



A national partnership
for excellence in agriculture
and education.

AFNR

Agriculture, Food, and Natural Resources

CAREER PATHWAY

CROSSWALK EXAMPLES

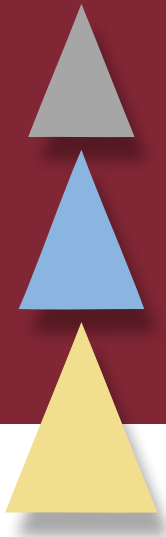


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Introduction

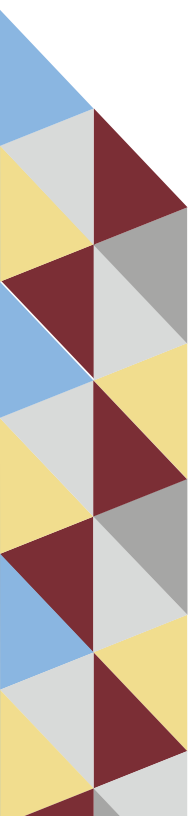
A goal of the 2024 revision of the Agriculture, Food and Natural Resource Career Cluster Content Standards was to identify strategies for encouraging the adoption and use of this body of work. In addition to the revisions to update the technical content and improve clarity and consistency, the AFNR content standards were also cross-walked with several key frameworks to assist with state and local implementation.

Standards in the following key frameworks were cross-walked to the performance indicators in the AFNR Career Cluster Content Standards:

- ▶ **Common Core English Language Arts & Literacy**
English Language Arts Standards. (2010, June 2). Retrieved January 3, 2025, from: <https://www.thecorestandards.org/ELA-Literacy/>.
- ▶ **Common Core Mathematics**
Mathematics Standards. (2010, June 2). Retrieved January 3, 2024, from: <https://corestandards.org/mathematics-standards/>.
- ▶ **Next Generation Science Standards**
DCI Arrangements of Standards | Next Generation Science Standards. (2013, November). Retrieved January 3, 2024, from: <https://www.nextgenscience.org/overview-dci>.
- ▶ **National Standards For Personal Financial Education**
National Standards For Personal Financial Education. New York: Council for Economic Education, 2021. Web. 3 Jan. 2024.

In order for a crosswalk to be established, the content of the cross-walked standard must be explicitly taught in order to attain the related Performance Indicator in the AFNR Content Standards given the stated sample measurements. Educators in the field of science, math and language arts reviewed and provided formative feedback on all crosswalks to help confirm their face validity.

The crosswalks identified are not a finite list of all potential crosswalks. They are based upon the sample measurements identified for each of the performance indicators. If states or local educators edit or add to the stated sample measurements to meet local needs or emphasize specific academic content additional crosswalks may be identified.



Foundational Pathway Skills



ALIGNMENT KEY:

- Common Core: English Language Arts/ Literacy Standards (ELA)
- Common Core Mathematics Standards (MATH)
- Next Generation Science Standards (NGSS)
- National Standards for Personal Financial Education (NSPFE)

FPS.01. Analyze how issues, trends, technologies and public policies impact systems in the Agriculture, Food & Natural Resources Career Cluster.
FPS.01.01. Research, examine, and discuss issues and trends that impact AFNR systems on local, state, national, and global levels.
ELA <ul style="list-style-type: none"> • CCSS.ELA-LITERACY.RI.11-12.7
FPS.01.02. Examine technologies and analyze their impact on AFNR systems.
ELA <ul style="list-style-type: none"> • CCSS.ELA-LITERACY.RST.9-10.9 • CCSS.ELA-LITERACY.RST.11-12.8 • CCSS.ELA-LITERACY.RST.11-12.9
FPS.01.03. Identify public policies and examine their impact on AFNR systems.
ELA <ul style="list-style-type: none"> • CCSS.ELA-LITERACY.RST.9-10.7

FPS.02. Evaluate the nature and scope of the Agriculture, Food & Natural Resources Career Cluster and the role of agriculture, food and natural resources (AFNR) in society and the economy.
FPS.02.01. Research and use geographic and economic data to solve problems in AFNR systems.
ELA <ul style="list-style-type: none"> • CCSS.ELA-LITERACY.RST.9-10.7 • CCSS.ELA-LITERACY.RST.11-12.5
MATH <ul style="list-style-type: none"> • CCSS.MATH.CONTENT.HSS.IC.B.6
FPS.02.02. Examine the impact of AFNR on the local, state, national, and global society and economy.
ELA <ul style="list-style-type: none"> • CCSS.ELA-LITERACY.W.9-10.9 • CCSS.ELA-LITERACY.W.11-12.9
MATH <ul style="list-style-type: none"> • CCSS.MATH.CONTENT.HSS.IC.B.6

FPS.03. Examine and summarize the importance of health, safety and environmental management systems in AFNR workplaces.

FPS.03.01. Identify and explain the implications of required regulations to maintain and improve safety, health, and environmental management systems.

- ELA
- CCSS.ELA-LITERACY.RST.11-12.7
 - CCSS.ELA-LITERACY.RST.11-12.8
 - CCSS.ELA-LITERACY.RST.11-12.9

FPS.03.02. Develop and implement a plan to maintain and improve health, safety, and environmental compliance and performance.

- ELA
- CCSS.ELA-LITERACY.RST.11-12.7
 - CCSS.ELA-LITERACY.RST.11-12.8
 - CCSS.ELA-LITERACY.RST.11-12.9

FPS.03.03. Apply health and safety practices to AFNR workplaces.

- ELA
- CCSS.ELA-LITERACY.W.9-10.9
 - CCSS.ELA-LITERACY.RST.11-12.7
 - CCSS.ELA-LITERACY.RST.11-12.8
 - CCSS.ELA-LITERACY.RST.11-12.9

FPS.03.04. Use appropriate protective equipment and demonstrate safe and proper use of AFNR tools and equipment.

- ELA
- CCSS.ELA-LITERACY.W.9-10.9
 - CCSS.ELA-LITERACY.RST.11-12.7
 - CCSS.ELA-LITERACY.RST.11-12.8
 - CCSS.ELA-LITERACY.RST.11-12.9

FPS.04. Demonstrate stewardship of natural resources in AFNR activities.

FPS.04.01. Identify and implement practices to steward natural resources in different AFNR systems.

- ELA
- CCSS.ELA-LITERACY.RST.11-12.8
 - CCSS.ELA-LITERACY.RST.11-12.9

FPS.04.02. Assess and explain the natural resource related trends, technologies and policies that impact AFNR systems.

- ELA
- CCSS.ELA-LITERACY.W.9-10.9
 - CCSS.ELA-LITERACY.W.11-12.9

- NGSS
- HS-ESS3-1

FPS.05. Describe career opportunities and means to achieve those opportunities in each of the Agriculture, Food & Natural Resources career pathways.

FPS.05.01. Evaluate and implement the steps and requirements to pursue a career opportunity in each of the AFNR career pathways (e.g., goals, degrees, certifications, resumes, cover letter, portfolios, interviews, etc.).

FPS.05.02. Examine and choose career opportunities that are matched to personal skills, talents, and career goals in an AFNR pathway of interest.

- NSPFE
- Earning Income 12-1
 - Earning Income 12-2

FPS.06. Analyze the interaction among AFNR systems in the production, processing and management of food, fiber and fuel and the sustainable use of natural resources.

FPS.06.01. Examine and explain foundational cycles and systems of AFNR.

- ELA
- CCSS.ELA-LITERACY.RI.9-10.1
 - CCSS.ELA-LITERACY.RI.9-10.2
 - CCSS.ELA-LITERACY.W.9-10.2
 - CCSS.ELA-LITERACY.W.9-10.7
 - CCSS.ELA-LITERACY.SL.9-10.4
 - CCSS.ELA-LITERACY.L.9-10.4
 - CCSS.ELA-LITERACY.RI.11-12.1
 - CCSS.ELA-LITERACY.RI.11-12.2
 - CCSS.ELA-LITERACY.W.11-12.2
 - CCSS.ELA-LITERACY.W.11-12.7
 - CCSS.ELA-LITERACY.SL.11-12.4
 - CCSS.ELA-LITERACY.L.11-12.4

FPS.07. Recognize the value of a Supervised Agricultural Experience (SAE) as Work-Based Learning.

FPS.07.01. Evaluate the value of an SAE.

- ELA
- CCSS.ELA-LITERACY.W.9-10.1
 - CCSS.ELA-LITERACY.W.9-10.2
 - CCSS.ELA-LITERACY.W.11-12.1
 - CCSS.ELA-LITERACY.W.11-12.2

FPS.07.02. Connect SAE involvement to lifelong learning and career skills.

- ELA
- CCSS.ELA-LITERACY.RI.9-10.7
 - CCSS.ELA-LITERACY.SL.9-10.4
 - CCSS.ELA-LITERACY.SL.11-12.4
 - CCSS.ELA-LITERACY.RI.11-12.7

- NSPFE
- Earning Income 12-3

FPS.07.03. Define and summarize the foundational and immersion SAEs and the relationship between the two.

- ELA
- CCSS.ELA-LITERACY.RI.9-10.1
 - CCSS.ELA-LITERACY.RI.9-10.2
 - CCSS.ELA-LITERACY.RI.11-12.1
 - CCSS.ELA-LITERACY.RI.11-12.2

FPS.08. Implement the components of a Foundational SAE.

FPS.08.01. Explore career opportunities and create a plan to prepare for a chosen career.

- ELA
- CCSS.ELA-LITERACY.RI.9-10.1
 - CCSS.ELA-LITERACY.RI.9-10.7
 - CCSS.ELA-LITERACY.W.9-10.7
 - CCSS.ELA-LITERACY.W.9-10.8
 - CCSS.ELA-LITERACY.RI.11-12.1
 - CCSS.ELA-LITERACY.RI.11-12.7
 - CCSS.ELA-LITERACY.W.11-12.7
 - CCSS.ELA-LITERACY.W.11-12.8

FPS.08.02. Develop employability skills needed to be successful in a chosen career field.

ELA

- CCSS.ELA-LITERACY.SL.9-10.1
- CCSS.ELA-LITERACY.SL.9-10.6
- CCSS.ELA-LITERACY.W.9-10.6
- CCSS.ELA-LITERACY.SL.11-12.1
- CCSS.ELA-LITERACY.SL.11-12.6
- CCSS.ELA-LITERACY.W.11-12.6

FPS.08.03. Engage in personal financial practices that lead to financial independence.

ELA

- CCSS.ELA-LITERACY.RI.9-10.1
- CCSS.ELA-LITERACY.RI.9-10.2
- CCSS.ELA-LITERACY.W.9-10.1
- CCSS.ELA-LITERACY.RI.11-12.1
- CCSS.ELA-LITERACY.RI.11-12.2
- CCSS.ELA-LITERACY.W.11-12.1

NSPFE

- Spending 12-1

FPS.08.04. Assess the importance of health and safety in the AFNR workplace.

ELA

- CCSS.ELA-LITERACY.RI.9-10.4
- CCSS.ELA-LITERACY.RI.9-10.8
- CCSS.ELA-LITERACY.W.9-10.9
- CCSS.ELA-LITERACY.RI.11-12.4
- CCSS.ELA-LITERACY.RI.11-12.8
- CCSS.ELA-LITERACY.W.11-12.9

FPS.08.05. Evaluate the nature and role that agriculture plays in society, the environment, and the economy.

ELA

- CCSS.ELA-LITERACY.RI.9-10.6
- CCSS.ELA-LITERACY.RI.9-10.9
- CCSS.ELA-LITERACY.W.9-10.3
- CCSS.ELA-LITERACY.RI.11-12.6
- CCSS.ELA-LITERACY.RI.11-12.9
- CCSS.ELA-LITERACY.W.11-12.3

NGSS

- HS-ESS3-1
- HS-ESS3-3
- HS-ESS3-6
- HS-LS2-5
- HS-LS2-7

FPS.09. Recognize the options within and participate in immersive supervised agricultural experiences.

FPS.09.01. Develop AFNR technical knowledge and skills through a personal immersion SAE.

ELA

- CCSS.ELA-LITERACY.RST.9-10.3
- CCSS.ELA-LITERACY.RST.9-10.4
- CCSS.ELA-LITERACY.WHST.9-10.2
- CCSS.ELA-LITERACY.WHST.9-10.7
- CCSS.ELA-LITERACY.RST.11-12.3
- CCSS.ELA-LITERACY.RST.11-12.4
- CCSS.ELA-LITERACY.WHST.11-12.2
- CCSS.ELA-LITERACY.WHST.11-12.7

FPS.09.02. Engage in record-keeping practices that promote financial literacy.

- ELA
- CCSS.ELA-LITERACY.RST.9-10.7
 - CCSS.ELA-LITERACY.WHST.9-10.8
 - CCSS.ELA-LITERACY.WHST.9-10.9
 - CCSS.ELA-LITERACY.SL.9-10.4
 - CCSS.ELA-LITERACY.RST.11-12.7
 - CCSS.ELA-LITERACY.WHST.11-12.8
 - CCSS.ELA-LITERACY.WHST.11-12.9
 - CCSS.ELA-LITERACY.SL.11-12.4

- NSPFE
- Spending 12-9

FPS.10. Analyze the history of the National FFA Organization and how this timeline has allowed the organization to remain relevant.

