




POWER UP!

COOKING WITH MILK PRODUCTS & EGGS

*A teaching and learning resource for **CTS FOD2060: Milk Products & Eggs***


Teach Nutrition.ca™

By Dairy Farmers of Canada's Registered Dietitians

Egg Farmers of Alberta

Acknowledgements

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Contents

Power Up! Cooking with Milk Products & Eggs is an online, comprehensive teaching and learning resource that supports Career and Technology Studies **FOD2060: Milk Products & Eggs**.

Introduction

The Career and Technology Studies **FOD2060: Milk Products & Eggs** course asks students to develop skills in using milk products and eggs by examining how to retain their nutritional value and quality through a variety of preparation and presentation methods.

Power Up! Cooking with Milk Products & Eggs provides a range of sources and student learning tasks that meet the learning outcomes in the **FOD2060: Milk Products & Eggs** course. These sources and learning tasks can and should be supplemented and supported with additional learning resources and adapted to best meet the learning needs, experiences, interests and contexts of students.

Power Up! Cooking with Milk Products & Eggs includes approaches, strategies, tools, assessment and student learning support for both independent and classroom lab-based learning contexts. Consistent with the approach and structure of CTS courses, this resource also facilitates multiple pathways and encourages students to explore and learn based on their interests, prior knowledge and experiences.

All **Power Up! Cooking with Milk Products & Eggs** materials are available to download at ***TeachNutrition.ca***.

Power Up! Cooking with Milk Products & Eggs provides practical, real world focused learning tasks that start with what students are familiar with – milk product and egg food choices in their daily diets – and extends their knowledge and skills to cooking science and applications.

Students require access to a personal or commercial food preparation facility and must have completed **FOD1010: Food Basics** as a prerequisite course.

Resources:

- This **Power Up! Cooking with Milk Products & Eggs** teaching and learning resource.
- **Recipe cards** booklet
- **Product cards** booklet
- A customizable **test bank** of multiple choice, true/false, and short answer questions. To obtain, email *albertanutrition@dfc-plc.ca*.

Meeting CTS learning outcomes

Power Up! Cooking with Milk Products & Eggs provides students with the opportunity to develop three general competencies:

1. Know the value, range and use of milk products & eggs as food choices
2. Understand the "science" of cooking with milk products & eggs
3. Cook with milk products & eggs

Within each of these three general competencies, students focus on specific areas of learning. The chart that follows illustrates the focus of the learning tasks for each general competency. A detailed chart, including all outcomes in the **FOD2060: Milk Products & Eggs** course, is also provided on **pages 100 to 101** of this resource.

All CTS courses are one credit, and are therefore meant to be completed in a 25 hour time frame. A time allocation for each of the three general competencies indicates the hours that students may spend to complete learning activities and meet required curricular outcomes.

General competency	Learning task focus	Time allocation
Know the value, range and use of milk products & eggs as food choices	• Identify a range of milk products & eggs in dishes and meals • Assess food choices and dietary considerations • Analyze nutritional values • Explore processing, handling and storage tips	4 to 5 hours
Understand the "science" of cooking with milk products & eggs	• Survey personal experiences and cooking processes • Explore principles of protein cooking, including issues associated with temperature and cooking time, potential problems when milk is exposed to tannins, acids and salts • Identify functions of eggs in cooking • Complete process evaluation forms for three or four different cooking techniques	10 to 12 hours
Cook with milk products & eggs	• Select a range of at least five presentation dishes that include milk product and egg ingredients • Cook and demonstrate each dish through in-class participation, video or photographic evidence • Individually evaluate at least one of the presentation dishes cooked for nutrition, preparation time and tasks, cooking processes and quality standards • Demonstrate safe and sanitary kitchen practices	8 to 9 hours

Approaching learning

Power Up! Cooking with Milk Products & Eggs models processes that a chef or cook uses to select foods, understand nutritional implications and prepare, create and present dishes that use milk products and eggs.

Power Up! Cooking with Milk Products & Eggs includes digital and/or printable student learning resources. Digital learning resources and templates should be saved on students' computers before inputting any text. These PDF files are available on ***TeachNutrition.ca***.

Icons indicate processes that are part of daily cooking and food preparation skills:

The **product marketplace icon** identifies information related to selecting and shopping for different milk products and eggs. It is found on all the **product cards**.

The **cook icon** is found on all **recipe cards**, including demonstration and presentation recipes. Demonstration recipes provide additional information that encourages students to explore the science of cooking with milk products and eggs. Presentation recipes are those recipes that students cook to apply and demonstrate their learning.

The **kitchen practices icon** emphasizes safe and sanitary kitchen working skills and practices. It is found on the **kitchen practices checklist cards**.

Other icons signal teaching strategies and supports that are integrated throughout this resource:

The **prepare** icon tells you what to prepare for an upcoming activity.

The **differentiate learning** icon indicates alternative strategies and approaches to support different learning needs and contexts of students.

The **extend learning** icon indicates optional suggestions for extending and reinforcing concepts and skills and challenging students to apply their learning to different contexts.

The **weblink icon** indicates websites that provide additional information, sources or resources.

The **video weblink icon** provides weblinks to cooking and recipe process videos that are available on the internet.

This **assess learning icon** signals **formative** assessment tips that can be used to monitor student progress and adjust teaching and learning approaches and pacing.

This **assess learning** icon signals **summative** assessment strategies that can be used to evaluate completion of learning requirements.

AT A GLANCE

Power Up! Cooking with Milk Products & Eggs is organized into three main sections:

1. Select & compare
2. Prep
3. Cook

The chart that follows provides an **at a glance** overview of the sequence and scope of activities, learning resources and assessment options.

Each section of **Power Up! Cooking with Milk Products & Eggs** includes teaching suggestions, differentiate and extend learning strategies and assessment tips. Sections can be implemented through approaches that include the following:

- Use teaching and learning strategies in each section as an integrated approach to cooking with milk, cheese and eggs.
- Select teaching and learning strategies from each section to focus separately on milk, cheese and then egg cookery.
- Select and structure learning activities within an in-class lab-based setting or as independent learning tasks.

General competency	Learning tasks	Learning resources	Assessment
select & compare Know the value, range and use of milk products & eggs as nutritious food choices	• Identify a range of milk products & eggs in dishes and meals • Assess food choices and dietary considerations • Analyze nutritional values • Explore processing, handling and storage tips	The following materials and student learning resources are referenced and used in **select & compare**. Preview the learning activities for more detail on their use. ☐ Ingredients for three introductory "challenge" recipes, that include simple recipes students may already be familiar with ☐ **learning resource 1-1: Meal analysis (p. 56)** ☐ **learning resource 1-2: Meal analysis example (p. 57)** ☐ A selection of magazines or online images that illustrate meals and/or dishes ☐ **learning resource 1-3: Dietary choices & alternatives (pp. 58-59)** ☐ **product cards** ☐ A range of milk products and eggs for a taste test (fluid milk, yogurt and cheese) ☐ **learning resource 1-4: Food choice considerations (pp. 60-67)** ☐ **comparison chart (p. 68)** ☐ **product card template**	Assess students formatively throughout the teaching and learning activities in this section. Use the **Power Up! checklist (pp. 13-14)** to collaboratively track individual students' progress and encourage them to reflect on their own learning. Assess students summatively by assigning a take-home quiz that asks them to design a menu, complete with a product list, shopping list and nutritional information for the main ingredients. A **select & compare** rubric is provided on **page 19**. Assess students summatively by selecting questions from the **Power Up! Cooking with Milk Products & Eggs** test bank.

General competency	Learning tasks	Learning resources	Assessment
prep Understand the "science" of cooking with milk products & eggs	• Survey personal experiences and cooking processes • Explore principles of protein cooking, including issues associated with temperature and cooking time, potential problems when milk is exposed to tannins, acids and salts • Identify functions of eggs in cooking • Complete process evaluation forms for three or four different cooking techniques	The following materials and student learning resources are referenced and used in **prep**. Preview the learning activities for more detail on their use. ☐ Ingredients for a selection of "demonstration" recipes that illustrate the science of cooking with milk products and eggs ☐ **learning resource 2-1: Demonstration recipes (pp. 70-80)** ☐ **learning resource 2-2: Recipe evaluation (pp. 81-86)** ☐ **product cards** ☐ **recipe cards** ☐ **kitchen practices checklist cards (p. 87)** ☐ **triple t-chart (p. 93)** ☐ **if/when-then chart (p. 94)** ☐ **recipe card template**	 Assess students formatively throughout the teaching and learning activities in this section. Use the **Power Up! checklist (pp. 13-14)** to collaboratively track individual students' progress and encourage them to reflect on their own learning.  Assess students summatively by challenging them to complete their own flow chart that identifies and describes cooking processes in a recipe of their choice. A **prep rubric** is provided on **page 20**.  Assess students summatively by selecting questions from the **Power Up! Cooking with Milk Products & Eggs** test bank.

General competency	Learning tasks	Learning resources	Assessment
cook Cook with milk products & eggs	• Select a range of at least five presentation dishes that include milk product and egg ingredients • Cook and demonstrate each dish through in-class participation, video or photographic evidence • Individually evaluate at least one of the presentation dishes cooked for nutrition, preparation time and tasks, cooking processes and quality standards • Demonstrate safe and sanitary kitchen practices	The following materials and student learning resources are referenced and used in **cook**. Preview the learning activities for more detail on their use. ☐ Ingredients for a selection of "presentation" milk product and egg dishes ☐ **learning resource 3-1: Presentation dish planning (p. 96)** ☐ **recipe cards** ☐ **recipe card template** ☐ **learning resource 3-2: Dish evaluation (p. 97)** ☐ **kitchen practices checklist cards**	Assess students formatively throughout the teaching and learning activities in this section. Use the **Power Up! checklist (pp. 13-14)** to collaboratively track individual students' progress and encourage them to reflect on their own learning. Assess students summatively by challenging them to create a **Power Up!** class blog entry that highlights nutritional, processing, handling and cooking information for one milk product and/or egg recipe. A **cook rubric** is provided on **page 21**. Assess students summatively by selecting questions from the **Power Up! Cooking with Milk Products & Eggs** test bank.

Assessing student learning

Power Up! Cooking with Milk Products & Eggs provides a number of assessment supports and tools.

Formative assessment tips are integrated throughout the teaching and learning notes in each section of this resource. These tips include the following types of assessment strategies:

- Personal reflections that encourage students to apply what they are learning about milk product and egg cookery to the food choices they make daily
- Inventories of their past cooking experience and comparisons to what they are learning in the course
- Observations of demonstrated and applied skills during cooking labs
- Application of previous learnings to new content
- Check-in discussion questions.

