Each word of the sentence begins with the first letter of one of the six nutrient groups: W, P, V, M, C, and F.

**Four pretty violets were called mine.**

**Many colors were positively vividly florescent.**

Now, if you can remember those sentences, you can remember the first letter of each of the five nutrient groups.

**Four pretty violets were called mine.**  
***Fat Proteins Vitamins Water Carbohydrates Minerals***

**Many colors were positively vividly florescent.**  
***Minerals Carbohydrates Water Protein Vitamins Fats***

The very best mnemonics are the ones you make up because you will remember them better if you created them! Try your hand at writing three mnemonic devices to help you remember the five nutrient groups. Share your sentences with the rest of your club.

1.

2.

3.



# Why Feed Me? - Intermediate Worksheet

Most concentrate feeds are included in a ration to provide a specific nutrient (energy, protein, vitamins, minerals); however, some concentrates are included to improved intake (by reducing dust, increasing palatability, maintaining large intestine health, etc.). This tests your knowledge of the roles various feeds play within a ration.

Match each of the following concentrates to the primary nutrient provided by or purpose of that feed by writing the letters on the left in the blanks on the right. Note that more than one feed may supply a particular nutrient, so you will use some letters more than once. Also, some feeds supply more than one nutrient or purpose, so you may have more than one letter on a blank!

- |                            |       |                        |
|----------------------------|-------|------------------------|
| A. Carbohydrates           | _____ | Dicalcium phosphate    |
| B. Fats                    | _____ | Shelled corn           |
| C. Protein                 | _____ | Vegetable oil          |
| D. Sodium and Chloride     | _____ | Ground ear corn        |
| E. Nitrogen                | _____ | Ground limestone       |
| F. Calcium                 | _____ | Wheat middlings        |
| G. Calcium and Phosphorous | _____ | Oats (ground)          |
| H. Trace minerals          | _____ | Vitamin Supplement     |
| I. Vitamins                | _____ | Cracked shelled corn   |
| J. Sweetening              | _____ | Dried beet pulp        |
| K. Dust reduction          | _____ | Wheat (ground)         |
| L. Fiber source            | _____ | Ground shelled corn    |
|                            | _____ | Crimped oats           |
|                            | _____ | Barley (whole)         |
|                            | _____ | White salt             |
|                            | _____ | Steam rolled oats      |
|                            | _____ | Liquid molasses        |
|                            | _____ | Soybean meal           |
|                            | _____ | Trace mineralized salt |

