Course Title: Veterinary Science

Unit 1:	**Career Opportunities**

Content Standard(s) and Depth of Knowledge Level(s):	Students will: 1. Compare job characteristics of various careers in veterinary science.

Learning Objective(s) and Depth of Knowledge Level(s):	Students will: 1. Explain work and the benefits that people get from work. 2. Explain the meaning of career ladder and the relationship of occupations in veterinary science to career success. 3. Explain entrepreneurship versus placement as related to occupations. 4. Name and describe the major areas of veterinary science occupations based on the nature of the work. 5. Name and describe the major areas of veterinary science occupations based on level of employment. 6. Identify the factors to consider in selecting an occupation in veterinary science.

Essential Question(s):	What is the process that a student uses to choose a career path?

Content Knowledge	**Suggested Instructional Activities Rigor & Relevance Framework (Quadrant)**	**Suggested Materials, Equipment and Technology Resources**
I. Define Work A. Employment B. Benefits of Work II. Define Career Ladder A. Occupation vs. Career vs. Job 1. Define entrepreneurship 2. Define Placement Clustering occupations	Lecture with PowerPoint Presentation Brainstorming	Textbook Support Material http://www.bls.gov/oco/print/ocos076.htm http://en.wikipedia.org/wiki/Entrepreneurship#Characteristics_of_entrepreneurship

based on the nature of the work a. Professional b. Managerial c. Technical d. Skilled e. Semi-Skilled f. Unskilled III. Factors considered in selecting an occupation A. Interests B. Abilities C. Education and training requirements D. Nature of the work E. Earnings F. Location of the occupation G. Future H. Family ties	Application Cards Poster Oral Presentation Work Based Learning	http://www.careeronestop.org/ExploreCareers/SelfAssessments/FindAssessments.aspx Reference Books Computers Internet Printer Handouts Teacher designed materials

Unit Assessment:	Posters, Projects, Oral Presentation, Portfolios, Performance Tasks

Unit/Course CTSO Activity:	Students will use this unit as a basis for the development of a Supervised Agriscience Experience (SAE).

Unit/Course Culminating Product:	Students will organize a plan of action for the development of a successful future career. Students will write a cover letter and résumé for a career in the veterinary industry. Students will generate a brochure on a university or college offering a program in veterinary science.

Course/Program Credential(s): ☐ Credential ☐ Certificate ☐ Postsecondary Degree ☒ University Degree
□ Other:

Course Title: Introduction to Veterinary Science

Unit 2:	**Safety**

Content Standard(s) and Depth of Knowledge Level(s):	Students will: 1. Identify hazards in the veterinary workplace. • Explaining Safety guidelines for handling veterinary drugs

Learning Objective(s) and Depth of Knowledge Level(s):	Students will: 1. Understand the types of hazards common in the veterinary sciences and the organization that regulates safety standards in the workplace. 2. Analyze an MSDS and locate important Safety information within 3. Describe the different methods of sanitation and know when to use them 4. Give examples of the four types of safety hazards

Essential Question(s):	What are the types of hazards common in the veterinary hospital and the organization that regulates safety standards in the workplace?

Content Knowledge	**Suggested Instructional Activities Rigor & Relevance Framework (Quadrant)**	**Suggested Materials, Equipment and Technology Resources**
I. Hazards in the veterinary workplace A. Types of Safety Hazards 1. Physical Hazards 2. Proper clothing and footwear 3. Animal handling and restraint methods B. Chemical Hazards 1. Drugs 2. Cleaning agents 3. Insecticides 4. Anesthetic gases C. Biological Hazards 1. Medical Waste Tracking Act of 1988 2. Environmental Protection Agency	Carousel Brain-Storming 10 + 2 Discussion Collaborative Learning Lecture with PowerPoint & Internet Access Note-taking Lecture with PowerPoint & Internet Access Online Activities Graphic Organizers Research Lecture with PowerPoint Flashcards Internet Research	Essential Question PowerPoint Internet Computer & Printer Websites http://www.merckvetmanual.com/mvm/index.jsp Handouts http://www.epa.gov/ http://www.epa.gov/epaoswer/other/medical/tracking.htm http://en.wikipedia.org/wiki/Rabies http://en.wikipedia.org/wiki/Encephalitis http://www.cdc.gov/healthypets/diseases/catscratch.htm http://www.cdc.gov/ncidod/dbmd/diseaseinfo/leptospirosis_g_pet.htm

