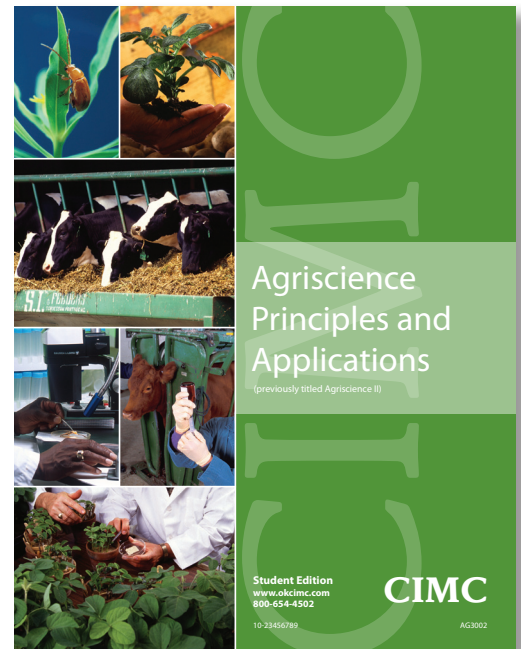


# Agriscience Principles and Applications

## Curriculum Crosswalk

- National Agriculture, Food and Natural Resources (AFNR) Career Cluster Content Standards
- Oklahoma Academic Standards



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Unit Objectives	Activity Number(s)	Oklahoma Academic Standard(s)	National AFNR Career Cluster Standard(s)
<b>Unit 1 – Animal Nutrition and Digestion</b>			
Discuss the importance of nutrition and digestion for animal growth.	----	Environmental Science 3.1 Biology 5.1	AS.04
Explore the basics of animal physiology.	1.1	Biology 3.1	AS.02.02.06.a
Determine how nutrients are used by various livestock species.	1.2	Environmental Science 3.1 Biology 5.1, 5.2 Chemistry 4.1, 4.2, 4.7.a	AS.04.01.01.a
Identify classes and sources of nutrients.	1.3, 1.4	Biology 4.1, 4.7.a Environmental Science 2.4	AS.04.01.01.a
Identify symptoms of nutrient deficiencies.	1.5	Biology 5.1, 5.2, 5.3	AS.04.01.01.a
Explain the role of feed additives in livestock nutrition.	----	Environmental Science 2.4 Biology 5.2	AS.04.01.01.a AS.04.02.01.a
Formulate a feed ration using the Pearson square.	1.6, 1.7	Biology 3.2, 3.3, 4.3	AS.04.01.02.a AS.04.01.02.b
Compare and contrast animal digestive systems.	1.8	Environmental Science 3.3, 2.1, 2.2 Biology 3.1	AS.02.02.06.a
<b>Unit 2 – Animal Health</b>			
Discuss ethical considerations concerning the care and well-being of livestock.	2.1, 2.2	Environmental Science 5.3.b, 5.3.c Biology 3.3	AS.03.01.01.a AS.03.01.01.b AS.07.01.02.a
Determine good management practices for maintaining small and large animal health.	2.3	Environmental Science 5.3.b, 5.3.c Biology 3.3	AS.03.01.01.a AS.03.01.01.b
Discuss the signs and symptoms of good and poor animal health.	2.3	Biology Process Standard 1.1	AS.03.01.01.a AS.03.01.01.b
Discuss infectious and non-infectious livestock diseases.	2.2	Biology Process Standard 1.1 Environmental Science 3.1, 3.2, 3.3	AS.03.01.02.a AS.03.01.02.b AS.03.01.05.a
Identify common parasites that affect livestock.	2.4, 2.5, 2.6	Biology Process Standard 1.1 Environmental Science 3.1, 3.2, 3.3	AS.03.01.02.a AS.03.01.02.b
Analyze the life cycle stages of an internal and external parasite.	2.4, 2.5, 2.6	Biology Process Standard 1.1 Environmental Science 3.1, 3.2, 3.3	AS.03.01.02.a AS.03.01.02.b
Discuss categories of medication and proper storage.	2.7	Biology 3.3 Biology Process Standard 3.3	AS.03.01.03.a AS.03.01.04.a AS.03.01.03.b AS.03.01.04.a
Explore methods, equipment, and locations for administering medication.	2.7	Biology 3.3 Biology Process Standard 1.3, 3.3	AS.03.01.04.a AS.03.01.04.b
Analyze a medication for withdrawal time period.	2.7	Biology 3.3 Biology Process Standard 1.3, 3.3	AS.03.01.04.a AS.03.01.04.b