# Why Feed Me? - Intermediate Worksheet

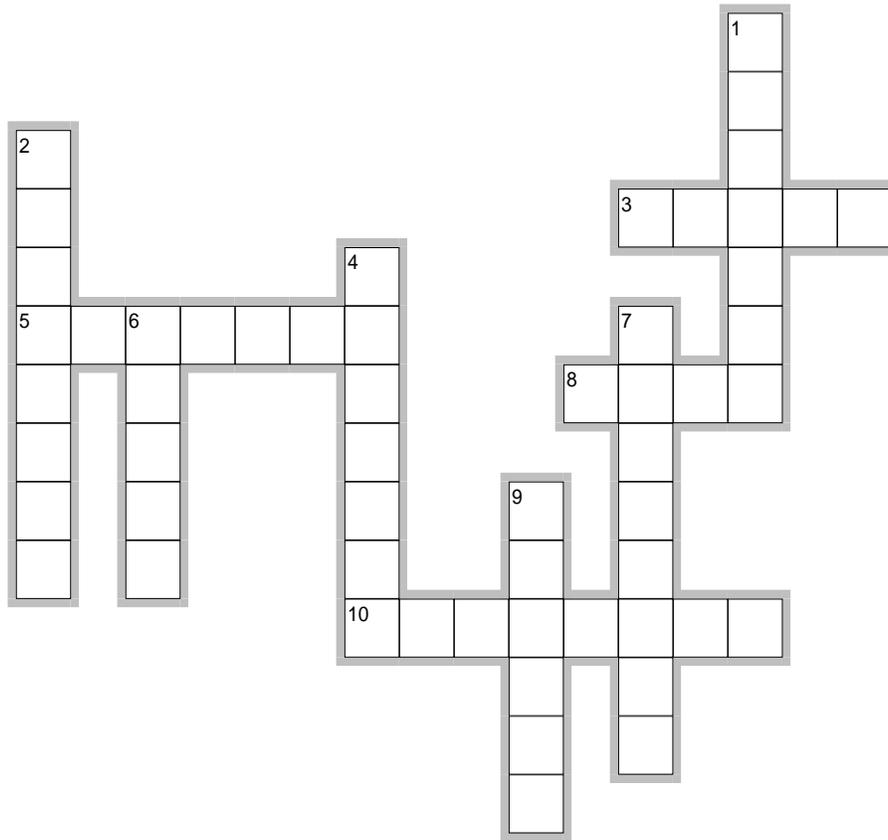
## Answer Key

Most concentrate feeds are included in a ration to provide a specific nutrient (energy, protein, vitamins, minerals); however, some concentrates are included to improved intake (by reducing dust, increasing palatability, maintaining large intestine health, etc.). This tests your knowledge of the roles various feeds play within a ration.

Match each of the following concentrates to the primary nutrient provided by or purpose of that feed by writing the letters on the left in the blanks on the right. Note that more than one feed may supply a particular nutrient, so you will use some letters more than once. Also, some feeds supply more than one nutrient or purpose, so you may have more than one letter on a blank!

- |    |                         |            |                        |
|----|-------------------------|------------|------------------------|
| A. | Carbohydrates           | ___G___    | Dicalcium phosphate    |
| B. | Fats                    | ___A___    | Shelled corn           |
| C. | Protein                 | ___B,K___  | Vegetable oil          |
| D. | Sodium and Chloride     | ___A___    | Ground ear corn        |
| E. | Nitrogen                | ___F___    | Ground limestone       |
| F. | Calcium                 | ___A___    | Wheat middlings        |
| G. | Calcium and Phosphorous | ___A___    | Oats (ground)          |
| H. | Trace minerals          | ___I___    | Vitamin Supplement     |
| I. | Vitamins                | ___A___    | Cracked shelled corn   |
| J. | Sweetening              | ___A,L___  | Dried beet pulp        |
| K. | Dust reduction          | ___A___    | Wheat (ground)         |
| L. | Fiber source            | ___A___    | Ground shelled corn    |
|    |                         | ___A___    | Crimped oats           |
|    |                         | ___A___    | Barley (whole)         |
|    |                         | ___D___    | White salt             |
|    |                         | ___A, L___ | Steam rolled oats      |
|    |                         | ___J,K___  | Liquid molasses        |
|    |                         | ___C___    | Soybean meal           |
|    |                         | ___H___    | Trace mineralized salt |

# Horse Nutrient Function Crossword Intermediates



## Across

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3. Nutrient that makes up most of your horse's body!
5. Main legume source of fiber for horses.
8. Grain that is used to provide energy in your horse's diet.
10. Primary nutrient group found in bones and teeth.

## Down

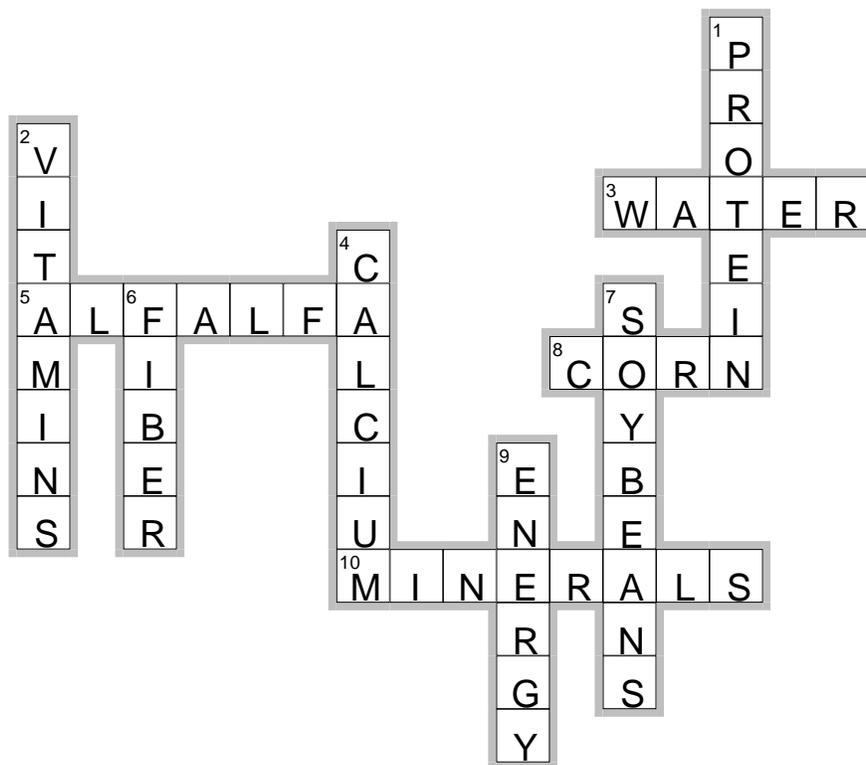
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1. Nutrient group that supplies building blocks for muscle growth
2. Trace organic compounds needed by the horse for many functions, such as eyesight.
4. Main component of bone, important in the diet of young growing horses.
6. Source of many nutrients, needed to maintain health of the large intestine of the horse.
7. Most common source of protein in animal diets.