FPS.10.01. Evaluate the importance of key events within the organization's history.

- ELA
- CCSS.ELA-LITERACY.RH.9-10.1
 - CCSS.ELA-LITERACY.RH.9-10.2
 - CCSS.ELA-LITERACY.RH.9-10.3
 - CCSS.ELA-LITERACY.W.9-10.1
 - CCSS.ELA-LITERACY.W.9-10.2
 - CCSS.ELA-LITERACY.W.9-10.3
 - CCSS.ELA-LITERACY.W.11-12.1
 - CCSS.ELA-LITERACY.W.11-12.2
 - CCSS.ELA-LITERACY.W.11-12.3
 - CCSS.ELA-LITERACY.RH.11-12.1
 - CCSS.ELA-LITERACY.RH.11-12.2
 - CCSS.ELA-LITERACY.RH.11-12.3

FPS.11. Evaluate the structure and value of agricultural education.

FPS.11.01. Interpret the interaction of the three components of agricultural education.

- ELA
- CCSS.ELA-LITERACY.RI.9-10.1
 - CCSS.ELA-LITERACY.RI.9-10.3
 - CCSS.ELA-LITERACY.RI.9-10.7
 - CCSS.ELA-LITERACY.RI.11-12.1
 - CCSS.ELA-LITERACY.RI.11-12.3
 - CCSS.ELA-LITERACY.RI.11-12.7

FPS.11.02. Summarize the importance of classroom instruction within agricultural education.

- ELA
- CCSS.ELA-LITERACY.RI.9-10.2
 - CCSS.ELA-LITERACY.RI.9-10.4
 - CCSS.ELA-LITERACY.W.9-10.2
 - CCSS.ELA-LITERACY.RI.11-12.2
 - CCSS.ELA-LITERACY.RI.11-12.4
 - CCSS.ELA-LITERACY.W.11-12.2

FPS.11.03. Summarize the importance of the National FFA Organization within agricultural education.

- ELA
- CCSS.ELA-LITERACY.RI.9-10.5
 - CCSS.ELA-LITERACY.RI.9-10.8
 - CCSS.ELA-LITERACY.SL.9-10.4
 - CCSS.ELA-LITERACY.RI.11-12.5
 - CCSS.ELA-LITERACY.RI.11-12.8
 - CCSS.ELA-LITERACY.SL.11-12.4

FPS.11.04. Summarize the importance of Supervised Agricultural Experiences (SAE) within agricultural education.

- ELA
- CCSS.ELA-LITERACY.RI.9-10.6
 - CCSS.ELA-LITERACY.RI.9-10.9
 - CCSS.ELA-LITERACY.W.9-10.7
 - CCSS.ELA-LITERACY.RI.11-12.6
 - CCSS.ELA-LITERACY.RI.11-12.9
 - CCSS.ELA-LITERACY.W.11-12.7

FPS.12. Examine the key components providing directional leadership to the National FFA Organization.

FPS.12.01. Identify the importance of the FFA Creed.

- ELA
- CCSS.ELA-LITERACY.RI.9-10.1
 - CCSS.ELA-LITERACY.SL.9-10.4
 - CCSS.ELA-LITERACY.RI.11-12.1
 - CCSS.ELA-LITERACY.SL.11-12.4

FPS.12.02. Identify the importance of the FFA Emblem.

- ELA
- CCSS.ELA-LITERACY.RI.9-10.2
 - CCSS.ELA-LITERACY.SL.9-10.5
 - CCSS.ELA-LITERACY.RI.11-12.2
 - CCSS.ELA-LITERACY.SL.11-12.5

FPS.12.03. Identify the importance of the FFA Mission statement.

- ELA
- CCSS.ELA-LITERACY.RI.9-10.4
 - CCSS.ELA-LITERACY.SL.9-10.1
 - CCSS.ELA-LITERACY.RI.11-12.4
 - CCSS.ELA-LITERACY.SL.11-12.1

FPS.12.04. Identify the importance of a Program of Activities.

- ELA
- CCSS.ELA-LITERACY.RI.9-10.3
 - CCSS.ELA-LITERACY.SL.9-10.6
 - CCSS.ELA-LITERACY.RI.11-12.3
 - CCSS.ELA-LITERACY.SL.11-12.6

FPS.13. Analyze the structures and procedures to effectively and professionally run and manage a meeting.

FPS.13.01. Utilize parliamentary resources to solve problems of organizational management and operations.

- ELA
- CCRA.SL.9-10.1
 - CCRA.SL.9-10.3
 - CCRA.SL.9-10.4
 - CCRA.SL.9-10.6
 - CCRA.W.9-10.1
 - CCRA.W.9-10.4
 - CCRA.W.9-10.5
 - CCRA.L.9-10.3
 - CCRA.SL.11-12.1
 - CCRA.SL.11-12.3
 - CCRA.SL.11-12.4
 - CCRA.SL.11-12.6
 - CCRA.W.11-12.1
 - CCRA.W.11-12.4
 - CCRA.W.11-12.5
 - CCRA.L.11-12.3

FPS.13.02. Present a logical, realistic, and convincing debate on motions.

ELA

- CCRA.SL.9-10.1
- CCRA.SL.9-10.3
- CCRA.SL.9-10.4
- CCRA.SL.9-10.6
- CCRA.W.9-10.1
- CCRA.W.9-10.4
- CCRA.W.9-10.5
- CCRA.L.9-10.3
- CCRA.SL.11-12.1
- CCRA.SL.11-12.3
- CCRA.SL.11-12.4
- CCRA.SL.11-12.6
- CCRA.W.11-12.1
- CCRA.W.11-12.4
- CCRA.W.11-12.5
- CCRA.L.11-12.3

FPS.13.03. Evaluate agendas, minutes, constitutions, bylaws, and other organizational documents.

ELA

- CCRA.SL.9-10.1
- CCRA.SL.9-10.3
- CCRA.SL.9-10.4
- CCRA.SL.9-10.6
- CCRA.W.9-10.1
- CCRA.W.9-10.4
- CCRA.W.9-10.5
- CCRA.L.9-10.3
- CCRA.SL.11-12.1
- CCRA.SL.11-12.3
- CCRA.SL.11-12.4
- CCRA.SL.11-12.6
- CCRA.W.11-12.1
- CCRA.W.11-12.4
- CCRA.W.11-12.5
- CCRA.L.11-12.3

FPS.14. Evaluate opportunities to develop leadership, citizenship, and career skills.

FPS.14.01. Evaluate the importance and value of leadership skills.

- ELA
- CCSS.ELA-LITERACY.RI.9-10.1
 - CCSS.ELA-LITERACY.RI.9-10.2
 - CCSS.ELA-LITERACY.RI.9-10.3
 - CCSS.ELA-LITERACY.SL.9-10.1
 - CCSS.ELA-LITERACY.SL.9-10.4
 - CCSS.ELA-LITERACY.SL.9-10.5

FPS.14.02. Evaluate the importance and value of citizenship skills.

- ELA
- CCSS.ELA-LITERACY.RI.11-12.1
 - CCSS.ELA-LITERACY.RI.11-12.2
 - CCSS.ELA-LITERACY.RI.11-12.3
 - CCSS.ELA-LITERACY.SL.11-12.1
 - CCSS.ELA-LITERACY.SL.11-12.4
 - CCSS.ELA-LITERACY.SL.11-12.5

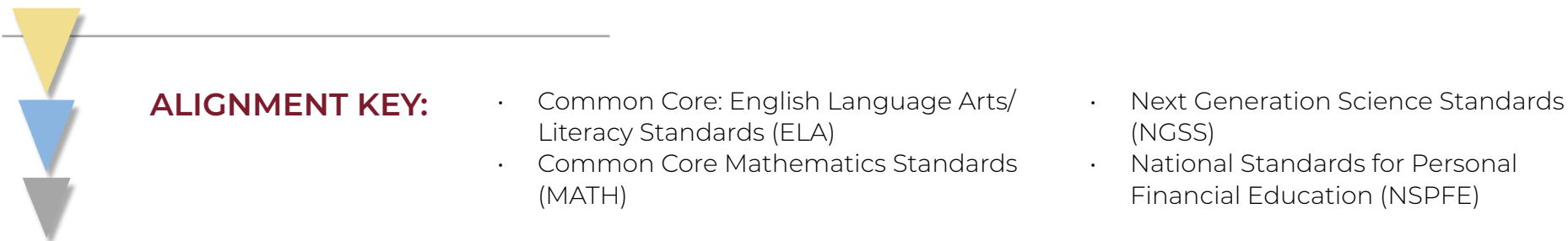
FPS.14.03. Evaluate the importance and value of career skills.

- ELA
- CCSS.ELA-LITERACY.RI.9-10.4
 - CCSS.ELA-LITERACY.RI.9-10.7
 - CCSS.ELA-LITERACY.SL.9-10.2
 - CCSS.ELA-LITERACY.SL.11-12.2
 - CCSS.ELA-LITERACY.RI.11-12.4
 - CCSS.ELA-LITERACY.RI.11-12.7

FPS.14.04. Connect opportunities in leadership, citizenship, and career skills to student development.

- ELA
- CCSS.ELA-LITERACY.W.9-10.1
 - CCSS.ELA-LITERACY.W.9-10.2
 - CCSS.ELA-LITERACY.SL.9-10.6
 - CCSS.ELA-LITERACY.SL.11-12.6
 - CCSS.ELA-LITERACY.W.11-12.1
 - CCSS.ELA-LITERACY.W.11-12.2

Agribusiness Systems



ABS.01. Apply management planning principles in AFNR businesses.	
ABS.01.01 Apply economic principles to plan and manage inputs and outputs in an AFNR business.	
ELA	<ul style="list-style-type: none"> • CCSS.ELA-LITERACY.L.9-10.6 • CCSS.ELA-LITERACY.RST.9-10.4 • CCSS.ELA-LITERACY.RST.11-12.4 • CCSS.ELA-LITERACY.W.9-10.9 • CCSS.ELA-LITERACY.W.11-12.9
MATH	<ul style="list-style-type: none"> • CCSS.MATH.CONTENT.HSS.ID.C.7 • CCSS.MATH.CONTENT.HSS.IC.B.6 • CCSS.MATH.CONTENT.HSF.IF.B.4
NSPFE	<ul style="list-style-type: none"> • Investing 12-5
ABS.01.02 Evaluate and create statements of purpose and business goals for AFNR businesses.	

ELA	<ul style="list-style-type: none"> • CCSS.ELA-LITERACY.W.9-10.2 • CCSS.ELA-LITERACY.W.11-12.2 • CCSS.ELA-LITERACY.W.9-10.9 • CCSS.ELA-LITERACY.W.11-12.9 • CCSS.ELA-LITERACY.RI.9-10.4 • CCSS.ELA-LITERACY.RI.11-12.4
ABS.01.03. Develop and apply skills to manage an AFNR business in an efficient, legal, and ethical manner.	
ELA	<ul style="list-style-type: none"> • CCSS.ELA-LITERACY.SL.9-10.6 • CCSS.ELA-LITERACY.SL.11-12.6 • CCSS.ELA-LITERACY.L.9-10.6 • CCSS.ELA-LITERACY.L.11-12.6 • CCSS.ELA-LITERACY.RST.9-10.4 • CCSS.ELA-LITERACY.RST.11-12.4 • CCSS.ELA-LITERACY.W.9-10.9 • CCSS.ELA-LITERACY.W.11-12.9
NSPFE	<ul style="list-style-type: none"> • Earning Income 12-11

ABS.01.04 Evaluate, develop, and implement procedures used to recruit, train, and retain productive human resources for AFNR businesses.

ELA

- CCSS.ELA-LITERACY.W.9-10.2
- CCSS.ELA-LITERACY.W.11-12.2
- CCSS.ELA-LITERACY.W.9-10.9
- CCSS.ELA-LITERACY.W.11-12.9
- CCSS.ELA-LITERACY.SL.9-10.6
- CCSS.ELA-LITERACY.SL.11-12.6
- CCSS.ELA-LITERACY.RI.9-10.4
- CCSS.ELA-LITERACY.RI.11-12.4
- CCSS.ELA-LITERACY.L.9-10.6
- CCSS.ELA-LITERACY.L.11-12.6
- CCSS.ELA-LITERACY.RST.9-10.4
- CCSS.ELA-LITERACY.RST.11-12.4

NSPFE

- Earning Income 12-1
- Earning Income 12-2
- Earning Income 12-3
- Earning Income 12-4
- Earning Income 12-11

ABS.02. Use record keeping to accomplish AFNR business objectives, manage budgets and comply with laws and regulations.