An initial class discussion can provide students with the opportunity to explore occupational and career interests, goals and choices and brainstorm the types of evidence that can support them in a pursuit of these interests. Ask students to revisit knowledge and skills gained from previous foods courses or out-of-school experiences and learning. Home-based students could alternatively be asked to participate in a teacher-led interview.

Encourage students to make connections between what they are learning and potential career or occupational interests.

In addition to formative assessment strategies, some sections include **summative** assessment alternatives.

- In **select & compare**, students can synthesize their learning about milk products and eggs by "shopping" for ingredients for a recipe of their choice and analyzing products and nutritional data.
- In **prep**, students can add cooking process, handling and clean-up steps to demonstration recipes they have experienced in class labs.
- In **cook**, students can apply and track what they have learned by tracking cooking results and observations in an experience chart.

These summative assessment alternatives can be structured as assignments that students submit for credit in the course. A **Criteria checklist** with criteria statements can be used to create assessment rubrics. This checklist is provided on **pages 15 to 17**. These checklists and criteria statements can be used in the following ways:

- To build assessment criteria for a specific learning task for or with students
- To adapt and combine into task-specific rubrics
- To use as the basis for student-constructed rubrics.

A **rubric template** is provided on **page 18**.

In addition to the summative assessment alternatives that are integrated within the teaching and learning notes, each section also provides a summative assessment learning task that students can complete for credit. **Rubrics** for each of these summative assessment tasks are provided on **pages 19 to 21**. These learning assessment tasks can be used with approaches such as the following:

- As an assignment provided at the beginning of the learning tasks for each section. Discuss assessment criteria for the task in advance with students and use criteria as an advance organizer for what students will learn in the section. Encourage students to complete the learning assessment task as the section's activities are implemented and submit it for credit.
- As a culminating group learning task. Have students work with a small group to complete the learning assessment task and submit for credit. Establish group assessment criteria in advance with students.
- As alternative in-class activities that students complete. Use the **Power Up! checklist (p. 13-14)** to have students self-assess their learning and skill development.

The **Power Up! Cooking with Milk Product & Eggs** **test bank** provides additional summative assessment tools. The test bank can be used in the following ways:

- As a final exam for the course. Establish the weight of the exam with students at the beginning of the course.
- As end of section "check-in" quizzes. Select questions from the test bank that address the outcomes in the section. Test questions are organized around, and correlated to, outcomes in the **FOD2060: Milk Products & Eggs** course.

The test bank is set up in a Word document. Customized tests or quizzes can be developed by cutting and pasting questions into a separate Word document. To obtain the test bank, email *albertanutrition@dfc-plc.ca*.

Power Up! checklist

I can...	I have...
select & compare ☐ Identify a range of milk products and eggs in dishes and meals ☐ Assess food choices and dietary considerations ☐ Analyze nutritional values ☐ Explore processing, handling and storage tips	☐ Analyzed food ingredients and milk product and eggs in meals or dishes ☐ Identified my personal milk product and egg food preferences ☐ Identified a range of milk product and eggs that are part of daily food choices ☐ Assessed dietary choices, limitations and alternatives ☐ Compared characteristics of milk products, cheese and eggs ☐ Assessed milk products and eggs for nutritional value, processing and storage and handling requirements ☐ Explored information provided on food labels
prep ☐ Survey personal experiences and cooking processes ☐ Explore principles of protein cooking, including issues associated with temperature and cooking time, potential problems when milk is exposed to tannins, acids and salts ☐ Identify functions of eggs in cooking ☐ Complete process evaluation forms for three or four different cooking techniques	☐ Identified cooking processes applied to dishes with milk products and eggs ☐ Participated in demonstration recipes that illustrate how milk products react to tannins or salt ☐ Participated in demonstration recipes that illustrate how milk reacts with acids ☐ Participated in demonstration recipes that illustrate how milk can act as a thickening agent ☐ Participated in demonstration recipes that illustrate how to avoid scorching milk and skin formation ☐ Participated in demonstration recipes that illustrate the principles of protein cookery with cheese and/or a milk product ☐ Participated in demonstration recipes that illustrate the whipping and thickening properties of cream ☐ Participated in demonstration recipes that illustrate the emulsifying properties of butter ☐ Participated in demonstration recipes that illustrate the thickening properties of egg yolks ☐ Participated in demonstration recipes that illustrate eggs as an emulsifier or binding/coating agent ☐ Participated in demonstration recipes that illustrate eggs as a leavening agent when separated ☐ Participated in demonstration recipes that illustrate eggs as a leavening agent

Power Up! checklist

I can...	I have...
cook ☐ Select a range of at least five presentation dishes that include milk product and egg ingredients ☐ Cook and demonstrate each dish through in-class participation, video or photographic evidence ☐ Individually evaluate at least one of the presentation dishes cooked for nutrition, preparation time and tasks, cooking processes and quality standards ☐ Demonstrate safe and sanitary kitchen practices	☐ Prepared and presented one cooked milk dish ☐ Prepared and presented one cooked cheese dish ☐ Prepared and presented one egg dish ☐ Prepared and presented one ethnic or special dietary restricted dish ☐ Prepared and presented a dish that incorporates various milk products and eggs into a meal ☐ Applied safe and sanitary kitchen practices ☐ Demonstrated appropriate use of kitchen equipment and implements ☐ Demonstrated proper storage and handling of milk products and eggs

criteria checklist

Criteria statements	Performance	Comments
select & compare Identify similarities and differences in a range of milk products and eggs	☐ Exceptionally ☐ Competently ☐ Simply ☐ Requires more support	
select & compare Describe the use of milk products and eggs, including nutritional value and dietary concerns	☐ Exceptionally ☐ Competently ☐ Simply ☐ Requires more support	
prep Describe the role of milk in different cooking applications	☐ Exceptionally ☐ Competently ☐ Simply ☐ Requires more support	
prep Describe the role of cheese in different cooking applications	☐ Exceptionally ☐ Competently ☐ Simply ☐ Requires more support	
prep Describe the role of eggs in different cooking applications	☐ Exceptionally ☐ Competently ☐ Simply ☐ Requires more support	

Criteria statements	Performance	Comments
cook Prepare and present one cooked milk dish	☐ Exceptionally ☐ Competently ☐ Simply ☐ Requires more support	
cook Prepare and present one cooked cheese dish	☐ Exceptionally ☐ Competently ☐ Simply ☐ Requires more support	
cook Prepare and present one egg dish	☐ Exceptionally ☐ Competently ☐ Simply ☐ Requires more support	
cook Prepare and present one ethnic or special dietary restricted dish	☐ Exceptionally ☐ Competently ☐ Simply ☐ Requires more support	
cook Prepare and present a dish that incorporates various milk products and eggs into a meal	☐ Exceptionally ☐ Competently ☐ Simply ☐ Requires more support	
all Demonstrate proper storage and handling of milk products and eggs	☐ Always ☐ Consistently ☐ Usually ☐ Seldom ☐ Not observed	

Criteria statements	Performance	Comments
all Demonstrate safe and sanitary kitchen practices	☐ Always ☐ Consistently ☐ Usually ☐ Seldom ☐ Not observed	
all Demonstrate appropriate use of kitchen equipment and implements	☐ Always ☐ Consistently ☐ Usually ☐ Seldom ☐ Not observed	
all Apply communication and thinking skills to problems and challenges	☐ Always ☐ Consistently ☐ Usually ☐ Seldom ☐ Not observed	
all Demonstrate teamwork skills	☐ Always ☐ Consistently ☐ Usually ☐ Seldom ☐ Not observed	

Criteria	Great	Yes	Almost	Not yet

Criteria	Great	Yes	Almost	Not yet
Identify a range of milk products & eggs in dishes and meals	Creates a **well-designed**, **balanced** and **nutritious** meal that includes milk products and eggs	Creates a **functional** and **nutritious** meal that includes milk products and/or eggs	Creates a meal that **combines one or more** milk products or eggs	Creates a meal with **minimal** food combinations and ingredients
Assess food choices and dietary considerations	Combines **interesting** dishes that **creatively** use milk product and egg ingredients in the meal	Combines **appropriate** dishes that **include** milk product and egg ingredients in the meal	Selects **limited** dishes for the meal	Provides **limited** dishes with **few** ingredients for the meal
Analyze nutritional values	Makes **accurate** comparisons between the nutritional value of **more than** two main food ingredients in the meal	Makes **adequate** comparisons between the nutritional value of **at least** two main food ingredients in the meal	Provides **limited** information about nutritional values of a food ingredient	Provides **little or no** information about nutritional values
Demonstrate basic competencies	Demonstrates ability to **effectively** organize, summarize and synthesize information to reflect a balanced meal with a range of milk product and egg choices	Organizes information **appropriately** to reflect a balanced meal with milk product and/or egg choices	Provides **limited** information that includes milk products or eggs as food choices for a meal	Includes **little** information about milk product or egg food choices in a meal

Criteria	Great	Yes	Almost	Not yet
Identify cooking processes involved in a recipe	Identifies **all** cooking processes involved in recipe	Identifies **most** cooking processes involved in recipe	Identifies **some** cooking processes involved in recipe	Identifies **few or no** cooking processes involved in recipe
Apply principles of protein cooking (temperature and cooking time, potential problems when milk is exposed to tannins, acids and salts)	Describes **multiple** causes and effects related to protein cookery with a milk product, **accurately** linked to **more than one** cooking process involved in the recipe	Describes a **relevant** cause and effect related to protein cookery with a milk product, **accurately** linked to **at least one** cooking process involved in the recipe	Identifies a **basic** cause and/or effect related to protein cookery with a milk product or **simple** cooking process involved in the recipe	Provides **limited** descriptions of causes and/or effects related to protein cookery with a milk product
Apply understanding of functions of eggs in cooking (as a thickening, leavening, emulsifying or binding/coating agent)	Describes **multiple** causes and effects related to egg cookery, **accurately** linked to **more than one** cooking process involved in the recipe	Describes a **relevant** cause and effect related to egg cookery, **accurately** linked to **at least one** cooking process involved in the recipe	Identifies a **basic** cause and/or effect related to egg cookery or **simple** cooking process involved in the recipe	Provides **limited** descriptions of causes and/or effects related to egg cookery
Demonstrate basic competencies	Demonstrates ability to **effectively** organize, summarize and synthesize information about principles of protein and/or egg cookery	Organizes information **appropriately** to describe principles of protein and/or egg cookery	Provides **limited** evidence of organizational skills	Includes **little** evidence of organizational skills

cook rubric

Criteria	Great	Yes	Almost	Not yet
Demonstrate principles of protein cooking (temperature and cooking time, potential problems when milk is exposed to tannins, acids and salts)	Demonstrates **accurate** and **skillful** application of protein cooking processes	Demonstrates **functional** application of protein cooking processes	Demonstrates **limited** application of protein cooking processes	Provides **minimal** demonstration of protein cooking processes
Demonstrate understanding of functions of eggs in cooking (as a thickening, leavening, emulsifying or binding/coating agent)	Demonstrates **accurate** and **skillful** use of eggs as a thickening, leavening, emulsifying and/or binding/coating agent	Demonstrates **functional** use of eggs as a thickening, leavening, emulsifying and/or binding/coating agent	Demonstrates **limited** use of eggs as a thickening, leavening, emulsifying and/or binding/coating agent	Demonstrates **minimal** use of eggs as a thickening, leavening, emulsifying and/or binding/coating agent
Evaluate at least one of the presentation dishes cooked for nutrition, cooking processes and quality standards	Makes **accurate** assessment of product's nutritional value and quality standards	Makes **adequate** assessment of product's nutritional value and quality standards	Provides **limited** assessment of product's nutritional value and quality standards	Provides **little or no** assessment of product's nutritional value and quality standards
Demonstrate safe and sanitary kitchen practices	Provides **thorough** evidence that safe and sanitary kitchen practices were applied in preparation of product	Provides **adequate** evidence that safe and sanitary kitchen practices were applied in preparation of product	Provides **limited** evidence that safe and sanitary kitchen practices were applied in preparation of product	Provides **little** evidence that safe and sanitary kitchen practices were applied in preparation of product

1 Preview

Know the value, range and use of milk products & eggs as nutritious food choices

What role do milk products & eggs play in daily diets?