# Horse Nutrient Function Crossword

## Intermediates

### *Answer Key*



### Across

---

3. **WATER**—Nutrient that makes up most of your horse's body!
5. **ALFALFA**—Main legume source of fiber for horses.
8. **CORN**—Grain that is used to provide energy in your horse's diet.
10. **MINERALS**—Primary nutrient group found in bones and teeth.

### Down

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1. **PROTEIN**—Nutrient group that supplies building blocks for muscle growth
2. **VITAMINS**—Trace organic compounds needed by the horse for many functions, such as eyesight.
4. **CALCIUM**—Main component of bone, important in the diet of young growing horses.
6. **FIBER**—Source of many nutrients, needed to maintain health of the large intestine of the horse.
7. **SOYBEANS**—Most common source of protein in animal diets.

# Mineral Function Flashcards - Intermediate

Copy Sheets onto card stock paper. Cut out mineral names and function cards. Laminate, if desired. Be sure to keep one copy of the cards intact to use as an answer key.

## **Matching:**

Individual – Lay out each mineral name. Lay matching function card next to it. Use answer key to check placement.

Group – Play “Steal the Minerals.” See directions for “Steal the Bacon” in the Breed Identification Module.

Classifications – Lay out two cards-one titled “Macromineral” and one titled “Micromineral.” Place the mineral name cards in the correct category. Use the answer key to check choices.



<b>Microminerals</b>	Copy sheets onto heavy cardstock and cut out names and functions. Use cards for matching activity.
<b>Macrominerals</b>	<b>Phosphorous (P)</b>
<b>Calcium (Ca)</b>	Partner to P; needed for skeletal system
<b>Sodium (Na) &amp; Chloride (Cl)</b>	<b>Important for enzyme function</b>
<b>Magnesium (Mg)</b>	Partner to Ca; needed for skeletal system
<b>Potassium (K)</b>	Important for muscle function and nerve transmission
<b>Zinc (Z)</b>	<b>Sulfur (S)</b>



<b>Cobalt (Co)</b>	<b>Copper (Cu)</b>
<b>Iodine (I)</b>	<b>Iron (Fe)</b>
<b>Manganese (Mn)</b>	<b>Selenium (Se)</b>
<b>Salt; regulates body fluids and water balance</b>	<b>Needed for several amino acids</b>
<b>Synthesis of Vitamin B<sub>12</sub></b>	<b>Red blood cell synthesis; iron utilization</b>
<b>Thyroid hormone synthesis</b>	<b>Storage &amp; transport of oxygen to cells</b>
<b>Fat and carbohydrate metabolism</b>	<b>Partner with Vitamin E; prevents cell damage</b>
<b>Used in enzymes to metabolize protein and carbohydrates</b>	

