

State-Approved Technical Skill Assessments

4/20/2017

Pathway: Food Products & Processing Systems

Cluster: Agriculture, Food, and Natural Resources

CLUSTER/ PATHWAY/ PROGRAM	CERTIFICATION / ASSESSMENT TITLE	TYPE	ISSUING ORGANIZATION	WEBSITE Please report broken weblinks	ELIGIBILITY REQUIREMENTS / PREREQUISITES	ADMINISTRA- TION ELIGIBILITY (Written, Oral, Practical, etc.)	PASSING SCORE	COST	COMMENTS
<div style="display: flex; justify-content: space-between; padding: 5px;"> ● For use at SECONDARY For use at SECONDARY For use at SECONDARY For use at SECONDARY </div>									
Agriculture Education (Cluster)	Agriculture Education I: Core	Academic Assessment	CareerTech	http://www.okcareertech.org/educators/assessments-and-testing/testing/study-guides/StudyGuideList_20162017.pdf	Enrolled in general agriculture course; recommended for 9th - 12th grade students	Online	70%	\$12 per exam	40 item multiple choice exam; estimated assessment time-up to 1 hour
Agriculture Education (Cluster)	Agriculture Education II: Core	Academic Assessment	CareerTech	http://www.okcareertech.org/educators/assessments-and-testing/testing/study-guides/StudyGuideList_20162017.pdf	Enrolled in advanced high school general agriculture course; recommended for 11th & 12th grade students	Online	70%	\$12 per exam	40 item multiple choice exam; estimated assessment time-up to 1 hour
	Careertech Testing Information for Consortia Leaders and/or High School Testing Coordinators	Careertech	TESTING AGREEMENT	Each institution/ consortium should have a Testing Coordinator who contacts Careertech to obtain assessment exams, proctoring information, data management needs, and other important functions. Click here for the Careertech Testing Agreement form: http://www.okcareertech.org/educators/assessments-and-testing/testing					

Agriculture Education (Cluster)	CAERT Plant Science Assessment	Academic Assessment	Center for Agricultural and Environmental Research and Training, Inc. (CAERT)	http://www.caert.net		Online	70%	\$10 per exam	Contact Joel Larsen, Mn. Dept. of Education, if interested in implementing the assessment.
Agriculture Education (Cluster)	Introduction to AFNR	Academic Assessment	CASE	http://www.case4learning.org/index.php/curriculum/case-courses/introduction-to-afnr	Broad-based assessment that verifies student mastery of the knowledge and skills that provide broad based foundation skills in agriculture, food, & natural resources.	Online	A		Contact Joel Larsen, Mn. Dept. of Education, if interested in implementing the assessment.
Agriculture Education (Cluster)	Principles of Agricultural Science - Animal	Academic Assessment	CASE	http://www.case4learning.org/index.php/curriculum/case-courses/agricultural-science-animal	Broad-based assessment that verifies student mastery of the knowledge and skills that provide the foundation for animal systems.	Online	A		Contact Joel Larsen, Mn. Dept. of Education, if interested in implementing the assessment.
Agriculture Education (Cluster)	Principles of Agricultural Science - Plant	Academic Assessment	CASE	http://www.case4learning.org/index.php/curriculum/case-courses/agricultural-science-plant	Broad-based assessment that verifies student mastery of the knowledge and skills that provide the foundation for plant systems.	Online			Contact Joel Larsen, Mn. Dept. of Education, if interested in implementing the assessment.
Family & Consumer Sciences (Cluster)	FACS IA	Academic Assessment	CareerTech	http://www.okcareertech.org/educators/assessments-and-testing/testing/study-guides/StudyGuideList_20162017.pdf	Enrolled in general family & consumer sciences courses; recommended for 8th - 10th grade students	Online	70%	\$12 per exam	40 item multiple choice exam; estimated assessment time-up to 1 hour

Family & Consumer Sciences (Cluster)	FACS IIA	Academic Assessment	CareerTech	http://www.okcareertech.org/educators/assessments-and-testing/testing/study-guides/StudyGuideList_20162017.pdf	Enrolled in general family & consumer sciences courses; recommended for 9th - 12th grade students	Online	70%	\$12 per exam	40 item multiple choice exam; estimated assessment time-up to 1 hour
Family & Consumer Sciences (Cluster)	Broad Field Family & Consumer Sciences	Pre-Professional Assessment & Certification Pre-PAC	American Association of Family & Consumer Sciences (AAFCS)	http://www.aafcs.org/CredentiaingCenter/Assessment_Portfolio.asp	Broad-based assessment that verifies student mastery of the knowledge and skills in all components of a family and consumer sciences program including food science.	Online	70%	\$25 per exam	Use this link for managing assessments and certifications: http://www.aafcs.org/CredentiaingCenter/testingCenter/testingCenter.asp
Family & Consumer Sciences (Cluster)	Employability	Academic Assessment	SkillsUSA	http://www.workforcereadysystem.org/media/blueprints/Employability_blueprint.pdf	Entry-level assessment that verifies student mastery of the knowledge and skills for employability in all career pathways including careers in family & consumer sciences.	On line	73%	\$10 per assessment for SkillsUSA member; \$20 per assessment for non-member	Must be a member of SkillsUSA member for the reduce fee; also additional cost for membership to SkillsUSA.

	SkillsUSA	SkillsUSA Work Force Ready System	SITE COORDINATOR	Each institution/ consortium should have a coordinator who contacts SkillsUSA to obtain assessment exams, proctoring information, data management needs, and other important functions. Your Proctor name, email address and phone number are required when ordering assessments to be administered to students.	Click below for the SkillsUSA Work Force Ready System Web site and browse the various Assessment Links and other details: http://www.workforcereadysystem.org/index.shtml				
Family & Consumer Sciences (Cluster)	21st Century Skills for Workplace Success	Academic Assessment	NOCTI	http://www.nocti.org/PDFs/JobReady/1437_21st_Century_Skills.pdf	Entry-level assessment that verifies student mastery of the knowledge and skills for employability in all career pathways including careers in family & consumer sciences.	Online	National Norm	\$18 - \$30 per exam	Job Ready Assessment
Family & Consumer Sciences (Cluster)	Workplace Readiness	Academic Assessment	NOCTI	http://www.nocti.org/PDFs/JobReady/3033_Workplace_Readiness.pdf	Entry-level assessment that verifies student mastery of the knowledge and skills for employability in all career pathways including careers in family & consumer sciences.	Online	National Norm	\$18 - \$30 per exam	Job Ready Assessment

