Fundamental Animal Science
18101

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Rationale Statement:
This class will address the basic knowledge and skills necessary to care for and meet the needs of animals. Algebra, English, Biology, and human relations skills will be reinforced in this course. Work-based learning strategies appropriate for this course are school-based enterprises.

Suggested Grade Level: 9-12

Topics Covered:

- Anatomy and Physiology
- Safety
- Environmental Concerns
- Nutrition
- Health
- Reproduction
- Performance
- Consumer Concerns

Coursework

- Interviews
- Daily lessons over topic areas
- Ration formulations
- Identification of animal systems
- Identification of organs of animal systems

Performance Standards
Grades for the course will be based on the following levels of performance and attendance in class:

Grade	Performance Standard
A	**Mastered (Independent) Learner** Did research, designed and planned; applied academic skills; evaluated work and made adjustments; did quality work; needed little help from the teacher; sought found resources independently; demonstrated knowledge with a grade of 94% or higher; can perform course standards and skills independently with no supervision
B	**Semi-independent (Requires Some Supervision) Learner** Did research, designed and planned; needed some help from the teacher; did quality work with a few flaws; needed feedback from the teacher to realize work did not meet standards; redid work to meet standards; demonstrated knowledge and a grade of 87% or higher; can perform standards completely without supervision/training.
C	**Dependent (Requires Close Supervision) Learner** Needed help to research, design, and plan; relied a great deal on the teacher; had to be given procedures for performing tasks; required significant help to produce a quality product; needed help to evaluate a product; final product did meet standards; demonstrated knowledge with a grade of 79% or higher; can perform task with close supervision/training.
D	**Not Mastered Learner** Needed help to research, design and plan or had to be given a plan; relied a great deal on the teacher; had to be given procedures for performing tasks; required significant help to produce a product; needed help to evaluate a product; final product still did not meet standards; demonstrated knowledge with a grade of 70% or higher; requires close supervision and more instruction.
F	**Failure (No Exposure)** Did not complete projects; if projects were completed, they were of such low quality that they did not pass; failed to document procedures; did not show criteria for determining quality; scored 69% or less; not enough experience or knowledge in this area.

Indicator 1	**Examine animal anatomy and physiology.**	
Understanding	AN1.1 Classify animals.	Define types of animals by species. Define types of animals by gender. Identify livestock breeds. Discuss desired traits of animals. MyCaert and Delmar materials.
Understanding	AN1.2 Recognize the anatomy of animal species' to understand how the body structures interact.	Discuss animal systems and system interactions. Analyze differences in digestive structures in species. Use livestock evaluation terminology to describe an animal. Identify selected animal parts from a diagram or on a real animal.
Analyzing	AN1.3 Analyze a subject animal to determine the nature of its health.	Examine an animal's health status. Check an animal for symptoms of diseases, illnesses, parasites, etc. Diagnose animal ailments. Compare treatment options. Beef Quality Assurance, MyCaert and Delmar.
Indicator 2	**Describe practices for safely working with animals.**	
Understanding	AN2.1 Describe practices for safely working with animals.	Explain field of vision relating to fight or flight reactions. Identify typical animal reactions. Describe precautions that can be taken around animals. Explain factors which serve to stimulate or discourage given types of animal behavior. Describe safe practices when operating animal handling facilities. MyCaert, Farm Safety 4 Just Kids and Delmar.
Indicator 3	**Distinguish elements of proper animal nutrition.**	
Understanding	AN3.1 Describe an animal's differing nutritional needs throughout its life cycle.	Discuss the different phases of an animal's life cycle. Identify nutritional needs at each animal development stage and discuss why the needs differ. Discuss how climate affects nutritional needs. Delmar and IML materials.

Analyzing	AN3.2 Analyze a feed ration to determine whether or not it fulfills a given animal's nutrient requirements.	Identify feed nutrient categories. Identify categories of feedstuffs and the nutrients provided by each feedstuff. Compare the differences between good and poor quality feedstuffs. Select appropriate feeds for a ration from a list of possible feedstuffs. Calculate rations using a Pearson Square and the substitution method. Evaluate feed additives by comparing feed tags. Kent Feeds and IML materials.
Indicator 4	**Distinguish the factors that influence an animal's reproductive cycle.**	
Analyzing	AN4.1 Examine male and female reproductive systems.	Differentiate the parts of male and female reproductive tracts on example animals. Illustrate the components of reproductive tracts. Dissect reproductive tracts. Delmar, Nasco, and MyCaert.
Understanding	AN4.2 Discuss reproductive cycles.	Graph gestational periods in animals by species. Identify signs of heat for breeding purposes. Discuss the pros and cons of breeding through natural cover and artificial insemination and embryo transfer. CEV Video on artificial insemination and embryo transfer.
Evaluating	AN4.3 Evaluate an animal to determine breeding soundness.	Evaluate the results of a semen test. Evaluate structural correctness.
Analyzing	AN4.4 Predict genetic outcomes.	Determine genotype and phenotype. Discuss the impications of genetic variation. Identify recessive and dominant traits. Determine offspring makeup based on EPDs and heritability percentages.
Indicator 5	**Identify environmental factors that affect an animal's performance.**	
Understanding	AN5.1 Recognize optimum performance for a given animal species.	Identify a given species' desirable production numbers (e.g. birth weight, age of maturity, age of sexual maturity, etc.). Identify reasons why some animals perform better than others. Evaluate sire performance records (EPD's, ratios, pedigree, carcass data)

Evaluating	AN5.2 Assess an animal to determine if it has reached its optimum performance level.	Monitor feed efficiency. Formulate rate of gain. Monitor daily milk production. Monitor percent lamb crop. Delmar, SAE records and farm records.
Indicator 6	**Examine animal industry issues.**	
Analyzing	AN6.1 Compare and contrast consumer concerns related to animal food products.	Question the effect of animal hormones on humans. Evaluate HACCP handling procedures. Debate pasteurization of milk products.
Analyzing	AN6.2 Analyze consumer concerns related to animal welfare.	Debate humane processing practices. Debate the value of confinement versus free range. Compare and contrast the intentions of animal welfare groups and animal industry organizations. Websites of various organizations for comparison purposes.