



# Animal Science

## Merit Badge Workbook

This workbook can help you but you still need to read the merit badge pamphlet (book). No one can add or subtract from the Boy Scout Requirements #33215. Merit Badge Workbooks and much more are below: [Online Resources](#).

Workbook developer: [craig@craiglincoln.com](mailto:craig@craiglincoln.com). Requirements revised: 2006, Workbook updated: April 2008.

Scout's Name: \_\_\_\_\_ Unit: \_\_\_\_\_

Counselor's Name: \_\_\_\_\_ Counselor's Ph #: \_\_\_\_\_

### 1. Name four breeds of livestock in each of the following classifications: horses,

Breed \_\_\_\_\_ Tell their principal uses and merits. \_\_\_\_\_ Tell where the breeds originated.

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

### dairy cattle,

Breed \_\_\_\_\_ Tell their principal uses and merits. \_\_\_\_\_ Tell where the breeds originated.

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

### beef cattle,

Breed \_\_\_\_\_ Tell their principal uses and merits. \_\_\_\_\_ Tell where the breeds originated.

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

### sheep,

Breed \_\_\_\_\_ Tell their principal uses and merits. \_\_\_\_\_ Tell where the breeds originated.

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

### hogs.

Breed \_\_\_\_\_ Tell their principal uses and merits. \_\_\_\_\_ Tell where the breeds originated.

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

2. List five diseases in each of the classifications in requirement 1. Also list five diseases of poultry. . Describe the symptoms of each disease and explain how each is contracted and how it could be prevented.

**Animal Class: Horses**

Diseases	Symptoms	How it's contracted	How it's prevented

**Animal Class: Dairy Cattle**

Diseases	Symptoms	How it's contracted	How it's prevented

**Animal Class: Beef Cattle**

Diseases	Symptoms	How it's contracted	How it's prevented

**Animal Class: Sheep**

Diseases	Symptoms	How it's contracted	How it's prevented

**Animal Class: Hogs**

Diseases	Symptoms	How it's contracted	How it's prevented

**Also list five diseases of poultry.**

Diseases	Symptoms	How it's contracted	How it's prevented
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____

**3. Explain the major differences in digestive systems of**

ruminants \_\_\_\_\_

horses \_\_\_\_\_

pigs \_\_\_\_\_

poultry \_\_\_\_\_

Explain how the difference structure and function among these four types of digestive tracts affect the nutritional management of these species.

ruminants \_\_\_\_\_

horses \_\_\_\_\_

pigs \_\_\_\_\_

poultry \_\_\_\_\_

**4. Select one type of animal -  beef cow,  dairy cow,  horse,  sheep,  goat, or  hog, or a  poultry flock - and tell how you would properly manage it. Include in your discussion**

nutritional (feeding) concerns, \_\_\_\_\_

housing, \_\_\_\_\_

disease prevention, \_\_\_\_\_

waste control/removal, \_\_\_\_\_

and breeding programs if appropriate. \_\_\_\_\_

5. Explain the importance of setting clear goals for any animal breeding program. \_\_\_\_\_

\_\_\_\_\_

Tell how purebred lines of animals are produced. \_\_\_\_\_

\_\_\_\_\_

Explain the practice of crossbreeding \_\_\_\_\_

and the value of this practice. \_\_\_\_\_

\_\_\_\_\_

6. Complete ONE of the following options:

**BEEF CATTLE OPTION**

- a. Visit a farm or ranch where beef cattle are produced under any of these systems:
  - 1. feeding market cattle for harvest;
  - 2. Cow/calf operation, producing feeder cattle for sale to commercial cattle feeders;
  - 3. Producing purebred cattle for sale as breeding stock to others. Talk with the operator to learn how the cattle were handled, fed, weighed, and shipped. Describe what you saw and explain what you learned. If you cannot visit a cattle ranch or farm, view a video from a breed association, or research the Internet (with your parent's permission) for information on beef cattle production. Tell about your findings.
- b. Sketch a plan of a feedlot to include its forage and grain storage facilities, and loading chute for 30 or more fattening steers, or sketch a corral plan with cutting and loading chutes for handling 50 or more beef cows and their calves at one time.
- c. Make a sketch showing the principal wholesale and retail cuts of beef. Tell about the U.S. Department of Agriculture (USDA) dual grading system of beef. Tell the basis of each grade in each system.
- d. Define the following terms: bull, steer, bullock, cow, heifer, freemartin, heiferette, calf.

