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| **Zoology** | | | | |
| **Units** | | **ANFRE Standards** | **Vocabulary** | **Pacing** |
| **Unit 1: Animal and People** | **Chapter 1:**  **The Importance of Animals** | Objectives:   1. Explain the meaning of the animal industry. 2. Identify ways animals help people. 3. Identify trends in the animal industry. 4. Trace the domestication of animals. 5. Describe the role of science in animal production. 6. List the names of common animals based on sex classification and age 7. Explain the meaning of animal well-being. 8. Identify environmental concerns associated with animal products.   **Technical I.A.1 (Domestic Animal Production):**Evaluate the development and implications of animal origin, domestication and distribution. | Animal Domestication  Animal Industry  Animal Marketing  Animal Processing  Animal Production  Animal Selections  Animal Services  Animal Supplies  Animal Well-Being  Botany  By-Products  Castration  Companion Animal  Dairy Cattle  Environment  Euthanasia  Factory Farm  Health  Life Science  Livestock  Meat Animals  Mohair  Neutering  Nutrition  Poultry  Ration  Reproduction  Science  Spaying  Veterinary Medicine  Zoology |  |
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| **Zoology** | | | | |
| **Units** | | **AFNRE Standards** | **Vocabulary** | **Pacing** |
| **Unit 2: Principles of Animal Science** | **Chapter 2:**  **Animals as Organisms** | Objectives:   1. Explain taxonomy and scientific names. 2. List and describe the major animal groups. 3. Identify the life processes of animals. 4. Explain the structural basis of animals. 5. Describe the anatomy of common animals. 6. Explain the structure and parts of bones. 7. Identify the major organ systems of animals and explain the physiology.   **Technical I.B.2 (Animal Anatomy & Physiology):**Apply principles of comparative anatomy and physiology to uses within various animal systems.  **Pathway I.B.1 (Animal Anatomy & Physiology):**Examine animal developmental stages.  **Pathway I.C.1 (Animal Anatomy & Physiology):**Describe basic functions of animal cells, organs and systems.  **Pathway I.C.2 (Animal Anatomy & Physiology):**Explain how the components and systems of animal anatomy and physiology relate to the production and use of animals. | Anatomy  Bone  Cartilage  Cell Division  Cell Specialization  Circulatory System  Connective Tissue  Digestive System  Epithelial Tissue  Excretory System  Growth Plate  Homeostasis  Integumentary System  Invertebrate  Kingdom Animalia  Lymphatic System  Mammal  Marrow  Meiosis  Mitosis  Muscular System  Muscular Tissue  Nervous System  Nervous Tissue  Organ  Organ System  Physiology  Reproductive System  Respiratory System  Skeletal System  Tissue  Vertebrae  Vertebrate |  |
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| **Zoology** | | | | |
| **Units** | | **ANFRE Standards** | **Vocabulary** | **Pacing** |
| **Unit 2: Principles of Animal Science** | **Chapter 3:**  **Animal Nutrition and Feeding** | Objectives:   1. List the major nutrients needs of animals and describe the purpose of each. 2. Contrast feed requirements with structure of digestive systems. 3. Describe the ways animal use nutrients. 4. Describe the types of feedstuffs. 5. Explain how animals are fed. 6. Describe how rations are formulated.   **Pathway I.A.3 (Domestic Animal Production):**Describe trends in the animal  systems industry. **Technical I.D.1 (Animal Health & Nutrition):**Formulate feed rations to provide for the nutritional needs of animals.  **Pathway I.B.2 (Animal Health & Nutrition):**Assess whether the nutritional requirements of a given animal are being met by recording performance and comparing feed variations.  **Pathway I.B.3 (Animal Health & Nutrition):**Design a nutritional plan for a given animal with a clearly stated outcome. | Abomasum  Amino Acids  Balanced Rations  Calorie  Carbohydrate  Carnivore  Concentrate  Diet  Fat  Feed  Feed Analysis  Feedstuff  Fiber  Forage  Free Access  Growth  Herbivore  Lactation ration  Lipid  Maintenance  Mineral  Nutrient  Nutrition  Omasum  Omnivore  Palatability  Pearson Square Method  Permanent Pasture  Protein  Ration  Reproduction Ration  Reticulum  Roughage  Rumen  Scheduled Feeding | Stomach  Supplement  Temporary Pastures  Vitamin |
