

# Animal Science: High School (9-12)

## ACADEMIC SKILLS

### AA SPEAKING AND LISTENING

- 1 Utilize effective verbal and non-verbal communication skills **AA1**
  - 2 Participate in conversation, discussion, and group presentations **AA2**
  - 3 Communicate and follow directions/procedures **AA3**
  - 4 Communicate effectively with customers and co-workers **AA4**
- 

### AB READING AND WRITING

- 1 Locate and interpret written information **AB1**
  - 2 Read and interpret workplace documents **AB2**
  - 3 Identify relevant details, facts, and specifications **AB3**
  - 4 Record information accurately and completely **AB4**
  - 5 Demonstrate competence in organizing, writing, and editing using correct vocabulary, spelling, grammar, and punctuation **AB5**
  - 6 Demonstrate the ability to write clearly and concisely using industry specific terminology **AB6**
- 

### AC CRITICAL THINKING AND PROBLEM SOLVING

- 1 Utilize critical-thinking skills to determine best options/outcomes (e.g., analyze reliable/unreliable sources of information, use previous experiences, implement crisis management, develop contingency planning) **AC1**
- 2 Utilize innovation and problem-solving skills to arrive at the best solution for current situation **AC2**
- 3 Implement effective decision-making skills **AC3**

---

**AD MATHEMATICS**

- 1 Perform basic and higher level math operations (e.g., addition, subtraction, multiplication, division, decimals, fractions, units of conversion, averaging, percentage, proportion, ratios) **AD1**
- 2 Solve problems using measurement skills (e.g., distance, weight, area, volume) **AD2**
- 3 Make reasonable estimates **AD3**
- 4 Use tables, graphs, diagrams, and charts to obtain or convey information **AD4**
- 5 Use deductive reasoning and problem-solving in mathematics **AD5**

---

**AE FINANCIAL LITERACY**

- 1 Locate, evaluate, and apply personal financial information **AE1**
- 2 Identify the components of a budget and how one is created **AE2**
- 3 Set personal financial goals and develop a plan for achieving them **AE3**
- 4 Use financial services effectively **AE4**
- 5 Demonstrate ability to meet financial obligations **AE5**

---

**AF INTERNET USE AND SECURITY**

- 1 Recognize the potential risks associated with Internet use **AF1**
- 2 Identify and apply Internet security practices (e.g., password security, login, logout, log off, lock computer) **AF2**
- 3 Practice safe, legal, and responsible use of technology in the workplace **AF3**

---

**AG INFORMATION TECHNOLOGY**

- 1 Use technology appropriately to enhance professional presentations **AG1**
- 2 Demonstrate effective and appropriate use of social media **AG2**
- 3 Identify ways social media can be used as marketing, advertising, and data gathering tools **AG3**

---

**AH TELECOMMUNICATIONS**

- 1 Select and use appropriate devices, services, and applications to complete workplace tasks **AH1**
  - 2 Demonstrate appropriate etiquette when using e-communications (e.g., cell phone, e-mail, personal digital assistants, online meetings, conference calls) **AH2**
-

## EMPLOYABILITY SKILLS

### EA POSITIVE WORK ETHIC

- 1 Demonstrate enthusiasm and confidence about work and learning new tasks EA1
  - 2 Demonstrate consistent and punctual attendance EA2
  - 3 Demonstrate initiative in assuming tasks EA3
  - 4 Exhibit dependability in the workplace EA4
  - 5 Take and provide direction in the workplace EA5
  - 6 Accept responsibility for personal decisions and actions EA6
- 

### EB INTEGRITY

- 1 Abide by workplace policies and procedures EB1
  - 2 Demonstrate honesty and reliability EB2
  - 3 Demonstrate ethical characteristics and behaviors EB3
  - 4 Maintain confidentiality and integrity of sensitive company information EB4
  - 5 Demonstrate loyalty to the company EB5
- 

### EC SELF-REPRESENTATION

- 1 Demonstrate appropriate dress and hygiene in the workplace EC1
  - 2 Use language and manners suitable for the workplace EC2
  - 3 Demonstrate polite and respectful behavior toward others EC3
  - 4 Demonstrate personal accountability in the workplace EC4
  - 5 Demonstrate pride in work EC5
- 

### ED TIME, TASK, AND RESOURCE MANAGEMENT

- 1 Plan and follow a work schedule ED1
- 2 Work with minimal supervision ED2
- 3 Work within budgetary constraints ED3
- 4 Demonstrate ability to stay on task to produce high quality deliverables on time ED4

---

**EE DIVERSITY AWARENESS**

- 1 Recognize diversity, discrimination, harassment, and equity **EE1**
- 2 Work well with all customers and co-worker **EE2**
- 3 Explain the benefits of diversity within the workplace **EE3**
- 4 Explain the importance of respect for feelings, values, and beliefs of others **EE4**
- 5 Identify strategies to bridge cultural/generational differences and use differing perspectives to increase overall quality of work **EE5**
- 6 Illustrate techniques for eliminating gender bias and stereotyping in the workplace **EE6**
- 7 Identify ways tasks can be structured to accommodate the diverse needs of workers **EE7**
- 8 Recognize the challenges and advantages of a global workforce **EE8**