LEARNING TASKS

A variety of learning tasks introduce students to food choices that involve milk products and eggs. The activities in **select & compare** encourage them to identify and understand the importance of these products, as well as milk alternatives and egg substitutes, in daily diets.

- Identify a range of milk products & eggs in dishes and meals
- Assess food choices and dietary considerations
- Analyze nutritional values
- Explore processing, handling and storage tips

ASSESSMENT

Formative assessment tips are provided throughout the teaching & learning notes in this section of the **Power Up! Cooking with Milk & Eggs** resource.

Assess students by asking them to design a meal, complete with a product list, shopping list and nutritional information for the main ingredients.

- Ask students to use the **Meal analysis (p. 56)** to design their meal, including food ingredients for each dish in the meal.
- Create a shopping list. Provide an optional challenge by asking students to research the cost of their meal by visiting a grocery store and pricing out the main ingredients.
- Encourage students to present their meal in a format such as a file folder, with the **Meal analysis** template on the front and shopping, pricing and nutritional information inside the folder.
- Discuss criteria for assessment with students and either use the **select & compare rubric (p. 19)** or collaboratively create one.

Select from the questions in the **Power Up! Cooking with Milk & Eggs test bank** for this section.

PREPARE

Product and recipe cards can be found online at ***TeachNutrition.ca*** under the ***Power Up!*** program.

MATERIALS & STUDENT RESOURCES

The following materials and student learning resources are referenced and used in **select & compare**. Preview the learning activities for more detail on their use.

- ☐ Ingredients for three introductory "challenge" recipes, that include simple recipes that students may already be familiar with, such as a fruit smoothie, a personal pizza and scrambled eggs.
- ☐ **learning resource 1-1: Meal analysis (p. 56)**
- ☐ **learning resource 1-2: Meal analysis example (p. 57)**
- ☐ A selection of magazines or online images that include meals and dishes
- ☐ **learning resource 1-3: Dietary choices & alternatives (pp. 58-59)**
- ☐ **product cards**
- ☐ A range of milk products and eggs for a taste test (fluid milk, yogurt, and cheese)
- ☐ **learning resource 1-4: Food choice considerations (pp. 60-67)**
- ☐ **comparison chart (p. 68)**
- ☐ **product card template**

I Teaching & learning notes

The following teaching and learning notes provide activities that introduce *FOD2060 Milk Products & Eggs* to students, explore the variety of milk and egg products that are common to many daily diets and compare different milk and egg products for their quality and nutritional value. **Select those activities and options that best support your students, your classroom context and your time limitations.**

explore food choices

a. Organize an introduction to the course with a recipe lab that asks students to review basic food preparation skills they already have from prerequisite Foods courses.

Set up three food stations around the classroom. Provide simple recipe cards, such as those referenced below, in each station, along with appropriate ingredients and equipment.

- Milk station – Blueberry Blast Smoothie
- Cheese station – Personal Pizzas
- Egg station – Basic Stovetop Scrambled Eggs

Assign groups of students to each station and provide them with a time limit to prepare the recipe at their station.

Recipe cards can be found on ***TeachNutrition.ca*** under the ***Power Up!*** program.

b. Challenge students to then do a quick search for other examples that show how milk products and eggs are used in dishes and meals.
Provide copies of different magazines at tables or stations. Ask students to form groups at each table. Alternatively, form random groups by numbering students or by preselecting group members. Students may also use online images from food-related websites.

Provide students with a set amount of time, between 10 and 15 minutes, to identify at least three different milk product and egg dishes or meals that are represented in the magazines. Tell students that they may find dishes or meals in:

- Visuals or photographs
- Advertisements
- Food or meal sections.

DIFFERENTIATE LEARNING

As an alternative to the introductory recipe lab, introduce the course with milk product, cheese and egg recipe videos on ***www.dairygoodness.ca/recipes*** or ***www.eggs.ca/eggs101/***.

DIFFERENTIATE LEARNING

Demonstrate a milk product, cheese and/or egg recipe to students instead of asking them to cook.

Hold a taste test to identify student favourites.

PREPARE

Select a variety of print or online magazines for students to use for the introductory dish or meal search. Some grocery stores provide complimentary magazines with dishes and meals.

DIFFERENTIATE LEARNING

Model the process of selecting dishes or meals that have planned food combinations, rather than just one particular food.

EXTEND LEARNING

Students can be encouraged to develop and administer an informal survey to find out the role that milk and egg products play in the daily diets of friends or family members.

Work with students to create two to three questions for their survey. Have them bring back their survey results, collate and compare them.

EXTEND LEARNING

Students can be asked to work with a partner or in a small group to create a menu for three different meals, including a breakfast, lunch and dinner.

Encourage students to bring examples of favourite recipes from home that include milk product or eggs as an ingredient. Establish a classroom display with these recipes. If possible, select from appropriate recipes to use as the course progresses.

Remind students that they are looking for food combinations shown in dishes or meals, not just examples of one milk product or an egg. Show an example of a dish or meal in one of the magazines.

Provide groups with **learning resource 1-1: Meal analysis (p. 56)**. Have groups complete the analysis for one or more of their examples, describing the dish or meal, breaking it down and listing its food ingredients. Use **learning resource 1-2: Meal analysis example (p. 57)** if students need an example.

c. Once groups have analyzed a dish or meal, provide them with the opportunity to share it with other groups and explain why they selected it.

Encourage students to identify what appeals to them about different dishes or meals, including taste or smells the examples remind them of, food combinations, nutritional value, appearance and esthetics or presentation. Tell students that these criteria will be used throughout the course to assess recipes they prepare.

identify milk products & eggs

a. Use the food ingredient lists in students' meal analyses from the previous activity to focus on milk product and egg ingredients.

As a class, start a master list of milk and egg products. Encourage students to discuss how these milk products and eggs are part of their daily food choices. Which of these products are familiar in their daily food choices? Which are not?

b. Use this opportunity to also discuss situations where milk products and eggs are avoided. Provide students with **learning resource 1-3: Dietary choices & alternatives (pp. 58-59)**.

- Encourage students to identify reasons, such as **allergies, lactose intolerance**, cultural dietary restrictions, likes and dislikes and dietary choices, such as **vegetarian**.
- Identify alternatives as well, including soy, rice and almond beverages or margarine. *(Fortified soy beverage is the only nutritionally equivalent substitute for cow's milk. Almond and rice beverages are too low in protein.)*

c. As an optional activity, plan and organize a taste test experience for students around a range of different milk products and cheeses.

- Organize stations with a selection of various milk products and cheeses. Plan the stations to accommodate groups of four to five students, as well as the space available in the classroom.
- **Product cards** can be found on *TeachNutrition.ca* under the ***Power Up!*** program.
- Plan the food samples so there is a sample of each food for every student. Ensure you make accommodations for any students with allergies or food intolerances.

  Most of the product cards provide nutrition tables that are based on a consistent measurement of 250 ml or 30 grams. This allows students to make comparisons across similar products or easily multiply to calculate nutrition data for recipe quantities.

DIFFERENTIATE LEARNING

Have students brainstorm a range of descriptive terms for different milk and egg products. Provide them with the following categories:

- Appearance
- Palatability
- Texture
- Consistency
- Odour
- Flavour

Post the descriptive terms for students to use as they assess the recipes they make.

ASSESS LEARNING

Have students individually reflect on the extent to which different milk products and eggs influence their daily food choices.

Remind them to address the implications of allergies or lactose intolerance and the range of alternative food choices available.

EXTEND LEARNING

Encourage students to watch a cooking competition show, such as *Masterchef* or *Top Chef*. Identify recipes and the range of milk and egg product ingredients that chefs use. How prevalent or common are these ingredients in dishes they typically eat?

- Have groups of students rotate through each station and "taste test" the milk and cheese samples. They can be asked to quickly match the product cards to each food and use the product information as well as their taste test to complete a comparison chart. The **comparison chart (p. 68)** graphic organizer can be used to record their findings. Establish the taste test criteria in advance to include flavour, texture, appearance, taste and possible culinary uses.
- Alternatively, students can be asked to create their own product cards for the foods at one or more of the stations. **Product card templates** can be found on the ***TeachNutrition.ca*** website under the ***Power Up!*** program.

INFORMATION TO KNOW

MILK & MILK PRODUCTS

Fresh milk is available in a variety of formats that are identified by their milk fat content, including skim, 1%, 2% and homogenized or whole 3.25%. By law, all milk sold in Canada for fluid and dairy products must be pasteurized. It is necessary to kill any harmful bacteria that may find their way into the milk. Milk is natural. Nothing extra is added except vitamins A and D. All fluid milk in Canada is fortified with vitamin D.

Raw milk or unpasteurized milk is ***illegal*** for sale in Canada because it can contain harmful pathogens such as Salmonella, E. Coli and Listeria. All milk for sale legally in Canada is pasteurized. Pasteurization has very little impact on the nutritional value of milk and is essential to preserving its safety. Studies have shown that pasteurization has no effect on calcium absorption and that vitamins A and D, riboflavin (B2) and niacin (B3) are not affected by heat. Pasteurization does produce a slight loss in thiamine (B1) and vitamin B12, although pasteurized milk is still a source of these two nutrients. Pasteurized milk is also fortified with vitamin D, whereas raw milk contains only very small amounts of this vitamin, which is essential for calcium absorption, among other benefits. Some people believe that raw milk is healthier and more digestible because it contains "active" enzymes that are deactivated by pasteurization. This is not true. While pasteurization does break down some enzymes, our stomach acids would deactivate them anyway.