ABS.02.01 Apply fundamental accounting principles, systems, tools, and applicable laws and regulations to record, track, and audit AFNR business transactions (e.g., accounts, debits, credits, assets, liabilities, equity, etc.).

ELA

- CCSS.ELA-LITERACY.W.9-10.9
- CCSS.ELA-LITERACY.W.11-12.9
- CCSS.ELA-LITERACY.RH.9-10.7
- CCSS.ELA-LITERACY.RH.11-12.7

NSPFE

- Earning Income: Benchmarks: Grade 12, Statements 7
- Earning Income: Benchmarks: Grade 12, Statements 8

ABS.02.02 Assemble, interpret, and analyze financial information and reports to monitor AFNR business performance and support decision-making (e.g., income statements, balance sheets, cash-flow analysis, inventory reports, break-even analysis, return on investment, taxes, etc.).

- ELA
- CCSS.ELA-LITERACY.W.9-10.9
 - CCSS.ELA-LITERACY.W.11-12.9
 - CCSS.ELA-LITERACY.RH.9-10.7
 - CCSS.ELA-LITERACY.RH.11-12.7

- MATH
- CCSS.MATH.CONTENT.HSS.ID.C.7
 - CCSS.MATH.CONTENT.HSS.IC.B.6
 - CCSS.MATH.CONTENT.HSN.Q.A.1
 - CCSS.MATH.CONTENT.HSF.IF.B.4
 - CCSS.MATH.CONTENT.HSF.IF.B.6

- NSPFE
- Saving 12-1
 - Saving 12-6
 - Saving 12-8
 - Spending 12-5
 - Spending 12-9

ABS.03. Manage cash budgets, credit budgets and credit for an AFNR business using generally accepted accounting principles.

ABS.03.01 Manage cash budgets, assets, Employment Tax Incentive opportunities for credits, loans, etc. to achieve AFNR business goals.

- ELA
- CCSS.ELA-LITERACY.RH.9-10.7
 - CCSS.ELA-LITERACY.RH.11-12.7
 - CCSS.ELA-LITERACY.L.9-10.6
 - CCSS.ELA-LITERACY.L.11-12.6
 - CCSS.ELA-LITERACY.RST.9-10.4
 - CCSS.ELA-LITERACY.RST.11-12.4
 - CCSS.ELA-LITERACY.W.9-10.9
 - CCSS.ELA-LITERACY.W.11-12.9

- MATH
- CCSS.MATH.CONTENT.HSS.IC.B.6
 - CCSS.MATH.CONTENT.HSN.Q.A.1

- NSPFE
- Spending 12-1
 - Earning Income 12-9
 - Credit 12-1
 - Credit 12-2
 - Credit 12-6
 - Credit 12-7
 - Credit 12-8

ABS.03.02 Analyze credit needs and manage credit budgets to achieve AFNR business goals.

ELA

- CCSS.ELA-LITERACY.L.9-10.6
- CCSS.ELA-LITERACY.L.11-12.6
- CCSS.ELA-LITERACY.RST.9-10.4
- CCSS.ELA-LITERACY.RST.11-12.4

MATH

- CCSS.MATH.CONTENT.HSS.IC.B.6

NSPFE

- Spending 12-1
- Earning Income 12-9
- Credit 12-1
- Credit 12-2
- Credit 12-6
- Credit 12-7
- Credit 12-8

ABS.04. Develop a business plan for an AFNR business.

ABS.04.01 Analyze characteristics and planning requirements associated with developing business plans for different types of AFNR businesses.

ELA

- CCSS.ELA-LITERACY.L.9-10.6
- CCSS.ELA-LITERACY.L.11-12.6
- CCSS.ELA-LITERACY.RST.9-10.4
- CCSS.ELA-LITERACY.RST.11-12.4
- CCSS.ELA-LITERACY.W.9-10.2
- CCSS.ELA-LITERACY.W.11-12.2
- CCSS.ELA-LITERACY.W.9-10.9
- CCSS.ELA-LITERACY.W.11-12.9

NSPFE

- Spending 12-1
- Spending 12-2
- ABS.04.02 Develop production and operational plans for an AFNR business.

ELA

- CCSS.ELA-LITERACY.ELA-W.9-10.2
- CCSS.ELA-LITERACY.W.11-12.2
- CCSS.ELA-LITERACY.L.9-10.6
- CCSS.ELA-LITERACY.L.11-12.6
- CCSS.ELA-LITERACY.RST.9-10.4
- CCSS.ELA-LITERACY.RST.11-12.4
- CCSS.ELA-LITERACY.W.9-10.9
- CCSS.ELA-LITERACY.W.11-12.9

ABS.04.03 Identify and apply strategies to manage or mitigate risk.

NSPFE

- Managing Risk 12-1
- Managing Risk 12-2
- Managing Risk 12-3
- Managing Risk 12-4
- Managing Risk 12-5
- Managing Risk 12-6
- Managing Risk 12-7
- Managing Risk 12-8
- Managing Risk 12-9
- Managing Risk 12-10
- Managing Risk 12-11
- Managing Risk 12-12

ABS.05. Use sales and marketing principles to accomplish AFNR business objectives.

ABS.05.01 Determine the role of markets, trade, competition, and price in relation to an AFNR business sales and marketing plans.

ELA

- CCSS.ELA-LITERACY.L.9-10.6
- CCSS.ELA-LITERACY.L.11-12.6
- CCSS.ELA-LITERACY.RST.9-10.4
- CCSS.ELA-LITERACY.RST.11-12.4
- CCSS.ELA-LITERACY.W.9-10.2
- CCSS.ELA-LITERACY.W.11-12.2
- CCSS.ELA-LITERACY.W.9-10.9
- CCSS.ELA-LITERACY.W.11-12.9

MATH

- CCSS.MATH.CONTENT.HSF.IF.B.4
- CCSS.MATH.CONTENT.HSF.IF.B.5
- CCSS.MATH.CONTENT.HSF.IF.B.6
- CCSS.MATH.CONTENT.HSS.IC.B.6

NSPFE

- Saving 12-2
- Investing 12-5
- Investing 12-13

ABS.05.02 Assess and apply sales principles and skills to accomplish AFNR business objectives.

ELA

- CCSS.ELA-LITERACY.SL.9-10.6
- CCSS.ELA-LITERACY.SL.11-12.6
- CCSS.ELA-LITERACY.RH.9-10.7
- CCSS.ELA-LITERACY.RH.11-12.7

ABS.05.03. Assess marketing principles and develop marketing plans to accomplish AFNR business objectives.

ELA

- CCSS.ELA-LITERACY.L.9-10.6
- CCSS.ELA-LITERACY.L.11-12.6
- CCSS.ELA-LITERACY.RST.9-10.4
- CCSS.ELA-LITERACY.RST.11-12.4
- CCSS.ELA-LITERACY.W.9-10.2
- CCSS.ELA-LITERACY.W.11-12.2
- CCSS.ELA-LITERACY.RH.9-10.7
- CCSS.ELA-LITERACY.RH.11-12.7
- CCSS.ELA-LITERACY.SL.9-10.6
- CCSS.ELA-LITERACY.SL.11-12.6

NSPFE

- Spending 12-5

Animal Systems



ALIGNMENT KEY:

- Common Core: English Language Arts/Literacy Standards (ELA)
- Common Core Mathematics Standards (MATH)
- Next Generation Science Standards (NGSS)
- National Standards for Personal Financial Education (NSPFE)

AS.01. Analyze historic and current trends impacting the animal systems industry.

AS.01.01 Evaluate the development and implications of animal origin, domestication, and distribution on production practices and the environment.

NGSS
 • HS-LS4-3

AS.01.02 Assess and select animal production, marketing, and management methods based upon effectiveness and potential social and environmental impacts.

ELA
 • CCSS.ELA-LITERACY.W.9-10.2
 • CCSS.ELA-LITERACY.W.11-12.2
 • CCSS.ELA-LITERACY.W.9-10.9
 • CCSS.ELA-LITERACY.W.11-12.9

MATH
 • CCSS.MATH.CONTENT.HSF.IF.B.4
 • CCSS.MATH.CONTENT.HSA.CED.A.2

AS.01.03 Analyze laws and sustainable practices that impact animal agriculture from a local, tribal, state, national, and global perspective.

ELA
 • CCSS.ELA-LITERACY.W.9-10.2
 • CCSS.ELA-LITERACY.W.11-12.2
 • CCSS.ELA-LITERACY.W.9-10.9
 • CCSS.ELA-LITERACY.W.11-12.9

NGSS
 • HS-ETS1-1

AS.02. Utilize best-practice protocols based upon animal behaviors for animal husbandry and welfare.

AS.02.01. Explain management techniques that ensure animal welfare.

ELA
 • CCSS.ELA-LITERACY.W.9-10.2
 • CCSS.ELA-LITERACY.W.11-12.2
 • CCSS.ELA-LITERACY.W.9-10.9
 • CCSS.ELA-LITERACY.W.11-12.9

NGSS <ul style="list-style-type: none"> HS-ETS1-2
AS.02.02 Analyze procedures to ensure that animal products are safe for consumption.
ELA <ul style="list-style-type: none"> CCSS.ELA-LITERACY.W.9-10.2 CCSS.ELA-LITERACY.W.11-12.2 CCSS.ELA-LITERACY.W.9-10.9 CCSS.ELA-LITERACY.W.11-12.9
NGSS <ul style="list-style-type: none"> HS-ETS1-2
AS.03. Design and provide proper animal nutrition to achieve desired outcomes for performance, development, reproduction and/or economic production.
AS.03.01 Analyze the nutritional needs of animals.
ELA <ul style="list-style-type: none"> CCSS.ELA- LITERACY.L.9-10.6 CCSS.ELA-LITERACY. L.11-12.6 CCSS.ELA-LITERACY.W.9-10.2 CCSS.ELA-LITERACY.W.11-12.2 CCSS.ELA-LITERACY.W.9-10.9 CCSS.ELA-LITERACY.W.11-12.9
AS.03.02 Analyze feed rations and assess if they meet the nutritional needs of animals.
ELA <ul style="list-style-type: none"> CCSS.ELA- LITERACY.L.9-10.6 CCSS.ELA-LITERACY. L.11-12.6 CCSS.ELA-LITERACY.W.9-10.2 CCSS.ELA-LITERACY.W.11-12.2 CCSS.ELA-LITERACY.W.9-10.9 CCSS.ELA-LITERACY.W.11-12.9

AS.03.03 Utilize tools, equipment, techniques, and technology to make animal nutrition decisions.
ELA <ul style="list-style-type: none"> CCSS.ELA- LITERACY.L.9-10.6 CCSS.ELA-LITERACY. L.11-12.6 CCSS.ELA-LITERACY.W.9-10.2 CCSS.ELA-LITERACY.W.11-12.2 CCSS.ELA-LITERACY.W.9-10.9 CCSS.ELA-LITERACY.W.11-12.9
AS.04. Apply principles of animal reproduction to achieve desired outcomes for performance, development and/or economic production.
AS.04.01 Evaluate animals for breeding readiness and soundness.
ELA <ul style="list-style-type: none"> CCSS.ELA- LITERACY.L.9-10.6 CCSS.ELA-LITERACY. L.11-12.6 CCSS.ELA-LITERACY.W.9-10.2 CCSS.ELA-LITERACY.W.11-12.2 CCSS.ELA-LITERACY.W.9-10.9 CCSS.ELA-LITERACY.W.11-12.9
AS.04.02 Apply scientific principles to select and care for breeding animals.
ELA <ul style="list-style-type: none"> CCSS.ELA- LITERACY.L.9-10.6 CCSS.ELA-LITERACY. L.11-12.6 CCSS.ELA-LITERACY.W.9-10.2 CCSS.ELA-LITERACY.W.11-12.2 CCSS.ELA-LITERACY.W.9-10.9 CCSS.ELA-LITERACY.W.11-12.9
MATH <ul style="list-style-type: none"> CCSS.MATH.CONTENT.HSS.MD.A.3

<p>NGSS</p> <ul style="list-style-type: none"> • HS-LS3-2 • HS-LS3-3
<p>AS.04.03 Apply scientific principles to animal breeding.</p>
<p>ELA</p> <ul style="list-style-type: none"> • CCSS.ELA- LITERACY.L.9-10.6 • CCSS.ELA-LITERACY. L.11-12.6 • CCSS.ELA-LITERACY.W.9-10.2 • CCSS.ELA-LITERACY.W.11-12.2 • CCSS.ELA-LITERACY.W.9-10.9 • CCSS.ELA-LITERACY.W.11-12.9
<p>MATH</p> <ul style="list-style-type: none"> • CCSS.MATH.CONTENT.HSN.Q.A.1
<p>AS.05. Evaluate environmental factors affecting animal performance and implement procedures for enhancing performance and animal health.</p>
<p>AS.05.01 Design and evaluate animal housing, equipment, and handling facilities for the major systems of animal production.</p>
<p>ELA</p> <ul style="list-style-type: none"> • CCSS.ELA- LITERACY.L.9-10.6 • CCSS.ELA-LITERACY. L.11-12.6 • CCSS.ELA-LITERACY.W.9-10.2 • CCSS.ELA-LITERACY.W.11-12.2 • CCSS.ELA-LITERACY.W.9-10.9 • CCSS.ELA-LITERACY.W.11-12.9
<p>AS.05.02 Comply with government regulations and safety standards for facilities used in animal production.</p>