---

**EF TEAMWORK**

- 1 Recognize the characteristics of a team environment and conventional workplace **EF1**
- 2 Contribute to the success of the team **EF2**
- 3 Demonstrate effective team skills and evaluate their importance in the workplace (e.g., setting goals, listening, following directions, questioning, dividing work) **EF3**

---

**EG CREATIVITY AND RESOURCEFULNESS**

- 1 Contribute new ideas **EG1**
- 2 Stimulate ideas by posing questions **EG2**
- 3 Value varying ideas and opinions **EG3**
- 4 Locate and verify information **EG4**

---

**EH CONFLICT RESOLUTION**

- 1 Identify conflict resolution skills to enhance productivity and improve workplace relationships **EH1**
- 2 Implement conflict resolution strategies and problem-solving skills **EH2**
- 3 Explain the use of documentation and its role as a component of conflict resolution **EH3**

---

## **EI CUSTOMER/CLIENT SERVICE**

- 1 Recognize the importance of and demonstrate how to properly acknowledge customers/clients **EI1**
- 2 Identify and address needs of customers/clients **EI2**
- 3 Provide helpful, courteous, and knowledgeable service **EI3**
- 4 Identify appropriate channels of communication with customers/clients (e.g., phone call, face-to-face, e-mail, website) **EI4**
- 5 Identify techniques to seek and use customer/client feedback to improve company services **EI5**
- 6 Recognize the relationship between customer/client satisfaction and company success **EI6**

---

## **EJ ORGANIZATIONS, SYSTEMS, AND CLIMATES**

- 1 Define profit and evaluate the cost of conducting business **EJ1**
- 2 Identify "big picture" issues in conducting business **EJ2**
- 3 Identify role in fulfilling the mission of the workplace **EJ3**
- 4 Identify the rights of workers (e.g., adult and child labor laws and other equal employment opportunity laws) **EJ4**
- 5 Recognize the chain of command, organizational flow chart system, and hierarchy of management within an organization **EJ5**

---

## **EK JOB ACQUISITION AND ADVANCEMENT**

- 1 Recognize the importance of maintaining a job and pursuing a career **EK1**
- 2 Define jobs associated with a specific career path or profession **EK2**
- 3 Identify and seek various job opportunities (e.g., volunteerism, internships, co-op, part-time/full-time employment) **EK3**
- 4 Prepare a resume, letter of application, and job application **EK4**
- 5 Prepare for a job interview (e.g., research company, highlight personal strengths, prepare questions, set-up a mock interview, dress appropriately) **EK5**
- 6 Participate in a job interview **EK6**
- 7 Explain the proper procedure for leaving a job **EK7**

---

**EL LIFELONG LEARNING**

- 1 Acquire current and emerging industry-related information **EL1**
- 2 Demonstrate commitment to learning as a life-long process and recognize learning opportunities **EL2**
- 3 Seek and capitalize on self-improvement opportunities **EL3**
- 4 Discuss the importance of flexible career planning and career self-management **EL4**
- 5 Employ leadership skills to achieve workplace objectives (e.g., personal vision, adaptability, change, shared vision) **EL5**
- 6 Recognize the importance of job performance evaluation and coaching as it relates to career advancement **EL6**
- 7 Accept and provide constructive criticism **EL7**
- 8 Describe the impact of the global economy on jobs and careers **EL8**

---

**EM JOB SPECIFIC TECHNOLOGIES**

- 1 Identify the value of new technologies and their impact on driving continuous change and the need for life-long learning **EM1**
- 2 Research and identify emerging technologies for specific careers **EM2**
- 3 Select appropriate technological resources to accomplish work **EM3**

---

**EN HEALTH AND SAFETY**

- 1 Assume responsibility for safety of self and others **EN1**
  - 2 Follow safety guidelines in the workplace **EN2**
  - 3 Manage personal health and wellness **EN3**
-

## OCCUPATIONAL SKILLS

### **OA ANALYZE HISTORIC AND CURRENT TRENDS IMPACTING THE ANIMAL SYSTEMS INDUSTRY**

- 1 Discuss the interrelationships between agriculture commodities based on economic, geographic, and production factors **OA1**
- 2 Analyze changes in food consumption throughout history **OA2**
- 3 Describe the relationship between consumer demands and animal production **OA3**
- 4 Evaluate current trends in animal science through industry associations, trade journals, and reliable electronic resources **OA4**
- 5 Describe agricultural practices that ensure a safe and reliable food supply **OA5**
- 6 Discuss the benefits of utilizing best practice production systems in animal science **OA6**
- 7 Evaluate the impact of world trade issues (e.g., diseases, imports/exports, drought, trade agreements) on animal science **OA7**
- 8 Summarize agricultural laws impacting animal science (e.g., property, incorporation, liability issues, animal husbandry, labor, farming in populated areas) **OA8**
- 9 Identify related government agencies, their functions and programs, as they relate to animal science **OA9**
- 10 Describe the implications of state and federal agricultural legislation (e.g., farm bill) **OA10**
- 11 Compare and contrast marketing opportunities for animal commodities (e.g., terminal, direct, niche, local) **OA11**
- 12 Analyze the benefits of risk management practices (futures, forward contracts, diversification, insurance) **OA12**
- 13 Summarize the benefits of electronic technology in animal science (e.g., electronic record keeping, ultrasound, electronic identification, computer feeding) **OA13**