	NOCTI	NOCTI	NOCTI TESTING AGREEMENT	Each institution/consortium should have a Testing Coordinator who contacts NOCTI to obtain assessment exams, proctoring information, data management needs, and other important functions. Click here for the NOCTI Testing Agreement form: http://www.nocti.org/forms.cfm					
Foods & Nutrition	Hospitality: Food Handler - Introductory	Academic Assessment	CareerTech	http://www.okcareertech.org/educators/assessments-and-testing/testing/study-guides/StudyGuideList_20162017.pdf	Assessment verifies student mastery of the knowledge and skills that provide the foundation for food preparation; aligned with Pro-Start	Online	70%	\$12 per exam	40 item multiple choice exam; estimated assessment time-up to 1 hour
Foods & Nutrition	Hospitality: Cold Food/ Prep Cook	Academic Assessment	CareerTech	http://www.okcareertech.org/educators/assessments-and-testing/testing/study-guides/StudyGuideList_20162017.pdf	Assessment verifies student mastery of the knowledge and skills that provide the foundation for food preparation; aligned with Pro-Start	Online	70%	\$12 per exam	40 item multiple choice exam; estimated assessment time-up to 1 hour
Foods & Nutrition	Hospitality: Hot Food Cook	Academic Assessment	CareerTech	http://www.okcareertech.org/educators/assessments-and-testing/testing/study-guides/StudyGuideList_20162017.pdf	Assessment verifies student mastery of the knowledge and skills that provide the foundation for food preparation; aligned with Pro-Start	Online	70%	\$12 per exam	40 item multiple choice exam; estimated assessment time-up to 1 hour

Foods & Nutrition/ Food Science	Food Science Fundamentals	Pre-Professional Assessment & Certification Pre-PAC	American Association of Family & Consumer Sciences (AAFCS)	http://www.aafcs.org/CredentiaingCenter/Assessment_Portfolio.asp	Broad-based assessment that verifies student mastery of the knowledge and skills in food science fundamentals.	Online	65%	\$25 per exam	Use this link for managing assessments and certifications: http://www.aafcs.org/CredentiaingCenter/test.asp
Foods & Nutrition	Servsafe Certification	Certification	Food Safety Administration	https://www.servsafe.com/home	Take the test online at certified testing center. Instructor must be approved to administer or proctor assessment.	Online or classroom certification	75%	Cost?	Also referred to as NRFSP and Prometric.
Food Service Occupations	Culinary Arts - Level 1 - Prep Cook	Job Ready Assessment	NOCTI	http://www.nocti.org/PDFs/JobReady/4236_Culinary_Arts_Level-1.pdf	Job-ready assessment that verifies student mastery of the knowledge and skills in restaurant & food/ beverage services careers.	Online	National norm	\$19 for post-test only; \$31 for pre-test & post-test	
Food Service Occupations	Food Handler Safety Certification	Certification	Food Safety Administration	https://www.servsafe.com/home	Take the test online at certified testing center - NRFSP or Prometric	Online or classroom certification	70%	\$14.95 per exam	Basic certification for beginning food service worker

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Food Science	Food Science Fundamentals	Pre-Professional Assessment & Certification Pre-PAC	American Association of Family & Consumer Sciences (AAFCS)	http://www.aafcs.org/CredentiaingCenter/Assessment_Portfolio.asp	Broad-based assessment that verifies student mastery of the knowledge and skills in food science fundamentals.	Online	65%	\$25 per exam	Use this link for managing assessments and certifications: http://www.aafcs.org/CredentiaingCenter/test.asp

Pathway: Food Products and Processing Systems
 Cluster: Agriculture, Food and Natural Resources

KEY: Y=Essential N=Not Essential O=Optional

PERFORMANCE INDICATOR	PERFORMANCE MEASURE	COMMON CORE COMPETENCIES Consensus among work group		COMMENTS
		Secondary: Agriculture; Family & Consumer Science (FACS)	Post - secondary	
TOPIC 1: ACADEMIC FOUNDATIONS: Achieve additional academic knowledge and skills required to pursue the full range of career and education opportunities within a career cluster and/or career pathway.				
INDICATOR 01.01 Complete required training, education, and certification to prepare for employment in a particular career field.	MEASURE 01.01.01 Identify training, education and certification requirements for occupational choice.	Y/Y	N	Comment from Postsecondary: Mentor students to continue on for a 4-year degree Comment from Business/Industry: Mentoring employees to advance in career
	MEASURE 1.01.02 Participate in career-related training and/or degree programs.	Y/O	N	Comment from Business/Industry: Education requirements: 1) At least HS diploma; 2) Bachelor's Degree; 3) Masters Degree; 4) Doctorate Degree; 5) Experience; move up career ladder with experience
	MEASURE 1.01.03 Pass certification tests to qualify for licensure and/or certification in chosen occupational area.	O/O	Y	
INDICATOR 01.02 Demonstrate language arts knowledge and skills required to pursue the full range of post-secondary education and career opportunities.	MEASURE 01.02.01 Model behaviors that demonstrate active listening.	Y/Y	Y	Comment from Business/Industry: Topic 1: Foundational skills; focus in language arts classes but applied in CTE programs
	MEASURE 01.02.02 Adapt language for audience, purpose, situation. (i.e. diction/structure, style).	Y/Y	Y	Comment from Business/Industry: Addressing multi-cultural groups

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		Secondary: Agriculture; Family & Consumer Science (FACS)	Post - secondary	
	MEASURE 01.02.03 Organize oral and written information.	Y/Y	Y	
	MEASURE 01.02.04 Compose focused copy for a variety of written documents such as agendas, audio-visuals, bibliographies, drafts, forms/documents, notes, oral presentations, reports, and technical terminology.	Y/O	Y	
	MEASURE 01.02.05 Present formal and informal speeches including discussion, information requests, interpretation, and persuasive arguments.	Y/Y	Y	
INDICATOR 01.03 Demonstrate mathematics knowledge and skills required to pursue the full range of post-secondary education and career opportunities.	MEASURE 01.03.01 Identify whole numbers, decimals, and fractions.	Y/Y	Y	
	MEASURE 01.03.02 Demonstrate knowledge of basic arithmetic operations such as addition, subtraction, multiplication, and division.	Y/Y	Y	

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		Secondary: Agriculture; Family & Consumer Science (FACS)	Post - secondary	
	MEASURE 01.03.03 Demonstrate use of relational expressions such as equal to, not equal, greater than, less than, etc.	Y/Y	Y	
	MEASURE 01.03.04 Apply data and measurements to solve a problem.	Y/Y	Y	
	MEASURE 01.03.05 Analyze mathematical problem statements for missing and/or irrelevant data.	Y/N	Y	
	MEASURE 01.03.06 Construct charts/tables/graphs from functions and data.	Y/O	Y	
	MEASURE 01.03.07 Analyze data when interpreting operational documents.	Y/Y	Y	
INDICATOR 01.04 Demonstrate science knowledge and skills required to pursue the full range of post-secondary and career education opportunities.	MEASURE 01.04.01 Evaluate scientific constructs including conclusions, conflicting data, controls, data, inferences, limitations, questions, sources of errors, and variables.	Y/O	Y	Comment from Secondary FACS: Food Products vs. Food Processing