<p>ELA</p> <ul style="list-style-type: none"> • CCSS.ELA- LITERACY.L.9-10.6 • CCSS.ELA-LITERACY. L.11-12.6 • CCSS.ELA-LITERACY.W.9-10.2 • CCSS.ELA-LITERACY.W.11-12.2 • CCSS.ELA-LITERACY.W.9-10.9 • CCSS.ELA-LITERACY.W.11-12.9
<p>AS.06. Classify, evaluate and select animals based on anatomical and physiological characteristics.</p>
<p>AS.06.01 Classify animals according to taxonomic classification systems and use (e.g., agricultural, companion, etc.).</p>
<p>ELA</p> <ul style="list-style-type: none"> • CCSS.ELA- LITERACY.L.9-10.6 • CCSS.ELA-LITERACY. L.11-12.6 • CCSS.ELA-LITERACY.W.9-10.2 • CCSS.ELA-LITERACY.W.11-12.2 • CCSS.ELA-LITERACY.W.9-10.9 • CCSS.ELA-LITERACY.W.11-12.9 • CCSS.ELA-LITERACY.RH.9-10.7 • CCSS.ELA-LITERACY.RH.11-12.7
<p>AS.06.02 Apply principles of comparative anatomy and physiology to uses within various animal systems.</p>
<p>ELA</p> <ul style="list-style-type: none"> • CCSS.ELA- LITERACY.L.9-10.6 • CCSS.ELA-LITERACY. L.11-12.6 • CCSS.ELA-LITERACY.W.9-10.2 • CCSS.ELA-LITERACY.W.11-12.2 • CCSS.ELA-LITERACY.W.9-10.9 • CCSS.ELA-LITERACY.W.11-12.9 • CCSS.ELA-LITERACY.RH.9-10.7 • CCSS.ELA-LITERACY.RH.11-12.7
<p>NGSS</p> <ul style="list-style-type: none"> • HS-LS1-2

AS.06.03 Select animals for specific purposes and maximum performance based on anatomy and physiology.

- ELA
- CCSS.ELA- LITERACY.L.9-10.6
 - CCSS.ELA-LITERACY. L.11-12.6
 - CCSS.ELA-LITERACY.W.9-10.2
 - CCSS.ELA-LITERACY.W.11-12.2
 - CCSS.ELA-LITERACY.W.9-10.9
 - CCSS.ELA-LITERACY.W.11-12.9
 - CCSS.ELA-LITERACY.RH.9-10.7
 - CCSS.ELA-LITERACY.RH.11-12.7

AS.07. Apply principles of effective animal health care.

AS.07.01 Design programs to prevent animal diseases, parasites, and other disorders and ensure animal welfare.

- ELA
- CCSS.ELA- LITERACY.L.9-10.6
 - CCSS.ELA-LITERACY. L.11-12.6
 - CCSS.ELA-LITERACY.W.9-10.2
 - CCSS.ELA-LITERACY.W.11-12.2
 - CCSS.ELA-LITERACY.W.9-10.9
 - CCSS.ELA-LITERACY.W.11-12.9

- MATH
- CCSS.MATH.CONTENT.HSN.Q.A.1
 - CCSS.MATH.CONTENT.HSN.Q.A.2
 - CCSS.MATH.CONTENT.HSN.Q.A.3
 - CCSS.MATH.CONTENT.HSS.IC.B.6

AS.07.02 Analyze biosecurity measures utilized to protect the welfare of animals and health of humans on a local, state, national, and global level.

- ELA
- CCSS.ELA- LITERACY.L.9-10.6
 - CCSS.ELA-LITERACY. L.11-12.6
 - CCSS.ELA-LITERACY.W.9-10.2
 - CCSS.ELA-LITERACY.W.11-12.2
 - CCSS.ELA-LITERACY.W.9-10.9
 - CCSS.ELA-LITERACY.W.11-12.9

AS.08. Analyze environmental factors associated with animal production.

AS.08.01 Design management practices related to animal agriculture to enhance the environment.

- ELA
- CCSS.ELA- LITERACY.L.9-10.6
 - CCSS.ELA-LITERACY. L.11-12.6
 - CCSS.ELA-LITERACY.W.9-10.2
 - CCSS.ELA-LITERACY.W.11-12.2
 - CCSS.ELA-LITERACY.W.9-10.9
 - CCSS.ELA-LITERACY.W.11-12.9
 - CCSS.ELA-LITERACY.RH.9-10.7
 - CCSS.ELA-LITERACY.RH.11-12.7

- NGSS
- HS-LS2-6
 - HS-LS2-7

AS.08.02 Evaluate the effects of environmental conditions on animals.

- ELA
- CCSS.ELA- LITERACY.L.9-10.6
 - CCSS.ELA-LITERACY. L.11-12.6
 - CCSS.ELA-LITERACY.W.9-10.2
 - CCSS.ELA-LITERACY.W.11-12.2
 - CCSS.ELA-LITERACY.W.9-10.9
 - CCSS.ELA-LITERACY.W.11-12.9
 - CCSS.ELA-LITERACY.RH.9-10.7
 - CCSS.ELA-LITERACY.RH.11-12.7

Biotechnology Systems



ALIGNMENT KEY:

- Common Core: English Language Arts/Literacy Standards (ELA)
- Common Core Mathematics Standards (MATH)
- Next Generation Science Standards (NGSS)
- National Standards for Personal Financial Education (NSPFE)

BS.01. Assess factors that have influenced the evolution of biotechnology in agriculture (e.g., scientific technologies, historical events, societal trends, ethical and legal implications, etc.).

BS.01.01 Investigate and explain the relationships in the timeline of developing biotechnology applications and techniques in agriculture (e.g., major innovators, historical developments, potential applications of biotechnology, etc.).

- ELA
- CCSS.ELA-LITERACY.W.9-10.2
 - CCSS.ELA-LITERACY.W.11-12.2
 - CCSS.ELA-LITERACY.W.9-10.9
 - CCSS.ELA-LITERACY.W.11-12.9

BS.01.02 Evaluate the roles, scope, and implications of regulatory agencies on applications of biotechnology in agriculture and the protection of public interests (e.g., health, safety, environmental issues, etc.).

ELA

- CCSS.ELA-LITERACY.RST.9-10.1
- CCSS.ELA-LITERACY.RST.11-12.1
- CCSS.ELA-LITERACY.W.9-10.2
- CCSS.ELA-LITERACY.W.11-12.2
- CCSS.ELA-LITERACY.W.9-10.9
- CCSS.ELA-LITERACY.W.11-12.9

BS.01.03 Analyze the relationship and implications of bioethics, laws, and public perceptions on applications of biotechnology in agriculture (e.g., ethical, legal, social, cultural issues).

ELA

- CCSS.ELA-LITERACY.RST.9-10.1
- CCSS.ELA-LITERACY.RST.11-12.1
- CCSS.ELA-LITERACY.W.9-10.2
- CCSS.ELA-LITERACY.W.11-12.2
- CCSS.ELA-LITERACY.W.9-10.9
- CCSS.ELA-LITERACY.W.11-12.9

BS.03. Demonstrate the application of biotechnology to solve problems in Agriculture, Food and Natural Resources (AFNR) systems (e.g., bioengineering, food processing, waste management, horticulture, forestry, livestock, crops, etc.).

BS.03.01 Apply biotechnology principles, techniques, and processes to modify a species.

- ELA
- CCSS.ELA-LITERACY.RI.9-10.1
 - CCSS.ELA-LITERACY.RI.11-12.1
 - CCSS.ELA-LITERACY.RST.9-10.3
 - CCSS.ELA-LITERACY.RST.11-12.3

- NGSS
- HS-LS3-2

BS.03.02 Apply biotechnology principles, techniques, and processes to enhance the production of food through the use of microorganisms and enzymes.

- ELA
- CCSS.ELA-LITERACY.RI.9-10.1
 - CCSS.ELA-LITERACY.RI.11-12.1
 - CCSS.ELA-LITERACY.RST.9-10.3
 - CCSS.ELA-LITERACY.RST.11-12.3

BS.03.03 Apply biotechnology principles, techniques, and processes to protect the environment and maximize use of natural resources (e.g., biomass, bioprospecting, industrial biotechnology, etc.).

- ELA
- CCSS.ELA-LITERACY.RI.9-10.1
 - CCSS.ELA-LITERACY.RI.11-12.1
 - CCSS.ELA-LITERACY.RST.9-10.3
 - CCSS.ELA-LITERACY.RST.11-12.3

- NGSS
- HS-LS2-7
 - HS-LS4-6

BS.03.04 Apply biotechnology principles, techniques, and processes to enhance plant and animal care and production (e.g., selective breeding, pharmaceuticals, biodiversity, etc.).

- ELA
- CCSS.ELA-LITERACY.RI.9-10.1
 - CCSS.ELA-LITERACY.RI.11-12.1
 - CCSS.ELA-LITERACY.RST.9-10.3
 - CCSS.ELA-LITERACY.RST.11-12.3

- NGSS
- HS-LS4-6

BS.03.05 Apply biotechnology principles, techniques, and processes to produce bioproducts (e.g., fermentation, transesterification, methanogenesis, etc.).

- ELA
- CCSS.ELA-LITERACY.RI.9-10.1
 - CCSS.ELA-LITERACY.RI.11-12.1
 - CCSS.ELA-LITERACY.RST.9-10.3
 - CCSS.ELA-LITERACY.RST.11-12.3

BS.03.06 Apply biotechnology principles, techniques, and processes to improve waste management (e.g., genetically modified organisms, bioremediation, etc.).

- ELA
- CCSS.ELA-LITERACY.RI.9-10.1
 - CCSS.ELA-LITERACY.RI.11-12.1
 - CCSS.ELA-LITERACY.RST.9-10.3
 - CCSS.ELA-LITERACY.RST.11-12.3

BS.02. Demonstrate proficiency by safely applying appropriate laboratory skills to complete tasks in a biotechnology research and development environment (e.g., standard operating procedures, record keeping, aseptic technique, equipment maintenance, etc.).

BS.02.01 Read, document, evaluate, and secure accurate laboratory records of experimental protocols, observations, and results.

- ELA
- CCSS.ELA-LITERACY.RST.9-10.1
 - CCSS.ELA-LITERACY.RST.11-12.1
 - CCSS.ELA-LITERACY.RST.9-10.3
 - CCSS.ELA-LITERACY.RST.11-12.3

BS.02.02 Identify and apply standard laboratory procedures and equipment maintenance to create and maintain reliable data.

BS.02.03 Apply standard operating procedures for the safe handling of biological and chemical materials in a laboratory.

BS.02.04 Safely manage and dispose of biological materials, chemicals, and wastes according to standard operating procedures.

- ELA
- CCSS.ELA-Literacy.RST.9-10.4
 - CCSS.ELA-Literacy.RST.11-12.4

BS.02.05 Examine and perform scientific procedures using microbes, DNA, RNA and proteins in a laboratory.

- ELA
- CCSS.ELA-Literacy.RST.9-10.3
 - CCSS.ELA-Literacy.RST.11-12.3

- NGSS
- HS-LS3-1
 - HS-LS3-3

Education, Communication, and Leadership



ALIGNMENT KEY:

- Common Core: English Language Arts/Literacy Standards (ELA)
- Common Core Mathematics Standards (MATH)
- Next Generation Science Standards (NGSS)
- National Standards for Personal Financial Education (NSPFE)

ECL.01. Evaluate the effectiveness of various communication strategies with related methods and platforms used by organizations across AFNR industries.

ECL.01.01. Identify the methods and characteristics of effective verbal, nonverbal, written, and visual communication.

- ELA
- CCSS.ELA-LITERACY.RST.9-10.2
 - CCSS.ELA-LITERACY.RST.11-12.2
 - CCSS.ELA-LITERACY.RST.11-12.7
 - CCSS.ELA-LITERACY.RST.9-10.8
 - CCSS.ELA-LITERACY.RST.11-12.8
 - CCSS.ELA-LITERACY.SL.9-10.4
 - CCSS.ELA-LITERACY.SL.11-12.4

ECL.01.02. Analyze the use of verbal, nonverbal, written, and visual communication platforms in AFNR.

- ELA
- CCSS.ELA-LITERACY.RST.9-10.2
 - CCSS.ELA-LITERACY.RST.11-12.2
 - CCSS.ELA-LITERACY.RST.11-12.7
 - CCSS.ELA-LITERACY.RST.9-10.8
 - CCSS.ELA-LITERACY.RST.11-12.8
 - CCSS.ELA-LITERACY.SL.9-10.4
 - CCSS.ELA-LITERACY.SL.11-12.4
 - CCSS.ELA-LITERACY.WHST.9-10.8
 - CCSS.ELA-LITERACY.WHST.11-12.8

ECL.01.03. Analyze similarities and differences between verbal, nonverbal, written, and visual communication methods.