(EPA) 3. Sharps containers D. Zoonotic Hazards 1. Viruses 2. Rabies (Hydrophobia) 3. Sleeping sickness (Encephalitis) E. Bacteria 1. Cat Scratch Fever 2. Leptospirosis 3. Salmonellosis 4. Brucellosis 5. Anthrax 6. Tuberculosis F. Parasites 1. Sarcoptic mange 2. Toxoplasmosis 3. Visceral Larva Migrans (Toxocariasis) 4. Creeping Eruption (Ancylostomiasis) a. Fungi b. Ringworm II. Occupational Health and Safety Administration (OSHA) A. Hazard Communication Standard (HCS) III. Material Safety Data Sheet (MSDS) A. Parts of an MSDS 1. Manufacturer Information 2. Hazard Ingredients/ Identity Information 3. Physical/Chemical Characteristics 4. Fire and Explosion Hazard Data 5. Reactivity Data 6. Health Hazard Data 7. Precautions for Safe Handling and Use 8. Control Measures IV. Safety signs & equipment V. Drug use and safety VI. Comprehensive Drug Abuse Prevention and Control Act (1970)	10 + 2 Discussion Note-taking Demonstrations	http://www.cdc.gov/healthypets/diseases/salmonellosis.htm http://www.cdc.gov/ncidod/dbmd/diseaseinfo/brucellosis_g.htm http://www.cdc.gov/nczved/dfbmd/disease_listing/anthrax_gi.html http://www.aphis.usda.gov/animal_health/animal_diseases/tuberculosis/ http://en.wikipedia.org/wiki/Mange http://www.cdc.gov/toxoplasmosis/ http://www.cdc.gov/ncidod/dpd/parasites/toxocara/factsht_toxocara.htm http://www.cdc.gov/ncidod/dpd/parasites/hookworm/factsht_hookworm.htm http://en.wikipedia.org/wiki/Material_safety_data_sheet http://www.osha.gov/ http://en.wikipedia.org/wiki/Material_safety_data_sheet Internet Computer & Printer http://www.nmsu.edu/~safety/resources/safety_signs.htm

A. Controlled Substances Act VII. Sanitation VIII. Types of sanitation A. Cleaning B. Disinfecting C. Sterilizing D. Antiseptics IX. Common used chemicals A. Alcohols 1. Ethyl alcohol 2. Isopropyl alcohol 3. Ethanol B. Aldehydes 1. Gluteraldehyde 2. Formaldehyde C. Chlorine A. Bleach D. Iodine and Iodophors 1. Betadine E. Quaternary ammonias 1. Centrimide 2. Quatsyl-D X Methods of sanitation A. Physical Cleaning B. Cold Sterilization C. Dry Heat D. Radiation E. Filtration F. Ultrasound G. Autoclave		

Unit Assessment:	Teacher Observations, Tests, Performance Tasks, Projects, Posters, Quizzes, Demonstrations, Oral Presentations

Unit/Course CTSO Activity:	FFA Career Development Events

Unit/Course Culminating Product:	Students will design a veterinary safety portfolio based on information obtained from various resources. Students will develop posters illustrating safety procedures in veterinary science.

Course/Program Credential(s): ☐ Credential ☐ Certificate ☐ Postsecondary Degree ☐ University Degree
□ Other:

Course Title: Veterinary Science

Unit 3:	**Reproduction and Genetics**

Content Standard(s) and Depth of Knowledge Level(s):	Students will: 1. Identify the structure and function of female and male reproductive systems. • Evaluating the use of biotechnology in veterinary science • Identifying factors affecting an animal breeding program Examples: heat cycle, gestation, artificial insemination, fertility • Evaluating functions of deoxyribonucleic acid (DNA) • Explaining how genotype and phenotype differ • Describing inherited traits

Learning Objective(s) and Depth of Knowledge Level(s):	Students will: 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. List the steps in establishing pregnancy and identify the stages of parturition.