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| **Units** | | **AFNRE Standards** | **Vocabulary** | **Pacing** |
| **Unit 2: Principles of Animal Science** | **Chapter 4:**  **Animal Health** | Objectives:   1. Explain animal health, normal behavior, and abnormal behavior. 2. Explain the impact of environment on animal health. 3. List and explain the economic losses caused by poor animal health. 4. Describe common disease and parasites of animals. 5. Explain how good health is maintained 6. Select practices for treating disease.   **Technical I.C.1 (Animal Health & Nutrition):**Prescribe and implement a prevention and treatment program for animal diseases, parasites and other disorders. | Anaplasmosis  Anthrax  Antibiotics  Antibody  Bacteria  Balling Gun  Behavior  Biological  Blackleg  Brucellosis  Coccidiosis  Colostrum  Contagious Disease  Disease  Disinfectant  Dose Syringe  Ectotherm  Endotherm  External Parasite  Foot and Mouth Disease  Fungi  Grubs  Health  Hog Cholera  Immunity  Implant  Injection  Internal Parasite  Isolation  Leptospirosis  Lice  Mastitis  Medication  Noncontagious Disease | Oral Medication  Parasite  Pharmaceutical  Preconditioning  Protozoa  Rabies  Sanitation  Shipping Fever  Sleeping Sickness  Topical Medication  Virus  Vital Signs |
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| **Zoology** | | | | |
| **Units** | | **AFNRE Standards** | **Vocabulary** | **Pacing** |
| **Unit 2: Principles of Animal Science** | **Chapter 5:**  **Animal Reproduction** | Objectives:   1. Explain the role of animal reproduction. 2. Name and describe the functions of the major reproductive organs. 3. Describe the phases of the estrous cycle. 4. Explain the phases of reproductive development in the life of an animal. 5. Describe the role of animal reproduction technology. 6. Evaluate breeding animals.   **Technical I.E.1 (Animal Genetics & Reproduction):**Evaluate the male and female reproductive systems in selecting animals.  **Technical I.E.2 (Animal Genetics & Reproduction):**Evaluate animals for breeding readiness and soundness. | Accelerated Lambing  Anestrus  Artificial Insemination  Breeding  Cloning  Conception  Copulation  Crossbreeding  Egg  Embryo  Embryo Transfer  Estrous Cycle  Estrous Synchronization  Estrus  Fertilization  Fetus  Gamete  Genetic Engineering  Gestation  Incubation  Insemination  Lactation  Natural Insemination  Ovary  Ovulation  Parturition  Performance Testing  Pregnant  Production Records  Progeny Testing  Puberty  Purebred Animal  Reproductive Efficiency  Scrotum  Sexed Semen  Sexual Reproduction | Spawning  Sperm  Testicle  Visual Appraisal  Zygote |
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| **Zoology** | | | | |
| **Units** | | **AFNRE Standards** | **Vocabulary** | **Pacing** |
| **Unit 2: Principles of Animal Science** | **Chapter 6:**  **Animal Biotechnology** | Objectives:   1. Explain biotechnology and how it is used. 2. Explain the role of genetics in animal productions and biotechnology. 3. Distinguish between organismic biotechnology and molecular biotechnology. 4. Describe molecular biotechnology, including genetic engineering and recombinant DNA processes in animals. 5. Explain examples of organismic biotechnology. 6. Identify issues associated with animal biotechnology.   **Pathway I.A.4 (Domestic Animal Production):**Recognize the historical, social, cultural and potential applications of biotechnology in the animal systems industry. | Allele  Animal Biotechnology  Atom  Biotechnology  Chromosome  DNA  Dominant Trait  DNA Sequencing  Gene  Gene Transfer  Genetic Code  Genetics  Genome  Genotype  Heredity  Heterozygous  Homozygous  Microinjection  Molecular Biotechnology  Molecule  Mutation  Oocyte  Oocyte Transfer  Organismic Biotechnology  Particle Injection  Phenotype  Probability  Punnett Square  Recessive Trait  Recombinant DNA  Superovulation  Synthetic Biology  Transgenic Animal |  |