- ELA
- CCSS.ELA-LITERACY.RST.9-10.2
 - CCSS.ELA-LITERACY.RST.11-12.2
 - CCSS.ELA-LITERACY.RST.11-12.7
 - CCSS.ELA-LITERACY.RST.9-10.8
 - CCSS.ELA-LITERACY.RST.11-12.8
 - CCSS.ELA-LITERACY.SL.9-10.4
 - CCSS.ELA-LITERACY.SL.11-12.4
 - CCSS.ELA-LITERACY.WHST.9-10.8
 - CCSS.ELA-LITERACY.WHST.11-12.8

ECL.02. Develop a written communication plan using various communication methods (e.g. news releases, social media, speaking opportunities, blogs, podcasts, etc.) to convey a message to an intended AFNR audience.

ECL.02.01. Develop a communications plan that includes purpose, target audience, message, medium, and outcome evaluation.

- ELA
- CCSS.ELA-LITERACY.SL.9-10.4
 - CCSS.ELA-LITERACY.SL.11-12.4
 - CCSS.ELA-LITERACY.W.9-10.2
 - CCSS.ELA-LITERACY.W.11-12.2

ECL.02.02. Identify, apply and demonstrate communication skills and methods per the communications plan.

ELA

- CCSS.ELA-LITERACY.SL.9-10.4
- CCSS.ELA-LITERACY.SL.11-12.4
- CCSS.ELA-LITERACY.W.9-10.2
- CCSS.ELA-LITERACY.W.11-12.2

ECL.03. Develop a plan for an educational workshop or lesson - recognizing the breadth of opportunities in agricultural education - that informs, educates and promotes a topic or concept relevant to AFNR.

ECL.03.01. Explore the breadth of opportunities in agricultural education (e.g., using state or national resources, Teach Ag, university program information, professional associations, etc.).

- ELA
- CCSS.ELA-LITERACY.SL.9-10.4
 - CCSS.ELA-LITERACY.SL.11-12.4
 - CCSS.ELA-LITERACY.W.9-10.2
 - CCSS.ELA-LITERACY.W.11-12.2

ECL.03.02. Apply fundamental understanding of AFNR and agricultural education - including experiential learning - to the development of a workshop or lesson.

- ELA
- CCSS.ELA-LITERACY.SL.9-10.4
 - CCSS.ELA-LITERACY.SL.11-12.4
 - CCSS.ELA-LITERACY.W.9-10.2
 - CCSS.ELA-LITERACY.W.11-12.2

ECL.04. Apply curriculum development and effective instructional techniques to create, teach and evaluate an agricultural education lesson.

ECL.04.01. Develop and deliver a workshop or lesson using a variety of methods and best practices in instruction and facilitation.

ELA

- CCSS.ELA-LITERACY.SL.9-10.4
- CCSS.ELA-LITERACY.SL.11-12.4
- CCSS.ELA-LITERACY.W.9-10.2
- CCSS.ELA-LITERACY.W.11-12.2

ECL.04.02. Evaluate facilitation or presentation strategies that encourage appropriate social interactions, embrace diversity, promote equity and build a positive learning environment that is welcoming to all individuals.

ELA

- CCSS.ELA-LITERACY.SL.9-10.4
- CCSS.ELA-LITERACY.SL.11-12.4
- CCSS.ELA-LITERACY.W.9-10.2
- CCSS.ELA-LITERACY.W.11-12.2

ECL.04.03. Demonstrate impactful leadership as a credible resource for AFNR.

ECL.05. Model characteristics of ethical, efficient and effective leaders in the workplace and community (e.g. integrity, collaboration, self-awareness, self-regulation, etc.).

ECL.05.01. Identify characteristics and behaviors that constitute ethical, efficient, and effective leadership.

ECL.05.02. Demonstrate leadership through advocacy for AFNR-related issues.

Environmental Sustainability Systems



ALIGNMENT KEY:

- Common Core: English Language Arts/Literacy Standards (ELA)
- Common Core Mathematics Standards (MATH)
- Next Generation Science Standards (NGSS)
- National Standards for Personal Financial Education (NSPFE)

ESS.01. Use analytical procedures and instruments to manage environmental service systems.

ESS.01.01 Analyze and interpret laboratory and field samples in environmental sustainability systems.

ELA

- CCSS.ELA-LITERACY.RST.9-10.9
- CCSS.ELA-LITERACY.RST.11-12.9
- CCSS.ELA-LITERACY.WHST.9-10.7
- CCSS.ELA-LITERACY.WHST.11-12.7
- CCSS.ELA-LITERACY.WHST.9-10.9
- CCSS.ELA-LITERACY.WHST.11-12.9

MATH

- CCSS.MATH.CONTENT.HSN.Q.A.1
- CCSS.MATH.CONTENT.HSN.Q.A.2
- CCSS.MATH.CONTENT.HSN.Q.A.3
- CCSS.MATH.CONTENT.HSS.ID.A.2
- CCSS.MATH.CONTENT.HSS.ID.B.5

ESS.01.02 Properly utilize scientific instruments in environmental monitoring situations (e.g., laboratory equipment, environmental monitoring instruments, etc.).

ESS.02. Evaluate the impact of public policies and regulations on environmental service system operations.

ESS.02.01 Interpret and evaluate the impact of laws, agencies, policies, practices, and consumer preferences affecting environmental service systems.

ELA

- CCSS.ELA-LITERACY.RST.9-10.9
- CCSS.ELA-LITERACY.RST.11-12.9
- CCSS.ELA-LITERACY.WHST.9-10.2
- CCSS.ELA-LITERACY.WHST.11-12.2
- CCSS.ELA-LITERACY.WHST.9-10.9
- CCSS.ELA-LITERACY.WHST.11-12.9

ESS.02.02 Compare and contrast the impact of current trends on regulation of environmental sustainability systems.

ELA	<ul style="list-style-type: none"> • CCSS.ELA-LITERACY.RST.9-10.9 • CCSS.ELA-LITERACY.RST.11-12.9 • CCSS.ELA-LITERACY.WHST.9-10.2 • CCSS.ELA-LITERACY.WHST.11-12.2 • CCSS.ELA-LITERACY.WHST.9-10.9 • CCSS.ELA-LITERACY.WHST.11-12.9
ESS.02.03 Examine and summarize the impact of public perceptions and social movements on the regulation of environmental sustainability systems.	
ELA	<ul style="list-style-type: none"> • CCSS.ELA-LITERACY.RST.9-10.9 • CCSS.ELA-LITERACY.RST.11-12.9 • CCSS.ELA-LITERACY.WHST.9-10.2 • CCSS.ELA-LITERACY.WHST.11-12.2 • CCSS.ELA-LITERACY.WHST.9-10.9 • CCSS.ELA-LITERACY.WHST.11-12.9
ESS.03. Develop proposed solutions to environmental issues, problems and applications using scientific principles of meteorology, soil science, hydrology, microbiology, chemistry and ecology.	
ESS.03.01 Apply meteorology principles to environmental sustainability systems.	
ELA	<ul style="list-style-type: none"> • CCSS.ELA-LITERACY.RST.9-10.1 • CCSS.ELA-LITERACY.RST.11-12.1 • CCSS.ELA-LITERACY.RST.11-12.7 • CCSS.ELA-LITERACY.WHST.9-10.2 • CCSS.ELA-LITERACY.WHST.11-12.2 • CCSS.ELA-LITERACY.WHST.9-10.9 • CCSS.ELA-LITERACY.WHST.11-12.9

MATH	<ul style="list-style-type: none"> • CCSS.MATH.CONTENT.HSN-Q.A.1 • CCSS.MATH.CONTENT.HSN-Q.A.2 • CCSS.MATH.CONTENT.HSN-Q.A.3
NGSS	<ul style="list-style-type: none"> • HS-ESS2-6 • HS-ESS3-5
ESS.03.02 Apply soil science and hydrology principles to environmental sustainability systems.	
ELA	<ul style="list-style-type: none"> • CCSS.ELA-LITERACY.RST.9-10.1 • CCSS.ELA-LITERACY.RST.11-12.1 • CCSS.ELA-LITERACY.RST.11-12.7 • CCSS.ELA-LITERACY.WHST.9-10.2 • CCSS.ELA-LITERACY.WHST.11-12.2 • CCSS.ELA-LITERACY.WHST.9-10.7 • CCSS.ELA-LITERACY.WHST.11-12.7 • CCSS.ELA-LITERACY.WHST.9-10.9 • CCSS.ELA-LITERACY.WHST.11-12.9
MATH	<ul style="list-style-type: none"> • CCSS.MATH.CONTENT.HSN-Q.A.1 • CCSS.MATH.CONTENT.HSN-Q.A.2 • CCSS.MATH.CONTENT.HSN-Q.A.3 • CCSS.MATH.CONTENT.HSF.BF.A.1
NGSS	<ul style="list-style-type: none"> • HS-ESS2-5 • HS-ESS2-6
ESS.03.03 Apply chemistry principles to environmental sustainability systems.	

ELA	<ul style="list-style-type: none"> • CCSS.ELA-LITERACY.RST.9-10.1 • CCSS.ELA-LITERACY.RST.11-12.1 • CCSS.ELA-LITERACY.WHST.9-10.2 • CCSS.ELA-LITERACY.WHST.11-12.2 • CCSS.ELA-LITERACY.WHST.9-10.2 • CCSS.ELA-LITERACY.WHST.11-12.2 • CCSS.ELA-LITERACY.WHST.9-10.7 • CCSS.ELA-LITERACY.WHST.11-12.7 • CCSS.ELA-LITERACY.WHST.9-10.9 • CCSS.ELA-LITERACY.WHST.11-12.9
MATH	<ul style="list-style-type: none"> • CCSS.MATH.CONTENT.HSF.BF.A.1
NGSS	<ul style="list-style-type: none"> • HS-ESS2-6
ESS.03.04 Apply microbiology principles to environmental sustainability systems.	
ELA	<ul style="list-style-type: none"> • CCSS.ELA-LITERACY.RST.9-10.1 • CCSS.ELA-LITERACY.RST.11-12.1 • CCSS.ELA-LITERACY.WHST.9-10.2 • CCSS.ELA-LITERACY.WHST.11-12.2 • CCSS.ELA-LITERACY.WHST.9-10.9 • CCSS.ELA-LITERACY.WHST.11-12.9
MATH	<ul style="list-style-type: none"> • CCSS.MATH.CONTENT.HSF.BF.A.1

NGSS	<ul style="list-style-type: none"> • HS-LS2-3 • HS-LS2-4 • HS-LS3-2
ESS.03.05 Apply ecology principles to environmental sustainability systems.	
ELA	<ul style="list-style-type: none"> • CCSS.ELA-LITERACY.RST.9-10.1 • CCSS.ELA-LITERACY.RST.11-12.1 • CCSS.ELA-LITERACY.RST.11-12.7 • CCSS.ELA-LITERACY.RST.11-12.8 • CCSS.ELA-LITERACY.WHST.9-10.2 • CCSS.ELA-LITERACY.WHST.11-12.2 • CCSS.ELA-LITERACY.WHST.9-10.7 • CCSS.ELA-LITERACY.WHST.11-12.7 • CCSS.ELA-LITERACY.WHST.9-10.9 • CCSS.ELA-LITERACY.WHST.11-12.9
MATH	<ul style="list-style-type: none"> • CCSS.MATH.CONTENT.HSN-Q.A.1 • CCSS.MATH.CONTENT.HSN-Q.A.2 • CCSS.MATH.CONTENT.HSN-Q.A.3
NGSS	<ul style="list-style-type: none"> • HS-LS2-1 • HS-LS2-2 • HS-LS2-4 • HS-LS2-6 • HS-LS2-7 • HS-LS4-4 • HS-LS4-5

ESS.04. Demonstrate the operation of environmental service systems (e.g., pollution control, water treatment, wastewater treatment, solid waste management and energy conservation).

ESS.04.01 Develop systems of sustainability management for all categories of solid waste in environmental sustainability systems.

- ELA
- CCSS.ELA-LITERACY.WHST.9-10.2
 - CCSS.ELA-LITERACY.WHST.11-12.2
 - CCSS.ELA-LITERACY.WHST.9-10.9
 - CCSS.ELA-LITERACY.WHST.11-12.9

- NGSS
- HS-ETS1-2

ESS.04.02 Sustainably manage solid waste in environmental service systems.

- ELA
- CCSS.ELA-LITERACY.WHST.9-10.2
 - CCSS.ELA-LITERACY.WHST.11-12.2
 - CCSS.ELA-LITERACY.WHST.9-10.9
 - CCSS.ELA-LITERACY.WHST.11-12.9

- NGSS
- HS-ETS1-2

ESS.04.03 Apply techniques to ensure a safe supply of drinking water and adequate treatment of wastewater according to applicable rules and regulations.

