ANIMAL SCIENCE

“Enhancing our youths’ competitive edge through merit badges”
Requirements

*Always check [www.scouting.org](http://www.scouting.org) for the latest requirements.*

1. Name four breeds of livestock in each of the following classifications: horses, dairy cattle, beef cattle, sheep, hogs, poultry, and goats. Tell their principal uses and merits. Tell where the breeds originated.

2. List five diseases that afflict the animals 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.

3. Explain the differences in the digestive systems of ruminants, horses, pigs, and poultry. Explain how the differences in structure and function among these types of digestive tracts affect the nutritional management of these species.

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, breeding programs, and biosecurity as 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 cattle for sale to commercial 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.

**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 components in cow’s milk or goat’s milk. Chart the amount of each component.

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 on 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.

**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.

**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.
c. Do ONE of the following:

(1) Raise a lamb from weaning to market weight. Keep records of feed intake, weight gains, medication, vaccination, and mortality. Present your records to your counselor for review.

(2) Visit a farm or ranch where sheep are raised. Describe what you saw and explain what you learned. If you cannot visit a sheep farm or ranch, view a video from a breed association, or research the internet (with your parent’s permission) for information on sheep. Tell about your findings.

d. Describe some differences between the production of purebred and commercial lambs. Then select two breeds that would be appropriate for the production of crossbred market lambs in your region. Identify which breed the ram should be.

e. Define the following terms: wether, ewe, ram, lamb.

**Hog Option**

a. Make a sketch showing the principal wholesale and retail cuts of pork. Tell about the recommended USDA grades of pork. Tell the basis for each grade.

b. Outline in writing the proper feeding programs used from the breeding of a gilt or sow through the weaning of the litter. Discuss the feeding programs for the growth and finishing periods.

c. Do ONE of the following:

(1) Raise a feeder pig from weaning to market weight. Keep records of feed intake, weight gains, medication, vaccination, and mortality. Present your records to your counselor for review.

(2) Visit a farm where hogs are produced, or visit a packing plant handling hogs. Describe what you saw and explain what you learned. If you cannot visit a hog production unit or packing plant, view a video from a packer or processor, or research the internet (with your parent’s permission) for information on hogs. Tell about your findings.

d. Define the following terms: gilt, sow, barrow, boar.
Avian Option

a. Make a sketch of a layer house or broiler house showing nests, roosts, feeders, waterers, and means of ventilation. Explain how insulation, ventilation, temperature controls, automatic lights, and other environmental controls are used to protect birds from heat, cold, and bad weather. Explain the importance of light for egg production.

b. Explain why overcrowding is dangerous for poultry flocks.

c. Tell about the grading of eggs. Describe the classes of chicken meat.

d. Do ONE of the following:

   (1) Manage an egg-producing flock for five months. Keep records of feed purchased, eggs sold, medication, vaccination, and mortality. Present your records to your counselor for review.

   (2) Raise five chickens from hatching. Keep records of feed intake, weight gains, medication, vaccination, and mortality. Present your records to your counselor for review.

   (3) Visit a commercial avian production facility. Describe what you saw and explain what you learned. If you cannot visit a commercial facility, view a video from a poultry association, or research the internet (with your parent’s permission) for information on poultry production. Tell about your findings.

e. Define the following terms: chick, pullet, hen, cockerel, cock, capon.

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.
Animal Science Resources

The county extension office is home base for your county agent. If possible, visit the county extension office before you start on requirement 6. High school vocational agriculture teachers are also good resources.

On the internet (with your parent's permission) visit www.nifa.usda.gov.

Scouting Literature
Mammals pocket guide; Bird Study, Environmental Science, Farm Mechanics, Horsemanship, Mammal Study, Plant Science, Public Health, Soil and Water Conservation, and Veterinary Medicine merit badge pamphlets

With your parent’s permission, visit the Boy Scouts of America’s official retail website, www.scoutshop.org, for a complete listing of all merit badge pamphlets and other helpful Scouting materials and supplies.