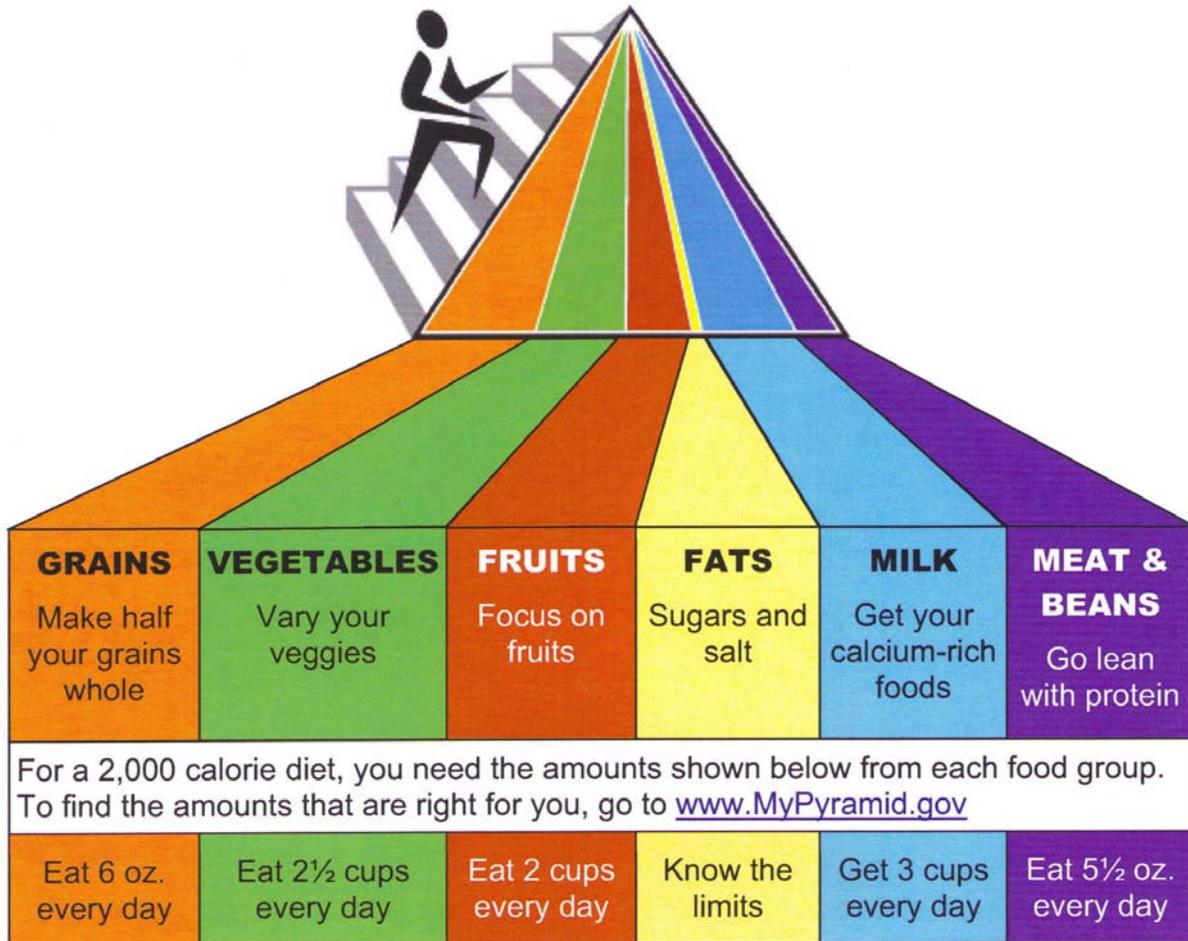


# Mineral Function Flashcards - Intermediate *Answer Key*

Mineral	Micromineral or Macromineral	Function
Calcium (Ca) system	Macromineral	Partner for P; needed for skeletal
Sodium Chloride (NaCl)	Macromineral	Salt; regulates body fluids and water balance
Magnesium (Mg)	Macromineral	Important for enzyme function
Phosphorous (P) system	Macromineral	Partner to Ca; needed for skeletal
Potassium (K) transmission	Macromineral	Muscle function and nerve
Sulfur (S)	Macromineral	Needed for several amino acids
Cobalt (Co)	Micromineral	Synthesis of Vitamin B <sub>12</sub>
Copper (Cu) utilization	Micromineral	Red blood cell synthesis; iron
Iodine (I)	Micromineral	Thyroid hormone synthesis
Iron (Fe) cells	Micromineral	Storage & transport of oxygen to
Manganese (Mn)	Micromineral	Fat and carbohydrate metabolism
Selenium (Se) prevents cell damage	Micromineral	Partner with Vitamin E;
Zinc (Z)	Micromineral	Used in enzymes to metabolize protein and carbohydrates



# Human Food Guide Pyramid



The food Guide Pyramid is an outline of what to eat each day based on the dietary guidelines. It's not a rigid prescription, but a general guide that lets you choose a healthful diet that's right for you.