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| **Units** | | **Common Core Standards** | **Vocabulary** | **Pacing** |
| **Unit 3: Food Animal Technology** | **Chapter 9:**  **Swine Production** | Objectives:   1. Explain the importance of swine production. 2. Describe swine as an organism. 3. List and describe common breeds of swine. 4. Explain the possibilities of pork productions. 5. Describe pork production systems. 6. Explain important management practices in swine production. 7. List nutritional requirements of swine. 8. Explain additives and withdrawal time. 9. Explain health management practices for swine. 10. Describe facility and equipment needs for swine. 11. Discuss the “Pork Producer Code of Practice.”   **Pathway I.B.1 (Animal Anatomy & Physiology):**Examine animal developmental stages.  **Technical I.F.1 (Animal Anatomy & Physiology):**Demonstrate safe animal handling and management techniques.  **Technical I.B.3 (Animal Genetics & Reproduction):**Select animals for specific purposes and maximum performance based on anatomy and physiology.  **Technical I.E.1 (Animal Genetics & Reproduction):**Evaluate the male and female reproductive systems in selecting animals.  **Technical I.E.2 (Animal Genetics & Reproduction):**Evaluate animals for breeding readiness and soundness.  **Technical I.A.1 (Domestic Animal Production):**Evaluate the development and implications of animal origin, domestication and distribution.  **Technical I.B.1 (Domestic Animal Production):**Classify animals according to hierarchical taxonomy and agriculture use.  **Technical I.G.1 (Domestic Animal Production):**Design animal housing, equipment and handling facilities for the major systems of animal production. | Additive  Barrow  Boar  Contract Production  Farrowing  Feeding Pig  Finishing  Gilt  Meat-Type-Hog  Needle Teeth  Pedigree  Piglet  Porcine Somatotropin  Porcine Stress Syndrome  Probe  Prolific  Sow  Specific Pathogen Free  Tail Docking  Type  Ultrasonics  Withdrawal Time |  |
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| **Zoology** | | | | |
| **Units** | | **ANFRE Standards** | **Vocabulary** | **Pacing** |
| **Unit 3: Feed Animal Technology** | **Chapter 11:**  **Dairy Production** | Objectives:   1. Describe the dairy industry. 2. Describe dairy cattle as organisms. 3. Explain dairy conformation and type. 4. Identify common breeds of dairy cattle. 5. Explain important management practices in dairy production. 6. Explain reproduction in dairy cattle. 7. Describe dairy feeding and nutrition. 8. Describe how the environment is modified for dairy cattle. 9. Explain health management practices with dairy cattle. 10. Describe facility and equipment needs with dairy cattle. 11. Identify general considerations is showing dairy cattle.   **Pathway I.B.1 (Animal Anatomy & Physiology):**Examine animal developmental stages.  **Technical I.F.1 (Animal Anatomy & Physiology):**Demonstrate safe animal handling and management techniques.  **Technical I.B.3 (Animal Genetics & Reproduction):**Select animals for specific purposes and maximum performance based on anatomy and physiology.  **Technical I.E.1 (Animal Genetics & Reproduction):**Evaluate the male and female reproductive systems in selecting animals. **Technical I.E.2 (Animal Genetics & Reproduction):**Evaluate animals for breeding readiness and soundness.  **Technical I.A.1 (Domestic Animal Production):**Evaluate the development and implications of animal origin, domestication and distribution.  **Technical I.B.1 (Domestic Animal Production):**Classify animals according to hierarchical taxonomy and agriculture use.   **Technical I.G.1 (Domestic Animal Production):**Design animal housing, equipment and handling facilities for the major systems of animal production. | Alveoli  Animal Model  Cold Housing  Culling  Dairy Herd Improvement Program (DHI)  Dry Cow  Functional Type  Homogenization  Immunoglobulins  Ketosis  Linear Evaluations  Management Intensive Grazing  Mastitis  Metabolic Disorder  Milk Fever  Milking Parlor  Nutrient Dense  Pasteurization  Predicted Transmitting Ability  Progeny  Selection  Total Mixed Ration (TMR)  Type Production Index (TPI)  Udder  Warm Housing |  |
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| **Zoology** | | | | |
| **Units** | | **ANFRE Standards** | **Vocabulary** | **Pacing** |
| **Unit 4: Pleasure and Draft Animal Technology** | **Chapter 14:**  **Horses** | Objectives:   1. Describe horses as organisms. 2. Distinguish between the types of light horses. 3. Explain breeding practices with horses. 4. Discuss the nutritional and feed requirements of horses. 5. Explain important health management practices with horses. 6. Describe facility and equipment requirements of horses. 7. Identify and describe equation skills.   **Pathway I.B.1 (Animal Anatomy & Physiology):**Examine animal developmental stages.  **Technical I.F.1 (Animal Anatomy & Physiology):**Demonstrate safe animal handling and management techniques.  **Technical I.B.3 (Animal Genetics & Reproduction):**Select animals for specific purposes and maximum performance based on anatomy and physiology.   **Technical I.E.1 (Animal Genetics & Reproduction):**Evaluate the male and female reproductive systems in selecting animals. **Technical I.E.2 (Animal Genetics & Reproduction):**Evaluate animals for breeding readiness and soundness.  **Technical I.A.1 (Domestic Animal Production):**Evaluate the development and implications of animal origin, domestication and distribution.   **Technical I.B.1 (Domestic Animal Production):**Classify animals according to hierarchical taxonomy and agriculture use.  **Technical I.G.1 (Domestic Animal Production):**Design animal housing, equipment and handling facilities for the major systems of animal production. | Draft Horse  Driving Horse  Equitation  Farrier  Filly  Floating  Foal  Foaling  Frog  Gait  Gallop  Gelding  Hand  Horsemanship  Hunting and Jumping Horse  Jog  Light Horse  Lope  Mare  Plug  Polo Mount  Pony  Racehorse  Riding Horse  Stallion  Stock Horse  Stud Horse  Walk |  |
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| **Zoology** | | | | |
| **Units** | | **ANFRE Standards** | **Vocabulary** | **Pacing** |
| **Unit 4: Pleasure and Draft Animal Technology** | **Chapter 16:**  **Dogs** | Objectives:   1. Describe the biology of a dog. 2. List and describe the classes of dogs. 3. Identify factors to considered in selecting a dog. 4. Describe reproductive practices with dogs. 5. Describe nutrition and feeding of dogs. 6. Identify important health practices with dogs. 7. Describe facility and equipment needs of dogs. 8. Identify grooming practices with dogs. 9. Assess sanitation and well-being practices with dogs.   **Pathway I.B.1 (Animal Anatomy & Physiology):**Examine animal developmental stages.  **Technical I.F.1 (Animal Anatomy & Physiology):**Demonstrate safe animal handling and management techniques.  **Technical I.B.3 (Animal Genetics & Reproduction):**Select animals for specific purposes and maximum performance based on anatomy and physiology.  **Technical I.E.1 (Animal Genetics & Reproduction):**Evaluate the male and female reproductive systems in selecting animals. **Technical I.E.2 (Animal Genetics & Reproduction):**Evaluate animals for breeding readiness and soundness.   **Technical I.A.1 (Domestic Animal Production):**Evaluate the development and implications of animal origin, domestication and distribution.   **Technical I.B.1 (Domestic Animal Production):**Classify animals according to hierarchical taxonomy and agriculture use.  **Technical I.G.1 (Domestic Animal Production):**Design animal housing, equipment and handling facilities for the major systems of animal production. | Bitch  Grooming  Herding Dog  Hound  Mixed-Breed Dog  Nail Bed  Non-Sporting Breed  Orphaned Puppy  Sporting Dog  Terrier Class  Toy Breed  Training  Weaning  Whelp  Whelping Box  Working Dog |  |