Books

Organizations and Websites
AgNIC (Agriculture Network Information Collaborative)
Telephone: 301-504-6999
www.agnic.org

AGRICOLA (National Agricultural Library)
Telephone: 301-504-5755
agricola.nal.usda.gov

Animal Science Resources
Agriculture in the Classroom
www.agclassroom.org

American Delaine and Merino Record Association
Telephone: 785-456-8500
www.countrylovin.com/ADMRA/breed.html

American Angus Association
Telephone: 816-383-5100
www.angus.org

American Bantam Association
www.bantamclub.com

American Berkshire Association
Telephone: 765-497-3618
www.americanberkshire.com

American Brahman Breeders Association
Telephone: 713-349-0854
www.brahman.org

American Cheviot Sheep Society
www.cheviots.org

American Chianina Association
Telephone: 816-431-2808
www.chicattle.org

American Corriedale Association
Telephone: 618-676-1046
www.americancorriedale.com

American Dairy Goat Association
Telephone: 828-286-3801
www.adga.org

American Farm Bureau Federation
600 Maryland Ave. SW, Suite 1000W
Washington, DC 20024
Telephone: 202-406-3600
www.fb.org

American Goat Society
Telephone: 830-535-4247
www.americangosociety.com

American Guernsey Association
Telephone: 614-864-2409
www.usguernsey.com

American Hampshire Sheep Association
Telephone: 785-456-8500
www.hampshires.org

American Hereford Association
Telephone: 816-842-3757
www.hereford.org

American-International Charolais Association
Telephone: 816-464-5977
www.charolaisusa.com

American Jersey Cattle Association
Telephone: 614-861-3636
www.usjersey.com

American Milking Shorthorn Society
Telephone: 608-365-3332
www.milkingshorthorn.com

American Morgan Horse Association
Telephone: 802-985-4944
www.morganhorse.com

American Paint Horse Association
Telephone: 817-834-2742
www.apha.com

American Poultry Association
www.amerpoultryassn.com

American Quarter Horse Association
Telephone: 806-376-4811
www.aqha.com

American Rambouillet Sheep Breeders Association
Telephone: 785-456-8500
www.countrylovin.com/ARSBA/index.htm

American Saddlebred Horse Association
Telephone: 859-259-2742
www.asha.net

American Sheep Industry Association
Telephone: 303-771-3500
www.sheepusa.org
American Shetland Pony Club
Telephone: 309-263-4044
www.shetlandminiature.com

American Shorthorn Association
Telephone: 402-393-7200
www.shorthorn.org

American Simmental Association
Telephone: 816-599-7777
www.simmental.org

American Southdown Breeders’ Association
Telephone: 325-429-6226
www.southdownsheep.org

Appaloosa Horse Club
Telephone: 208-882-5578
www.appaloosa.com

Arabian Horse Association
Telephone: 303-696-4500
www.arabianhorses.org

Breeders World
www.breedersworld.com

Brown Swiss Association
Telephone: 608-365-4474
www.brownswissusa.com

Certified Pedigreed Swine
(Chester White, Hereford, Poland China, and Spotted Swine breed associations)
Telephone: 309-691-0151
www.cpsswine.com

Columbia Sheep Breeders Association of America
Telephone: 507-360-2160
www.columbiasheep.org

Continental Dorset Club
Telephone: 401-647-4676
www.dorsets.com

The Coop
www.the-coop.org

Holstein Association USA Inc.
Toll-free telephone: 800-952-5200
www.holsteinusa.com

National Cattlemen’s Beef Association
Telephone: 303-694-0305
www.ncba.org

National 4-H Council
Telephone: 301-961-2800
www.4-h.org

National FFA Organization
Toll-free telephone: 888-332-2668
www.ffa.org

National Pork Producers Council
Telephone: 202-347-3600
www.nppc.org

National Swine Registry
(American Landrace Association, American Yorkshire Club, Hampshire Swine Registry, and United Duroc Swine Registry)
Telephone: 765-463-3594
www.nationalswine.com

NetVet — Veterinary Resources
netvet.wustl.edu/vet.htm

North American Limousin Foundation
Telephone: 303-220-1693
www.nalf.org

Pony of the Americas Club Inc.
Telephone: 317-788-0107
www.poac.org

Tennessee Walking Horse Breeders’ and Exhibitors’ Association
Telephone: 931-359-1574
www.twhbea.com

U.S. Ayrshire Breeders Association
Telephone: 614-335-0020
www.usayrshire.com

U.S. Department of Agriculture (USDA)
1400 Independence Ave. SW
Washington, DC 20250
Telephone: 202-720-2791
www.usda.gov

United Suffolk Sheep Association
Telephone: 641-684-5291
www.suffolks.org