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<b>Unit 3 – Plant Structures and Functions</b>			
Discuss the function of plant cells.	3.1, 3.2, 3.3	Biology 1.1, 1.3, 1.3, 5.1, 5.2	PS.01.02.01.a
Determine the function of plant structures.	3.1, 3.2, 3.3, 3.4, 3.5	Environmental Science Process Standard 4.3, 5.1, 6.3 Biology Process Standard 2.1, 2.2	PS.01.02.02.a PS.01.02.03.a PS.01.02.03.a
Distinguish between plant growth regulators.	-----	Biology 5.2 Chemistry 3.2 Biology 1.3	PS.01.03.04.a
Analyze plant responses to stimuli.	3.6	Biology Process Standard 1.1, 1.2, 2.1, 2.2; Biology 1.3 Environmental Science 4.2	PS.01.03.04.b
<b>Unit 4 – Plant Health</b>			
Determine the nutrients needed for plants to grow.	-----	Environmental Science 3.1 Biology 5.1, 5.2, 5.3	PS.02.03.01.a
Determine the signs of nutrient deficiencies.	-----	Biology Process Standard 3.2 Chemistry Process Standard 6.4	PS.02.03.01.a
Discuss the affect soil pH has on the absorption of nutrients.	4.1	Enviro Science 4.2, Chemistry 2.2; Chemistry Process Standard 4.3, 4.5; Biology Process Standard 3.1, 3.2	ESS.03.02.03.b PS.02.03.01.a
Discuss how soil amendments and fertilizers affect plant growth.	4.2, 4.3	Environmental Science 3.1, 3.2, 3.3, 5.1, 5.2, 5.3.a, 5.3.b	PS.02.03.04.a PS.03.05.03.a
Identify the types of plant pests and how to treat them.	4.4, 4.5	Biology Process Standard 4.7.a, 4.7.b Environmental Science 4.2, 5.3.b	PS.03.03.01.a PS.03.03.03.a PS.03.03.01.b PS.03.03.03.b PS.03.03.02.a
<b>Unit 5 – Plant and Animal Genetics</b>			
Explain Mendel’s Laws of genetics.	5.1, 5.2, 5.3, 5.4	Biology 2.2, 3.1, 3.2, 3.3	PS.01.02.01.a
Predict genetic traits using the Punnett square.	5.1, 5.4, 5.5, 5.6, 5.7	Biology 2.2, 3.1, 3.2, 3.3 Biology Process Standard 3.3, 4.3	AS.05.03.01.a BS.02.05.02.a
Discuss methods of plant and animal improvement.	5.1, 5.3, 5.8	Biology 2.2, 3.1, 3.2, 3.3 Environmental Science Process Standard 3.3, 4.3	BS.03.03.02.a BS.03.03.01.a
Explain the concept of genetic engineering.	5.1, 5.9, 5.10, 5.11	Biology 2.1, 2.2, 3.1, 3.2, 3.3	BS.03.01
State safety concerns and safeguards in biotechnology.	5.1	Environmental Science 5.1, 5.2, 5.3.a, 5.3.b, 5.3.c	BS.01.01