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		Secondary: Agriculture; Family & Consumer Science (FACS)	Post - secondary	
	MEASURE 01.04.02 Apply scientific methods in qualitative and quantitative analysis, data gathering, direct and indirect observation, predictions, and problem identification.	Y/Y	Y	Comment from Business/Industry: Scientific methods can be applied to food selection in FACS or Ag classes.
INDICATOR 01.05 Envision emerging technology and globalization and project its influence on widespread markets to demonstrate an understanding of technologies and trends that will impact the food products and processing industry.	MEASURE 01.05.01 Examine new technologies to project and their impact in the global market of technology.	Y/Y	Y	Comment from Business/Industry:
				1) Food science measuring equipment (i.e. viscosometer);
				2) Can be applied in FACS or Ag classes - farm to table. <i>e.g., Convert drawings from US Standard to metric.</i>
				<i>e.g., Identify ways that global regulations impact system designs.</i>
<i>e.g., Identify and discuss use of new technologies (such as lasers and robotics) and their impact on food products and processing systems.</i>				
<i>e.g., Discuss the importance of new communication systems and how they impact food products and processing systems.</i>				

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		Secondary: Agriculture; Family & Consumer Science (FACS)	Post - secondary	
	MEASURE 01.05.02 Discuss the relationship between the advancement of technology and the need for continuing education/ career development.	Y/Y	Y	<p><i>e.g., Research and discuss emerging technologies and the skills they require.</i></p> <p><i>e.g., Discuss history of systems over the last century and discuss how emerging technology and career training will be essential to meet market demands.</i></p>
TOPIC 2: COMMUNICATIONS - Communicate clearly and effectively with reason including technical terminology and information.				
INDICATOR 02.01 Use oral and written communication skills in creating, expressing and interpreting information and ideas including technical terminology to communicate technical information within food products and processing systems.	MEASURE 02.01.01 Write clearly to communicate written ideas, results and questions to all types of people.	Y/Y	Y	<p>Comment from Business/Industry: *Important in communication to lay populations; also technical writing is important; *Can be implemented In CTE student organizations.</p> <p><i>e.g., Write with effective language to produce written communications for journals, newsletters, or other informative articles.</i></p> <p><i>e.g., Explain aspects of the industry to people not involved in it, and discuss its components.</i></p>
	MEASURE 02.01.02 Model the use of strategies and techniques for enhancing the clarity and effectiveness of oral communication in order to engage in dialogue with members of an example career field.	Y/Y	Y	<p>Comment from Business/Industry: Aligned with lab protocol; found in HS science classes, can be used in CTE classes with Food Science focus.</p> <p><i>e.g., Monitor different kinds of behavior in order to improve communication.</i></p>

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				e.g., Prepare presentations to explain to both large groups and individuals issues of concern to the industry.
				e.g., Discuss aspects of the industry competently to an audience of both professionals and people not involved in the industry.
INDICATOR 02.02 Employ the use of technical information effectively to maintain and communicate records and reporting procedures commonly used in food products and processing systems.	MEASURE 02.02.01 Document work and processes using technical communication methods and procedures.	Y/Y	Y	e.g., Record technical information.
				e.g., Compose technical reports.
				e.g., Communicate documentation to others.
TOPIC 3: PROBLEM-SOLVING AND CRITICAL THINKING - Utilize critical thinking skills to make sense of problems and persevere in solving them. Employ valid, reliable research strategies. Demonstrate creativity and innovation.				
INDICATOR 03.01 Use critical thinking skills independently and in teams to solve problems and make decisions.	MEASURE 03.01.01 Analyze elements of a problem to develop creative solutions.	Y/Y	Y	
	MEASURE 03.01.02 Use problem-solving, critical thinking, and creativity skills to improve a situation or process.	Y/Y	Y	e.g., Ideas, proposals, and solutions
	MEASURE 03.01.03 Generate new and creative ideas to solve problems.	Y/Y	Y	

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		Secondary: Agriculture; Family & Consumer Science (FACS)	Post - secondary	
	MEASURE 03.01.04 Analyze information to determine value to the problem-solving task.	Y/Y	Y	
INDICATOR 03.02 Identify, write and monitor workplace performance goals to guide progress in assigned areas of responsibility and accountability.	MEASURE 03.02.01 Write realistic performance goals, objectives and action plans.	Y/Y	Y	Comment from Business/Industry: Critical thinking skills are foundational to CTE courses; transferrable to specific industries.
	MEASURE 03.02.02 Monitor performance goals and adjust as necessary.	Y/Y	Y	
	MEASURE 03.02.03 Communicate goal achievement.	Y/Y	Y	
INDICATOR 03.03 Conduct technical research to gather information necessary for decision-making.	MEASURE 03.03.01 Gather information and data using a variety of resources.	Y/Y	Y	Comment from Business/Industry: Nutrition decisions.
	MEASURE 03.03.02 Analyze and evaluate information and data for value to the research objectives.	O/O	Y	Comment from Business/Industry: Important to be able to read and analyze the validity of a research paper.

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TOPIC 4: TECHNOLOGY APPLICATIONS - Use technology to enhance productivity.				
INDICATOR 04.01 Access, manage, integrate and create information using information technology tools specific to food products and processing systems in order to facilitate people, machines, and logistics.	MEASURE 04.01.01 Access, manage, integrate and create information using information technology tools specific to food products and processing systems in order to facilitate people, machines, and logistics.	Y/O	Y	
TOPIC 5: ORGANIZATIONAL AND GLOBAL SYSTEMS – Understand the environmental, social, and economic impacts of decisions within an organization. Understand global context of industries and careers.				
INDICATOR 05.01 Examine and summarize roles within teams, work units, departments, organizations, interorganizational systems, and the larger environment to understand the nature and scope of food products and processing systems organizations and industry.	MEASURE 05.01.01 Examine company performance and goals within Food Products and Processing organizations and the food products and processing systems industry.	Y/N	O	<i>e.g., Examine the role and major functions of organizations to better utilize guidelines.</i>
				<i>e.g., Explain the major guidelines used by organizations to manage and improve performance.</i>
				<i>e.g., Examine economic, social and technological changes to spotlight their impact on organizations and the industry.</i>
				<i>e.g., Explain technological changes to reveal their impact on information technology and transportation.</i>

