

NGSS Key:

LS = Life Science

ESS = Earth & Space Science

PS = Physical Science

ETS = Engineering, Technology, and Applications of Science

Basic Ag Science

Unit & Topics	NGSS Alignment
Unit 1: Foundations of Agriculture Topics: <ul style="list-style-type: none">• Human needs and agriculture's role• History of American agriculture• Agricultural practices and decision-making• Food safety and production systems• Introduction to agricultural careers	
Unit 2: Agriscience & Technology Topics: <ul style="list-style-type: none">• Definition of agriscience• Role of technology in agriculture• Scientific thinking and inquiry• Emerging issues in agriculture	NGSS Practices: (Scientific Thinking & Inquiry) <ul style="list-style-type: none">• Asking questions & defining problems• Planning & carrying out investigations• Analyzing & interpreting data• Using mathematics & computational thinking• Obtaining, evaluating, & communicating information
Unit 3: Natural Resources & Environmental Systems Topics: <ul style="list-style-type: none">• Natural resources in agriculture• Environmental stewardship• Pollution and waste management• Conservation practices	<ul style="list-style-type: none">• HS-ESS3-1• HS-ESS3-2• HS-LS2-5• HS-ESS3-3• HS-ESS3-4• HS-LS2-7
Unit 4: Agricultural Math & Measurement Topics: <ul style="list-style-type: none">• Measurement systems• Area, volume, and conversions	

<ul style="list-style-type: none"> ● Practical agricultural calculations 	
<p>Unit 5: Introduction to Life Science</p> <p>Topics:</p> <ul style="list-style-type: none"> ● Living vs. non-living ● Cell structure and function ● Basic genetics and heredity 	<ul style="list-style-type: none"> ● HS-LS1-1 ● HS-LS2-6 ● HS-LS1-2 ● HS-LS1-3 ● HS-LS3-1 ● HS-LS3-2
<p>Unit 6: Classification of Living Things</p> <p>Topics:</p> <ul style="list-style-type: none"> ● Taxonomy ● Plant classification systems 	<ul style="list-style-type: none"> ● HS-LS4-1 ● HS-LS4-2 ● HS-LS4-3 ● HS-LS4-4 ● HS-LS4-5
<p>Unit 7: Plant Science Basics</p> <p>Topics:</p> <ul style="list-style-type: none"> ● Plant structure and function ● Growth and development ● Plant reproduction basics 	<ul style="list-style-type: none"> ● HS-LS1-1 ● HS-LS1-5 ● HS-LS1-4 ● HS-LS1-3 ● HS-LS3-1 ● HS-LS3-2
<p>Unit 8: Plant Reproduction & Propagation</p> <p>Topics:</p> <ul style="list-style-type: none"> ● Sexual and asexual reproduction ● Seeds and germination ● Plant propagation techniques 	<ul style="list-style-type: none"> ● HS-LS3-1 ● HS-LS3-2 ● HS-LS1-4 ● HS-LS1-4 ● HS-LS1-5 ● HS-LS1-3 ● HS-LS1-1
<p>Unit 9: Plant Growth & Nutrition</p> <p>Topics:</p> <ul style="list-style-type: none"> ● Photosynthesis and respiration ● Plant hormones ● Nutrients and fertilizers 	<ul style="list-style-type: none"> ● HS-LS1-5 ● HS-LS1-7 ● HS-LS1-6 ● HS-LS1-3 ● HS-LS1-2 ● HS-LS1-1 ● HS-LS1-3 ● HS-LS2-5 ● HS-LS2-7
<p>Unit 10: Pest Management</p> <p>Topics:</p> <ul style="list-style-type: none"> ● Types of pests ● Integrated Pest Management (IPM) ● Pesticide safety 	<ul style="list-style-type: none"> ● HS-LS2-2 ● HS-LS2-6 ● HS-LS2-7 ● HS-ETS1-3