Unit Objectives	Activity Number(s)	Oklahoma Academic Standard(s)	National AFNR Career Cluster Standard(s)
<b>Unit 6 – Food Science and Technology</b>			
Identify the roles of food technology and biotechnology in agriculture.	6.1, 6.7	Biology 4.2, 5.1, 5.2	FPP.01.01.01.a FPP.01.01.01.b
Identify techniques used to enhance retail sales of food commodities.	6.1, 6.7	Biology Process Standard 1.1, 2.1	FPP.02.03.02.a
Explain the factors that are important in harvesting fruits and vegetables.	6.4	Biology 5.1, 5.2 Biology Process Standards 1.1, 1.2, 1.3	FPP.04.03.02.a
Discuss the major steps used in slaughtering meat animals.	6.7	Biology Process Standard 1.1, 1.2	FPP.04.03.02.a
Distinguish between the major cuts of red meat.	6.5, 6.7	Biology Process Standard 1.1, 1.2, 3.1	FPP.04.01.01.a
Identify factors that affect the palatability of meat.	6.3	Biology Process Standard 1.1, 1.2, 1.3, 2.1 Biology 3.1, 5.1	FPP.04.01.01.a FPP.04.01.01.b FPP.04.01.02.a
Discuss the importance of techniques that will ensure food safety.	6.3, 6.6	Biology Process Standard 2.1, 3.5	FPP.02.03.01.a FPP.01.01.02.a
<b>Unit 7 – Natural Resources</b>			
Discuss the history of natural resources.	7.3	Environ Science 1.1.a, 1.1.b, 1.1.c, 4.1.c; Biology Process Standard 1.1, 2.1, 4.2, 4.6	
Identify the types of natural resources.	7.2, 7.3	Environmental Science 1.1.a, 4.1.a, 4.2 4.3 Biology Process Standard 1.1, 2.1	
Compare renewable and non-renewable natural resources.	7.1, 7.3	Environmental Science 1.1.a, 4.2, 4.3 Biology 1.1, 2.1, 3.1, 3.2, 3.3, 3.4, 3.5 4.2, 4.6, 5.1, 5.2 5.3, 6.2, 6.4	NRS.01.01.01.a NRS.01.01.01.b
Determine the factors that affect natural resources.	7.2, 7.5	Environmental Science 1.1.a Biology Process Standard 2.1, 3.1, 3.2, 3.3, 3.4, 3.5, 5.1, 5.2, 5.3, 6.2, 6.4	
Distinguish between preservation and conservation of natural resources.	7.1, 7.2	Environmental Science 3.1 Biology Process Standard 1.1, 2.1, 3.1, 3.2, 3.3, 3.4, 3.5, 5.1, 5.2, 5.3, 6.2, 6.4	NRS.01.01.01.c
Discuss the purpose and importance of recycling.	7.3, 7.4, 7.5	Environmental Science 4.1.c; Physical Sci Process 1.1, 3.1, 3.2, 3.3, 3.4, 3.5, 4.2, 4.6, 5.1, 5.2, 5.3, 6.2, 6.4	ESS.04.02.04.a ESS.04.01.06.a
Determine the differences between recyclables and non-recyclables.	7.3, 7.4	Environmental Science 4.2; Biology Process Standard 2.1, 3.1, 3.2, 3.3, 3.4 3.5 4.2, 4.6, 5.1, 5.2, 5.3, 6.2, 6.4	ESS.04.02.04.a ESS.04.01.06.a
Discuss national issues surrounding natural resources.	7.3, 7.5	Environmental Science 5.3.a, 5.3.b, 5.3.c; Biology Process Standard 4.2, 4.6, 3.1, 3.2, 3.3, 3.4, 3.5, 5.1, 5.2, 5.3, 6.2, 6.4	

<b>Unit Objectives</b>	<b>Activity Number(s)</b>	<b>Oklahoma Academic Standard(s)</b>	<b>National AFNR Career Cluster Standard(s)</b>
<b>Unit 8 – Presentation Development</b>			
Distinguish between informative and persuasive presentations.	-----	Grade 12 Language Arts: Oral Language/Listening and Speaking 2.2	CS.03.01
Determine how to select a topic and develop a message.	-----	Grade 12 Language Arts: Oral Language/ Listening and Speaking 2.3; Writing/ Grammar/Mechanics and Usage1.1, 1.2, 1.3	CS.03.01
Examine the parts of a speech or presentation with the use of an outline.	-----	Grade 12 Language Arts: Writing/Grammar/Mechanics and Usage 1.1.a, 2.1, 2.2.b	CS.03.01
Use basic researching methods to gather information.	8.1, 8.2	Grade 12 Language Arts: Reading/Literature Standard 4	CS.03.01
Discuss the importance of citations and a bibliography.	8.3	Grade 12 Language Arts: Writing/Grammar/Mechanics and Usage 2.8	CS.03.01
Analyze the use of visual aids to support a presentation.	-----	Grade 12 Language Arts: Oral Language/Listening and Speaking 2.5	CS.03.01
Discuss techniques for answering questions.	-----	Grade 12 Language Arts: Oral Language/Listening and Speaking 2.6	CS.03.01
<b>Unit 9 – Financial Literacy</b>			
Describe the importance of earning an income and explain how to manage personal income through the use of a budget.	9.1, 9.2, 9.3, 9.4, 9.5	Financial Literacy Standard 1	ABS.04.01 ABS.05.01
Discuss the impact of local, state, and federal taxes upon income and standard of living.	-----	Financial Literacy Standard 2	ABS.04.01 ABS.05.01
Describe the function and uses of banks and other financial service providers.	9.6, 9.7	Financial Literacy Standard 3	ABS.04.01 ABS.05.01
Demonstrate the ability to balance a checkbook and reconcile financial accounts.	-----	Financial Literacy Standard 4	ABS.04.01 ABS.05.01
Analyze the costs and benefits of saving and investing.	9.8, 9.9	Financial Literacy Standard 5	ABS.04.01 ABS.05.01
Identify the procedures and analyze the responsibilities of borrowing money.	9.10, 9.11	Financial Literacy Standard 7	ABS.04.01 ABS.05.01
Discuss interest, credit cards, and online commerce.	9.12, 9.13	Financial Literacy Standard 8	ABS.04.01 ABS.05.01
Explain how various types of insurance can be used to manage risk.	9.14	Financial Literacy Standard 11	ABS.04.01 ABS.05.01 ABS.07.04
Evaluate the consequences of bankruptcy.	9.15	Financial Literacy Standard 13	ABS.04.01 ABS.05.01