The Pyramid calls for eating a variety of foods to get the nutrients you need and at the same time the right amount of calories to maintain healthy weight.

Source: <http://www.mypyramid.gov>

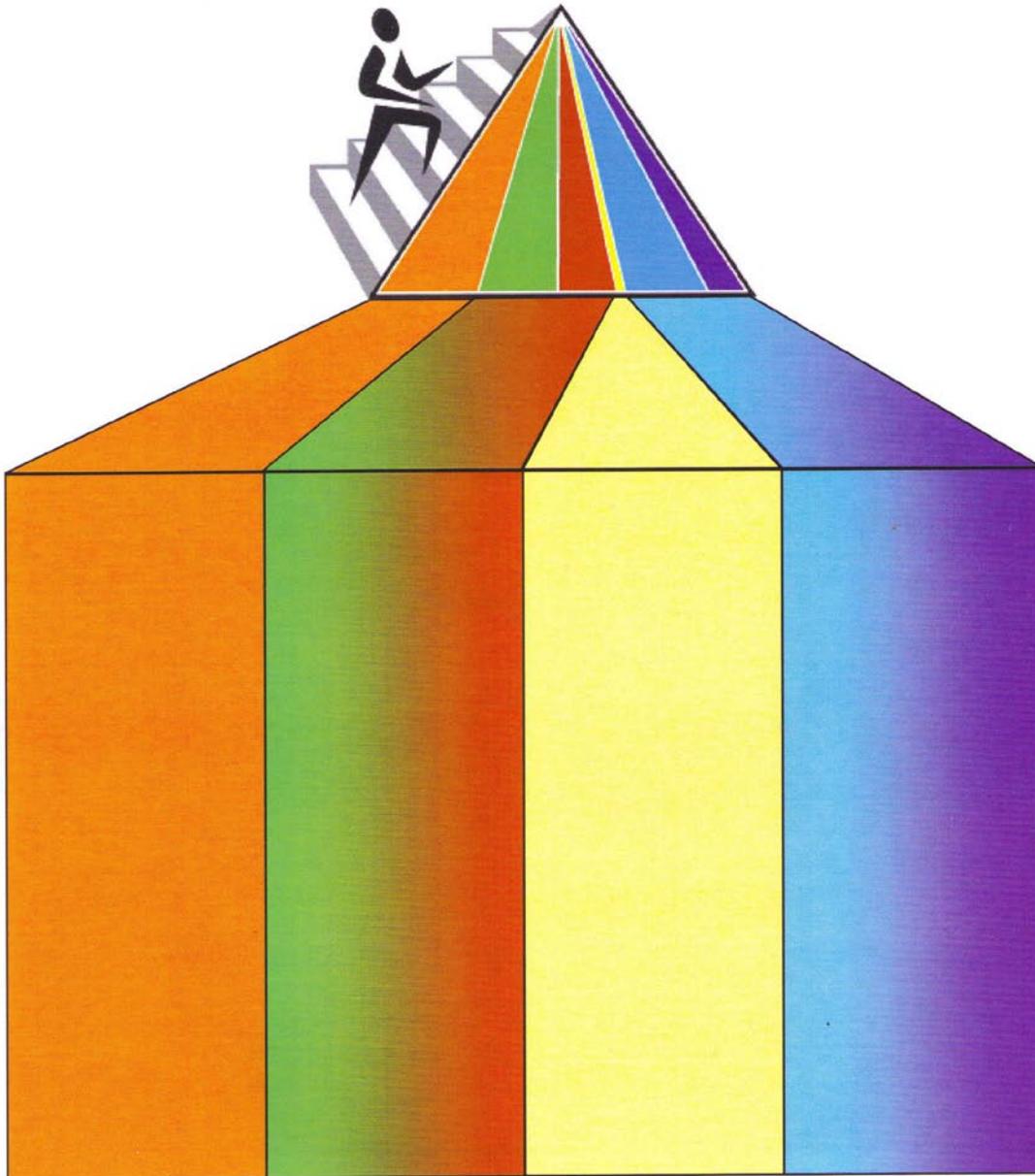
Use the above link to access "Steps to a Healthier You"-ALL the details relating to the new Human Food Guide Pyramid.