- NGSS
- HS-ETS1-2

ESS.04.04 Compare and contrast the impact of conventional and alternative energy sources on the environment and operation of environmental sustainability systems.

- ELA
- CCSS.ELA-LITERACY.RST.9-10.1
 - CCSS.ELA-LITERACY.RST.11-12.1
 - CCSS.ELA-LITERACY.RST.11-12.8
 - CCSS.ELA-LITERACY.RST.11-12.9
 - CCSS.ELA-LITERACY.WHST.9-10.2
 - CCSS.ELA-LITERACY.WHST.11-12.2
 - CCSS.ELA-LITERACY.WHST.9-10.7
 - CCSS.ELA-LITERACY.WHST.11-12.7
 - CCSS.ELA-LITERACY.WHST.9-10.9
 - CCSS.ELA-LITERACY.WHST.11-12.9

- MATH
- CCSS.MATH.CONTENT.HSN-Q.A.1
 - CCSS.MATH.CONTENT.HSN-Q.A.2
 - CCSS.MATH.CONTENT.HSN-Q.A.3

- NGSS
- HS-ETS1-4

ESS.05. Use tools, equipment, machinery and technology common to tasks in environmental service systems.

ESS.05.01 Use technological and mathematical tools to map land, facilities, and infrastructure for environmental sustainability systems.

- MATH
- CCSS.MATH.CONTENT.HSS.IC.B.6

- NGSS
- HS-ETS1-4

ESS.05.02 Perform assessments of environmental conditions using equipment, machinery, and technology.

- NGSS
- HS-ETS1-4

Food Products and Processing Systems



ALIGNMENT KEY:

- Common Core: English Language Arts/ Literacy Standards (ELA)
- Common Core Mathematics Standards (MATH)
- Next Generation Science Standards (NGSS)
- National Standards for Personal Financial Education (NSPFE)

FPP.01. Develop and implement procedures to ensure safety, sanitation and quality in food product and processing facilities.
FPP.01.01 Distinguish between various food safety programs and management systems in food products and processing facilities.
ELA <ul style="list-style-type: none"> • CCSS.ELA-LITERACY.RST.9-10.9 • CCSS.ELA-LITERACY.RST.11-12.9 • CCSS.ELA-LITERACY.WHST.9-10.2 • CCSS.ELA-LITERACY.WHST.11-12.2 • CCSS.ELA-LITERACY.WHST.9-10.9 • CCSS.ELA-LITERACY.WHST.11-12.9
FPP 01.02 Apply food safety and quality assurance procedures in the harvesting, handling and processing of food products.

ELA <ul style="list-style-type: none"> • CCSS.ELA-LITERACY.RST.9-10.9 • CCSS.ELA-LITERACY.RST.11-12.9 • CCSS.ELA-LITERACY.WHST.9-10.2 • CCSS.ELA-LITERACY.WHST.11-12.2 • CCSS.ELA-LITERACY.WHST.9-10.9 • CCSS.ELA-LITERACY.WHST.11-12.9
FPP.01.03 Apply food safety procedures during storage and distribution to ensure food quality.
ELA <ul style="list-style-type: none"> • CCSS.ELA-LITERACY.RST.9-10.9 • CCSS.ELA-LITERACY.RST.11-12.9 • CCSS.ELA-LITERACY.WHST.9-10.2 • CCSS.ELA-LITERACY.WHST.11-12.2 • CCSS.ELA-LITERACY.WHST.9-10.9 • CCSS.ELA-LITERACY.WHST.11-12.9

FPP.02. Apply principles of nutrition, biology, microbiology, chemistry and human behavior to the development of food products.

FPP.02.01 Apply principles of nutrition and biology to develop food products that provide a safe, wholesome, and nutritious food supply for local and global food systems.

ELA
 CCSS.ELA-LITERACY.RST.9-10.9
 CCSS.ELA-LITERACY.RST.11-12.9
 CCSS.ELA-LITERACY.WHST.9-10.2
 CCSS.ELA-LITERACY.WHST.11-12.2
 CCSS.ELA-LITERACY.WHST.9-10.9
 CCSS.ELA-LITERACY.WHST.11-12.9

FPP.02.02 Apply principles of microbiology and chemistry to develop food products to provide a safe, wholesome, and nutritious food supply for local and global food systems.

ELA
 CCSS.ELA-LITERACY.RST.9-10.9
 CCSS.ELA-LITERACY.RST.11-12.9
 CCSS.ELA-LITERACY.WHST.9-10.2
 CCSS.ELA-LITERACY.WHST.11-12.2
 CCSS.ELA-LITERACY.WHST.9-10.9
 CCSS.ELA-LITERACY.WHST.11-12.9

FPP.02.03 Apply principles of human behavior to develop food products to provide a safe, wholesome, and nutritious food supply for local and global food systems.

ELA
 CCSS.ELA-LITERACY.RST.9-10.9
 CCSS.ELA-LITERACY.RST.11-12.9
 CCSS.ELA-LITERACY.WHST.9-10.2
 CCSS.ELA-LITERACY.WHST.11-12.2
 CCSS.ELA-LITERACY.WHST.9-10.9
 CCSS.ELA-LITERACY.WHST.11-12.9

NGSS
 • HS-ETS1-3

FPP.03. Select and process food products for storage, distribution and consumption.

FPP.03.01 Implement selection, evaluation, and inspection techniques to ensure safe and quality food products.

ELA
 • CCSS.ELA-LITERACY.RST.9-10.9
 • CCSS.ELA-LITERACY.RST.11-12.9
 • CCSS.ELA-LITERACY.WHST.9-10.2
 • CCSS.ELA-LITERACY.WHST.11-12.2
 • CCSS.ELA-LITERACY.WHST.9-10.9
 • CCSS.ELA-LITERACY.WHST.11-12.9

FPP.03.02 Design and apply techniques of food processing, preservation, packaging, and presentation for distribution and consumption of food products.

ELA
 • CCSS.ELA-LITERACY.RST.9-10.9
 • CCSS.ELA-LITERACY.RST.11-12.9
 • CCSS.ELA-LITERACY.WHST.9-10.2
 • CCSS.ELA-LITERACY.WHST.11-12.2
 • CCSS.ELA-LITERACY.WHST.9-10.9
 • CCSS.ELA-LITERACY.WHST.11-12.9

MATH
 • CCSS.MATH.CONTENT.HSN.Q.A.1

FPP.03.03 Create food distribution plans and procedures to ensure safe delivery of food products.

ELA

- CCSS.ELA-LITERACY.RST.9-10.9
- CCSS.ELA-LITERACY.RST.11-12.9
- CCSS.ELA-LITERACY.WHST.9-10.2
- CCSS.ELA-LITERACY.WHST.11-12.2
- CCSS.ELA-LITERACY.WHST.9-10.9
- CCSS.ELA-LITERACY.WHST.11-12.9

NGSS

- HS-ETS1-2

FPP.04. Explain the scope of the food industry and the historical and current developments of food product and processing.

FPP.04.01 Examine the scope of the food industry by evaluating local and global policies, trends, and customs for food production.

ELA

- CCSS.ELA-LITERACY.RST.9-10.9
- CCSS.ELA-LITERACY.RST.11-12.9
- CCSS.ELA-LITERACY.WHST.9-10.2
- CCSS.ELA-LITERACY.WHST.11-12.2
- CCSS.ELA-LITERACY.WHST.9-10.9
- CCSS.ELA-LITERACY.WHST.11-12.9

NGSS

- HS-ETS1-3

FPP.04.02 Evaluate the significance and implications of changes and trends in the food products and processing industry in the local and global food systems.

ELA

- CCSS.ELA-LITERACY.RST.9-10.9
- CCSS.ELA-LITERACY.RST.11-12.9
- CCSS.ELA-LITERACY.WHST.9-10.2
- CCSS.ELA-LITERACY.WHST.11-12.2
- CCSS.ELA-LITERACY.WHST.9-10.9
- CCSS.ELA-LITERACY.WHST.11-12.9

FPP.04.03 Identify the purpose of industry organizations, groups, and regulatory agencies that influence the local and global food systems.

ELA

- CCSS.ELA-LITERACY.RST.9-10.9
- CCSS.ELA-LITERACY.RST.11-12.9
- CCSS.ELA-LITERACY.WHST.9-10.2
- CCSS.ELA-LITERACY.WHST.11-12.2
- CCSS.ELA-LITERACY.WHST.9-10.9
- CCSS.ELA-LITERACY.WHST.11-12.9

Natural Resource Systems



ALIGNMENT KEY:

- Common Core: English Language Arts/ Literacy Standards (ELA)
- Common Core Mathematics Standards (MATH)
- Next Generation Science Standards (NGSS)
- National Standards for Personal Financial Education (NSPFE)

NRS.01. Plan and conduct natural resource management activities that apply logical, reasoned and scientifically based solutions to natural resource issues and goals.

NRS.01.01. Examine natural resource availability and ecosystem function in a particular region.

- ELA
- CCSS.ELA-LITERACY.RST.9-10.1
 - CCSS.ELA-LITERACY.RST.11-12.1
 - CCSS.ELA-LITERACY.RST.11-12.8
 - CCSS.ELA-LITERACY.WHST.9-10.7
 - CCSS.ELA-LITERACY.WHST.11-12.7
 - CCSS.ELA-LITERACY.WHST.9-10.8
 - CCSS.ELA-LITERACY.WHST.11-12.8
 - CCSS.ELA-LITERACY.WHST.9-10.9
 - CCSS.ELA-LITERACY.WHST.11-12.9

NRS.01.02 Classify different types of natural resources in order to enable protection, conservation, enhancement, and management in a particular geographical region.

ELA

- CCSS.ELA-LITERACY.RST.9-10.1
- CCSS.ELA-LITERACY.RST.11-12.1
- CCSS.ELA-LITERACY.RST.11-12.8
- CCSS.ELA-LITERACY.WHST.9-10.7
- CCSS.ELA-LITERACY.WHST.11-12.7
- CCSS.ELA-LITERACY.WHST.9-10.8
- CCSS.ELA-LITERACY.WHST.11-12.8
- CCSS.ELA-LITERACY.WHST.9-10.9
- CCSS.ELA-LITERACY.WHST.11-12.9

MATH

- CCSS.MATH.CONTENT.HSN-Q.A.1
- CCSS.MATH.CONTENT.HSN-Q.A.2
- CCSS.MATH.CONTENT.HSF-IF.B.6
- CCSS.MATH.CONTENT.HSS-ID.A.3
- CCSS.MATH.CONTENT.HSS-IC.B.6

NRS.01.03 Apply ecological concepts and principles (e.g., weather, air quality, UV protection, atmospheric pressure, etc.) to the interaction of atmospheric and natural resource systems.

- ELA
- CCSS.ELA-LITERACY.RST.9-10.1
 - CCSS.ELA-LITERACY.RST.11-12.1
 - CCSS.ELA-LITERACY.RST.11-12.8
 - CCSS.ELA-LITERACY.WHST.9-10.7
 - CCSS.ELA-LITERACY.WHST.11-12.7
 - CCSS.ELA-LITERACY.WHST.9-10.8
 - CCSS.ELA-LITERACY.WHST.11-12.8
 - CCSS.ELA-LITERACY.WHST.9-10.9
 - CCSS.ELA-LITERACY.WHST.11-12.9

- NGSS
- HS-ESS2-4
 - HS-ESS2-5
 - HS-ESS2-6
 - HS-ESS3-3
 - HS-ESS3-5
 - HS-ESS3-6

NRS.01.04. Apply ecological concepts and principles to aquatic natural resource systems.

- ELA
- CCSS.ELA-LITERACY.RST.9-10.1
 - CCSS.ELA-LITERACY.RST.11-12.1
 - CCSS.ELA-LITERACY.RST.11-12.8
 - CCSS.ELA-LITERACY.WHST.9-10.7
 - CCSS.ELA-LITERACY.WHST.11-12.7
 - CCSS.ELA-LITERACY.WHST.9-10.8
 - CCSS.ELA-LITERACY.WHST.11-12.8
 - CCSS.ELA-LITERACY.WHST.9-10.9
 - CCSS.ELA-LITERACY.WHST.11-12.9

- NGSS
- HS-ESS3-3

NRS.01.05 Apply ecological concepts and principles to terrestrial natural resource systems.

- ELA
- CCSS.ELA-LITERACY.RST.9-10.1
 - CCSS.ELA-LITERACY.RST.11-12.1
 - CCSS.ELA-LITERACY.RST.11-12.8
 - CCSS.ELA-LITERACY.WHST.9-10.7
 - CCSS.ELA-LITERACY.WHST.11-12.7
 - CCSS.ELA-LITERACY.WHST.9-10.8
 - CCSS.ELA-LITERACY.WHST.11-12.8
 - CCSS.ELA-LITERACY.WHST.9-10.9
 - CCSS.ELA-LITERACY.WHST.11-12.9

- MATH
- CCSS.MATH.CONTENT.HSS-ID.A.1
 - CCSS.MATH.CONTENT.HSS-IC.A.1
 - CCSS.MATH.CONTENT.HSS-IC.B.6

- NGSS
- HS-ESS3-3

NRS.01.06 Apply ecological concepts and principles to biotic organisms in natural resource systems.