Canned and dried milks include skim milk powder, evaporated milk and sweetened condensed milk. Evaporated milk is made by removing 40 to 50 percent of the water from fresh milk. Skim milk powder is made from skim milk where almost all of the water is removed during processing. UHT, or Ultra High Temperature, milk is cooked and vacuum packed and therefore does not have to be refrigerated until opened.

Cultured and sour milks include buttermilk, sour cream and yogurt. Cultured buttermilk is made from fresh, pasteurized skim milk by adding bacteria that produce lactic acid. Sour cream is cultured from cream using lactic acid producing micro-organisms. Yogurt is cultured from partially skimmed pasteurized milk with the addition of a mixed culture of micro-organisms.

Cream and butter products include light cream, half-and-half cream, heavy cream, whipping cream and unsalted and salted butters. Cream comes from the fat portion of milk. The type of cream is determined by the percentage of milk fat. For example, light cream has the lowest percentage of milk fat at 5% or 6% and whipping cream has the highest at 32% or 36%.

WEBLINKS

Information on Milk and Milk Products can be found here:

Milk: ***www.dairygoodness.ca/milk***

Yogurt: ***www.dairygoodness.ca/yogurt***

Cream: ***https://dairyfarmersofcanada.ca/en/canadian-goodness/do-more-milk/theres-cream***

CHEESE

Cheese is fermented milk from which a portion of the water and lactose has been removed.

There are 4 basic steps to making cheese:

- Curdling
- Draining
- Pressing
- Ripening

WEBLINKS

Information about cheese can be found at ***https://dairyfarmersofcanada.ca/en/canadian-goodness/story-cheese***.

Once these 4 steps are complete, the cheese has been made! The unique flavour of each type of Canadian cheese is due to one or more of the following:

- The kind of milk used
- The method of curdling milk
- The method of cutting and forming of the curd
- The type of bacteria or moulds used in ripening
- The amount of salt or seasonings added
- The conditions of ripening

Curdling is the separation of the liquids (whey) from the solids (curds) by addition of the fermenting agent. All cheeses undergo this initial step. There are 2 ways to curdle cheese.

- ***Lactic curdling***. Lactic ferments are added to form small grains of curd.
- ***Stimulated curdling***. An enzyme is added to form a large solid mass of curd.

Draining is the method of eliminating the whey (liquid) from the curd (solid). Proper draining is vital to attain the correct moisture content in the cheese. There are 2 ways to drain cheese.

- ***Lactic draining***. The whey simply drains through the curd grains for several hours.
- ***Stimulated draining***. Active draining techniques are used in one or a combination of the following:
  - Stretching
  - Kneading
  - Cutting
  - Stirring
  - Cooking

Pressing is a simple step that eliminates more whey. Most often, varying degrees of active pressure are applied to the mass of curds. Heating can also be used.

Before the ripening process, many different procedures can be undertaken, or ingredients added, to give each cheese its distinct character.

Ripening involves the careful control of humidity, temperature and oxygen levels to nurture the cheese to maturity. It is during the ripening process that cheeses take on their unique characteristics of flavour, texture and aroma. There are 2 kinds of ripened cheeses:

Interior-ripened • *Ripening starts within and occurs throughout the body of the cheese.* • *Cheese is vacuum-packed or waxed to ensure that no oxygen reaches the surface.*	***Cheese with eyes*** *(Swiss type) Holes are formed in the softer parts of the cheese curd by bacteria.* ***Cheese with no eyes*** *(cheddar) Lactic ferments ripen the cheese to make a uniformly smooth texture.*
Surface-ripened • *Ripening starts on the surface and progresses to the interior.* • *Micro-organisms are applied to the surface of the cheese.* • *These cheeses have surface rind.*	***Bloomy rinds*** *(Brie, Camembert type) Penicillium culture is sprayed on the surface to make a velvety white rind.* ***Washed rinds*** *(Oka, Raclette type) The surface is washed with a solution known as "red smear."*

There are also cheeses that do not undergo a ripening process.

- ***Unripened***, or ***fresh cheese***, is cheese that is cut, packaged and distributed for sale after draining. Bocconcini is an unripened cheese.
- ***Pasta Filata*** is an Italian term for cheeses made with curd that is heated in hot whey and mechanically stretched before being pressed into moulds. The resulting cheeses are more elastic. Examples are Fior di Latte, Caciocavallo, Mozzarella and Bocconcini.

The ***rind*** is formed during the ripening process. It provides protection against humidity loss, harmful bacteria and damage due to handling. It adds flavour to cheese and is edible.

- ***Washed*** refers to the process by which the rinds of certain cheeses are washed periodically during ripening, resulting in the coppery or beige colour of Mamirolle and Oka.
- ***Bloomy*** refers to a white, velvety ring usually found on soft cheeses. It's produced by spraying the cheese surface with penicillium.
- ***Waxed*** are cheeses with an edible paraffin or non-edible wax. The wax is sprayed on or hand dipped to protect the curd.
- ***Mixed*** refers to a blend of moulds or bacteria or other elements that a producer can use to provide a different rind structure for flavour and aroma.

EGGS

There are two basic types of eggs available in Alberta grocery stores:

- Eggs in their shell
- Eggs not in their shell, or processed eggs.

WEBLINKS

Information on Eggs can be found at ***www.eggs.ca/eggs101/***.

EGGS IN THEIR SHELL

The most common are white- and brown-shelled eggs. Identical in nutrient value, the only real difference between the two is the breed of hen they come from. White-shelled eggs are from hens with white feathers, while brown-shelled eggs are from hens with brown feathers.

SPECIALTY EGGS

Organic

Hens are fed a special feed having ingredients that were grown without pesticides, herbicides and commercial fertilizer. The nutrient content of these eggs is **no** different than the nutrient content of conventional eggs. Organic eggs, like conventional eggs, contain no antibiotics or hormones. Look for a "certified organic" mark plus the name or number of the certifying body on the label to ensure the eggs are organic.

Vegetarian (No animal by-products)

Hens are fed a special feed containing ingredients of plant origin only. The nutrient content of these eggs is the same as that of conventional eggs.

Omega-3-Enhanced

These eggs are created by including 10 to 20 percent of flax in the hen's diet, which in turn, results in these eggs being higher in omega-3 fatty acids than conventional eggs. Omega-3 fatty acids may help lower blood triglyceride levels. Keeping blood triglyceride at "healthy levels" has been shown to be good for heart health.

Vitamin-Enhanced

These eggs are from hens fed a nutritionally-enhanced diet having higher levels of certain nutrients, for example, vitamin E, folate, lutein, vitamin B-6 and vitamin B-12. As a result, these eggs contain slightly higher amounts of nutrients.

Free Range/Free Run

They are not the same. Free-range eggs are those from hens that can roam freely in a barn and have access to nest boxes and perches. Free-range hens may also have access to an outdoor run. Aviary systems are a type of free-run facility where nest boxes and perches are tiered. Producers have more work in these settings. Egg safety and quality is more challenging to manage. Eggs can come into contact with droppings and dirt. Eggs can also be laid in many places, which can make quick egg collection difficult.

The nutrient content of these eggs is **no** different than the nutrient content of eggs of hens raised in conventional cage housing systems.

Furnished

These eggs are those from hens who are raised in "enriched" or "colony" cage housing systems. These housing systems provide more floor space and height for hens to move around, while providing a variety of enrichments within the cage. This allows the hens to express an increased variety of natural behaviours. Enrichments include nesting boxes, perches, scratch pads and dust baths.

EGGS NOT IN THEIR SHELL, OR PROCESSED EGGS

These are eggs which are broken in mass by special egg breaking machines, then pasteurized before being packaged in liquid, frozen or dried form. They often have added ingredients, such as preservatives, flavour and colour. This process allows for special formulations to be made, such as egg whites only.

Liquid and frozen processed egg products are currently available in the regular egg case as well as the freezer section of larger grocery stores in Alberta. Dried eggs are found in some bulk food and specialty (e.g., camping or other outdoor equipment) stores.

Types of Eggs: Egg Farmers of Alberta ***www.eggs.ab.ca/about-eggs/egg-types***

analyze products

a. Have students select **product cards** according to the following criteria:

Two milk, cheese and egg products they have tried

Two milk, cheese and egg products they are familiar with but have not tried

One or two milk, cheese and egg products they do not know anything about.

b. Have students work individually, with a partner or in a small group to compare the products they selected according to:

- Nutritional value
- Processing
- Storage & handling requirements.

Provide students with **learning resource 1-4: Food choice considerations (pp. 60-67)**. This information resource provides introductory information, and weblinks for further research, on each of the following topics:

- Nutritional considerations in selecting milk and milk products
- Nutritional considerations in selecting eggs
- Alternatives
- How the food product is processed or manufactured
- Storage and handling tips.

Have students use the data chart included at the end of this learning resource to organize their comparisons. Share charts as a class or provide students with the opportunity to share with another pair or small group.

The data chart may also be used to organize a grocery store tour and collect and compare information on actual products. Students can be challenged to find products that match the product cards they selected.

PREPARE

Product cards can be found on *TeachNutrition.ca* under the ***Power Up!*** program.

DIFFERENTIATE LEARNING

Have students sort the product cards into different groups of products, including:

- Fluid milk
- Milk products
- Milk alternatives
- Cheeses
- Eggs
- Egg products

Compare basic nutritional information for these different products.

WEBLINKS

Information on the production of milk and eggs can be found here:

Milk: ***www.youtube.com/watch?v=L7SsIm63FKc***

Eggs: ***http://eggs.ab.ca/farming/***

ASSESS LEARNING

Have students "shop" for the milk product & egg ingredients needed for a recipe of their choice. Students may be given the option to shop locally or "virtually," using supermarket flyers or internet sources from a local store or supermarket.

- Create a shopping list.
- Visit the store and identify products, brands, nutritional information and prices.

Create a receipt that shows the products and pricing. Students can also be asked to create a receipt for one of the dishes or meals they identified in the previous activity.

INFORMATION TO KNOW

Pasteurization is the process of heating milk at temperatures high enough to kill potential pathogens that can cause disease. Pasteurization does not involve the use of any additives. The process not only makes milk safe to drink, it increases the shelf life because it destroys organisms that cause spoilage.

In **High Temperature, Short Time (HTST)** pasteurization, milk is heated to at least 72° C for 16 seconds, then cooled to 4° C. In **Ultra High Temperature (UHT)** pasteurization, milk is heated to 138° C for not less than two seconds, then quickly cooled to 2° C. A new process called **micro-filtration** is a patented process that uses a membrane strainer to filter most of the bacteria out of the milk. All milk in Canada has no **rBST** (growth hormones) or antibiotics.