Essential Question(s):	What is the most important factor in effecting an animal's growth and behavior?

Content Knowledge	**Suggested Instructional Activities Rigor & Relevance Framework (Quadrant)**	**Suggested Materials, Equipment and Technology Resources**
I. Identification and function of major reproductive organs in various animal species A. Factors affecting an animal breeding program 1. Heat cycle 2. Gestation 3. Artificial Insemination 4. Fertility	Application Cards Dicussion Case Studies	

B. The use of biotechnology in veterinary science C. Functions of deoxyribonucleic acid (DNA) D. Define Genotype E. Define Phonotype F. Types of inherited traits	Experiments Flash Cards Group Investigation Guest Speakers Homework Instructional Technology Laboratory Laboratory Lecture Note-Taking Observation Logs Oral Presentations Problem Based Learning Portfolio Research Worksheets	http://en.wikipedia.org/wiki/DNA http://en.wikipedia.org/wiki/Genotype http://en.wikipedia.org/wiki/Phenotype Textbooks Reference Books Support Materials Handouts Software Videos Lab Equipment Lab Supplies Computers Printers Web sites Internet Email

Unit Assessment:	Teacher Observations, Tests, Performance Tasks, Projects, Posters, Quizzes, Demonstrations, Oral Presentations

Unit/Course CTSO Activity:	FFA Career Developments Events FFA SAE FFA Proficiency Awards

Unit/Course Culminating Product:	Students will develop posters and brochures on animal reproduction and genetics.

Course/Program Credential(s): ☐ Credential ☐ Certificate ☐ Postsecondary Degree ☒ University Degree
□ Other:

Course Title: Veterinary Science

Unit 4:	**Hormones and Growth Disorders**

Content Standard(s) and Depth of Knowledge Level(s):	Students will: 4. Compare growth abnormalities in mammals. Example: dwarfism • Identifying treatments for correcting growth disorders Example: hormone treatments

Learning Objective(s) and Depth of Knowledge Level(s):	Students will: 1. Identify and discuss growth disorders observed in veterinary science in all major species.

Essential Question(s):	

Content Knowledge	**Suggested Instructional Activities Rigor & Relevance Framework (Quadrant)**	**Suggested Materials, Equipment and Technology Resources**
I. Growth abnormalities in mammals A. Treatments of growth disorders 1. Dogs 2. Cats 3. Rabbits 4. Hamsters and Gerbils 5. Rats and Mice 6. Guinea Pigs 7. Chinchillas 8. Ferrets 9. Amphibians 10. Reptiles 11. Birds 12. Fish 13. Livestock and Farm Animals	Application Cards Discussion Case Studies Experiments Flash Cards Group Investigation	Textbooks Reference Books Support Materials Handouts Software Videos Lab Equipment Lab Supplies Computers

II. Hormone Treatments A. Steroid Hormones B. Hormonal Therapy	Guest Speakers Homework Instructional Technology Laboratory Lecture Note-Taking Observation Logs Oral Presentations Problem Based Learning Portfolio Research Worksheets	Printers Web sites Internet Email http://www.merckvetmanual.com/mvm/index.jsp

Unit Assessment:	Teacher Observations, Tests, Performance Tasks, Projects, Posters, Quizzes, Demonstrations, Oral Presentations

Unit/Course CTSO Activity:	FFA Career Development Events FFASAE FFA Proficiency Awards

Unit/Course Culminating Product:	Students will create various projects exhibiting information learned about growth disorders treated in veterinary medicine.

Course/Program Credential(s): ☐ Credential ☐ Certificate ☐ Postsecondary Degree ☒ University Degree
□ Other:

Course Title: Veterinary Science

Unit 5:	**Animal Anesthesiology and Basic Surgery Procedures**

Content Standard(s) and Depth of Knowledge Level(s):	Students will: 5. Explain uses of anesthesiology for surgery and grooming. 6. Differentiate among basic surgery procedures for selected animals. Examples: cesarean, castration, spaying, nail and claw removal
Learning Objective(s) and Depth of Knowledge Level(s):	Students will: 1. Explain the medical impact of the essential principles of successful surgery. 2. Explain the medical significance of healing in animals. 3. Explain the medical consequences of common considerations in veterinary science surgeries.
Essential Question(s):	When is surgery or medical procedure on an animal warranted?