<b>Unit Objectives</b>	<b>Activity Number(s)</b>	<b>Oklahoma Academic Standard(s)</b>	<b>National AFNR Career Cluster Standard(s)</b>
<b>Unit 10 – Welding, Brazing and Cutting</b>			
Review agricultural mechanics safety principles.	10.1	Environmental Science Process Standard 3.5	CS.06.01.01.a CS.06.02.01.a
Discuss the four basic welding processes.	----	Chemistry 3.1, Math Process 4.2, Env Sci Process Standard 6.4, Biology 1.3, Phys Sci Process Standard 2.1	PST.04.04.07.a PST.04.04.07.b
Analyze electrode rods and wires to determine use.	----	Biology Process Standard 2.1	PST.04.04.07.a PST.04.04.07.b
Discuss the five welding positions.	----	Biology Process Standard 2.1 Geometry 2.2.c	PST.04.04.07.a PST.04.04.07.b
Examine the types of welding joints.	10.2	Biology 2.1, 1.3 Biology Process Standard 2.1 Algebra I 3.1.a	PST.04.04.07.a PST.04.04.07.b
Discuss the various motions when welding.	10.3	Biology Process Standard 2.1 Chemistry 3.2 Algebra I 3.1.a	PST.04.04.07.a PST.04.04.07.b
Compare and contrast oxyacetylene and plasma arc cutting.	10.4, 10.5	Environmental Science 1.2, Chemistry 3.1; Biology 1.3, 2.1 Biology Process Standard 2.1	PST.04.04.07.a PST.04.04.07.b
Discuss plasma arc safety.	10.1	Environ Science Process Standard 3.5 Chemistry 3.1; Biology 1.3, 2.1 Biology Process Standard 2.1	PST.04.04.07.a PST.04.04.07.b
<b>Unit 11 – Land Measurement &amp; Descriptions</b>			
Discuss the methods for measuring and converting units.	11.1	Math Process Standard 1.1, 2.1, 2.2, 4.1 Geometry Process Standard 1.2, 1.3 Environmental Science Process	ESS.06.01.01.a NRS.02.02.01.b
Explain common methods for determining the area of land.	11.2, 11.5	Math Process Standard, 1.1, 1.2, 4.1, 4.3 Geometry Process Standard 1.3 Geometry 2.2.a, 2.3.c, 2.3.d, 2.6.a	ESS.06.01.01.a NRS.02.02.01.b
Apply the formulas for calculating area.	11.2, 11.5	Enviro Science Process Standard 1.3 Geometry 2.6.a, 2.3.d, 3.1; Chemistry Process Standard 1.3; Math Process Standard 1.1, 1.2, 2.2, 4.1, 4.3, 4.4	ESS.06.01.01.a NRS.02.02.01.b
Describe the Public Land Survey System (PLSS).	11.3, 11.4, 11.5, 11.6	Math Process Standard 1.1, 1.2, 4.1, 5.3 Geometry 2.2.a, 2.3.c, 2.3.d	ESS.06.01.01.a NRS.02.02.01.b
Discuss various geospatial technologies.	11.3	Math Process Standard 1.1, 1.2, 2.3, 4.1, 5.3 Geometry 5.1, 5.2.a	ESS.06.01.01.a NRS.02.02.01.b