---

### **OB UTILIZE BEST-PRACTICE PROTOCOLS BASED ON ANIMAL BEHAVIORS FOR ANIMAL HUSBANDRY AND WELFARE**

- 1 Describe characteristics of effective animal care facilities **OB1**
- 2 Recommend safe handling techniques and equipment when working with animals **OB2**
- 3 Differentiate between animal welfare and animal rights **OB3**

---

**OC DESIGN AND PROVIDE PROPER ANIMAL NUTRITION TO ACHIEVE DESIRED OUTCOMES FOR PERFORMANCE DEVELOPMENT, REPRODUCTION, AND/OR ECONOMIC PRODUCTION**

- 1 Describe the anatomy and physiology of digestive systems (monogastric, ruminant, hind gut fermenters, avian) **OC1**
- 2 Discuss the function of the six classes of nutrients in regards to animal nutrition **OC2**
- 3 Compare common types of feedstuffs and the role they play in the diets of animals **OC3**
- 4 Explain the purpose of feed additives and growth promotants in animal production **OC4**
- 5 Formulate animal feeds based on nutritional requirements using feed ingredients for maximum nutrition and optimal economic production **OC5**

---

**OD APPLY PRINCIPLES OF ANIMAL REPRODUCTION TO ACHIEVE DESIRED OUTCOMES FOR PERFORMANCE, DEVELOPMENT, AND ECONOMIC PRODUCTION**

- 1 Describe the functions of major reproductive organs and hormones in the male and female reproductive systems **OD1**
- 2 Contrast the processes of natural and artificial breeding methods **OD2**
- 3 Infer how age, size, life cycle, maturity level, gestation, and health status affect the reproductive efficiency of male and female animals **OD3**
- 4 Evaluate the use of quantitative breeding values in the selection of genetically superior breeding stock (e.g., EPD's) **OD4**
- 5 Discuss the importance of efficient and economic reproduction in animals **OD5**
- 6 Differentiate principles of animal genetics and heredity (e.g. homozygous, heterozygous, phenotype, genotype, dominance, recessive) **OD6**
- 7 Appraise the advantages of reproductive management practices, including estrous synchronization, superovulation, flushing, and embryo transfer **OD7**

---

**OE EVALUATE ENVIRONMENTAL FACTORS AFFECTING ANIMAL PERFORMANCE AND IMPLEMENT PROCEDURES FOR ENHANCING PERFORMANCE AND ANIMAL HEALTH**

- 1 Select best practices to enhance soil and water quality **OE1**
- 2 Describe the impact of water quality on animal health **OE2**
- 3 Describe procedures to decrease the negative effects of environmental factors on animals **OE3**
- 4 Evaluate measures to maintain the quality of the environment in areas used to raise and house animals **OE4**

---

**OF CLASSIFY, EVALUATE AND SELECT ANIMALS BASED ON ANATOMICAL AND PHYSIOLOGICAL CHARACTERISTICS**

- 1 Classify animals according to the taxonomical classification system and species-specific terminology related to age and gender **OF1**
- 2 Differentiate major animal breeds within the industry and their production strengths **OF2**
- 3 Identify the major skeletal and external parts of production and companion species **OF3**
- 4 Identify wholesale and retail cuts of production species **OF4**
- 5 Evaluate desirable anatomical and physiological characteristics of animals within and between species **OF5**

---

**OG APPLY PRINCIPLES OF EFFECTIVE ANIMAL HEALTH CARE**

- 1 Characterize common disorders, parasites, and vaccinated diseases of both production and companion animal species **OG1**
- 2 Discuss the health risks of zoonotic diseases to humans and their historical significance **OG2**
- 3 Select proper medical dosages and delivery methods **OG3**
- 4 Evaluate preventative measures for controlling and limiting the spread of diseases, parasites, and disorders among animals **OG4**
- 5 Explain common surgical and nonsurgical procedures in animal healthcare **OG5**

---

**OH PRACTICE SOUND AGRICULTURAL FINANCE IN ANIMAL SCIENCE**

- 1 Identify requirements for and sources of credit **OH1**
- 2 Compare the benefits related to buying, leasing, renting land and/or equipment **OH2**
- 3 Describe how various forms of taxes impact the animal science industry (income, sales, property, inheritance) **OH3**
- 4 Calculate break-even prices in an animal science business to maximize profit **OH4**