In Canada, all shell eggs sold in grocery stores have been washed, graded, sized and packed at an egg grading station registered by the Canadian Food Inspection Agency. The majority of eggs produced in Canada are classic white eggs from hens housed in cages. Cage housing is the most common system used for egg production today. It ensures the highest possible food safety and egg quality standards. In cages, manure is kept away from hens and their eggs. This keeps the hens healthy and the eggs safe. In Canada, hens that lay eggs are not given any steroids or hormones, no matter what housing system is used.

c. Challenge students to select one milk or egg product and combine it with any other food to create a nutritional label for a food combination.

Discuss or review the components of nutrition labels, listing the nutritional elements that are provided:

- What nutritional data is included on all labels? Why do you think it is important to be aware of these elements?
- How do you think nutritional data on food labels is determined? *(Information on nutritional data and food labelling can be found in Health Canada sources such as* Guide to Developing Accurate Nutrient Values (Archived June 24 2013)).

Encourage students to create their nutritional labels by researching the nutritional values of each ingredient, then adding values to arrive at calories and a total count of the following nutrients:

- Fat g and % DV
  - o Saturated fat g and % DV
  - o Trans fat g
- Carbohydrate g
  - o Fibre g and % DV
  - o Sugars g and % DV
- Protein g
- Cholesterol mg
- Sodium mg and % DV
- Potassium mg and % DV
- Calcium mg and % DV
- Iron mg and % DV

INFORMATION TO KNOW

Nutrient data is used for a variety of applications. These include:

- Nutrition labelling
- Menu planning
- Food intake analysis and diet counselling
- Recipe analysis
- Nutrition education and information

Nutritional labelling is mandatory in Canada. The food industry also uses nutrient information to determine if a food meets any nutrient or health claims. The **Nutrition Facts** table, which includes the number of calories and 12 or more nutrients for the serving size shown, is found on most processed and packaged foods.

The nutritional values of foods can be affected by different factors, including the geographic location, season, soil or feed used as plants are grown or animals are raised. For example, the addition of flaxseed oil to the diet of hens can change the fatty acid profile of their eggs. Cows fed mostly on pasture in the summer produce butterfat higher in vitamin A than in the winter.

Nutritional values can also be affected by the ways in which foods are manufactured or processed, including the use of heat, light, oxygen, enzymes or micro-organisms.

The way that food is transported or stored can also affect nutrient values. For example, vitamin C can be lost easily as an orange matures, and the proportion of starch to sugar in a potato changes during storage, whereas the amount of protein in a steak is relatively stable. Nutrient levels can also be affected as foods age and as a result of changes in temperature, light conditions, humidity and exposure to air.

Guide to Developing Accurate Nutrient Values (Archived June 24 2013): Health Canada. ***https://www.canada.ca/en/health-canada/services/food-nutrition/food-labelling/nutrition-labelling/regulations-compliance/guide-developing-accurate-nutrient-values.html***

Some nutrients are added to food products. For example, milk is fortified with vitamin D that is also beneficial in bone health. Additionally, all milk produced in Alberta is rigorously tested for antibiotic residues, ensuring none is found in milk or milk products. A growth hormone for dairy cows, rBST, is not approved for sale in Canada.

Eggs can also have nutrients added. Omega-3 enhanced eggs are produced with a fortified, multi-grain feed to enhance nutrients like vitamin E and omega 3. Omega-3 essential fatty acids are polyunsaturated fats.

WEBLINKS

Nutrition Labelling

Students can learn more about nutrition labelling and claims at ***https://www.canada.ca/en/health-canada/services/food-nutrition/food-labelling/nutrition-labelling/educators/ready-use-presentation.html***.

Nutrients in Milk

- Milk Nutrients: ***https://dairyfarmersofcanada.ca/en/canadian-goodness/health-wellness/milk-packed-15-essential-nutrients***
- Calcium Calculator: ***https://bcdairy.ca/nutritioneducation/calciumcalculator/***
- Bone Health: ***https://www.dairynutrition.ca/scientific-evidence/bone-health-and-osteoporosis/synopsis-bone-health-and-osteoporosis***

2 Preview

Understand the "science" of cooking with milk products & eggs

What do cooks need to know about cooking with milk products & eggs?

LEARNING TASKS

A variety of learning tasks introduce, reinforce and provide opportunities for the practice of cooking processes of milk products and eggs. The activities in **prep** encourage students to develop understandings of principles of protein cooking, including consideration of temperature, addition of chemical agents (tannins, acids, salt) and length of cooking time as well as the functions of milk products and eggs as thickening, leavening, emulsifying and binding or coating agents.

- Survey personal experiences and cooking processes
- Explore principles of protein cooking, including issues associated with temperature and cooking time, potential problems when milk is exposed to tannins, acids and salts
- Identify functions of eggs in cooking
- Complete process evaluation forms for three or four different cooking techniques

ASSESSMENT

Formative assessment tips are provided throughout the teaching & learning notes in this section of the **Power Up! Cooking with Milk & Eggs** resource.

Assess students by challenging them to complete an if/when-then chart that identifies and describes preparation and cooking steps and processes in an assigned or selected milk product and/or egg recipe. Students can use the **if/when-then chart (p. 94)** or create one of their own. *(An* if/when-then *chart helps students organize cause and effect relationships. Students use the arrows in the chart to identify causes or conditions and the boxes to identify results or effects.)*

- Identify the milk product and/or egg recipe, ingredients and necessary cooking processes at the top of the chart.
- Use an if/when-then chart to describe **two to three** possible results when cooking processes are applied to the milk product and/or egg ingredients. For example, a cheese soufflé recipe is cooked in the oven. **If** the soufflé is cooked at too low a temperature, **then** the egg whites lose their leavening properties and the soufflé will collapse when it comes out of the oven. **If** the cheese is not blended with a starch-based sauce before adding to the egg whites, **then** the fat of the cheese will break down the egg white foam and cause the soufflé to collapse or not rise.

PREPARE

Product and recipe cards can be found on ***TeachNutrition.ca*** under the ***Power Up!*** program. **Kitchen practices checklist cards** can be found at in the student workbook.

- Assign a recipe, or require that students look for and select one, that involves application of heat and cooking time, food combinations of milk products and acids, tannins, or the use of eggs as a thickening, leavening, emulsifying or binding/coating agent.
- Discuss criteria for assessment with students and either use the **prep rubric (p. 20)** or collaboratively create one.

Select from the questions in the **Power Up! Cooking with Milk & Eggs test bank** for this section.

MATERIALS & STUDENT RESOURCES

The following materials and student learning resources are referenced and used in **prep**. Preview the learning activities for more detail on their use.

- ☐ Ingredients for a selection of "demonstration" recipes that illustrate the science of cooking with milk products and eggs
- ☐ **learning resource 2-1: Demonstration recipes (pp. 70-80)**
- ☐ **learning resource 2-2: Recipe evaluation (pp. 81-86)**
- ☐ **product cards**
- ☐ **recipe cards**
- ☐ **kitchen practices checklist cards (p. 87)**
- ☐ **triple t-chart (p. 93)**
- ☐ **if/when-then chart (p. 94)**
- ☐ **recipe card template**

2 Teaching & learning notes

The following teaching and learning notes support the development of knowledge of the principles of milk, cheese and egg cookery as well as the application of safe and sanitary kitchen skills identified in *FOD2060 Milk Products & Eggs*. Students focus on knowledge and skill development through demonstration milk product and egg recipes. **Select those activities and options that best support your students, your classroom context and your time limitations.**

survey cooking processes

a. Plan a quick introductory survey that explores types of foods students prepare at home and how much food preparation they are involved in.

Ask students to respond individually to three or four questions such as the following. These questions and response options can be placed in a grid on the board, and students asked to come up and list or tally their responses.

When do you plan ahead for meals? • *Every day* • *Only on weekends* • *Only on holidays or special occasions* • *When we grocery shop* • *Other*	***What milk product and egg dishes have you prepared or cooked?***
How frequently are you involved in food preparation at home? • *Daily* • *Weekly* • *Monthly* • *Not at all*	***What is one advantage of planning food choices in advance of a meal?***

DIFFERENTIATE LEARNING

Start the activity with a demonstration of a dish, such as an omelette or crepe, which involves at least two or three different cooking processes.

Ask students to identify kitchen skills and cooking processes the recipe requires.

DIFFERENTIATE LEARNING

As an alternative to doing a class survey, students can be asked to individually survey two or three other people about their food preparation experience. Suggest that students survey at least one non-family member.

EXTEND LEARNING

Have students bring back their survey results, collate and compare them.

ASSESS LEARNING

Have students pre-assess their comfort level with different food preparation and cooking processes involving milk products and eggs.

Have them use the **triple t-chart (p. 93)** to create an inventory of cooking processes they think or know are involved with milk, cheese and egg cookery. *(A* triple t-chart *is a simple three-column chart used to organize information around three topics.)* Have students label the three columns with milk products, cheese and eggs. Encourage students to add information to their charts as they use each cooking process.

EXTEND LEARNING

Recipe cards can be found on ***TeachNutrition.ca*** under the ***Power Up!*** program.

Provide a random selection of three to five recipes to pairs or small groups. Ask pairs or groups to list cooking processes involved in each recipe.

b. Ask students to brainstorm food preparation and cooking processes that they think or know are involved in cooking with milk products and eggs. Students may identify processes that include:

- Peeling, chopping, slicing, shredding
- Blending, beating, whisking, whipping, creaming, pureeing
- Heating, including baking, cooking, frying, boiling, poaching, scrambling, melting
- Separating
- Freezing
- Microwaving.

demonstrate cooking principles

a. Schedule a round of demonstration and guided practice cooking labs with students.

Use each of the demonstration recipes and cooking processes listed below to illustrate principles of cooking with milk products and eggs.

For each demonstration, ask students to complete the questions in **learning resource 2-1: Demonstration recipes (p. 70-80)**.

The demonstration recipes address the following milk product and egg cooking processes. Select those that are most appropriate for your class.

- Make a **Blueberry Blast Smoothie** to illustrate how milk products react to tannins in blueberries
- Make a **Creamy Tomato Sauce** to illustrate how milk reacts with acids and the use of a roux
- Make a **Basic White Sauce** for macaroni and cheese to illustrate heating milk, milk as a thickening agent when used with flour and avoiding scorching and skin formation
- Make **Easy Macaroni and Cheese** to illustrate binding properties of cheese as well as reaction of cheese when added to basic white sauce
- Make **Yogurt Panna Cotta** to illustrate coagulation of milk
- Make a **Cheese Fondue** to illustrate heating properties of cheese
- Make **Paneer** to illustrate principles of cheese making and what happens when an acid is added to heated milk
- Make **Basic Meatballs** to illustrate the use of eggs as a binding agent
- Make a **Hollandaise Sauce** to illustrate thickening property of egg yolks
- Make a **Basic Soufflé** to illustrate eggs as an emulsifier or binding agent
- Make **Meringue Kisses** to illustrate the leavening properties of egg whites

DIFFERENTIATE LEARNING

The demonstration recipe labs can be organized in a number of different ways, depending on students' skill level and classroom context.