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		Secondary: Agriculture; Family & Consumer Science (FACS)	Post - secondary	
INDICATOR 05.02 Identify how key organizational systems affect organizational performance and the quality of products and services to demonstrate an understanding of how food products and processing systems are managed and improved.	MEASURE 05.02.01 Manage and improve organizational systems to better serve customers.	O/O	Y	<i>e.g., Evaluate customer needs to manage relationships with both internal and external customers.</i>
				<i>e.g., Develop and manage plans and budgets to accomplish organizational goals and objectives.</i>
				<i>e.g., Develop plans to improve organizational performance including customer satisfaction and service/operations performance.</i>
				<i>e.g., Develop plans to maintain compliance with organizational policies and government laws and regulations.</i>
	MEASURE 05.02.02 Summarize the components and maintenance requirements of each food products and processing systems.	O/N	Y	<i>e.g., Develop management plans to improve the food products and processing systems.</i>
				<i>e.g., Determine goals and objectives for each system to manage organizational activities more effectively.</i>
<i>e.g., Prepare and operate systems and technical tools to access, manage, integrate, evaluate and create information.</i>				

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		Secondary: Agriculture; Family & Consumer Science (FACS)	Post - secondary	
TOPIC 6: SAFETY, HEALTH, AND ENVIRONMENT – Understand the importance of safety, health, and environmental management systems and their importance to organizational performance and regulatory compliance.				
INDICATOR 06.01 Maintain safe and healthful working conditions and environment that adhere to employee rights and responsibilities and employer obligations in order to promote well-being in the food products and processing systems workplace.	MEASURE 06.01.01 Assess workplace conditions with regard to safety and health.	Y/Y	O	e.g., Identify the types of risk of injury/illness at work.
				e.g., Identify those who are susceptible to risk of injury/illness at work.
				e.g., Describe ways to positively impact occupational safety and health.
	MEASURE 06.01.02 Demonstrate application of rules and laws designed to promote safety and health.	Y/Y	Y	e.g., Identify key rights of employees related to occupational safety and health.
				e.g., Identify the responsibilities of employers related to occupational safety and health.
				e.g., Explain the role of government agencies in providing a safe workplace.
INDICATOR 06.02 Assess and control types and sources of workplace hazards common to the food products and processing industry in order to demonstrate a working understanding of key health and safety concerns.	MEASURE 06.02.01 Demonstrate methods to correct common hazards.	Y/Y	Y	e.g., Identify and describe common hazards in the workplace.
				e.g., Identify and describe major sources of information about hazards in the workplace (e.g., MSDS, work procedures, exposure control plans, training materials, labels, and signage).

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		Secondary: Agriculture; Family & Consumer Science (FACS)	Post - secondary	
				<p><i>e.g., Identify sources of combustible/flammable materials, fire and emergencies to establish a fire safe environment.</i></p> <p><i>e.g., Interpret safety signs and symbols.</i></p>
	MEASURE 06.02.02 Demonstrate application of personal and group health and safety practices.	Y/Y	Y	<p><i>e.g., Identify procedures necessary for maintaining a safe work area.</i></p> <p><i>e.g., Identify methods to correct common hazards.</i></p> <p><i>e.g., Identify methods for disposing of hazardous materials.</i></p> <p><i>e.g., Demonstrate principals of safe physical movement to avoid slips, trips, and spills.</i></p> <p><i>e.g., Inspect and use protective equipment (PPE).</i></p>
INDICATOR 06.03 Examine and summarize importance of health, safety, and environmental management systems in food products and processing organizations to express their importance to organizational performance and regulatory compliance.	MEASURE 06.03.01 Examine regulations to maintain/improve safety, health and environmental management systems.	Y/Y	Y	<p><i>e.g., Study appropriate resources to identify the major regulatory areas (e.g., personal protective equipment) and government laws and regulations.</i></p> <p><i>e.g., Examine the major system components to realize benefits of health, safety and environmental management systems in organizations.</i></p> <p><i>e.g., Measure or estimate benefits to explain how government agencies promote compliance and improved health, safety and environmental performance to organizations.</i></p>

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				<i>e.g., Examine logistics, distribution and transportation organizations to explain how AFNR organizations promote improved health, safety and environmental performance.</i>
	MEASURE 06.03.02 Develop a plan to maintain and improve health, safety and environmental compliance and performance.	O/N	Y	<i>e.g., Make a personal commitment to safety, health and environmental policies and procedures.</i>
				<i>e.g., Develop plans to improve health, safety and environmental performance.</i>
				<i>e.g., Educate and orient other workers.</i>
	MEASURE 06.03.03 State the importance of safety, health and environmental responsibilities in the workplace to provide operating guidelines.	Y/Y	Y	<i>e.g., Establish a set of safety, health and environmental principles to ensure a high level of performance.</i>
				<i>e.g., Develop a pollution/waste prevention plan to contribute to the total productivity improvement.</i>
	MEASURE 06.03.04 Examine health risks associated with a particular skill to better form personnel safety guidelines.	Y/Y	Y	<i>e.g., Define what level of possible contamination or injury is considered a risk in order to set safety priorities.</i>
				<i>e.g., Assess mental and physical stresses to determine all aspects necessary to perform well and what health risks are associated with both the mental and physical aspects.</i>

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	MEASURE 06.03.05 Identify response plans to handle emergencies.	Y/Y	Y	<i>e.g., Identify various emergency response plan requirements for a facility.</i>
				<i>e.g., Develop an emergency response plan for natural disasters.</i>
	MEASURE 06.03.06 Identify hazards to promote environmental safety.	Y/Y	Y	<i>e.g., Identify general workplace safety hazards.</i>
				<i>e.g., Apply general workplace safety precautions/procedures.</i>
				<i>e.g., Respond to medical emergencies.</i>
				<i>e.g., Explain purpose of pollution control systems.</i>
				<i>e.g., Describe procedures to comply with environmental regulations.</i>
				<i>e.g., Maintain environmental health and safety facilities.</i>
				<i>e.g., Handle chemicals and safety equipment appropriately.</i>
				<i>e.g., Explain ergonomic procedures.</i>
				<i>e.g., Assess workplace safety.</i>
				Comment from Business/Industry: Access MSOS (Material Safety Data Sheets) if necessary
			<i>e.g., Assess a safety-training plan.</i>	
			<i>e.g., Observe all regulatory and safety standards.</i>	

