

# STEM AND FCS CONNECTION

*Addressing the need for STEM education and STEM success has a connection to Family and Consumer Sciences at the foundational level.*

*Family and Consumer Sciences has many connections to STEM which range from food technology, nutrition science and textile industry to early STEM skill development, including critical and innovative thinking to effective communication and ability to work in teams successfully.*

*FCS is applied science, technology and math through context such as nutrition, food science, apparel, textiles and interior design. FCS promotes STEM philosophy through problem based instruction pulling from social, biological and chemical sciences. FCS is foundational STEM including a plan process model which offers instruction to the engineering design process.*

*Below is a crosswalk between STEM Standards of Practice and NASAFACS National Standards and Competencies. This is not a comprehensive crosswalk, but a beginning document to promote conversations about how FCS and STEM are interconnected at all levels.*

STEM Standards of Practice	NASAFACS National Standards and Competencies
<p><b>STEM Standard of Practice 1: Learn and Apply Rigorous Science, Technology, Engineering, and Mathematics Content</b>  <i>STEM proficient students will learn and apply rigorous content within science, technology, engineering, and mathematics disciplines to answer complex questions, to investigate global issues, and to develop solutions for challenges and real world problems.</i></p>	
<p>A. Demonstrate an understanding of science, technology, engineering, and mathematics content</p>	<p>8.3 Demonstrate industry standards in selecting, using, and maintaining food production and food service equipment.  9.3 Evaluate nutrition principles, food plans, preparation techniques and specialized dietary plans.  14.5 Evaluate the influence of science and technology on food, nutrition, and wellness.</p>
<p>B. Apply science, technology, engineering, or mathematics content to answer complex questions, to investigate global issues, and to develop solutions for challenges and real world problems.</p>	<p>1.1 Analyze strategies to manage multiple roles and responsibilities (individual, family, career, community, and global).  2.6 Demonstrate management of financial resources to meet the goals of individuals and families across the life span.  2.7 Demonstrate the ability to use knowledge and skills to manage one's financial resources effectively for a lifetime of financial security.  9.4 Apply basic concepts of nutrition and nutrition therapy in a variety of settings, considering social, geographical, cultural, and global influences.</p>

<p><b>STEM Standard of Practice 2: Integrate Science, Technology, Engineering, and Mathematics Content</b> STEM proficient students will integrate content from Science, Technology, Engineering, and Mathematics disciplines as appropriate to answer complex questions, to investigate global issues, and to develop solutions for challenges and real world problems.</p>	
<p>A. Analyze interdisciplinary connections that exist within science, technology, engineering, and mathematics disciplines and other disciplines</p>	<p>5.7 Demonstrate facilities management functions. 8.2 Demonstrate food safety and sanitation procedures. 14.3 Demonstrate ability to acquire, handle, and use foods to meet nutrition and wellness needs of individuals and families across the life span. 11.2 Evaluate housing and design concepts and theories, including sustainability and universal design, in relation to available resources and options.</p>
<p>B. Apply integrated science, technology, engineering, mathematics content, and other content as appropriate to answer complex questions, to investigate global issues, and to develop solutions for challenges and real world problems.</p>	<p>1.3 Evaluate the reciprocal effects of individual and family participation in community and civic activities. 2.2 Analyze the relationship between the global environment and family and consumer resources.</p>
<p><b>STEM Standard of Practice 3: Interpret and Communicate Information from Science, Technology, Engineering, and Mathematics</b> STEM proficient students will interpret and communicate information from science, technology, engineering, and mathematics to answer complex questions, to investigate global issues, and to develop solutions for challenges and real world problems.</p>	

<p>A. Identify, analyze, and synthesize appropriate science, technology, engineering, and mathematics information (text, visual, audio, etc.).</p>	<p>2.3 Analyze policies that support consumer rights and responsibilities.  3.4 Analyze resource consumption for conservation and waste management practices.  5.3 Demonstrate sanitation procedures for a clean and safe environment.  7.5 Evaluate services for individuals and families with a variety of conditions that could impact their well-being.</p>
<p>B. Apply appropriate domain-specific vocabulary when communicating science, technology, engineering, and mathematics content.</p>	<p>5.4 Apply hazardous materials and waste management procedures.  11.3 Apply residential and commercial interior design knowledge, skills and processes to meet specific design needs.</p>
<p>C. Engage in critical reading and writing of technical information.</p>	<p>3.2 Analyze factors, including cultural, political, and geographical influences that affect consumer advocacy.  11.8 Analyze professional practices and procedures for business profitability and career success, and the role of ethics in the housing, interiors and furnishings industries.  15.3 Evaluate external support systems that provide services for parents.</p>
<p>D. Evaluate and integrate multiple sources of information (e.g.: quantitative data, video, multimedia)</p>	<p>3.3 Analyze factors in guiding development of long-term financial management plans.  3.5 Demonstrate skills needed for product development, testing, and presentation.  14.4 Evaluate factors that affect food safety from production through consumption.  15.2 Evaluate parenting practices that maximize human growth and development.</p>

