# Agriscience Course No. 18002 Credit: 1.0

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| --- | --- | --- | --- |
| **Student name:** |  | **Graduation Date:** |  |

Pathways and CIP Codes: **Animal Science, Health, and Related Industries (01.0901); Agricultural Technology and Mechanical Systems (01.0201); Diversified Agricultural Science (01.0000); Food Products and Processing Systems (01.0401); Natural Resources and Environmental Sustainability (03.0101); Plant Science and Industry Operations (01.1101);** Business Management & Entrepreneurship (52.0799)

Course Description: **Technical Level:** Agriculture—Comprehensive courses cover a wide range of agricultural topics, including plant and animal science, production, and processing; agricultural mechanics, including tool and machine operation and repair; construction and repair of farm structures; business operations and management; and the careers available in the agricultural industry. They may also include topics such as chemical and soil science, ecology, agricultural marketing, and veterinary science.

Special Note: The AFNR College and Career Ready Skills are to be taught throughout the course utilizing FFA and SAE programming found at the Kansas Ag Ed website. Specific activities may be found in the SAE for All Teachers Guide and at National FFA.org. The AFNR College and Career Ready Skills competencies can be found at Kansas Ag Ed.

Opportunities in Agriculture Education & FFA:Classroom and laboratory instruction integrates and/or is supplemented by experiential, project, and leadership and personal development through FFA .Students should be introduced to FFA through leadership activities and College and Career Ready Skills. Specific FFA information and activities may be found in the “National FFA Student Handbook, 16thedition”. Student activities, scoring rubrics, grading examples, and teacher lessons are all found in the “FFA Student Handbook Teachers Guide”. Additional information can be found at [www.ffa.org](http://www.ffa.org/).

Workplace Skills, Supervised Agricultural Experience and Record Keeping: Classroom and laboratory instruction integratesand/or is supplemented by experiential, project, and work based learning through SAE. Specific SAE activities that support the College and Career Ready Skills may be found in the “SAE for All Guide”. Students should be introduced to Foundational SAE’s and the AET student portfolio system. Student activities, scoring rubrics, grading examples, and teacher lessons are all found in the “SAE for All Teachers Guide”. Additional information is found in the SAE Individual Learning Guides and Teacher Editions and in the AFNR College and Career Ready Competency Profile found at *Kansas Ag* *Ed.*

Directions:The following competencies are required for full approval of this course. Check the appropriate number to indicate the level of competency reached for learner evaluation.

**RATING SCALE:**

4. Exemplary Achievement: Student possesses outstanding knowledge, skills or professional attitude.

3. Proficient Achievement:Student demonstrates good knowledge, skills or professional attitude. Requires limited supervision.

2. Limited Achievement:Student demonstrates fragmented knowledge, skills or professional attitude. Requires close supervision.

1. Inadequate Achievement:Student lacks knowledge, skills or professional attitude.

0. No Instruction/Training:Student has not received instruction or training in this area.

## Benchmark 1: Concepts of Agriculture

### Competencies

| **#** | **DESCRIPTION** | **RATING** |
| --- | --- | --- |
| 1.1 | Describe basic needs of humans. |  |
| 1.2 | Research agricultural commodities in the United States. |  |
| 1.3 | Investigate agricultural career opportunities. |  |
| 1.4 | Identify opportunities in FFA to meet career interests. |  |

## Benchmark 2: Communicating in Agriscience

### Competencies

| **#** | **DESCRIPTION** | **RATING** |
| --- | --- | --- |
| 2.1 | Demonstrate verbal and nonverbal forms of communication. |  |
| 2.2 | Identify and demonstrate characteristics of effective public speaking. |  |
| 2.3 | Create an informative agricultural speech. |  |
| 2.4 | Identify and demonstrate principles of parliamentary procedure. |  |
| 2.5 | Identify important skills for teamwork. |  |