- Demonstration recipes can be teacher-led, with rotating student participation.
- Student pairs or groups can be given responsibility for preparing and demonstrating one of the recipes for other groups or the whole class.
- Individual students can be assigned a lead role for each demonstration.
- Demonstration recipes can be divided into three areas – milk products, cheese and eggs.

DIFFERENTIATE LEARNING

Students can use **learning resource 2-1: Demonstration recipes** to independently complete the cooking principles activities. Provide these learning resources as a package for students. Encourage them to use the video weblinks to complete the questions in each demonstration recipe.

The demonstration recipes are grouped around milk products, cheese and eggs. They can be used to demonstrate each group of cooking principles separately.

Students can also be asked to use the **recipe card template**, accessed at *TeachNutrition.ca*, to create their own demonstration recipes. Use the active field on the second half of the card to describe the cooking processes and principles involved in the recipe.

b. Have students work with their partners or groups to evaluate the demonstration recipes, using the guiding questions on **learning resource 2-2: Recipe evaluation (pp. 81-86)**. Tell students that they will also be asked to apply this evaluation model to one of the recipes they cook for credit in this course.

INFORMATION TO KNOW

PRINCIPLES OF MILK COOKERY

Milk products can create and enhance a multitude of daily dishes. Milk is important as a cooking and baking ingredient as well as a base for the production of many other foods, including cream, butter and a huge range of cheeses. Milk products provide an excellent source of protein.

WEBLINKS

To learn more about cooking techniques for Milk and Milk Products, review ***Milk Basics*** at ***https://dairyfarmersofcanada.ca/en/canadian-goodness/do-more-milk/basics-how-warm-milk***.

The variety and diverse characteristics of milk products make them important ingredients. But, like many other ingredients, cooking with milk gives better results when effective cooking and baking techniques are applied.

Heat

When milk is heated, the proteins in milk are affected. Therefore, many principles of protein cookery apply to milk. The same principles apply to cream. However, because cream contains more milk fat, heat and acids do not affect cream as quickly as they affect milk.

Room temperature milk is often better for recipes than cold milk. Milk should be heated gently and slowly as too much heat causes a scorched flavour and the formation of a skin on top of the milk. Skin formation can be difficult to prevent. Skin is a solid layer of milk solids and some fat that can form on the surface of milk when it is heated. Scum should be removed, not stirred back into the milk.

Milk can be heated to the point where bubbles form around the edge of the pan and steam begins to form. It should be stirred frequently to prevent skin formation. Milk can also be heated in the microwave.

Scorching

Milk should always be heated slowly over a low heat. Excessive heat can also result in a scorched flavour. Scorching also results in a colour change. Scorched milk has a different taste and turns brown in color.

Milk can scorch because of the lactose in it. Like any sugar, lactose will caramelize and taste bitter. When milk is heated, the milk proteins **coagulate**, or thicken and solidify, and stick to the sides and bottoms of the saucepan. If the milk is overheated, the lactose in milk **caramelizes**.

Curdling

Heat causes milk proteins to coagulate. Acids, tannins, enzymes and salt will cause the same reaction. When milk proteins coagulate, they form clumps. This is called **curdling**. The clumps of milk protein are called **curds**.

Acids are present in a number of different fruits and vegetables, including berries, oranges and tomatoes. When milk is mixed or cooked with these foods, the acids can cause the milk solids to separate, resulting in a curdled product.

Tannins and **enzymes** are also present in many fruits and vegetables, such as blueberries and potatoes, as well as in brown sugar. **Tannins** are a tart or bitter tasting substance called polyphenol that is found in plants. Tannins cause milk to coagulate and curdle. **Enzymes** are protein molecules present in vegetables and fruits that help our bodies metabolize, digest and process foods. However, when combined with milk, the enzymes can also cause milk to separate and curdle.

Cured ham and other types of meat contain **salts**. Salt will also cause milk to coagulate and curdle.

Curdling can be prevented by cooking with low temperatures and using fresh milk. Curdling can also be prevented by thickening either the milk or the acid first, before combining the two. These principles also apply to foods with tannins or salts. The milk mixture should be thickened first to prevent curdling.

Microwaving milk products

When microwaving milk products, lower settings should also be used as higher settings can cause scorching and curdling. A large container should be used to prevent the milk from boiling over. Stirring to prevent skin formation can also prevent boiling over.

Cream

When cream is whipped, air bubbles are incorporated into the cream to form a foam. The fat particles in the cream clump together, which produces the stiffness in the whipped cream. This is also the first step in the production of butter.

At least 25 percent milk fat is necessary before cream can be whipped. The higher the percentage, the more stable the whipped cream will be.

If the cream is overbeaten, too much air causes the fat particles to break up and the foam to collapse. The cream then turns to butter.

Sugar decreases the volume and stiffness of whipped cream and should, therefore, be added after the cream has become quite thick.

PRINCIPLES OF CHEESE COOKERY

"Three varieties of cheese make up the majority of cheese used in cooking. Cheddar is the most frequently used in North American dishes, especially in sauces, as a casserole ingredient, and as a melted or gratinéed topping. Swiss-type cheeses are used more often in European-style dishes. Emmentaler and Gruyère are essential ingredients in fondue, Mornay sauce, gratinéed dishes, soufflés and quiches. Parmesan-type cheeses are used in grated form for toppings and for seasoning and flavouring purposes."

Gisslen, Wayne (2011). *Professional Cooking (Seventh Edition)*. John Wiley & Sons: p. 843.

WEBLINKS

Find general information about Canadian cheese, including recipes and cooking tips at ***https://dairyfarmersofcanada.ca/en/canadian-goodness/story-cheese***.

Cheese is a concentrated, high protein form of milk. Principles of protein cookery apply to all cheeses.

Cooking temperature and time

Cheese should also be cooked at low temperatures to avoid scorching and a stringy and rubbery texture. If cheese is cooked at too high a temperature or for too long a period of time, the proteins in cheese will over-coagulate. This is particularly true when using a microwave oven.

When cheese is used in sauces or soups, the temperature should be hot enough to melt the fat so that the cheese blends with the other ingredients.

Cheese will melt more evenly and require a shorter cooking time when it is shredded, crumbled or diced first. Well ripened cheeses, such as cheddar and Swiss, blend better and tolerate higher temperatures than less ripened cheeses, such as Brie. This is because some of the protein has already been broken down.

However, if the cheese is melted too quickly or at too high a temperature, the fat in the cheese may separate, resulting in a layer of liquid fat. When making cheese sauces, the cheese should be added just before removing it from the heat and allowed to melt as the mixture is stirred.

PRINCIPLES OF EGG COOKERY

Eggs are a good source of protein, and so principles of protein cookery also apply to eggs. Eggs should be cooked with medium to low temperatures and carefully timed. When eggs are cooked at too high a temperature or for too long at a low temperature, the egg whites shrink and become tough and rubbery. Egg yolks become tough and their surface may turn gray-green. Eggs, other than hard-cooked, should be cooked until the whites are completely coagulated and yolks begin to thicken.

Eggs can be cooked in a number of ways.

WEBLINKS

The *Eggs 101* link on the Get Cracking website, at ***www.eggs.ca/eggs101/***, provides information on cooking eggs in different ways.

For information on food freezing basics, visit ***https://www.ag.ndsu.edu/publications/food-nutrition/food-freezing-basics-freezing-dairy-products-eggs-and-other-foods***.

- **Baked, or shirred, eggs** should be cooked until the whites are completely coagulated, or set.
- **Hard cooked eggs** should be cooked in water that is simmering, not boiling. Eggs should be at room temperature to start. Overcooking hard-cooked eggs can result in eggs are overcooked, or when there is a high level of iron in the cooking water. The eggs are still safe to eat and will still be nutritious and flavourful. An appropriate cooking time and rapid cooling of the eggs after they are cooked will prevent the formation of this grey ring.
- **Soft cooked eggs** are also cooked in water that is simmering, but are left in the water for a shorter period of time to keep the yolk soft and runny.
- **Poached eggs** are cooked by breaking eggs open into a small dish and cooking in simmering water. Poached eggs can also be broken directly into simmering water.
- **Fried eggs** are cooked in a frying pan with a small amount of fat. Fried eggs can be "over easy" or "sunny side up."
- **Scrambled eggs** are made by beating eggs with a small amount of milk or cream. They are cooked over a low heat and stirred slowly as they cook. The eggs are beaten to introduce air and make the product light and fluffy.

All of these methods involve the use of heat. When an egg is put into hot, simmering water, the white is hardened by the heat. The protein in the egg white coagulates. Whites and yolks cook at different temperatures. Yolks should never be added directly to a hot mixture as they will start to cook and form lumps. Some of the hot mixtures should first be carefully mixed into the beaten yolks.

Microwave cooking

The microwave can be used to cook eggs. However, the egg should be slightly undercooked as it will continue to cook once it is taken out of the microwave. Overcooking will cause the egg to become tough and rubbery.

Functions of eggs in cooking

Eggs are very good at **binding** foods together, which means they help the ingredients in a mixture stick together. Meatballs and burgers are two examples of foods where eggs serve as the "glue."

Eggs can also be a **leavening** agent for pancakes, muffins, omelettes or cakes. A leavening agent increases the volume of a food product and lightens its texture.

Egg whites also act as a leavening agent. All proteins, including those in raw egg whites, are made of long chains of amino acids which can be compared to beads on a string. In raw egg whites, these strings are twisted in a round and compact mass, comparable to a tiny ball of yarn. The shape of the protein molecule plays a big part in how it behaves. In the case of raw egg whites, consisting of 90 percent water and 10 percent protein, the round and compact shape of proteins allows them to dissolve in water. This explains the liquid-like appearance of raw egg whites.

When egg whites are beaten to make certain foods, you are actually unraveling or untwisting the ball of protein. The long strands of protein that form are too large to dissolve in water anymore.

These protein strands surround the air bubbles beaten into the raw egg whites, and essentially trap them, forming a white foam. If you continue to beat the foamy egg white, this will destabilize the foam by fully straightening out the protein molecules. The structure of the foam will not be as strong and it will not have a good volume. The egg whites won't raise as high.

For certain products, like meringue, sugar is beaten into frothy egg whites. The sugar allows the foam to be more stable.

Eggs have a great **thickening** ability. Many sauces rely on eggs to give them a thicker consistency. Custards rely on eggs for a more gelled texture.