<p>Unit 11: Animal Science Basics</p> <p>Topics:</p> <ul style="list-style-type: none"> • Animal classification • Anatomy and physiology 	<ul style="list-style-type: none"> • HS-LS4-1 • HS-LS4-2 • HS-LS4-4
<p>Unit 12: Animal Nutrition</p> <p>Topics:</p> <ul style="list-style-type: none"> • Nutrient requirements • Feed types and management 	<ul style="list-style-type: none"> • HS-LS1-6 • HS-LS1-7 • HS-LS2-3 • HS-LS2-7 • HS-ETS1-3 • HS-LS1-2
<p>Unit 13: Animal Reproduction & Genetics</p> <p>Topics:</p> <ul style="list-style-type: none"> • Breeds and genetics • Breeding systems • Production systems 	<ul style="list-style-type: none"> • HS-LS3-1 • HS-LS3-2 • HS-LS4-2 • HS-LS3-3 • HS-ETS1-3 • HS-LS2-7 • HS-LS2-2
<p>Unit 14: Animal Health</p> <p>Topics:</p> <ul style="list-style-type: none"> • Disease types • Prevention and control • Environmental impacts on health 	<ul style="list-style-type: none"> • HS-LS1-2 • HS-LS1-3 • HS-LS3-1 • HS-LS2-8 • HS-ETS1-3 • HS-LS2-7 • HS-ESS3-4
<p>Unit 15: Agricultural Biotechnology</p> <p>Topics:</p> <ul style="list-style-type: none"> • History of biotechnology • Genetic engineering • Cell processes 	<ul style="list-style-type: none"> • HS-LS3-1 • HS-LS3-2 • HS-LS1-1 • HS-ETS1-3 • HS-LS1-6 • HS-LS1-7 • HS-LS1-5 • HS-LS1-3 • HS-LS1-2
<p>Unit 16: Earth & Atmospheric Science</p> <p>Topics:</p> <ul style="list-style-type: none"> • Earth's resources • Atmosphere and agriculture • Ecological succession 	<ul style="list-style-type: none"> • HS-ESS3-1 • HS-ESS3-2 • HS-ESS3-4 • HS-ESS2-6 • HS-LS1-5 • HS-LS2-5 • HS-LS2-6 • HS-LS2-2

	<ul style="list-style-type: none"> ● HS-LS2-7
Unit 17: Soil Science Topics: <ul style="list-style-type: none"> ● Soil composition and formation ● Soil properties (pH, water, nutrients) ● Land management practices 	<ul style="list-style-type: none"> ● HS-ESS2-5 ● HS-ESS2-1 ● HS-ESS3-1 ● HS-LS1-3 ● HS-LS2-5 ● HS-ESS3-3 ● HS-ESS3-4 ● HS-LS2-7
Unit 18: Agricultural Chemistry Topics: <ul style="list-style-type: none"> ● Matter and chemical reactions ● Acids, bases, and solutions 	<ul style="list-style-type: none"> ● HS-PS1-2 ● HS-PS1-5 ● HS-PS1-6
Unit 19: Agricultural Physics & Mechanics Topics: <ul style="list-style-type: none"> ● Energy and power ● Machinery and mechanical systems 	<ul style="list-style-type: none"> ● HS-PS2-2 ● HS-PS2-3 ● HS-PS2-5 ● HS-PS3-3 ● HS-PS3-4 ● HS-PS3-5
Unit 20: Agricultural Marketing Topics: <ul style="list-style-type: none"> ● Marketing functions ● Technology in marketing ● Agricultural economics basics 	
Unit 21: Agricultural Processing Topics: <ul style="list-style-type: none"> ● Food processing and preservation ● Fiber and wood products ● Safety and regulations 	<ul style="list-style-type: none"> ● HS-LS1-7 ● HS-LS2-7 ● HS-ETS1-2 ● HS-ETS1-3 ● HS-LS1-1 ● HS-ESS3-1 ● HS-ESS3-2 ● HS-ETS1-1 ● HS-ESS3-4
Unit 22: Agricultural Mechanics Topics: <ul style="list-style-type: none"> ● Mechanical operations in agriculture 	