<p>E. Develop an evidence-based opinion or argument.</p>	<p>7.4 Analyze the impact of conditions that could influence the well-being of individuals and families.  11.7 Apply design knowledge, skills, processes, and theories and oral, written, and visual presentation skills to communicate design ideas.  13.2 Analyze personal needs and characteristics and their effects on interpersonal relationships</p>
<p>F. Communicate effectively and precisely with others.</p>	<p>4.2 Analyze developmentally appropriate and culturally responsive practices to plan for early childhood, education, and services.  7.3 Demonstrate professional behaviors, skills, and knowledge in providing family and human services.  8.7 Demonstrate the concept of internal and external customer service.</p>
<p><b>STEM Standard of Practice 4: Engage in Inquiry</b>  <i>STEM proficient students will engage in inquiry to investigate global issues, challenges, and real world problems.</i></p>	
<p>A. Ask questions to identify and define global issues, challenges, and real world problems.</p>	<p>2.5 Analyze relationships between the economic system and consumer actions in a global context.  8.5 Demonstrate professional food preparation methods and techniques for all menu categories to produce a variety of food products that meet customer needs.  14.1 Analyze factors that influence nutrition and wellness practices across the life span.</p>

<p>B. Conduct research to refine questions and develop new questions</p>	<p>6.2 Evaluate the effects of diverse perspectives, needs, and characteristics of individual and families.  12.1 Analyze principles of human growth and development across the life span.  12.2 Analyze conditions that influence human growth and development.</p>
<p><b>STEM Standard of Practice 5: Engage in Logical Reasoning</b>  <i>STEM proficient students will engage in logical reasoning to answer complex questions, to investigate global issues, and to develop solutions for challenges and real world problems.</i></p>	
<p>A. Engage in critical thinking</p>	<p>11.9 Develop a global view to weigh design decisions with the parameters of sustainability and socioeconomic and cultural contexts within the housing, interior design, and furnishings industries.  15.4 Analyze physical and emotional factors related to beginning the parenting process.</p>
<p>B. Evaluate, select, and apply appropriate systematic approaches (scientific and engineering practices, engineering design process, and/or mathematical practices).</p>	<p>5.5 Demonstrate a work environment that provides safety and security.  8.6 Demonstrate implementation of food service management and leadership functions.</p>
<p>C. Apply science, technology, engineering, and mathematics content to construct creative and innovative ideas.</p>	<p>4.3 Demonstrate integration of curriculum and instruction to meet developmental needs and interests of children, youth and adults, considering gender, ethnicity, geographical, cultural, and global influences.  4.4 Demonstrate a safe and healthy learning environment for children, youth and adults.  9.2 Apply risk management procedures to food safety, food testing, and sanitation.</p>

<p>D. Analyze the impact of global issues and problems at the local, state, national, and international levels.</p>	<p>11.9 Develop a global view to weigh design decisions with the parameters of sustainability and socioeconomic and cultural contexts within the housing, interior design, and furnishings industries. 15.3 Evaluate external support systems that provide services for parents</p>
<p><b>STEM Standard of Practice 6: Collaborate as a STEM Team</b> <i>STEM proficient students will collaborate as a STEM team to answer complex questions, to investigate global issues, and to develop solutions for challenges and real world problems.</i></p>	
<p>A. Identify, analyze, and perform a STEM specific subject matter expert role.</p>	<p>5.2 Demonstrate planning, organizing, and maintaining an efficient operation of residential or commercial facilities. 6.1 Analyze the effects of family as a system on individuals and society 10.2 Demonstrate procedures applied to safety, security, and environmental issues. 10.6 Demonstrate management of recreation, leisure, and other programs and events. 13.6 Demonstrate standards that guide behavior in interpersonal relationships.</p>
<p>B. Share ideas and work effectively with a STEM focused multidisciplinary team to achieve a common goal.</p>	<p>4.5 Demonstrate skills for building and maintaining positive collaborative relationships with children, youth and adults in their family and community environments, considering gender, ethnicity, geographical, cultural, and global influences. 4.6 Demonstrate professional practices and standards related to working with children, youth and adults, including diverse populations. 13.4 Evaluate effective conflict prevention and management techniques.</p>

C. Listen and be receptive to ideas of others.	6.2 Evaluate the effects of diverse perspectives, needs, and characteristics of individual and families. 10.3 Apply concepts of quality service to ensure customer satisfaction. 13.3 Demonstrate communication skills that contribute to positive relationships
D. Analyze career opportunities that exist in a variety of STEM fields relevant to the STEM focused multidisciplinary team's goal.	3.1 Analyze career paths within consumer service industries. 4.1 Analyze career paths within early childhood, education & related services. 5.1 Analyze career paths within the facilities management and maintenance areas. 7.1 Analyze career paths within family and human services 8.1 Analyze career paths within the food production and food services industries. 9.1 Analyze career paths within food science, food technology, dietetics, and nutrition industries.
<p><b>STEM Standard of Practice 7: Apply Technology Strategically</b>  <i>STEM proficient students will apply technology appropriately to answer complex questions, to investigate global issues, and to develop solutions for challenges and real world problems.</i></p>	
A. Identify and understand technologies needed to develop solutions to problems or construct answers to complex questions.	9.6 Demonstrate food science, dietetics, and nutrition management principles and practices.
B. Analyze the limits, risks, and impacts of technology.	2.4 Evaluate the effects of technology on individual and family resources in a global context.
C. Engage in responsible/ethical use of technology.	9.5 Demonstrate use of science and technology advancements in food product development and marketing.