## SEE COLOR PICTURE IN APPENDIX 3



# Horse Food Guide Pyramid Handout

**Instructions:** Write the correct class of nutrients in each box. Then complete the pyramid with sources of feeds in that class.



**NOTES:**

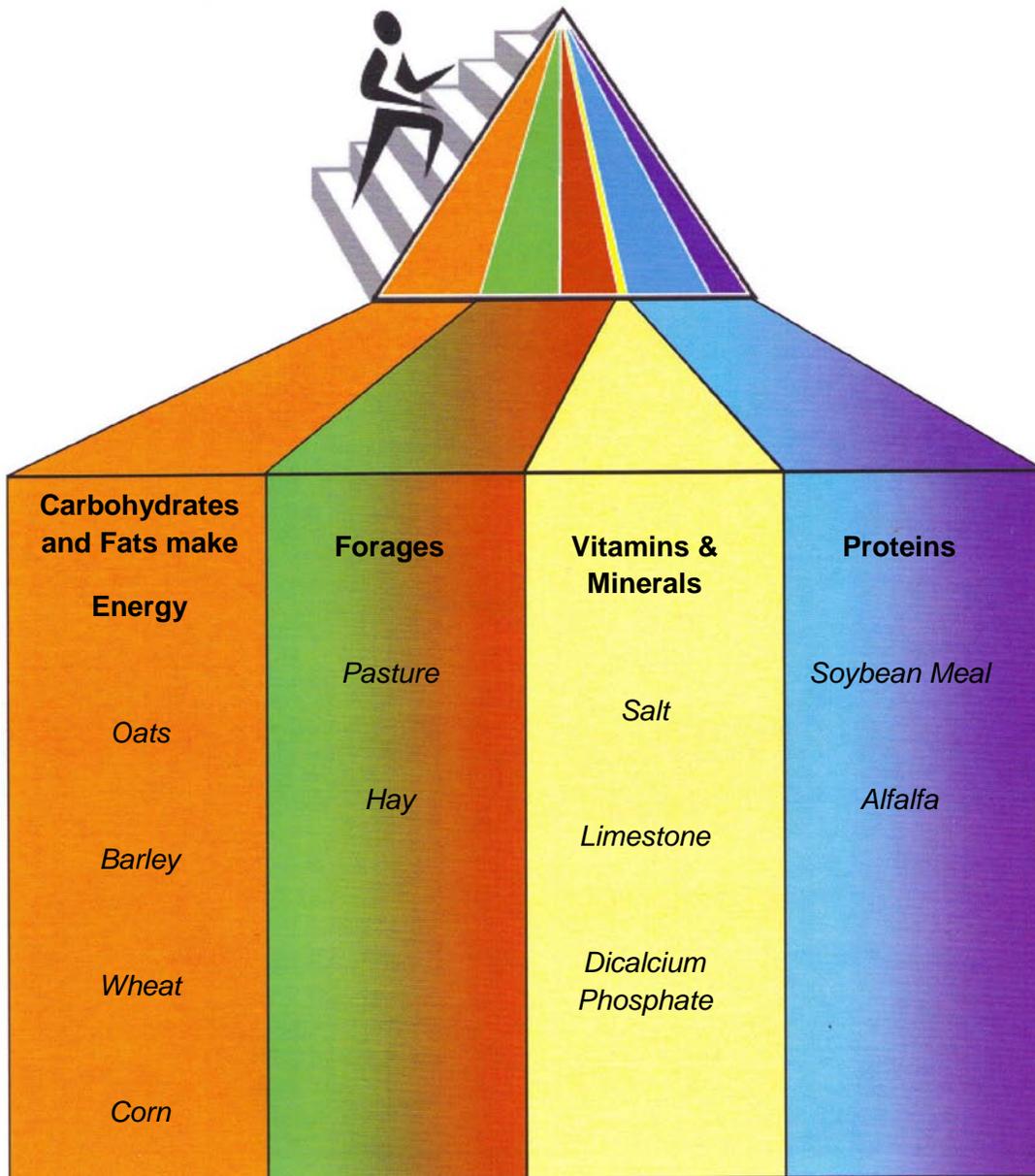
1. Vegetables and Fruits (Forages) are combined in the Horse Food Pyramid.
2. Milk and Meats & Beans (Proteins) are combined in the Horse Food Pyramid.