Eggs are frequently used to emulsify or combine two liquids, such as oil and water, which normally can't be combined. Hollandaise sauce and salad dressings use eggs as an emulsifying agent.

An **emulsifying** agent keeps fat-based (butter) and water-based (lemon juice) ingredients together, and prevents them from separating. The emulsifying agent is an ingredient that is used to combine two liquids that normally wouldn't combine – like butter and lemon juice or oil and water.

An emulsion is created by slowly adding one ingredient to another while mixing rapidly. This agitation spreads out and suspends tiny droplets of the first liquid throughout the second liquid. However, the two liquids will quickly separate again if an emulsifying agent is not added. Emulsifying agents combine the two liquids and stabilize the mixture.

When preparing **Hollandaise sauce**, egg yolk is the emulsifying agent. Hollandaise sauce is made by first combining lemon juice (water-based ingredient) with egg yolks. Melted butter (fat-based ingredient) is then added drop by drop as the mixture is rapidly whisked. The idea is to spread tiny droplets as they form and prevent them from coming together and forming separate layers. The egg yolks bind the lemon juice and the melted butter together and prevent their separation. The final result is a sauce with a smooth and creamy texture.

Curdling may occur due to over beating or by adding the melted butter too quickly. To rescue the sauce, you have two options:

1) Beat another egg yolk in a small bowl. With a fork or whisk, gradually beat the yolk into the curdled sauce.
2) Place 15 ml (1 tbsp) water in a bowl and beat in a small amount of the curdled sauce until it becomes smooth. Keep adding sauce slowly while beating vigorously.

Eggs can also work as a **coating** agent. Beaten eggs are applied to the surface of foods such as chicken or fish, so that other coatings like bread crumbs or cheese will stick.

Adapted from *Cooking with Eggs:* Canadian Egg Marketing Agency & Egg Farmers of Alberta.

assess cooking & handling practices

a. Like all perishable foods, the quality of milk products and eggs are best when they are properly handled during both storage and cooking.

Ask students to revisit the **product cards**, and focus on handling and storage information.

Review four safe food handling practices:

- Clean – wash hands and surfaces frequently
- Separate – don't cross-contaminate
- Cook – cook to proper temperatures
- Chill – refrigerate promptly.

b. Challenge students to identify examples of each of these practices in different product cards. Refer students to the **kitchen practices checklist cards** in their workbooks to help them identify important safety and sanitary practices.

Discuss with questions such as:

- Why do milk products and eggs require careful storage and handling? *(These foods are more likely to support the growth of harmful microbes if not stored or handled carefully.)*
- When it is most important to wash hands and surfaces? Why? *(Hands should be frequently washed to ensure bacteria are not transferred to food or kitchen equipment.)*
- What is meant by cross-contamination? *(Cross-contamination happens when harmful microbes are passed from contaminated food, dirty utensils, hands, counters, or equipment to another food item or to clean hands, utensils, or food preparation surfaces. Harmful microbes may be in raw meat or chicken juices, dirty utensils, cutting boards or dirty hands.* Food Safety Smart Curriculum. The University of Rhode Island: p. 74.*)*
- How should cross-contamination be avoided when handling milk products and eggs? When storing milk products and eggs? *(Encourage students to reiterate strategies like frequently washing hands and keeping working surfaces, containers and utensils clean when handling products. Identify strategies like ensuring storage containers are clean and not reused for different products and avoiding touching food in storage containers.)*
- How important are minimum cooking temperatures when cooking milk products and eggs? *(Foods should be heated to a minimum internal temperature to eliminate harmful bacteria. For example, eggs and egg dishes should reach an internal recommended temperature of 72° C or 160° F.)*
- Why is it important to keep milk products and eggs refrigerated? *(Refrigeration slows bacterial growth. Milk products, cheeses and eggs should always be refrigerated at 4° C or lower.)*

PREPARE

Product cards can be found on ***TeachNutrition.ca*** under the ***Power Up!*** program. **Kitchen practices checklist cards** can be found in the student workbook.

DIFFERENTIATE LEARNING

Provide students with the choice of demonstrating appropriate food safety and handling skills that they already have or learn these skills if they are new.

WEBLINKS

Find information on safe food handling practices on the Fight Bac campaign website at ***www.fightbac.org***.

ASSESS LEARNING

Assess students on their ability to demonstrate safe and sanitary food handling skills and practices as they participate in the demonstration recipes.

Refer students to the **kitchen practices checklist cards** in their workbooks and ask them to check off the skills as they apply them.

Use the discussion questions to assess student understanding in a whole group setting or as check-in questions with individual students.

If appropriate for your students, have them plan to list safe and sanitary food handling practices important to one or two of the recipes they prepare for credit.

ASSESS LEARNING

Have students select one of the demonstration recipes. Add the following information to the back of the demonstration recipe card:

- Identify considerations for safe handling of the food ingredients used in the recipe.
- List the clean-up steps that should be added to each step of the recipe instructions.

3 Preview

Cook with milk products & eggs

How are principles of milk product & egg cookery applied to nutritional dishes?

LEARNING TASKS

The culminating learning tasks ask students to apply and demonstrate their cooking skills. The activities in **cook** encourage students to use principles of milk and egg cooking and safe and sanitary kitchen practices as they prepare and present five different dishes.

- Select a range of at least five presentation dishes that include milk product and egg ingredients
- Cook and demonstrate each dish through in-class participation, video or photographic evidence
- Individually evaluate at least one of the presentation dishes cooked for nutrition, preparation time and tasks, cooking processes and quality standards
- Demonstrate safe and sanitary kitchen practices

ASSESSMENT

Formative assessment tips are provided throughout the teaching & learning notes in this section of the **Power Up! Cooking with Milk & Eggs** resource.

Assess students by challenging them to create a **Power Up!** class blog entry that highlights nutritional, processing, handling and cooking information for one milk product and/or egg recipe.

- Collaboratively develop a template or format for the blog with students.
- Present a recipe, discussing its nutritional benefits and tips for handling and cooking the milk product and/or egg in it. Add a "Did you know" feature to the blog that indicates how the milk product or egg is manufactured or processed. Encourage students to add observations and reflections on their recipe results.
- Discuss criteria for assessment with students and either use the **cook rubric (p. 21)** or collaboratively create one.
- If the opportunity exists, post students' blogs on a school or class website. Provide opportunities for students to add optional photos or videos to their blogs.

Select from the questions in the **Power Up! Cooking with Milk & Eggs test bank** for this section.

PREPARE

Recipe cards can be found on *TeachNutrition.ca* under the ***Power Up!*** program. **Kitchen practices checklist cards** can be found in the student workbook.

MATERIALS & STUDENT RESOURCES

The following materials and student learning resources are referenced and used in **cook**. Preview the learning activities for more detail on their use.

- ☐ Ingredients for a selection of "presentation" milk product and egg dishes
- ☐ **learning resource 3-1: Presentation dish planning (p. 96)**
- ☐ **recipe cards**
- ☐ **recipe card template**
- ☐ **learning resource 3-2: Dish evaluation (p. 97)**
- ☐ **kitchen practices checklist cards**

3 Teaching & learning notes

The following teaching and learning notes support students as they demonstrate principles of milk and egg cookery through five presentation recipes. Students cook a milk, cheese, egg, ethnic or special dietary restricted and combination dish. They individually evaluate one of these dishes. **Select those activities and options that best support your students, your classroom context and your time limitations.**

demonstrate milk product & egg cookery

a. Plan a series of presentation dish labs that involve students in cooking a selection of milk product and egg dishes. Students are required to cook at least one dish from each of the following categories:

- A cooked milk dish
- A cooked cheese dish
- An egg dish, in which eggs are used as a thickening, leavening, emulsifying, coating, glazing or binding agent
- An ethnic dish or one that accommodates special dietary restrictions
- A dish for a meal that includes more than one milk product and eggs

Provide students with **learning resource 3-1: Presentation dishes planning (p. 96)**. Identify and discuss the presentation dishes that students will cook. The presentation dish labs can be structured in a number of different ways, depending on your class setting and limitations:

- In a larger class setting, have groups of students cook an assigned dish at cooking stations. Plan a series of classes so students have the opportunity to cook one assigned dish from each category.
- In smaller class settings, have pairs of students work together to cook an assigned dish.
- In individualized settings, have students individually select and plan the presentation dish they will cook from each category.

DIFFERENTIATE LEARNING

Students who complete the course requirements independently can be given the option to work with a family member at home to prepare and present their dishes.

Those students who need more structured guidance can be given a set of pre-selected **recipe cards** from which to choose and cook their presentation dishes.

If necessary, review cooking processes from the **demonstration recipes** completed in **section 2**.

EXTEND LEARNING

Ask students to bring in a favourite recipe book. Identify dishes cooked with milk products and eggs and select one that can be added to the class set of presentation dishes. Discuss the ingredients and cooking processes in the dish.

Use the **recipe card template**, found at ***TeachNutrition.ca***, to create a class set of recipes. Use the active field on the second half of the card to describe the cooking processes and principles involved in the recipe.

ASSESS LEARNING

Students can use **learning resource 3-1: Presentation dish planning** as a tracking tool in one or more of the following ways:

- As students cook assigned dishes from each of the five categories, have them note the recipe, ingredients and equipment as well as their observations and results.
- If practical to involve students in recipe selection, have them use the chart with the recipe card to individually plan ingredients and equipment required for each dish.
- After presentation recipes are cooked in class, have students use the chart as an "experience chart." Identify the recipe, ingredients and equipment they now have experience cooking and document their results and observations.

Select presentation dishes from the **recipe cards**, found at ***TeachNutrition.ca***. The chart that follows provides an overview of available recipes in each category. Record additional or alternative recipes in the bottom row of the chart.

A cooked milk dish	A cooked cheese dish	An egg dish, in which eggs are used as a thickening, leavening, emulsifying, coating, glazing or binding agent	An ethnic dish or one that accommodates special dietary restrictions	A dish for a meal that includes more than one milk product and eggs
☐ Basic White Sauce*	☐ Cheese Fondue*	☐ Baked Chicken Fingers	☐ Butternut Squash Dal	☐ Crustless Country Quiche
☐ Blueberry Blast Smoothie*	☐ Easy Macaroni and Cheese*	☐ Basic Devilled Eggs	☐ Egg Foo Yung	☐ Custard
☐ Cream of Asparagus Soup	☐ Personal Pizzas	☐ Basic Fried Eggs	☐ Thai Pork Stir-Fry	☐ French Toast Kabobs
☐ Creamy Tomato Rice Soup	☐ Stuffed Pasta Shells	☐ Basic Mayonnaise		☐ Soufflé Cheese and Mushroom Frittata
☐ Creamy Tomato Sauce*		☐ Basic Meatballs*		
☐ Easy Creamy Microwave Risotto		☐ Basic Omelette*		
☐ Paneer*		☐ Basic Soufflé*		
☐ Scalloped Potatoes		☐ Basic Stovetop Scrambled Eggs		
☐ Tropical Green Smoothie		☐ Béarnaise Sauce		
☐ Tuna Casserole Deluxe		☐ Eggs Benedict		
☐ Vegetable Pot Pie with biscuit		☐ Hollandaise Sauce*		
☐ Yogurt Panna Cotta*		☐ Meringue Kisses*		
		☐ Quiche		
		☐ Zucchini Sticks		
Alternate recipe choices				
☐	☐	☐	☐	☐
☐	☐	☐	☐	☐
☐	☐	☐	☐	☐
☐	☐	☐	☐	☐
☐	☐	☐	☐	☐
☐	☐	☐	☐	☐

*These recipes are used as **demonstration dishes** in **section 2**.

b. Remind students to ensure that they apply appropriate safety and sanitary cooking skills as they demonstrate their cooking skills.