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| **Units** | | **ANFRE Standards** | **Vocabulary** |
| **Unit 4: Pleasure and Draft Animal Technology** | **Chapter 18:**  **Birds, Rodents, and Reptiles** | Objectives:   1. Describe the kinds of companion birds and their management. 2. Describe the kinds of companion rodent and their management. 3. Describe the kinds of companion reptiles and their management. 4. Describe the kinds of rabbit and their management. 5. Identify other companion animals and describe their keeping.   **Pathway I.B.1 (Animal Anatomy & Physiology):**Examine animal developmental stages.  **Technical I.F.1 (Animal Anatomy & Physiology):**Demonstrate safe animal handling and management techniques.  **Technical I.B.3 (Animal Genetics & Reproduction):**Select animals for specific purposes and maximum performance based on anatomy and physiology.  **Technical I.E.1 (Animal Genetics & Reproduction):**Evaluate the male and female reproductive systems in selecting animals. **Technical I.E.2 (Animal Genetics & Reproduction):**Evaluate animals for breeding readiness and soundness.  **Technical I.A.1 (Domestic Animal Production):**Evaluate the development and implications of animal origin, domestication and distribution.  **Technical I.B.1 (Domestic Animal Production):**Classify animals according to hierarchical taxonomy and agriculture use.  **Technical I.G.1 (Domestic Animal Production):**Design animal housing, equipment and handling facilities for the major systems of animal production. | Amphibian  Aviary  Bird  Bird Cage  Birdkeeping  Diurnal  Fledgling  Greenfood  Grit  Hutch  Nocturnal  Quill  Reptile  Rodent  Solitary |

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| **Zoology** | | | | |
| **Units** | | **ANFRE Standards** | **Vocabulary** |
| **Unit 4: Pleasure and Draft Animal Technology** | **Chapter 20:**  **Wildlife Animals** | Objectives:   1. Explain the importance of wildlife animals. 2. Classify the major game animal. 3. Explain species endangerment and practices to prevent endangerment. 4. Explain important practices in wildlife management. 5. List Important considerations for sport enthusiasts. 6. Describe ways to enjoy wildlife.   **Pathway I.B.1 (Animal Anatomy & Physiology):**Examine animal developmental stages.  **Technical I.F.1 (Animal Anatomy & Physiology):**Demonstrate safe animal handling and management techniques.  **Technical I.B.3 (Animal Genetics & Reproduction):**Select animals for specific purposes and maximum performance based on anatomy and physiology.  **Technical I.E.1 (Animal Genetics & Reproduction):**Evaluate the male and female reproductive systems in selecting animals. **Technical I.E.2 (Animal Genetics & Reproduction):**Evaluate animals for breeding readiness and soundness.  **Technical I.A.1 (Domestic Animal Production):**Evaluate the development and implications of animal origin, domestication and distribution.   **Technical I.B.1 (Domestic Animal Production):**Classify animals according to hierarchical taxonomy and agriculture use.  **Technical I.G.1 (Domestic Animal Production):**Design animal housing, equipment and handling facilities for the major systems of animal production. | Animal Welfare  Biodiversity  Birding  Carrying Capacity  Endangered Species  Game  Hunting  Limiting Factor  Niche  Non-Game Animal  Pelt  Territory  Trapping  Urbanization |