**SEE COLOR PICTURE IN APPENDIX 3**



# Horse Food Guide Pyramid Handout

## Answer Key



### NOTES:

1. Vegetables and Fruits (Forages) are combined in the Horse Food Pyramid.
2. Milk and Meats & Beans (Proteins) are combined in the Horse Food Pyramid.

**SEE COLOR PICTURE IN APPENDIX 3**



## **Classes of Nutrients Jeopardy - Seniors**

“Jeopardy!” can be played easily with your club. There are a total of 4 categories for some of the nutrients needed in a horse’s diet. Cut out the Category titles and dollar amounts onto cardstock paper. Put the question and answer on the other side of the corresponding dollar amount card.

Divide your club into 2 teams. Make sure to keep score during play. Flip a coin to decide which team will choose their first question. The beginning team will be required to choose a category and dollar amount. The moderator reads the question and each team can answer by having a designated team leader raise their hand. Points are awarded for correct answers and taken away for incorrect answers. The last team to answer a question correctly gets to choose the next category.

In “Final Jeopardy!”, each team will wager a dollar amount. The question is read and teams have 30 seconds to write their final answer on a piece of paper.



**MINERALS**

**VITAMINS**

**PROTEIN**

**ENERGY  
(Carbohydrates  
& Fats)**



**100**

**200**

**300**

**400**

**500**



## Jeopardy-Minerals Category:

100 points	These 2 minerals make up teeth and bone. A: Calcium and Phosphorous
200 points	These minerals are white in color and are an important component of sweat. A: Salt or Sodium Chloride
300 points	Name one trace mineral. A: Selenium, Copper, Zinc, Cobalt, Manganese, Iron, Iodine
400 points	This mineral is contained in hemoglobin A: Iron
500 points	This mineral is the problem in horses with HYPP A: Potassium

## Jeopardy-Energy Category:

100 points	This feed is the highest energy feed available for horses-people also eat it A: Corn
200 points	Name the feed that is a long grain (in shape) A: Oats
300 points	This feed source will help keep grain stuck together and reduce dust A: Molasses
400 points	This by-product feed would be perfect to feed to a horse that needs more fiber in the diet A: Beet pulp
500 points	Name 2 sources of energy in a horse's diet. A: Carbohydrates, fats, fiber



## Jeopardy-Protein Category:

100 points	The most common protein supplement in horse diets. A: Soybean meal
200 points	Proteins are chains of small components known as? A: Amino acids
300 points	This source of protein in livestock diets should never be used in horse diets. A: Urea
400 points	Name two major purposes for protein in the horse. A: Muscle, bone, tissue, hoof, hair
500 points	This legume hay can contain a large concentration of protein. A: Alfalfa hay

## Jeopardy-Vitamin Category:

100 points	Of hay or grain, the most likely vitamin source? A: Hay
200 points	This vitamin is important for vision. A: Vitamin A
300 points	This vitamin is important for hoof growth. A: B vitamins
400 points	Horses can synthesis this vitamin from the sunlight. A: Vitamin D
500 points	This vitamin is used with Selenium for immune function. A: Vitamin E

## FINAL JEOPARDY:

	The most essential nutrient in a horse's diet that is missing from the categories, and name 2 purposes of it? A: Water-needed for temperature regulation, saliva, digestion, absorption, metabolism, normal cell function, lubrication of joints, etc.
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## Name That Vitamin! – Senior Activity

The vitamins are divided into two groups: fat-soluble and water-soluble. The fat-soluble vitamins are made of carbon, hydrogen, and oxygen and they dissolve in fat. In contrast, the water-soluble vitamins consist of carbon, hydrogen, oxygen, plus nitrogen and sometimes sulfur. As you'd guess, they dissolve in water.