Encourage students to revisit the **kitchen practices checklist cards** in their workbooks, if necessary.

Plan a class discussion to encourage students to reflect on their application of safe and sanitary kitchen practices.

EXTEND LEARNING

Have individuals, pairs or groups select what they think is their best presentation recipe and hold a "taste of (your school or class)" event for invited guests.

Alternatively, challenge students to each contribute one or two of their favourite presentation recipes to compile a recipe book.

ASSESS LEARNING

Once students have completed cooking five presentation dishes, have them select one dish to evaluate. Provide students with **learning resource 3-2: Dish evaluation (p. 97)** and ask them to individually complete the evaluation.

ASSESS LEARNING

Ask students to reflect on questions such as the following:

What did you learn about nutrition in this course?

What is the next milk product or egg recipe you would like to try? Why?

What surprised you the most about what you learned about milk and egg products?

Which activity would you redo if you had the chance? Why?

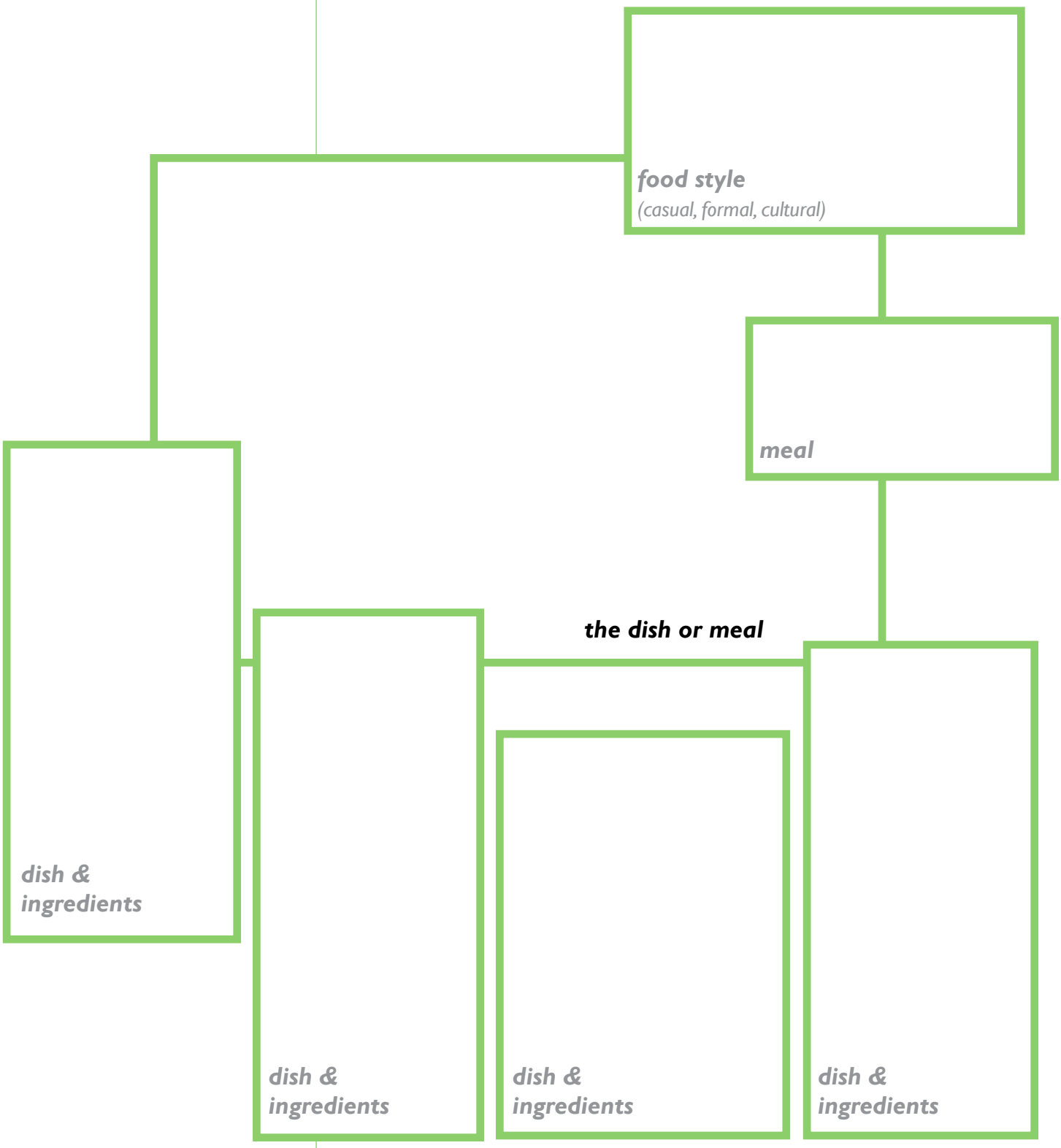
What do you think was your strongest success? Why?

DIFFERENTIATE LEARNING

Students who complete the course requirements independently may be asked to demonstrate their cooking through one of the following approaches:

- A video that demonstrates how the dish is prepared, cooked and presented
- A photo display that demonstrates and documents, with a series of photographs, the preparation, cooking and presentation of the dish
- A PowerPoint or other digital presentation that demonstrates and documents the preparation, cooking and presentation of the dish

I Select & compare



What makes this meal appealing?

This is a fast, casual mid-week meal that has all four food groups.

food style
(casual, formal, cultural)

the dish or meal

Dinner

meal

Basmati rice

dish & ingredients

Chicken with peanut butter sauce

Canola oil
Chicken
Onion
Garlic
Ginger,cumin&chiliflakes
Peanut butter
Soy sauce
Buttermilk
Lemon juice
Water
Cornstarch

dish & ingredients

Steamed veggies

Broccoli & butter

dish & ingredients

Cold glass of milk

dish & ingredients

What makes this meal appealing?

The combination of different foods, flavours and colours of the peanut butter sauce and broccoli is appealing.

Some people may avoid milk products and eggs in their diets. They may be allergic to egg or milk protein, have an intolerance to lactose, choose to follow a vegetarian diet or simply not like the taste of these products.

Lactose is a sugar found in milk and milk products. It is also added to some processed and prepared foods, such as salad dressings. An enzyme called lactase is needed for your body to break down, or digest, lactose.

Lactose intolerance happens when your body does not have enough lactase. Without this enzyme, or enough of this enzyme, your body does not break down all the lactose into smaller parts for digestion and absorption. The undigested lactose goes into your large intestine where it is fermented by bacteria. It can cause symptoms such as:

- Bloating
- Gas
- Cramping
- Nausea
- Diarrhea
- Weight loss (in children).

Lactose intolerance can sometimes happen for a short time if you have stomach flu or are taking some medications.

Studies show that most adults with lactose intolerance can drink up to 2 cups of milk in a day, especially if taken with food, or in small amounts throughout the day.

Lactose intolerance can be managed with strategies:

- Have small servings of milk, such as ¼ to ½ cup (60 to 125 ml), throughout the day instead of a whole glass at one time.
- Drink milk with meals or snacks, not by itself.
- Drink lactose-free milks such as Lactaid™ or Lacteeze™. You'll find these milks in the dairy case at grocery stores.
- Ask a pharmacist for "lactase" tablets or drops such as Lactaid™, Lacteeze™ or a generic brand. They work to break down the lactose in milk for you. Be sure to follow package directions when using these products.
- Try yogurt. It contains live bacteria that help break down lactose.
- Try Mozzarella and aged cheeses like cheddar, Swiss, blue and Brie. They contain almost no lactose.

What dietary adjustments should be made by people who are lactose intolerant or have an allergy to milk products or eggs?

Why should people make these adjustments?

Lactose intolerance is not an allergy to milk. **Allergens** are substances – usually proteins mistakenly identified by the body as harmful – that trigger the body's immune response. Severe allergens can be life threatening and anaphylactic. Milk and eggs are both common food allergies.

Even trace amounts of these foods can cause a severe or life-threatening reaction in some people. There is currently no cure for any food allergy. The only way to prevent a reaction is to avoid the specific food totally.

Health Canada has compiled the following list of priority food allergens which are the top food allergens known to cause 90 percent of reactions in sensitive individuals:

- Eggs
- Mustard
- Seafood (*fish, crustaceans, shellfish*)
- Sulfite
- Wheat
- Milk
- Peanuts
- Sesame seeds
- Soy
- Tree nuts (almonds, Brazil nuts, cashews, hazelnuts, macadamia nuts, pecans, pine nuts, pistachios, walnuts)

Canada's 2012 food allergens labelling requirements indicate that labels must clearly identify priority allergens using their common names, even if they are a component of another ingredient. These allergens must be listed in the ingredient list or in a "contains" statement immediately after the ingredient list.

It is a personal choice to follow a **vegetarian diet**. Vegetarian diets vary, and may include:

- Vegan – avoids all animal products
- Lacto-ovo – includes milk and eggs
- Pescetarian – includes fish.

Fortified milk products and eggs can provide a good alternative source of protein, calcium, vitamin D and omega-3 fatty acids in vegetarian diets.

Find out more about different dietary considerations at the following weblinks:

- Food Allergies: ***https://www.canada.ca/en/health-canada/services/food-nutrition/food-safety/food-allergies-intolerances.html***
- Lactose intolerance: ***https://dairyfarmersofcanada.ca/en/canadian-goodness/health-wellness/scoop-lactose-intolerance***
- Vegetarian diets: ***https://www.unlockfood.ca/en/Articles/Vegetarian-and-Vegan-Diets/What-You-Need-to-Know-About-a-Healthy-Vegetarian-E.aspx***

What role do milk products and eggs play in each of these different dietary concerns or choices? Select **two** and summarize their role.

NUTRITIONAL CONSIDERATIONS IN SELECTING MILK AND MILK PRODUCTS

Milk products are foods that are produced from the milk of mammals such as cows. