

Animal Science 1

Exam Information	Description
Exam number 120 Items 54 National Career Cluster Agriculture, Food, & Natural Resources Certification available Yes	The Animal Science 1 industry certification exam assesses learners' knowledge on a wide range of scientific principles, including genetics, anatomy, physiology, nutrition, disease, pests, and management practices. Learners will also be tested on the scientific process of observation, measurement, hypothesizing, data gathering, interpretation, analysis, and application. Career opportunities and educational preparation is also included on the exam.

Exam Blueprint and Performance Skills

Standard	Percentage of exam score
1. Candidate Organization	5%
2. Agricultural Experience	3%
3. Scientific Principles & Animals	19%
4. Animal Breeding & Reproduction	20%
5. Animal Nutrition	24%
6. Principles For Health & Well-Being	17%
7. Production From Animals	11%
8. Trends & Career Opportunities	1%

*Includes performance skill evaluation

Standard 1 - Candidate Organization

Candidates will explain the role of candidate organizations in agricultural education

Objective 1 Discuss the history and organization of candidate organizations as it relates to the complete program of agricultural education.

1. Explain the interrelationship of classroom and laboratory instruction, supervised agricultural experience, and candidate organizations.
2. Describe how, when, and why candidate organizations were organized.
3. Identify key candidate organization historical events.
4. Identify the mission and strategies, colors, motto, emblem and parts of the emblem, and organizational structure of candidate organization.
5. Recite and explain the meaning of a candidate organization Creed.
6. Discuss the meaning and purpose of a program of activities and its committee structure.
7. List candidate organization chapter officers and discuss the role of each.

Objective 2 Identify opportunities in candidate organization.

1. Describe candidate organization opportunities that develop leadership skills, personal growth, and career success.
2. Summarize major state and national activities available to candidate organization members.

Objective 3 Describe candidate organization degrees, awards, and career development events (CDEs).

1. List and explain the candidate organization degree areas.
2. Identify candidate organization proficiency awards.
3. List and discuss various team and individual CDEs.

Optional: Standard performance evaluations on the final page of this document

Standard 2 - Agricultural Experience

Candidates will explain the role of supervised agricultural experience programs in agricultural education.

Objective 1 Examine the responsibilities and benefits associated with an agricultural experience.

1. Explain the meaning and benefits of supervised agricultural experience.
2. Explain the characteristics of an effective agricultural experience program and the responsibilities of those involved.

Objective 2 Determine the types of agricultural experience programs.

1. Compare entrepreneurship agricultural experiences and placement agricultural experiences.
2. Describe research/experimentation agricultural experience.
3. Describe exploratory agricultural experience.

Objective 3 Plan an agricultural experience program.

1. Identify the steps in planning an agricultural experience program.
2. Describe the function of a business/training plan and/or agreement in an agricultural experience program.
3. Develop a short-range plan and a long-range plan for an agricultural experience program.
4. Relate classroom and laboratory instruction to an agricultural experience program.

Objective 4 Maintain and use agricultural experience records.

1. Explain the importance of keeping records on an agricultural experience program.
2. Explain how agricultural experience records are organized.
3. Follow approved procedures to make entries in agricultural experience records.

Optional: Standard performance evaluations on the final page of this document

Standard 3 - Scientific Principles & Animals

Candidates will apply scientific principles in the selection of animals.

Objective 1 Discuss the origin and importance of agricultural animals.

1. Explain domestication and its contributions to animal agriculture.
2. Evaluate the adaptation of animals to production practices.

Objective 2 Classify animals according to hierarchical taxonomy and agricultural use.

1. Explain the meaning and importance of the binomial system of nomenclature (animal scientific classification and naming).
2. State the scientific and common names of major animal agricultural species in your state.
3. Classify animal species based on their agricultural uses.

Objective 3 Discuss genetic inheritance in agricultural animals.

1. Explain the meaning and importance of genetics.
2. Describe and predict how traits are inherited in agricultural animals.
3. Identify common agricultural animals based on breed.

Objective 4 Select agricultural animals to fulfill production objectives.

1. Explain the importance of animal selection in the success of a production enterprise.
2. Evaluate the importance of conformation in animal selection.
3. Describe how the muscular and skeletal systems contribute to the conformation of an agricultural animal.
4. Identify major external parts of agricultural animals.
5. Utilize breed and type characteristics in animal selection.
6. Explain the use of quantitative breeding values (expected progeny differences) in animal selection.

Optional: Standard performance evaluations on the final page of this document

Standard 4 - Animal Breeding & Reproduction

Candidates will apply principles of animal breeding and reproduction to gain desired offspring.

Objective 1 Describe the role of animal breeding

1. Discuss the meaning and importance of reproduction in animal agriculture.
2. Identify important factors in breeding readiness.
3. Explain the benefits of using genetically superior animals in the production of animals and animal products.
4. Explain the concept of hybrid vigor as it relates to animal agriculture.

Objective 2 Analyze the components of the animal reproductive system.

1. Identify and explain the function of the components of the female reproductive system in agricultural animals.
2. Identify and explain the function of the components of the male reproductive system in agricultural animals.

Objective 3 Explain animal reproductive processes.

1. Explain reproductive efficiency in agricultural animals.
2. Describe natural and artificial breeding of agricultural animals.
3. Relate the reproductive cycle in female animals to reproductive efficiency (i.e. estrous cycle).

Optional: Standard performance evaluations on the final page of this document

Standard 5 - Animal Nutrition

Candidates will apply principles of animal nutrition to ensure the proper growth, development, reproduction, and economic production of animals.

Objective 1 Compare and contrast the digestive systems of agricultural animals.

1. Describe the structure and function of the ruminant digestive system.
2. Describe the structure and function of nonruminant digestive systems.
3. Describe the structure and function of avian digestive systems.

Objective 2 Explain the role of nutrition in animal productivity.

1. List essential nutrients and describe the importance of each.
2. Compare and contrast common foodstuffs in the diets of ruminant and nonruminant animals.
3. Discuss the meaning and use of feed additives and growth promotants.

Objective 3 Provide appropriate nutrition for animals.

1. Relate the role of nutrition to the age, performance, and condition of animals.
2. Determine feed rations for specific species, ages, and conditions of animals.
3. Calculate balanced rations for agricultural animals.

Optional: Standard performance evaluations on the final page of this document

Standard 6 - Principles For Health & Well-Being

Candidates will apply management principles for maintaining the health and well-being of agricultural animals.

Objective 1 Summarize the role of animal well-being in the animal industry.

1. Explain the meaning and importance of animal well-being.
2. Utilize safe practices in working with animals.
3. Relate concepts of animal welfare and animal rights to animal well-being.

Objective 2 Apply animal anatomy and physiology to maintain animal health.

1. Describe the role of major organ systems (skeletal, muscular, nervous, respiratory, digestive, circulatory, excretory, and reproductive) in maintaining animal health.
2. Discuss common diseases, parasites, and physiological disorders of animals.

Objective 3 Provide for the health and well-being of agricultural animals.

1. Prescribe and implement prevention and treatment for animal diseases, parasites, and other disorders.
2. Perform simple health checks on animals.
3. Diagnose illnesses and disorders based on symptoms and problems caused by diseases, parasites, and physiological disorders.
4. Identify and describe zoonotic diseases.
5. Consider species-specific requirements in animal well-being.
6. Identify and demonstrate use of equipment in animal health.

Optional: Standard performance evaluations on the final page of this document

Standard 7 - Production From Animals

Candidates will examine consumer products, services, and benefits derived from the production of agricultural animals.

Objective 1 Identify and evaluate consumer products that come from agricultural animals.

1. Identify and grade wholesale and retail cuts of meat.
2. Recognize signs of meat spoilage.
3. Describe the various carcass characteristics that determine meat grade.
4. Describe how milk and milk products are produced, processed, and graded.
5. Identify consumer products that are derived from byproducts of animal production.
6. Identify and grade poultry products, including eggs.
7. Describe the impact of food safety issues on animal production.

Objective 2 Identify and evaluate services and benefits that come from agricultural animals.

1. Identify the benefits provided by companion animals.
2. Describe the role of exotic pets in the animal industry.

3. Compare and contrast the use of agricultural animals in recreational activities, including racing, showing, and power.
4. Describe the use of animals in therapy programs.

Optional: Standard performance evaluations on the final page of this document

Standard 8 - Trends & Career Opportunities

Candidates will examine trends and career opportunities in the animal industry, including those related to agricultural animals.

Objective 1 Interpret trends in the animal industry.

1. Identify trends in the animal industry.
2. Determine the implications of trends on animal production.

Objective 2 Determine career opportunities in the animal industry.

1. Identify the nature of career opportunities in the animal industry.
2. Develop a career plan to acquire needed education and skills for entering a career in the animal industry.
3. Demonstrate personal job skills for success in advancing in a career in the animal industry.

Optional: Standard performance evaluations on the final page of this document

Performance Skills Evaluation

Exam name: Animal Science 1

Candidate Name: _____

Performance assessments may be completed and evaluated any time before the certification is issued. The following performance skills can be used in connection with the associated standards and exam. The evaluator will function as the subject matter expert to determine if the candidate meets the skills requirements with a Yes/No for passing.

Standard 1 – Candidate Organization • Explain a candidate organization Creed (optional) • Identify key components of a candidate organization (optional)	Pass:
Standard 2 – Agricultural Experience • Prepare a plan for an agricultural experience (optional) • Record all transactions and activities for an agricultural experience, using an approved record book (optional)	Pass:
Standard 3 – Scientific Principles & Animals • Demonstrate reproductive technologies	Pass:
Standard 4 – Animal Breeding & Reproduction • Utilize livestock management practices • Identify breeds of beef, dairy, swine, and sheep	Pass:
Standard 6 – Health & Well-being • Utilize livestock management practices • Research and debate a current animal welfare and animal rights issue	Pass:
Standard 7 – Trend & Career Opportunities • Identify a career opportunity in animal science • Demonstrate occupational competencies associated with an animal science career	

Evaluator Name: _____

Date: _____