- ELA
- CCSS.ELA-LITERACY.RST.9-10.1
 - CCSS.ELA-LITERACY.RST.11-12.1
 - CCSS.ELA-LITERACY.RST.11-12.8
 - CCSS.ELA-LITERACY.WHST.9-10.7
 - CCSS.ELA-LITERACY.WHST.11-12.7
 - CCSS.ELA-LITERACY.WHST.9-10.8
 - CCSS.ELA-LITERACY.WHST.11-12.8
 - CCSS.ELA-LITERACY.WHST.9-10.9
 - CCSS.ELA-LITERACY.WHST.11-12.9

- NGSS
- HS-LS4-4
 - HS-ESS3-3

NRS.02.01. Analyze the interrelationships between natural resources and humans.

NRS.02.01. Examine and interpret the purpose, enforcement, impact, and effectiveness of laws, agencies, and private and public organizations related to natural resource management, protection, enhancement, and improvement (e.g., water regulations, game laws, , environmental policy, local, state, and national conservation organizations, agricultural extension service, etc.).

- ELA
- CCSS.ELA-LITERACY.RST.9-10.1
 - CCSS.ELA-LITERACY.RST.11-12.1
 - CCSS.ELA-LITERACY.WHST.9-10.2
 - CCSS.ELA-LITERACY.WHST.11-12.2
 - CCSS.ELA-LITERACY.WHST.9-10.7
 - CCSS.ELA-LITERACY.WHST.11-12.7
 - CCSS.ELA-LITERACY.WHST.9-10.9
 - CCSS.ELA-LITERACY.WHST.11-12.9

NRS.02.02. Assess the impact of human activities on the availability of natural resources.

- ELA
- CCSS.ELA-LITERACY.RST.9-10.1
 - CCSS.ELA-LITERACY.RST.11-12.1
 - CCSS.ELA-LITERACY.WHST.9-10.2
 - CCSS.ELA-LITERACY.WHST.11-12.2
 - CCSS.ELA-LITERACY.WHST.9-10.7
 - CCSS.ELA-LITERACY.WHST.11-12.7
 - CCSS.ELA-LITERACY.WHST.9-10.9
 - CCSS.ELA-LITERACY.WHST.11-12.9

NGSS

- HS-LS2-7
- HS-LS4-6
- HS-ESS3-1
- HS-ESS3-3
- HS-ESS3-4
- HS-ESS3-6

NRS.02.03 Analyze how social perceptions of natural resource management, protection, enhancement, and improvement change and develop over time.

NRS.02.04. Examine and explain how economics affects the use of natural resources.

- ELA
- CCSS.ELA-LITERACY.RST.9-10.1
 - CCSS.ELA-LITERACY.RST.11-12.1
 - CCSS.ELA-LITERACY.WHST.9-10.2
 - CCSS.ELA-LITERACY.WHST.11-12.2
 - CCSS.ELA-LITERACY.WHST.9-10.7
 - CCSS.ELA-LITERACY.WHST.11-12.7
 - CCSS.ELA-LITERACY.WHST.9-10.9
 - CCSS.ELA-LITERACY.WHST.11-12.9

NGSS

- HS-ESS3-2

NSPFE

- Spending 12-3
- Spending 12-5

NRS.02.05 Communicate information to the public regarding topics related to the management, protection, enhancement, and improvement of natural resources.

NRS.03. Develop plans to ensure sustainable production and processing of natural resources.

NRS.03.01 Sustainably produce, harvest, process, and use natural resource products (e.g., forest and rangeland products, wildlife, minerals, fossil fuels, shale oil, alternative energy, recreation, aquatic species, etc.).

- ELA
- CCSS.ELA-LITERACY.RST.9-10.1
 - CCSS.ELA-LITERACY.RST.11-12.1
 - CCSS.ELA-LITERACY.WHST.9-10.2
 - CCSS.ELA-LITERACY.WHST.11-12.2
 - CCSS.ELA-LITERACY.WHST.9-10.7
 - CCSS.ELA-LITERACY.WHST.11-12.7
 - CCSS.ELA-LITERACY.WHST.9-10.9
 - CCSS.ELA-LITERACY.WHST.11-12.9

- NGSS
- HS-ESS3-2

NRS.03.02. Demonstrate cartographic skills, tools, and technologies to aid in developing, implementing and evaluating natural resource management plans.

- ELA
- CCSS.ELA-LITERACY.RST.9-10.1
 - CCSS.ELA-LITERACY.RST.11-12.1
 - CCSS.ELA-LITERACY.WHST.9-10.2
 - CCSS.ELA-LITERACY.WHST.11-12.2
 - CCSS.ELA-LITERACY.WHST.9-10.7
 - CCSS.ELA-LITERACY.WHST.11-12.7
 - CCSS.ELA-LITERACY.WHST.9-10.9
 - CCSS.ELA-LITERACY.WHST.11-12.9

NRS.04. Demonstrate responsible management procedures and techniques to protect, maintain, enhance, and improve natural resources.

NRS.04.01. Demonstrate natural resource protection, maintenance, enhancement, and improvement techniques.

- ELA
- CCSS.ELA-LITERACY.RST.9-10.1
 - CCSS.ELA-LITERACY.RST.11-12.1
 - CCSS.ELA-LITERACY.WHST.9-10.2
 - CCSS.ELA-LITERACY.WHST.11-12.2
 - CCSS.ELA-LITERACY.WHST.9-10.7
 - CCSS.ELA-LITERACY.WHST.11-12.7
 - CCSS.ELA-LITERACY.WHST.9-10.9
 - CCSS.ELA-LITERACY.WHST.11-12.9

- NGSS
- HS-ESS3-2
 - HS-ESS3-3
 - HS-ESS3-4

NRS.04.02 Diagnose plant and wildlife diseases and follow protocols to prevent their spread.

- ELA
- CCSS.ELA-LITERACY.RST.9-10.1
 - CCSS.ELA-LITERACY.RST.11-12.1
 - CCSS.ELA-LITERACY.WHST.9-10.2
 - CCSS.ELA-LITERACY.WHST.11-12.2
 - CCSS.ELA-LITERACY.WHST.9-10.7
 - CCSS.ELA-LITERACY.WHST.11-12.7
 - CCSS.ELA-LITERACY.WHST.9-10.9
 - CCSS.ELA-LITERACY.WHST.11-12.9

MATH	<ul style="list-style-type: none"> CCSS.MATH.CONTENT.HSS-IC.B.6
NGSS	<ul style="list-style-type: none"> HS-LS2-7
NRS.04.03 Prevent or manage introduction of ecologically harmful species in a particular region.	
ELA	<ul style="list-style-type: none"> CCSS.ELA-LITERACY.RST.9-10.1 CCSS.ELA-LITERACY.RST.11-12.1 CCSS.ELA-LITERACY.WHST.9-10.2 CCSS.ELA-LITERACY.WHST.11-12.2 CCSS.ELA-LITERACY.WHST.9-10.7 CCSS.ELA-LITERACY.WHST.11-12.7 CCSS.ELA-LITERACY.WHST.9-10.9 CCSS.ELA-LITERACY.WHST.11-12.9
MATH	<ul style="list-style-type: none"> CCSS.MATH.CONTENT.HSS-IC.A.1 CCSS.MATH.CONTENT.HSS-IC.B.6
NGSS	<ul style="list-style-type: none"> HS-LS2-7 HS-LS4-6
NRS.04.04 Manage fires in natural resource systems.	
ELA	<ul style="list-style-type: none"> CCSS.ELA-LITERACY.RST.9-10.1 CCSS.ELA-LITERACY.RST.11-12.1 CCSS.ELA-LITERACY.WHST.9-10.2 CCSS.ELA-LITERACY.WHST.11-12.2 CCSS.ELA-LITERACY.WHST.9-10.7 CCSS.ELA-LITERACY.WHST.11-12.7 CCSS.ELA-LITERACY.WHST.9-10.9 CCSS.ELA-LITERACY.WHST.11-12.9

Plant Systems



ALIGNMENT KEY:

- Common Core: English Language Arts/Literacy Standards (ELA)
- Common Core Mathematics Standards (MATH)
- Next Generation Science Standards (NGSS)
- National Standards for Personal Financial Education (NSPFE)

PS.01. Develop and implement a crop management plan for a given production goal that accounts for environmental factors.	
PS.01.01 Determine the influence of environmental factors on plant growth.	
ELA	<ul style="list-style-type: none"> • CCSS.ELA-Literacy.RST.9-10.3 • CCSS.ELA-LITERACY.RST.11-12.3 • CCSS.ELA-LITERACY.WHST.9-10.2 • CCSS.ELA-LITERACY.WHST.11-12.2 • CCSS.ELA-LITERACY.WHST.9-10.9 • CCSS.ELA-LITERACY.WHST.11-12.9
MATH	<ul style="list-style-type: none"> • CCSS.MATH.CONTENT.HSN.Q.A.1 • CCSS.MATH.CONTENT.HSN.Q.A.2 • CCSS.MATH.CONTENT.HSN.Q.A.3
NGSS	<ul style="list-style-type: none"> • HS-LS4-4 • HS-LS4-5

PS.01.02 Prepare and adjust growing media for use in plant systems.	
ELA	<ul style="list-style-type: none"> • CCSS.ELA-Literacy.RST.9-10.3 • CCSS.ELA-LITERACY.RST.11-12.3 • CCSS.ELA-LITERACY.WHST.9-10.2 • CCSS.ELA-LITERACY.WHST.11-12.2 • CCSS.ELA-LITERACY.WHST.9-10.9 • CCSS.ELA-LITERACY.WHST.11-12.9
MATH	<ul style="list-style-type: none"> • CCSS.MATH.CONTENT.HSN.Q.A.1 • CCSS.MATH.CONTENT.HSN.Q.A.2 • CCSS.MATH.CONTENT.HSN.Q.A.3
PS.01.03 Demonstrate planting techniques and create the conditions needed for seed germination.	
PS.01.04 Develop and implement a nutrient management and/or fertilizer plan for specific plants or crops.	

<p>ELA</p> <ul style="list-style-type: none"> • CCSS.ELA-Literacy.RST.9-10.3 • CCSS.ELA-LITERACY.RST.11-12.3 • CCSS.ELA-LITERACY.WHST.9-10.2 • CCSS.ELA-LITERACY.WHST.11-12.2 • CCSS.ELA-LITERACY.WHST.9-10.9 • CCSS.ELA-LITERACY.WHST.11-12.9 <p>MATH</p> <ul style="list-style-type: none"> • CCSS.MATH.CONTENT.HSN.Q.A.1 • CCSS.MATH.CONTENT.HSN.Q.A.2 • CCSS.MATH.CONTENT.HSN.Q.A.3 • CCSS.MATH.CONTENT.HSS.IC.B.6
<p>PS.02. Apply principles of classification, plant anatomy, and plant physiology to plant production and management.</p>
<p>PS.02.01 Classify plants according to taxonomic systems.</p>
<p>ELA</p> <ul style="list-style-type: none"> • CCSS.ELA-Literacy.RST.9-10.3 • CCSS.ELA-LITERACY.RST.11-12.3 • CCSS.ELA-LITERACY.WHST.9-10.2 • CCSS.ELA-LITERACY.WHST.11-12.2 • CCSS.ELA-LITERACY.WHST.9-10.9 • CCSS.ELA-LITERACY.WHST.11-12.9
<p>PST.02.02 Apply knowledge of plant anatomy and the functions of plant structures to activities associated with plant systems.</p>
<p>ELA</p> <ul style="list-style-type: none"> • CCSS.ELA-Literacy.RST.9-10.3 • CCSS.ELA-LITERACY.RST.11-12.3 • CCSS.ELA-LITERACY.WHST.9-10.2 • CCSS.ELA-LITERACY.WHST.11-12.2 • CCSS.ELA-LITERACY.WHST.9-10.9 • CCSS.ELA-LITERACY.WHST.11-12.9

<p>NGSS</p> <ul style="list-style-type: none"> • HS-LS1-2 • HS-LS1-4 • HS-LS1-5
<p>PS.02.03 Apply knowledge of plant physiology and energy conversion to plant systems.</p>
<p>ELA</p> <ul style="list-style-type: none"> • CCSS.ELA-Literacy.RST.9-10.3 • CCSS.ELA-LITERACY.RST.11-12.3 • CCSS.ELA-LITERACY.WHST.9-10.2 • CCSS.ELA-LITERACY.WHST.11-12.2 • CCSS.ELA-LITERACY.WHST.9-10.9 • CCSS.ELA-LITERACY.WHST.11-12.9
<p>MATH</p> <ul style="list-style-type: none"> • CCSS.MATH.CONTENT.HSF.IF.B.6
<p>NGSS</p> <ul style="list-style-type: none"> • HS-LS1-5 • HS-LS1-7
<p>PS.03. Propagate, culture and harvest plants and plant products based on current industry standards.</p>
<p>PS.03.01 Demonstrate plant propagation techniques in plant system activities.</p>
<p>ELA</p> <ul style="list-style-type: none"> • CCSS.ELA-Literacy.RST.9-10.3 • CCSS.ELA-LITERACY.RST.11-12.3 • CCSS.ELA-LITERACY.WHST.9-10.2 • CCSS.ELA-LITERACY.WHST.11-12.2 • CCSS.ELA-LITERACY.WHST.9-10.9 • CCSS.ELA-LITERACY.WHST.11-12.9
<p>PS.03.02 Develop and implement a management plan for plant production.</p>