**-OR- DAIRYING OPTION**

- a. Tell how a cow or a goat converts forage and grain into milk. Explain the differences in feeds typically used for dairy cows versus those fed to beef cows.
- b. Make a chart showing the ingredients in cows' milk or goat's milk. Chart the amount of each ingredient.
- c. Explain the requirements for producing grade A milk. Tell how and why milk is pasteurized.
- d. Tell about the kinds of equipment used for milking and the sanitation standards that must be met for dairy farms.
- e. Define the following terms: bull, cow, steer, heifer, springer, buck, doe, kid.
- f. Visit a dairy farm or a milk processing plant. Describe what you saw and explain what you learned. If you cannot visit a dairy farm or processing plant, view a video from a breed or dairy association, or research the Internet (with your parent's permission) for information on dairying. Tell about your findings.

**-OR- HORSE OPTION**

- a. Make a sketch of a useful saddle horse barn and exercise yard.
- b. Tell about the history of the horse and the benefits it has brought to people. Using the four breeds of horses you chose in requirement 1, discuss the different special uses of each breed.
- c. Define the following terms: mare, stallion, gelding, foal, colt, filly; mustang, quarter horse, draft horse, pacer, trotter; pinto, calico, palomino, roan, overo, tobiano.
- d. Visit a horse farm. Describe what you saw and explain what you learned. If you cannot visit a horse farm, view a video from a breed association, or research the Internet (with your parent's permission) for information on horses. Tell about your findings.
- e. Outline the proper feeding of a horse doing light work. Explain why the amount and kind of feed will change according to the kind of horse and the work it does. Describe what colic is, what can cause it, and its symptoms.

**-OR- SHEEP OPTION**

- a. Make a sketch of a live lamb. Show the location of the various wholesale and retail cuts.
- b. Discuss how wools are sorted and graded.



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7. Find out about three career opportunities in animal science. \_\_\_\_\_

Pick one \_\_\_\_\_

and find out the education, \_\_\_\_\_

training, \_\_\_\_\_

and experience required for this profession. \_\_\_\_\_

Discuss this with your counselor, and explain why this profession might interest you. \_\_\_\_\_

Online Resources (Use any Internet resource with caution and only with your parent's or guardian's permission.)

Boy Scouts of America: ► [scouting.org](http://scouting.org) ► [Guide to Safe Scouting](#) ► [Age-Appropriate Guidelines](#) ► [Safe Swim Defense](#)  
    ► [Scout](#) ► [Tenderfoot](#) ► [Second Class](#) ► [First Class](#) ►  [Rank Videos](#) ► [Safety Afloat](#)

Boy Scout Merit Badge Workbooks: [BSA Troop 780](#) -or- [usscouts.org](http://usscouts.org) -or- [meritbadge.org](http://meritbadge.org) Merit Badge Books: [www.scoutstuff.org](http://www.scoutstuff.org)

Many more links are here: <http://www.scouting.org/boyscouts/resources/32215/mb/mb-ANML.html>

AgNIC (Agriculture Network Information Center): <http://www.agnic.org>

Agricola (National Agricultural Library): <http://agricola.nal.usda.gov>

Agriculture in the Classroom: <http://www.agclassroom.org>

Agripedia (Encyclopedia of Agriculture): <http://www.ca.uky.edu/agripedia>

American Farm Bureau Federation: <http://www.fb.org>

American Poultry Association: <http://www.amerpoultryassn.com>

American Sheep Industry Association: <http://www.sheepusa.org>

Amer. Veterinary Medical Assn.: <http://www.avma.org>

National 4-H Council: <http://www.fourhcouncil.edu>

National FFA Organization: <http://www.ffa.org>

National Pork Producers Council: <http://www.nppc.org>

NetVet--Veterinary Resources: <http://netvet.wustl.edu/vet.htm>

U.S. Department of Agriculture (USDA): <http://www.usda.gov>

Virtual Livestock Library: <http://www.ansi.okstate.edu/library>