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		Secondary: Agriculture; Family & Consumer Science (FACS)	Post - secondary	
TOPIC 7: LEADERSHIP AND TEAMWORK - Use leadership in collaborating with others to accomplish productive organizational goals and objectives with an awareness of cultural/global competence.				
INDICATOR 07.01 Demonstrate leadership skills to accomplish organizational goals and objectives.	MEASURE 07.01.01 Demonstrate and understand the various roles of leaders within organizations	Y/Y	Y	<i>e.g., Contribute ideas; share in building an organization; act as role models to employees by adhering to company policies, procedures, and standards; promote the organization's vision; and mentor others.</i>
	MEASURE 07.01.02 Exhibit personal and interpersonal skills appropriate to the workplace.	Y/Y	Y	Comment from Business/Industry: Conflict resolution skills.
	MEASURE 07.01.03 Demonstrate leadership and management styles.	Y/Y	Y	
	MEASURE 07.01.04 Participate in civic and community leadership and teamwork opportunities to enhance skills.	Y/O	Y	
INDICATOR 07.02 Employ organizational and staff development skills to foster positive working relationships and accomplish organizational goals.	MEASURE 07.02.01 Work with others to develop and gain commitment to team goals.	Y/Y	Y	
	MEASURE 07.02.02 Model leadership and teamwork qualities to aid in morale.	Y/Y	Y	

Pathway: Food Products and Processing Systems

Cluster: Agriculture, Food and Natural Resources

KEY: Y=Essential N=Not Essential O=Optional

PERFORMANCE INDICATOR	PERFORMANCE MEASURE	COMMON CORE COMPETENCIES Consensus among work group		COMMENTS
		Secondary: Agriculture; Family & Consumer Science (FACS)	Post - secondary	
	MEASURE 07.02.03 Identify and explain best practices for successful team functioning.	Y/Y	Y	
INDICATOR 07.03 Use teamwork skills to achieve collective goals and use team members' talents effectively.	MEASURE 07.03.01 Work with others to achieve objectives in a timely manner.	Y/Y	Y	Comment from Business/Industry: Time management skills
	MEASURE 07.03.02 Promote the involvement and use of team member's individual talents and skills.	Y/Y	Y	Comment from Business/Industry: Motivating skills
	MEASURE 07.03.03 Take responsibility for shared group and individual work tasks.	Y/Y	Y	
	MEASURE 07.03.04 Assist team members in completing their work.	Y/Y	Y	
	MEASURE 07.03.05 Adapt effectively to changes in projects and work activities.	Y/Y	Y	
INDICATOR 07.04 Establish and maintain effective working relationships with all levels of personnel and other departments in order to accomplish objectives and tasks.	MEASURE 07.04.01 Establish and maintain effective working relationships with all levels of personnel in order to accomplish objectives and tasks.	Y/Y	Y	<i>e.g., Use positive interpersonal skills to work cooperatively with co-workers representing different cultures, genders and backgrounds.</i>
				<i>e.g., Manage personal skills to accomplish assignments.</i>
				<i>e.g., Treat people with respect.</i>

Pathway: Food Products and Processing Systems

Cluster: Agriculture, Food and Natural Resources

KEY: Y=Essential N=Not Essential O=Optional

PERFORMANCE INDICATOR	PERFORMANCE MEASURE	COMMON CORE COMPETENCIES Consensus among work group		COMMENTS
		Secondary: Agriculture; Family & Consumer Science (FACS)	Post - secondary	
				e.g., Provide constructive praise and criticism.
				e.g., Demonstrate sensitivity to and value for diversity.
				e.g., Manage stress and control emotions. Comment from Business/Industry: Conflict resolution
INDICATOR 07.05 Conduct and participate in meetings to accomplish work tasks.	MEASURE 07.05.01 Develop group meeting goals, objectives and/or agenda.	Y/Y	Y	
	MEASURE 07.05.02 Conduct meeting to achieve objectives within scheduled time.	Y/Y	Y	
	MEASURE 07.05.03 Demonstrate effective communication skills in meetings.	Y/Y	Y	
INDICATOR 07.06 Use motivational skills to inspire and teach others.	MEASURE 07.06.01 Use motivational techniques to enhance performance in others.	Y/O	O	Comment from Business/Industry: More leadership/management skills
	MEASURE 07.06.02 Provide guidance to enhance performance in others.	Y/O	O	

Pathway: Food Products and Processing Systems

Cluster: Agriculture, Food and Natural Resources

KEY: Y=Essential N=Not Essential O=Optional

PERFORMANCE INDICATOR	PERFORMANCE MEASURE	COMMON CORE COMPETENCIES Consensus among work group		COMMENTS
		Secondary: Agriculture; Family & Consumer Science (FACS)	Post - secondary	
TOPIC 8: ETHICS AND LEGAL RESPONSIBILITIES –Know, understand, and model the importance of ethics, integrity, and legal responsibilities.				
INDICATOR 08.01 Demonstrate workplace ethics specific to food products and processing occupations in order to reflect effective stewardship of resources.	MEASURE 08.01.01 Demonstrate evidence of interest and concern for food products and processing and ethics.	Y/O	Y	e.g., Explain how personal choices are related to natural resource sustainability.
	MEASURE 08.01.02 Exercise personal habits and actions to demonstrate workplace ethics.	Y/O	Y	e.g., Explain how personal workplace actions can affect the resource.
TOPIC 9: CAREER DEVELOPMENT, EMPLOYABILITY, AND CITIZENSHIP –Attend to personal health and financial well-being. Know and understand the importance of employability skills. Plan education and career paths aligned to personal goals and employability goals. Act as a responsible and contributing citizen and employee.				
INDICATOR 09.01 Explain written organizational policies, rules and procedures common to the food products and processing workplaces to ensure employees perform job functions effectively.	MEASURE 09.01.01 Locate appropriate information on organizational policies in handbooks and manuals.	O/N	O	e.g., Identify the contents of various organizational publications. Comment from Business/Industry: Essential for internship and work-based learning experience
				e.g., Select the appropriate document(s) as reference for the situation. Comment from Business/Industry: Awareness about organizational structure, policies & procedures.