<p>ELA</p> <ul style="list-style-type: none"> • CCSS.ELA-Literacy.RST.9-10.3 • CCSS.ELA-LITERACY.RST.11-12.3 • CCSS.ELA-LITERACY.WHST.9-10.2 • CCSS.ELA-LITERACY.WHST.11-12.2 • CCSS.ELA-LITERACY.WHST.9-10.9 • CCSS.ELA-LITERACY.WHST.11-12.9
<p>MATH</p> <ul style="list-style-type: none"> • CCSS.MATH.CONTENT.HSN.Q.A.1 • CCSS.MATH.CONTENT.HSN.Q.A.2 • CCSS.MATH.CONTENT.HSF.IF.B.4
<p>PS.03.03 Develop and implement a plan for integrated pest management for plant production.</p>
<p>ELA</p> <ul style="list-style-type: none"> • CCSS.ELA-Literacy.RST.9-10.3 • CCSS.ELA-LITERACY.RST.11-12.3 • CCSS.ELA-LITERACY.WHST.9-10.2 • CCSS.ELA-LITERACY.WHST.11-12.2 • CCSS.ELA-LITERACY.WHST.9-10.9 • CCSS.ELA-LITERACY.WHST.11-12.9
<p>MATH</p> <ul style="list-style-type: none"> • CCSS.MATH.CONTENT.HSN.Q.A.1 • CCSS.MATH.CONTENT.HSN.Q.A.2 • CCSS.MATH.CONTENT.HSA.CED.A.1
<p>PS.03.04 Apply principles and practices of sustainable agriculture to plant production.</p>

<p>ELA</p> <ul style="list-style-type: none"> • CCSS.ELA-Literacy.RST.9-10.3 • CCSS.ELA-LITERACY.RST.11-12.3 • CCSS.ELA-LITERACY.WHST.9-10.2 • CCSS.ELA-LITERACY.WHST.11-12.2 • CCSS.ELA-LITERACY.WHST.9-10.9 • CCSS.ELA-LITERACY.WHST.11-12.9
<p>NGSS HS-ESS3-2 PS.03.05 Harvest crops according to industry standards.</p>
<p>ELA</p> <p>CCSS.ELA-LITERACY.RST.9-10.3 CCSS.ELA-LITERACY.RST.11-12.3 CCSS.ELA-LITERACY.WHST.9-10.2 CCSS.ELA-LITERACY.WHST.11-12.2 CCSS.ELA-LITERACY.WHST.9-10.9 CCSS.ELA-LITERACY.WHST.11-12.9</p>
<p>PS.03.06 Haul and store crops according to industry standards.</p>
<p>ELA</p> <p>CCSS.ELA-LITERACY.RST.9-10.3 CCSS.ELA-LITERACY.RST.11-12.3 CCSS.ELA-LITERACY.WHST.9-10.2 CCSS.ELA-LITERACY.WHST.11-12.2 CCSS.ELA-LITERACY.WHST.9-10.9 CCSS.ELA-LITERACY.WHST.11-12.9</p>

PS.04. Apply principles of design in plant systems to enhance an environment (e.g. floral, forest landscape, and farm).

PS.04.01 Evaluate, identify, and prepare plants to enhance an environment.

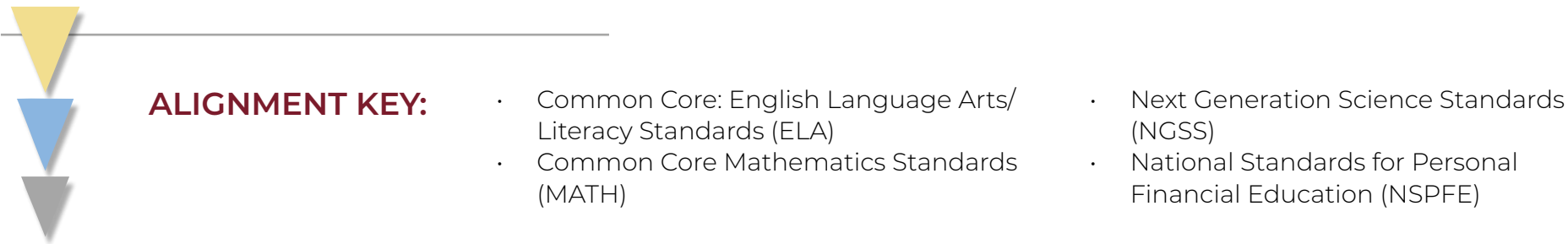
ELA
CCSS.ELA-LITERACY.RST.9-10.3
CCSS.ELA-LITERACY.RST.11-12.3
CCSS.ELA-LITERACY.WHST.9-10.2
CCSS.ELA-LITERACY.WHST.11-12.2
CCSS.ELA-LITERACY.WHST.9-10.9
CCSS.ELA-LITERACY.WHST.11-12.9

PS.04.02 Create designs using plants.

ELA

- CCSS.ELA-LITERACY.RST.9-10.3
- CCSS.ELA-LITERACY.RST.11-12.3
- CCSS.ELA-LITERACY.WHST.9-10.2
- CCSS.ELA-LITERACY.WHST.11-12.2
- CCSS.ELA-LITERACY.WHST.9-10.9
- CCSS.ELA-LITERACY.WHST.11-12.9

Power, Structural, and Technical Systems



PST.01. Apply physical science principles and engineering applications to solve problems and improve performance in AFNR power, structural and technical systems.

PST.01.01 Apply physical science and engineering principles to assess and select energy sources for AFNR power, structural and technical systems.

- ELA
- CCSS.ELA-LITERACY.RST.9-10.3
 - CCSS.ELA-LITERACY.RST.11-12.3
 - CCSS.ELA-LITERACY.WHST.9-10.2
 - CCSS.ELA-LITERACY.WHST.11-12.2
 - CCSS.ELA-LITERACY.WHST.9-10.9
 - CCSS.ELA-LITERACY.WHST.11-12.9

- MATH
- CCSS.MATH.CONTENT.HSN.Q.A.1
 - CCSS.MATH.CONTENT.HSN.Q.A.2
 - CCSS.MATH.CONTENT.HSN.Q.A.3
 - CCSS.MATH.CONTENT.HSA.CED.A.1
 - CCSS.MATH.CONTENT.HSS.IC.B.6

- NGSS
- HS-PS3-3
 - HS-ETS1-2

PST.01.02 Apply physical science and engineering principles to design, implement and improve safe and efficient mechanical systems in AFNR situations.

- ELA
- CCSS.ELA-Literacy.RST.9-10.3
 - CCSS.ELA-LITERACY.RST.11-12.3
 - CCSS.ELA-LITERACY.WHST.9-10.2
 - CCSS.ELA-LITERACY.WHST.11-12.2
 - CCSS.ELA-LITERACY.WHST.9-10.9
 - CCSS.ELA-LITERACY.WHST.11-12.9

- MATH
- CCSS.MATH.CONTENT.HSN.Q.A.1
 - CCSS.MATH.CONTENT.HSN.Q.A.2
 - CCSS.MATH.CONTENT.HSN.Q.A.3
 - CCSS.MATH.CONTENT.HSA.CED.A.1
 - CCSS.MATH.CONTENT.HSF.BF.A.1

<p>NGSS</p> <ul style="list-style-type: none"> HS-ETS1-2
<p>PST.01.03 Apply physical science and engineering principles to metal fabrication using a variety of welding and cutting processes and equipment (e.g., SMAW, GMAW, GTAW, Oxy-fuel, CNC, and plasma arc torch, etc.).</p>
<p>ELA</p> <ul style="list-style-type: none"> CCSS.ELA-LITERACY.RST.9-10.3 CCSS.ELA-LITERACY.RST.11-12.3 CCSS.ELA-LITERACY.WHST.9-10.2 CCSS.ELA-LITERACY.WHST.11-12.2 CCSS.ELA-LITERACY.WHST.9-10.9 CCSS.ELA-LITERACY.WHST.11-12.9
<p>NGSS</p> <ul style="list-style-type: none"> HS-ETS1-2
<p>PST.02. Operate and maintain AFNR mechanical equipment and power systems.</p>
<p>PST.02.01 Perform preventative maintenance and scheduled service to maintain equipment, machinery, and power units used in AFNR settings.</p>
<p>PST.02.02 Operate machinery and equipment while observing all safety precautions in AFNR settings.</p>
<p>MATH</p> <ul style="list-style-type: none"> CCSS.MATH.CONTENT.HSN.Q.A.1 CCSS.MATH.CONTENT.HSN.Q.A.2 CCSS.MATH.CONTENT.HSF.LE.A.2
<p>PST.03. Service and repair AFNR mechanical equipment and power systems.</p>
<p>PST.03.01 Troubleshoot, service, and repair components of internal combustion engines using manufacturers' guidelines.</p>

<p>PST.03.02 Service electrical systems and components of mechanical equipment and power systems using a variety of troubleshooting and/or diagnostic methods.</p>
<p>PST.03.03 Utilize manufacturers' guidelines to diagnose and troubleshoot malfunctions in machinery, equipment, and power source systems (e.g., hydraulic, pneumatic, transmission, steering, powertrain, suspension, etc.).</p>
<p>MATH</p> <ul style="list-style-type: none"> CCSS.MATH.CONTENT.HSN.Q.A.1 CCSS.MATH.CONTENT.HSN.Q.A.2 CCSS.MATH.CONTENT.HSN.Q.A.3 CCSS.MATH.CONTENT.HSF.LE.A.2
<p>PST.04. Plan, build and maintain AFNR structures.</p>
<p>PST.04.01 Create plans for AFNR structures.</p>
<p>MATH</p> <ul style="list-style-type: none"> CCSS.MATH.CONTENT.HSN.Q.A.1 CCSS.MATH.CONTENT.HSN.Q.A.2 CCSS.MATH.CONTENT.HSN.Q.A.3
<p>PST.04.02 Determine structural requirements, specifications, customer needs, and estimate costs for AFNR structures.</p>
<p>MATH</p> <ul style="list-style-type: none"> CCSS.MATH.CONTENT.HSN.Q.A.1 CCSS.MATH.CONTENT.HSN.Q.A.2 CCSS.MATH.CONTENT.HSN.Q.A.3
<p>PST.04.03 Apply best practices and safety guidelines for use of hand and power tools associated with constructing and maintaining AFNR structures.</p>

PST.04.04 Follow architectural and mechanical plans to construct, maintain and/or repair AFNR structures (e.g., material selection, site preparation and/or layout, surveying, electrical, plumbing, concrete/masonry, etc.).

- MATH
- CCSS.MATH.CONTENT.HSN.Q.A.1
 - CCSS.MATH.CONTENT.HSN.Q.A.2
 - CCSS.MATH.CONTENT.HSN.Q.A.3

PST.04.05 Apply electrical wiring principles in AFNR structures.

- MATH
- CCSS.MATH.CONTENT.HSN.Q.A.1
 - CCSS.MATH.CONTENT.HSN.Q.A.2
 - CCSS.MATH.CONTENT.HSN.Q.A.3

- NGSS
- HS-PS3-5

PST.05. Use control, monitoring, geospatial and other technologies in AFNR power, structural and technical systems.

PST.05.01 Apply current and/or identify emerging technologies (e.g., robotics, CNC, UAS, etc.) to solve problems and increase the efficiency of AFNR systems.

- MATH
- CCSS.MATH.CONTENT.HSF.IF.B.4

- NGSS
- HS-ETS1-2
 - HS-ETS1-3
 - HS-ESS3-2
 - HS-PS3-5

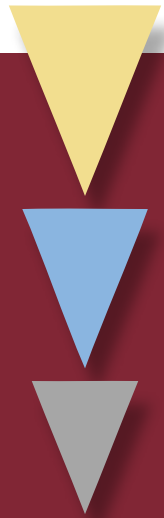
PST.05.02 Prepare and/or use electrical drawings to design, install, and troubleshoot electronic control systems in AFNR settings.

- NGSS
- HS-ETS1-3

PST.05.03 Apply geospatial principles and technologies to solve problems and increase the efficiency of AFNR systems.

- MATH
- CCSS.MATH.CONTENT.HSS.IC.B.6

- NGSS
- HS-ESS3-4
 - HS-ESS3-2



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