

Dairy Foods

Academic Content Area: Mathematics – Grade 11

Career Development Event Content

1. Develop abilities to utilize knowledge of high quality milk production and marketing related to: milk regulations, grades and classes, cleaning and sanitizing, cooling milk, developing marketing concepts, economics and distribution, disease transmission and cause of off flavors.
2. Develop abilities to utilize knowledge of the composition and quality characteristics of raw and pasteurized milk through several different testing methods.
3. Develop and understanding of the causes and control of mastitis, its influences on milk quality and yield and the use of mastitis detection methods in controlling the disease in productions of abnormal milk through: cause, prevention, detection, treatment and regulatory programs.
4. Identify cheese varieties, flavor of milk, defects of milker unit parts.
5. Differentiate dairy products from non-dairy products.

Related Academic Standards/Anchors

Objectives 1-5: 2.1.11.A; 2.2.11.A,B,C; 2.5.11.A,B,C

Connecting Examples: CDE Objectives and Standards/Anchors

Ex. 1 – Related to 2.5.11.A: Select and use appropriate mathematical concepts and techniques from different areas of mathematics and apply them to solving non-routine and multi-step problems. **Students will need to use appropriate mathematical concepts and techniques when calculating and executing team events. For example, calculate the price of class III milk by summing the values of butterfat, protein and other solids. The formula used is as follows: Butterfat value/lb. = (price of butter – make allowance) x yield factor.**

Ex. 2 – Related to 2.5.11.B: Use symbols, mathematical terminology, standard notation, mathematical rules, graphing and other types of mathematical representations to communicate observations, predictions, concepts, procedures, generalizations ideas and results. **Students complete various calculations during the career development problem-solving component. For example, calculate the value of protein in class III milk. The formula used is as follows: Protein value/lb. = ((cheese price – make allowance) x protein's yield factor) + (((cheese price – make allowance) x fat's yield factor) – butterfat price) x fat to protein ratio).**

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Objectives 1-5: 2.1.11.A; 2.2.11.A,B,C; 2.5.11.A,B,C

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Ex. 2 – Related to 2.5.11.B: Use symbols, mathematical terminology, standard notation, mathematical rules, graphing and other types of mathematical representations to communicate observations, predictions, concepts, procedures, generalizations ideas and results. **Students complete various calculations during the career development problem-solving component. For example, calculate the value of protein in class III milk. The formula used is as follows: Protein value/lb. = ((cheese price – make allowance) x protein’s yield factor) + (((cheese price – make allowance) x fat’s yield factor) – butterfat price) x fat to protein ratio).**

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Academic Content Area: Reading, Writing, Speaking and Listening – Grade 11

Career Development Event Content

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5. Differentiate dairy products from non-dairy products.

Related Academic Standards/Anchors

Objectives 1-5: 1.1.11.A,C,E,F; 1.2.11.A; 1.6.11.A,D,E

Connecting Examples: CDE Objectives and Standards/Anchors

Ex. 1 – Related to 1.2.11.A: Read and understand essential content of informational texts and documents in all academic areas. Sub-points, distinguish between essential and nonessential information across a variety of sources, identify the use of proper references or authorities and propaganda techniques where present and use teacher and student established criteria for making decisions and drawing conclusions. **Prior to the participation in the career development events, students must prepare by reading and studying many texts and documents and must be able to between essential and nonessential information. Also, students must use established teacher criteria for making and drawing conclusions during the contest.**

Ex. 2 – Related to 1.6.11.A: Listen to others. **Students involved in this career development event must, by working together, ask clarifying questions, synthesize information, ideas and opinions to determine relevancy and take notes to produce an analytical and accurate answer for the team event practicum.**

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Academic Content Area: Science and Technology – Grade 10

Career Development Event Content

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2. Develop abilities to utilize knowledge of the composition and quality characteristics of raw and pasteurized milk through several different testing methods.
3. Develop and understanding of the causes and control of mastitis, its influences on milk quality and yield and the use of mastitis detection methods in controlling the disease in productions of abnormal milk through: cause, prevention, detection, treatment and regulatory programs.
4. Identify cheese varieties, flavor of milk, defects of milker unit parts.
5. Differentiate dairy products from non-dairy products.

Related Academic Standards/Anchors

Objectives 1-5: **3.1.10.A,E; 3.2.10.C; 3.4.10.A; 3.7.A,B**

Connecting Examples: CDE Objectives and Standards/Anchors

Ex. 1 – Related to 3.4.10.A: Explain concepts about the structure and properties of matter. Sub-point, apply knowledge of mixtures to appropriate separations techniques. Through the dairy foods career development event, students must be knowledgeable on properties of matter and when mixtures and separations are performed in order to acquire the needed information for analysis.

Ex. 2 – Related to 3.7.10.B: Apply appropriate instruments and apparatus to examine a variety of objects and processes. Sub-point, apply accurate measurement knowledge to solve everyday problems. Students must be prepared to understand the instrumentation used for examination items and apply accurate measurement knowledge during the career development event. For example, identify bacterial standards and general methods of estimating their numbers and understanding sediment testing.