Pathway: Food Products and Processing Systems

Cluster: Agriculture, Food and Natural Resources

KEY: Y=Essential N=Not Essential O=Optional

PERFORMANCE INDICATOR	PERFORMANCE MEASURE	COMMON CORE COMPETENCIES Consensus among work group		COMMENTS
		Secondary: Agriculture; Family & Consumer Science (FACS)	Post - secondary	
	MEASURE 09.01.02 Discuss how specific organizational policies and rules influence a specific work situation.	O/N	O	<p><i>e.g., Locate and identify specific organizational policy, rule or procedure to assist with a given situation.</i></p> <p><i>e.g., Explain specific organizational policy, rule or procedure to improve a given situation.</i></p>
INDICATOR 09.02 Select, research and examine critical aspects of career opportunities in food products and processing systems in order to gain an understanding of the breadth of occupations within this pathway.	MEASURE 09.02.01 Locate and identify career opportunities that appeal to personal career goals.	Y/Y	Y	<p><i>e.g., Locate and interpret career information for at least one career cluster.</i></p> <p><i>e.g., Identify job requirements for career pathways.</i></p> <p><i>e.g., Identify educational and credentialing requirements for career cluster and pathways.</i></p>
	MEASURE 09.02.02 Match personal interest and aptitudes to selected careers.	O/O	O	<p><i>e.g., Identify personal interests and aptitudes.</i></p> <p><i>e.g., Identify job requirements and characteristics of selected careers.</i></p> <p><i>e.g., Compare personal interests and aptitudes with job requirements and characteristics of career selected.</i></p> <p><i>e.g., Modify career goals based on results of personal interests and aptitudes with career requirements and characteristics.</i></p>

Core Competencies

7/1/2014

Pathway: Food Products and Processing Systems (FPP)

Cluster: Agriculture, Food and Natural Resources (AFNR)

PERFORMANCE INDICATOR	PERFORMANCE MEASURE	COMMON CORE		COMMENTS
		Secondary-Agriculture; Family & Consumer Sciences (FACS)	Post-secondary	
TOPIC 10: TECHNICAL LITERACY – Apply technical knowledge and skills required to pursue careers in a specific career cluster and/or career pathway.				
INDICATOR 10.01 Examine components of the food industry and historical development of food products and processing.	MEASURE 10.01.01 Evaluate the significance and implications of changes and trends in the food products and processing industry.	Y/Y	O	Measure 10.01.01 A Level 1: Discuss the history and describe and explain the components (e.g., processing, distribution, byproducts) of the food products and processing industry.
		Y/Y	N	Level 2: Evaluate changes and trends in the food products and processing industry.
		Y/Y	Y	Measure 10.01.01B Level 1: Identify and explain environmental and safety concerns about the food supply.
		Y/Y	Y	Level 2: Discuss the issues of safety and environmental concerns about foods and food processing (e.g., Genetically Modified Organisms, microorganisms, contamination, irradiation).
		O/O	Y	Level 3: Determine appropriate industry response to consumer concerns to assure a safe and wholesome food supply.
	MEASURE 10.01.02 Work effectively with industry organizations, groups and regulatory agencies affecting the food products and processing industry.	Y/Y	Y	Measure 10.01.02A Level 1: Explain the purposes of organizations that are part of or regulate the food products and processing industry.
		O/O	Y	Level 2: Evaluate the changes in the food products and processing industry brought about by industry organizations or regulatory agencies. e.g. Additives (ascertain in food science)

		N/N	Y	<i>Level 3: Interact effectively with organizations, groups and regulatory agencies that affect the food products and processing industry.</i>
		Y/Y	Y	Measure 10.01.02B <i>Level 1: Explain the importance and usage of industry standards in food products and processing.</i>
		Y/Y	Y	<i>Level 2: Discuss the application of industry standards in the food products and processing industry.</i>
		N/N	Y	<i>Level 3: Prepare a plan for implementation of industry standards in food products and processing programs.</i>
INDICATOR 10.02 Apply safety principles, recommended equipment and facility management techniques to the food products and processing industry.	MEASURE 10.02.01 Manage operational procedures and create equipment and facility maintenance plans.	Y/Y	N	Measure 10.02.01A <i>Level 1: Explain the importance of developing and maintaining Sanitation Standard Operating Procedures (SSOP).</i>
		Y/Y	N	<i>Level 2: Evaluate the SSOP of a food products and processing facility. e.g. Sanitation swab in school cafeteria</i>
		Y/O	N	Measure 10.02.01B <i>Level 1: Explain the purpose of Good Manufacturing Practices (GMP). e.g. Tour of food product processing company</i>
		O/O	N	<i>Level 2: Evaluate the GMP of a food products and processing company. e.g. Farm to table; field to table</i>
		O/Y	N	Measure 10.02.01C <i>Level 1: Identify reasons for using a planned maintenance program to maintain equipment and facilities.</i>
		O/N	N	<i>Level 2: Utilize a basic equipment and facility maintenance program.</i>
		N/Y	N	<i>Level 3: Perform basic equipment and facility maintenance in a food products and processing operation.</i>
		MEASURE 10.02.02 Implement Hazard Analysis and Critical Control Point (HACCP) procedures to establish operating parameters.	Y/Y	Y
Y/Y	Y		<i>Level 2: Outline procedures to eliminate possible contamination hazards associated with food products and processing.</i>	

	O/O	Y	Level 3: Analyze the effectiveness of a food products and processing company's Critical Control Point (CCP) procedures. e.g. Farm to table; field to table
	Y/O	Y	Measure 10.02.02B Level 1: Identify the seven principles of HACCP. Comment from Secondary FACS: Essential for ServSafe & ProStart certification.
	Y/O	Y	Level 2: Explain the implementation of the seven principles of HACCP. Comment from Secondary FACS: Essential for ServSafe & ProStart certification.
	N/N	Y	Level 3: Implement an HACCP program for a food products and processing facility.
MEASURE 10.02.03 Apply safety and sanitation procedures in the handling, processing and storing of food products.	Y/Y	Y	Measure 10.02.03A Level 1: Explain techniques and procedures for the safe handling of food products.
	Y/Y	Y	Level 2: Evaluate food product handling procedures.
	Y/Y	Y	Level 3: Demonstrate approved food product handling techniques.
	Y/Y	N	Measure 10.02.03B Level 1: Describe the importance of performing quality-assurance tests on food products. Comment from Secondary FACS: Example - appearance (butter vs. margarine)
	Y/O	N	Level 2: Perform quality-assurance tests on food products.
	Y/O	N	Level 3: Interpret quality-assurance test results and apply corrective procedures. Comment from Business/Industry: Quality lab in food processing facility.
	Y/Y	Y	Measure 10.02.03C Level 1: Describe the effects food-borne pathogens have on food products and humans.
	Y/Y	Y	Level 2: Explain the importance of microbiological tests in food product preparation, listing common spoilage and pathogenic microorganisms.
	Y/O	Y	Level 3: Conduct and interpret microbiological tests for food-borne pathogens and implement corrective procedures. e.g. Food science - agar plate

		N/N	Y	Measure 10.02.03D Level 1 : Explain the importance of record keeping in a food products and processing system.
		N/N	Y	Level 2: Discuss documentation procedures in a food products and processing system.
		N/N	Y	Level 3: Demonstrate proper record keeping in a food products and processing system.
INDICATOR 10.03 Apply principles of science to the food products and processing industry.	MEASURE 10.03.01 Apply principles of science to food processing to provide a safe, wholesome and nutritious food supply.	Y/Y	O	Measure 10.03.01A Level 1 : Discuss how research and industry developments lead to improvements in the food products and processing industry.
		O/O	O	Level 2: Design a research project in food science using the scientific method. Comment from Business/Industry: Mock research project
		O/O	O	Level 3: Conduct research in food science and interpret results to improve food products.
		Y/Y	O	Measure 10.03.01B Level 1 : Explain the application of chemistry and physics to food science. Comment from Secondary FACS: Example -- Function of ingredients
		Y/Y	N	Level 2: Explain how the chemical and physical properties of influence nutritional value and eating quality.
		Y/Y	N	Level 3: Determine the chemical and physical properties of food products. E.g. Baking lesson plan
		Y/Y	Y	Measure 10.03.01C Level 1 : Explain My Plate in relation to essential nutrients for the human diet.
		Y/Y	Y	Level 2: Compare and contrast the nutritive value of food and food groups.
		O/Y	Y	Level 3: Design a daily food guide for a healthful diet.
		Y/Y	Y	Measure 10.03.01D Level 1 : Discuss common food constituents (e.g., proteins, carbohydrates, fats, vitamins, minerals). Comment from Business/Industry: Levels 1, 2, & 3 are essential for food science/basic nutrition classes.
		Y/Y	N	Level 2: Compare and contrast food constituents and their relative value to product taste, appearance, etc. e.g. Functions of ingredients

		Y/Y	Y	Level 3: Analyze food products to identify food constituents/nutrients.
		Y/Y	Y	Measure 10.03.01E Level 1: Identify common food additives (e.g., preservatives, antioxidants, buffers, stabilizers, colors, flavors). Comment from Business/Industry: Levels 1, 2, & 3 are essential for food science/basic nutrition classes.
		Y/Y	Y	Level 2: Describe the purpose of common food additives. e.g. Food preservatives
		Y/O	N	Level 3: Formulate and explain incorporation of additives into food products.
		Y/Y	N	Measure 10.03.01F Level 1: Explain the importance of food labeling to the consumer. Comment from Business/Industry: Level 1, 2, 3: Essential for food science/basic nutrition classes
		Y/Y	N	Level 2: Explain the required components of a food label.
		Y/O	N	Measure 10.03.01G Level 1 : Describe factors in planning and developing a new food product (e.g., regulation, creativity, and economics). Comment from Business/Industry: Level 1, 2, 3: Essential for food science/basic nutrition classes
		Y/O	N	Level 2: Plan and create a new food product.
		Y/O	N	Level 3: Perform sensory-testing and marketing functions to characterize and determine consumer preference and market potential.
INDICATOR 10.04 Select and process food products for storage, distribution and consumption.	MEASURE 10.04.01 Utilize harvesting, selection and inspection techniques to obtain quality food products for processing.	O/Y	N	Measure 10.04.01A Level 1 : Discuss quality and yield grades of food products.
		O/O	N	Level 2: Discuss factors that affect quality and yield grades of food products. Comment from Business/Industry: Working with enzymes
	MEASURE 10.04.02 Evaluate, grade and classify processed food products.	Y/Y	N	Measure 10.04.02 A - Level 1 : Identify and describe foods derived from meat, egg, poultry, fish and dairy products. e.g. Describe where food comes from. Comment from Business/Industry: Measure 10.04.02 All Measures & Levels - Essential for Food Science

	Y/Y	N	<i>Level 2: Discuss desirable qualities of processed meat, egg, poultry, fish and dairy products.</i>
	O/O	N	<i>Level 3: Evaluate, grade and classify processed meat, egg, poultry, fish and dairy products.</i>
	Y/Y	Y	Measure 10.04.02 B - <i>Level 1: Identify and describe products derived from fruits and vegetables.</i>
	Y/Y	N	<i>Level 2: Discuss desirable qualities of fruit and vegetable products.</i>
	O/O	Y	<i>Level 3: Evaluate, grade and classify processed products from fruits and vegetables.</i>
	Y/Y	Y	Measure 10.04.02 C - <i>Level 1: Identify and describe products derived from grains, legumes and oilseeds.</i>
MEASURE 10.04.03 Process, preserve, package and present food and food products for sale and distribution.	Y/O	Y	Measure 10.04.03 A - <i>Level 1: Identify and explain common weights and measures used in the food products and processing industry.</i> Comment from Business/Industry: Measure 10.04.03 All Measures & Levels - Essential for Food Science
	Y/Y	N	<i>Level 2: Weigh and measure food products and perform conversions between units of measure.</i>
	O/O	N	<i>Level 3: Use weights and measures to formulate and package food products.</i>
	O/O	O	Measure 10.04.03 B - <i>Level 1: Explain methods and materials for processing foods as fresh-food products.</i>
	O/O	O	<i>Level 2: Prepare foods for distribution as fresh-food products.</i>
	O/O	O	<i>Level 3: Evaluate foods prepared for the fresh food market based on factors such as shelf life, shrinkage, appearance and weight.</i>
	Y/Y	O	Measure 10.04.03 C - <i>Level 1: Identify methods of food preservation and give examples of foods preserved by each method.</i>
	Y/O	O	<i>Level 2: Explain the processes of food preservation methods.</i>
	Y/O	O	<i>Level 3: Preserve foods using various methods and techniques.</i>
	Y/Y	O	Measure 10.04.03 D - <i>Level 1: Explain techniques for preparing ready-to-eat food products.</i>
	Y/Y	O	<i>Level 2: Demonstrate techniques of preparing ready-to-eat food products.</i>

O/Y	N	<i>Level 3: Evaluate ready-to-eat food products. e.g. Sensory</i>
Y/O	N	Measure 10.04.03 E - <i>Level 1: Explain materials and methods of food packaging and presentation.</i>
Y/O	N	<i>Level 2: Select and utilize packaging materials in storing processed foods and raw food products.</i>
Y/O	N	<i>Level 3: Analyze the foods stored in various packaging materials to determine which materials retain desirable food qualities.</i>
Y/Y	N	Measure 10.04.03 F - <i>Level 1: Identify and explain storage conditions to preserve product quality.</i>
Y/O	N	<i>Level 2: Select methods and conditions for storing raw and processed food products.</i>
Y/O	N	<i>Level 3: Compare and contrast foods stored under varying conditions for quality, shelf life and intended use.</i>

Technical Skill Assessment Blueprint

7/1/2014

Pathway: Food Products & Processing Systems - Food Science

Cluster: Agriculture, Food, and Natural Resources

An "assessment blueprint" is a document that indicates the knowledge and skills that will be covered in an assessment instrument and the percentage of the assessment that will be devoted to each area of knowledge and skills. The Minnesota assessment blueprints will be used to review the appropriateness of existing assessments by determining how closely those assessments match up to what the Food Products & Processing Systems career pathway working groups have determined should be assessed. The assessment blueprints can also be used to guide the development of new assessments where suitable third-party assessments do not exist.

