

**Jefferson County High School
Course Syllabus**

A. Course: Agriscience

B. Department: CTE - Agriculture

C. Course Description: *Agriscience* is an introductory laboratory science course that prepares students for biology, subsequent science and agriculture courses, and postsecondary study. This course helps students understand the important role that agricultural science and technology plays in the twenty-first century. In addition, it serves as the first course for all programs of study in the Agriculture, Food, & Natural Resources cluster. Upon completion of this course, proficient students will be prepared for success in more advanced agriculture and science coursework. Standards in this course are aligned with Tennessee State Standards for English Language Arts & Literacy in Technical Subjects, Tennessee State Standards in Mathematics, and Tennessee state standards in Anatomy and Physiology, Biology I, Biology II, Chemistry I, Chemistry II, Environmental Science, Physical Science, Physics, and Physical World Concepts, as well as the National Agriculture, Food, & Natural Resources Career Cluster Content Standards. This course counts as a lab science credit toward graduation requirements.

D. Grade Term: First Semester

E. Grading Scale

<u>Range</u>	<u>Honors/ Regular</u>
93-100 A	4.0
85-92 B	3.0
75-84 C	2.0
70-74 D	1.0

F. Term Dates

- a. 1st 9 Weeks August 5, 2016 – October 7, 2016
- b. 2nd 9 Weeks October 8, 2016 – December 16, 2016

G. Other Resources

- a. Odysseyware
- b. Others as needed

H. Procedures for Parental Access to Instructional Materials

- a. Aspen Parent Portal
- b. Instructor's Website
- c. Email Instructor
- d. Parent Teacher Conference
 - a. There are two designated conference dates during the school year. Parents who would like to request additional meetings may make appointments for

conferences with the teachers (during their planning periods), counselors, or a principal by telephoning the school office.

I. Field Trips

- a. Any schedule fieldtrip will have a definite educational purpose and will reflect careful planning. Signed permission forms will be obtained when an off campus trip is planned.

J. Standards & Objectives

1. Identify and review general common laboratory safety procedures including but not limited to prevention and control procedures in agriscience laboratories. Incorporate safety procedures and complete safety test with 100 percent accuracy.

I can:

- a. Follow industry and safety standards in the work and lab area.
 - b. Complete the safety test with 100% accuracy.
2. Describe the biogeochemical cycles impacting the agriculture industry by creating illustrative models and informative texts for the following:
 - a. Carbon cycle
 - b. Nitrogen cycle
 - c. Oxygen cycle
 - d. Water cycle

Critique the dynamics of biomass and energy flow in ecosystems by analyzing the major components of a food chain. Analyze the structure of the relationships among the concepts of carrying capacity, species populations, and organism interactions within multiple ecosystems and natural habitats.

I can:

- a. Describe the four major components of the food chain.
 - b. Describe the six main parts of the water cycle.
 - c. Describe the carbon dioxide-oxygen cycle.
 - d. Label the parts of the nitrogen cycle
 - e. List the steps of the scientific method.
 - f. Match terms associated with ecology and conservation.
3. Compare basic plant and animal cell biology, including structure and function. Create a visual representation that identifies cellular organelles and major cell processes. Compare and contrast the roles of proteins, carbohydrates, lipids, and nucleic acids as they relate to cell growth and cell reproduction.

I Can:

- a. Label the major parts of a typical animal cell.

- b. Label the major parts of a typical plant cell.
 - c. Match major parts of cells to their correct descriptions.
 - d. Match terms associated with cell division to their correct definitions
 - e. List two purposes of mitotic cell division (mitosis).
 - f. Match the stages of mitosis to their correct descriptions.
 - g. Describe what happens in meiotic cell division (meiosis).
 - h. Describe what happens in fertilization.
4. Determine the significance of and relationships between genes, chromosomes, proteins, and hereditary traits. Analyze the role of genes in determining genetic make-up, gender, and hereditary characteristics. Using systems of equations, explain the variation and distribution of genotypes and phenotypes expressed in plants and animals.
- I Can:
- a. Match terms associated with selecting and breeding livestock to the correct definitions.
 - b. Select from a list hereditary characteristics that are determined by genes.
 - c. Match the types of livestock to the correct number of chromosomes pairs.
 - d. Discuss in a short paragraph how the genetic makeup of an animal is determined.
 - e. Distinguish between dominant and recessive genes.
 - f. Distinguish between simple gene inheritance and multiple gene inheritance.
 - g. Discuss in a short paragraph how the sex of the offspring is determined.
5. Describe the structures and functions of the male and female animal reproductive systems. Compare and contrast the differences of the reproductive systems between small and large animal species.
- I Can:
- a. Match terms associated with the reproductive organs of farm animals to their correct definitions.
 - b. Select from a list the components of the male reproductive tract.
 - c. Select from a list the main functions of the epididymis.
 - d. Identify the parts of the reproductive tract of a bull.
 - e. Match male reproductive organs to their correct functions.
 - f. Identify the parts of the reproductive tract of a cow.
 - g. Match the parts of the female reproductive tract to the correct functions.

- h. Select from a list two hormones produced by the ovaries.
 - i. Name the primary organs of reproduction in the male and female.
6. Use graphic illustrations and supporting text to identify and describe major animal body systems (skeletal, muscular, respiratory, digestive, nervous, circulatory, respiratory, and endocrine) and to establish a basic knowledge of their purpose, structure, and function.

I Can:

- a. Use graphic illustrations and supporting text to identify and describe major animal body systems.
 - b. Establish a basic knowledge of their purpose, structure, and function.
7. Apply concepts related to the basic cellular and biochemical processes in plants to demonstrate the following:

I Can:

- a. Match terms associated with photosynthesis to their correct definitions and state the photosynthesis formula using chemical symbols.
 - b. Name three inputs to and three products of photosynthesis.
 - c. State the optimum temperature ranges for photosynthesis to occur.
 - d. Match terms associated with respiration to their correct definitions and state the chemical formula.
 - e. Name two primary factors affecting respiration.
 - f. Match terms associated with water absorption, translocation, and transpiration.
 - g. Name two mechanisms by which water absorption takes place.
 - h. Match terms associated with basic plant parts to their correct definitions.
8. Research and develop illustrative models that compare and contrast the reproductive structures of plants, drawing out key differences between sexual and asexual reproduction processes. Describe the structure and function of different seed components and summarize their roles in plant reproduction and propagation.

I Can:

- a. Match terms associated with plant parts to their correct definitions.
- b. Match names of five basic parts of a flower with their functions.
- c. Distinguish between a complete and an incomplete flower.
- d. Match terms pertaining to sexual propagation and reproduction to their correct

definitions.

- e. Name and define two kinds of plant propagation.
 - f. List the functioning parts of the flower in plant reproduction.
 - g. List and explain two methods of plant pollination.
 - h. Match terms pertaining to seeds to correct definitions.
 - i. List four factors that successful seed propagation depends on.
 - j. Match the names of seed parts to correct descriptions of their functions.
 - k. Name four factors that affect seed germination.
9. Formulate a hypothesis about the correlation between plant nutrient deficiencies and soil composition. Conduct basic soil analysis to determine the chemical elements and nutritional levels available in soils essential for plant growth. Draw conclusions about the ability of soils to meet the nutritional requirements of plants.
- I Can:
- a. Match terms associated with plant and soil chemistry to their correct definitions.
 - b. State the atomic theory.
 - c. Briefly explain the arrangement of the "periodic table of elements."
 - d. Identify properties of acids, bases and salts.
 - e. Explain the relationships between plant growth, soils, the periodic table of elements and the pH scale.
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