## Benchmark 3: Principles of Science in Agriculture

### Competencies

| **#** | **DESCRIPTION** | **RATING** |
| --- | --- | --- |
| 3.1 | Explain and demonstrate common uses of laboratory equipment. |  |
| 3.2 | Collect and analyze data in an experiment. |  |
| 3.3 | Conduct laboratory experiments to determine distance, volume, mass, temperature, and density. |  |
| 3.4 | Explain the characteristics of physical objects. |  |

## Benchmark 4: Natural Resources and Environmental Systems

### Competencies

| **#** | **DESCRIPTION** | **RATING** |
| --- | --- | --- |
| 4.1 | Identify characteristics of soil including particle size, porosity, texture, permeability and color. |  |
| 4.2 | Explain soil formation and soil horizons. |  |
| 4.3 | Perform water quality test. |  |
| 4.4 | Identify and explain pollution from point and nonpoint sources. |  |
| 4.5 | Explain the water cycle. |  |
| 4.6 | Describe the flow of energy in an ecosystem. |  |
| 4.7 | Apply identification techniques to determine the species of wildlife or insect. |  |
| 4.8 | Explain the interactions of all natural resources. |  |
| 4.9 | Identify Kansas Wildlife Habitats. |  |

## Benchmark 5: Plant and Animal Systems

### Competencies

| **#** | **DESCRIPTION** | **RATING** |
| --- | --- | --- |
| 5.1 | Demonstrate the correct use of a microscope. |  |
| 5.2 | Identify the parts and functions of plant and animal cells. |  |
| 5.3 | Identify and describe the basic functions of plant and flower parts. |  |
| 5.4 | Define and calculate germination rates. Collect data of respiration and photosynthesis of plant leaves. |  |
| 5.5 | Describe plant macronutrients and deficiency symptoms. |  |
| 5.6 | Categorize animals by gender and species. |  |
| 5.7 | Identify basic internal and external anatomical parts of animals. |  |
| 5.8 | Explain priority decisions when selecting animals. |  |

## Benchmark 6: Food Science

### Competencies

| **#** | **DESCRIPTION** | **RATING** |
| --- | --- | --- |
| 6.1 | Explain the process of food items from production to processing. |  |
| 6.2 | Conduct an experiment to determine bacteria levels in food products. |  |
| 6.3 | Identify food safety procedures. |  |
| 6.4 | Research food borne illnesses. |  |
| 6.5 | Analyze factors that affect quality and yield grades of food products. |  |

## Benchmark 7: Biotechnology in Agriculture

### Competencies

| **#** | **Description** | **RATING** |
| --- | --- | --- |
| 7.1 | Investigate and explain emerging applications of biotechnology in agriculture. |  |
| 7.2 | Explore ethical, legal, and social issues associated with biotechnology. |  |
| 7.3 | Compare and contrast natural organisms and genetically engineered organisms. |  |

## Benchmark 8: Agriculture Technology

### Competencies

| **#** | **Description** | **RATING** |
| --- | --- | --- |
| 8.1 | Identify and explain the impact of agriculture on energy sources. |  |
| 8.2 | Measure electrical power. |  |
| 8.3 | Compare characteristics of common fuels. |  |
| 8.4 | Use GPS to find longitude and latitude coordinates. |  |
| 8.5 | Explain processes used to survey land. |  |
| 8.6 | Use English and metric systems to measure objects. |  |

## Benchmark 9: Your Future in Agriculture

### Competencies

| **#** | **Description** | **Rating** |
| --- | --- | --- |
| 9.1 | Create personal SMART goals. |  |
| 9.2 | Develop a personal vision statement. |  |
| 9.3 | Describe issues with world population. |  |
| 9.4 | Explain how agriculture can address future challenges to feed the world. |  |

I certify that the student has received training in the areas indicated.

Instructor Signature:

For more information, contact:

CTE Pathways Help Desk

(785) 296-4908

[pathwayshelpdesk@ksde.org](mailto:pathwayshelpdesk@ksde.org)



900 S.W. Jackson Street, Suite 102

Topeka, Kansas 66612-1212

[https://www.ksde.org](https://www.ksde.org/)

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