		SECONDARY	POST-SECONDARY	BUSINESS & INDUSTRY
		% of Assessment ↓	% of Assessment ↓	% of Assessment ↓
TOPIC 1	ACADEMIC FOUNDATIONS: Achieve additional academic knowledge and skills required to pursue the full range of career and education opportunities within a career cluster and/or career pathway.	12%	25%	10%
TOPIC 2	COMMUNICATIONS - Communicate clearly and effectively with reason including technical terminology and information.	10%	8%	10%
TOPIC 3	PROBLEM-SOLVING AND CRITICAL THINKING - Utilize critical thinking skills to make sense of problems and persevere in solving them. Employ valid, reliable research strategies. Demonstrate creativity and innovation.	10%	15%	10%
TOPIC 4	TECHNOLOGY APPLICATIONS - Use technology to enhance productivity.	5%	5%	5%
TOPIC 5	ORGANIZATIONAL AND GLOBAL SYSTEMS – Understand the environmental, social, and economic impacts of decisions within an organization. Understand global context of industries and careers.	5%	10%	10%
TOPIC 6	SAFETY, HEALTH, AND ENVIRONMENT – Understand the importance of safety, health, and environmental management systems and their importance to organizational performance and regulatory compliance.	13%	5%	13%
TOPIC 7	LEADERSHIP AND TEAMWORK - Use leadership in collaborating with others to accomplish productive organizational goals and objectives with an awareness of cultural/global competence.	10%	10%	12%
TOPIC 8	ETHICS AND LEGAL RESPONSIBILITIES – Know, understand, and model the importance of ethics, integrity, and legal responsibilities.	5%	5%	15%
TOPIC 9	CAREER DEVELOPMENT, EMPLOYABILITY, AND CITIZENSHIP –Attend to personal health and financial well-being. Know and understand the importance of employability skills. Plan education and career paths aligned to personal goals and employability goals. Act as a responsible and contributing citizen and employee.	10%	2%	5%
TOPIC 10	TECHNICAL LITERACY – Apply technical knowledge and skills required to pursue careers in a specific career cluster and/or career pathway.	20%	15%	10%
		100%	100%	100%



Agriculture, Food & Natural Resources: Food Products and Processing Systems

Career Pathway Plan of Study for ► Learners ► Parents ► Counselors ► Teachers/Faculty

This Career Pathway Plan of Study (based on the Food Products and Processing Systems Pathway of the Agriculture, Food and Natural Resources Career Cluster) can serve as a guide, along with other career planning materials, as learners continue on a career path. Courses listed within this plan are only recommended coursework and should be individualized to meet each learner's educational and career goals. *This Plan of Study, used for learners at an educational institution, should be customized with course titles and appropriate high school graduation requirements as well as college entrance requirements.

EDUCATION LEVELS	GRADE	English/ Language Arts	Math	Science	Social Studies/ Sciences	Other Required Courses Other Electives Recommended Electives Learner Activities	*Career and Technical Courses and/or Degree Major Courses for Agribusiness Systems Pathway	Occupations Relating to This Pathway
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Interest Inventory Administered and Plan of Study Initiated for all Learners

SECONDARY	9	English/ Language Arts I	Geometry	Earth or Life or Physical Science	Government & Citizenship	All plans of study should meet local and state high school graduation requirements and college entrance requirements. Local student organizations activities such as FFA, FCCLA, FCCLA-HERO, or SkillsUSA activities are also important for personal growth and leadership development.	<ul style="list-style-type: none"> • Introduction to Food Products & Processing Systems (Agriculture or FACS) • Animal Science or Plant Science • Foods & Nutrition • Food Science • Food and the Consumer • Advanced Food & Nutrition • Agricultural Economics • Internship in Food Products & Processing 	Occupations Requiring Postsecondary Education <ul style="list-style-type: none"> ► Agricultural Communications Specialist ► Agricultural Salesperson ► Food & Drug Inspector ► Food Meal Supervisor ► Food Distributor ► Food Processor ► Food Technologist ► Meat Cutter – Meat Grader ► Meat Processor ► Produce Buyer
	10	English/ Language Arts II	Algebra II	Biology or Agriscience	U.S. History			
	11	English/ Language Arts III	Statistics & Probability	Chemistry or Physics or Food Science	World History			
	<i>College Placement Assessments-Academic/Career Advisement Provided</i>							
	12	English/ Language Arts IV	Math Elective	Science Elective (e.g. CTE Science Equivalent – Food Science)	Economics (Ag Ed./ Bus. Ed./ Social Studies)			

Articulation/Dual Credit Transcribed-Postsecondary courses may be taken/moved to the secondary level for articulation/dual credit purposes.

POSTSECONDARY	Year 1	Required Transfer Curriculum Goals Determined by Local College Program in College Year 1 and Year 2 - Goal 1: Communication; Goal 2: Critical Thinking/Problem-Solving; Goal 3: Natural Science; Goal 4: Mathematical/Logical Reasoning; Goal 5: History and the Social and Behavior Sciences; Goal 6: The Humanities and the Arts; Goal 7: Human Diversity; Goal 8: Global Perspective; Goal 9: Ethical and Civic Responsibility; Goal 10: People and the Environment			All plans of study need to meet learners' career goals with regard to required degrees, licenses, certifications or journey worker status. Certain local student organization activities such as PAS may also be important to include.	<ul style="list-style-type: none"> • Core Science Courses (e.g. Biology, Chemistry, Microbiology, Biochemistry) • Pathway Courses (e.g. Introduction to Food Science) • Continue Courses Required for Food Science Major • Complete Food Science Major (4-Year Program) 	Occupations Requiring Baccalaureate Degree <ul style="list-style-type: none"> ► Agriculture Educator ► Bacteriologist ► Biochemist ► Bioengineer ► Food & Fiber Engineer ► Food Scientist- Research ► Meat Science Researcher ► Microbiologist ► Quality Control Specialist
	Year 2	Continue Courses in Area of Specialization					
	Year 3	Continue Courses in Area of Specialization					
	Year 4	Continue Courses in the Area of Specialization.					