Content Knowledge	**Suggested Instructional Activities Rigor & Relevance Framework (Quadrant)**	**Suggested Materials, Equipment and Technology Resources**
I. Uses of anesthesiology for surgery and grooming A. Myths vs Facts B. Basic surgery procedures for selected animals 1. Cesarean 2. Castration 3. Define spaying or neutering 4. Nail and claw removal 5. Tail Docking	Lecture with PowerPoint Presentation Inquiry Guest Speakers Note-taking Projects Research	http://www.acva.org/ http://vmthpub.vetmed.wisc.edu/hosp_services/anesthesiology/myths.htm http://www.hsus.org/pets/pet_care/myths_and_facts_about_spaying_and_neutering.html Textbook Internet Computer Printer

	Position Paper SWOT Analysis Homework	Teacher designed materials Reference Books

Unit Assessment:	Tests, Portfolios, Oral Presentations, Posters, Projects, Case Studies, Research Teams

Unit/Course CTSO Activity:	FFA Public Speaking

Unit/Course Culminating Product:	Students will develop a portfolio on common surgical procedures.

Course/Program Credential(s): ☐ Credential ☐ Certificate ☐ Postsecondary Degree ☒ University Degree
□ Other:

Course Title: Veterinary Science

Unit 6:	**Health and Management**

Content Standard(s) and Depth of Knowledge Level(s):	Students will: 7. Describe common viral and bacterial diseases in animals. • Identifying internal and external parasites • Categorizing housing needs for animals 8. Evaluate nutritional requirements for selected animals. • Describing structures and functions of the digestive system • Analyzing feed ingredients to determine nutritional value 9. Evaluate the importance of balanced diets for animals. • Distinguishing nutritional requirements at various stages of animal development 10. Differentiate restraint from control techniques for animals

Learning Objective(s) and Depth of Knowledge Level(s):	

Essential Question(s):	

Content Knowledge	**Suggested Instructional Activities Rigor & Relevance Framework (Quadrant)**	**Suggested Materials, Equipment and Technology Resources**
I. Common viral and bacterial diseases in animals II. Identifying internal and external parasites A. Define Parasite 1. Modes of Transmission for Parasites 2. Host Specificity 3. Damage Caused by Parasites B. Common Internal Parasites 1. Roundworm 2. Tapeworm 3. Hookworm		http://www.marvistavet.com/html/roundworms_in_dogs___puppies.html

4. Whipworm
5. Protozoa
6. Heartworm

C. Common External Parasites
1. Flea
2. Lice
3. Mite
4. Tick

D. Identifying common viral diseases in animals

E. Identifying common bacterial diseases in animals

F. Preventing the spread of diseases
1. Vaccination of animals and humans
2. Proper waste disposal
3. Isolating infected animals
4. Proper handling of infected animals
5. Proper sanitation of hospital
6. Hand washing
7. Wearing protective clothing

G. Categorizing housing needs for animals

H. Nutritional requirements for selected animals.

I. Describing structures and functions of the digestive system
1. Types of Digestive Systems
a. Ruminants
b. Nonruminants
c. Cecal Fermenters
2. Five Digestive Processes
a. Mechanical
b. Peristalsis
c. Chemical
d. Absorption
e. Metabolism

III. Analyzing feed ingredients to determine nutritional value

A. Define nutrition
1. Major Nutrients

a. Proteins b. Carbohydrates c. Fats d. Minerals e. Vitamins f. Water B. The feed label 1. American Association of Feed Control Officials (AAFCO) a. Parts of a Feed Label b. Manufacturer's name c. The name of the product d. Phone number/address where manufacturer cannbe contacted e. Net weight of the product f. Guaranteed analysis g. Ingredient panel h. Nutritional claim i. Feeding guidelines and directions j. Expiration date C. The importance of balanced diets for animals IV. Nutritional requirements at various stages of animal development A. Analyzing Feed Labels 1. Cost Per Feeding Analysis 2. Calculating Dry Matter of a Feed 3. Maintenance Energy Requirements (MER) V. Restraint from control techniques for animals		