What difference does the solubility make to us in feeding animals? A big difference! The fat-soluble vitamins are soluble in fat, which means they animal's body can store the fat-soluble vitamins in body fat. Consequently, animals don't have to have a daily dietary source of these vitamins because they can store them.

Compare that situation to water-soluble vitamins. These are not stored in the body. Consequently, animals have to have a daily source of water-soluble vitamins.

The following table assigns all the vitamins into water- or fat-soluble categories and explains common sources of each vitamin for the horse. Use this information along with your Internet research to create your *Name That Vitamin* game.

Vitamin	Water- or Fat-Soluble	Common Source (best listed first)
A	Fat	Beta-carotene from green grass, leafy hay, carrots
D	Fat	Created in the skin when exposed to the sun; dietary sources include sun-cured hay
E	Fat	Alfalfa, green pasture, high quality hay, synthesized in large intestine
K	Fat	Synthesized by bacteria in cecum, green, leafy hays, pasture
Biotin	Water (part of B complex)	Produced by microbes in large intestine
Thiamin	Water (part of B complex)	Green forages (pasture, hay), cereal grains, produced in GI tract
Riboflavin	Water (part of B complex)	Yeast, Pasture forages, produced in GI tract
Pyroxidine	Water (part of B complex)	Forages and grains, produced in GI tract
Cobalamin	Water (part of B complex)	Forages, produced by microbes in colon
Folic Acid	Water (part of B complex)	Pasture, synthesized in intestine
Niacin	Water (part of B complex)	Cereal grains, leafy forages
Pantothenic Acid	Water (part of B complex)	Pasture, hay, produce in intestine
Vitamin C (ascorbic acid)	Water	Produced from glucose in liver, forages



# Creating Your Own *Name that Vitamin!* Game Senior Activity

## Materials needed:

- (1) Internet/hard copy resource on vitamins
- (2) Index Cards
- (3) Bells or buzzers

## Instructions:

The vitamins (like the minerals, so you can play *Name That Mineral!* too) have tons of specific information printed about them that's easily accessible. For example, for every vitamin you can find at least the following information: water- or fat-soluble, sources, common supplements, deficiency symptoms, diseases caused by deficiency, toxicity symptoms (for some of them), chemical composition, etc. These are extremely well-researched nutrients, so we know a lot about them. Furthermore, all of us know we're supposed to get a certain amount of vitamins in our diets every day too. So when you learn what a Vitamin C deficiency causes in horses, you can also learn what that deficiency will do to you!

To create this game to play in your own club, you'll need to do some research on the Internet or in your local library. Information on vitamins is easy to find, but remember to try and find horse-specific information when you can.

Look up all the vitamins listed on the *Name that Vitamin!* – Senior Activity Information Sheet. Find as much information about each as you can. Then, start making your Clue Cards with your information. You can make as many Clue Cards as you can find information for; that is, you can make 10 Clue Cards on Biotin alone if you have enough information. The more research you do, the tougher you can make your game.

Each Clue Card includes a series of clues about a given vitamin. These clues will be read aloud, one at a time, giving contestants a few seconds between each clue to ring in if they think they can *Name That Vitamin!* Here's an example Clue Card on an index card:

<b>Vitamin:</b> Vitamin K
<b>Clue 1:</b> A fat-soluble vitamin
<b>Clue 2:</b> Produced by the bacteria in the horse's cecum
<b>Clue 3:</b> Needed for the production of factors for proper blood clotting
<b>Clue 4:</b> Signs of deficiencies include nosebleeds and hematomas
<b>Clue 5:</b> Can be converted to water-soluble form and stored in the liver

Once you have your cards all written, split your members into teams or give each member his/her own buzzer or bell and your ready to play. One person has to serve as the Clue Card reader. You'll need an official as well, to make the "*who rang the bell first?*" calls.

You can set up your own point system, but here's an example:

Naming the correct vitamin on the first clue.....	5 points
Naming the correct vitamin on the second clue.....	4 points
Naming the correct vitamin on the third clue.....	3 points
Naming the correct vitamin on the fourth clue.....	2 points
Naming the correct vitamin on the fifth clue.....	1 point
Naming an incorrect vitamin anytime.....	-1 point

Here's an incentive to do your own research:

Successfully proving the card is wrong (by producing a reliable resource that contradicts the Clue Card).....	5 points
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