Unit Assessment:	

Unit/Course CTSO Activity:	

Unit/Course Culminating Product:	

Course/Program Credential(s): ☐ Credential ☐ Certificate ☐ Postsecondary Degree ☐ University Degree
□ Other:

Course Title: Veterinary Science

Unit 7:	**Business Management Practices**

Content Standard(s) and Depth of Knowledge Level(s):	Students will: 11. Identify steps for maintaining accurate animal health records in the veterinary workplace. 12. Identify techniques for enhancing customer relations in the veterinary workplace. 13. Identify accepted practices in financial management in the veterinary workplace.
Learning Objective(s) and Depth of Knowledge Level(s):	
Essential Question(s):	

Content Knowledge	**Suggested Instructional Activities Rigor & Relevance Framework (Quadrant)**	**Suggested Materials, Equipment and Technology Resources**
I. Steps for maintaining accurate animal health records in the veterinary workplace A. Types of client records 1. Animal ID Records 2. Cage Cards 3. Medical Records 4. Other Hospital Forms a. Surgical Consent Form b. Euthanasia Consent Form c. Boarding Form B. Taking a patient history II. Techniques for enhancing customer relations in the veterinary workplace III. Effective Communication A. Verbal communication		

B. Non-verbal communication C. Effective Listening IV. Scheduling appointments A. Phone Skills B. Boarding of Animals V. Dealing with death and dying in veterinary science A. Euthanasia B. The Grieving Process 1. Denial 2. Bargaining 3. Anger 4. Guilt 5. Acceptance VI. Accepted practices in financial management in the veterinary workplace VII. Marketing and Sales A. Feed marketing concepts 1. Nutritional value 2. All purpose 3. Price 4. Palatability VIII. Tracking inventory		

Unit Assessment:	

Unit/Course CTSO Activity:	

Unit/Course Culminating Product:	

Course/Program Credential(s): ☐ Credential ☐ Certificate ☐ Postsecondary Degree ☐ University Degree
□ Other:

Course Title: Veterinary Science

Unit 8:	**Applications of Technology**

Content Standard(s) and Depth of Knowledge Level(s):	Students will: 14. Identify uses of technology in veterinary science. Examples: genetic engineering, tracking devices, wireless fencing, ultrasound

Learning Objective(s) and Depth of Knowledge Level(s):	Students will: 1. Discuss the use of genetic engineering in veterinary medicine. 2. Evaluate the use of tracking devices in pets and animals. 3. Evaluate products used in wireless fencing in animal containment. 4. Explain the use of Ultrasound in veterinary medicine.

Essential Question(s):	Does the use of technology in veterinary science improve human health management?

Content Knowledge	**Suggested Instructional Activities Rigor & Relevance Framework (Quadrant)**	**Suggested Materials, Equipment and Technology Resources**
I. Uses of technology in veterinary science A. Genetic Engineering B. Tracking Devices C. Wireless Fencing D. Ultrasound E. Artificial Insemination F. Embryo Transfer G. Cloning	Application Cards Discussion Case Studies Experiments Flash Cards Group Investigation Guest Speakers Homework	http://www.avma.org/ Textbooks Reference Books Support Materials Handouts Software Videos Lab Equipment

	Instructional Technology Laboratory Lecture Note- Taking Observation Logs Oral Presentations Problem Based Learning Portfolio Research Worksheets	Lab Supplies Computers Printers Web sites Internet Email

Unit Assessment:	Teacher Observations, Tests, Performance Tasks, Projects, Posters, Quizzes, Demonstrations, Oral Presentations

Unit/Course CTSO Activity:	FFA Career Development Events FFA SAE FFA Proficiency Awards

Unit/Course Culminating Product:	Students will debate the use of technology in veterinary science.

Course/Program Credential(s): ☐ Credential ☐ Certificate ☐ Postsecondary Degree ☒ University Degree
□ Other: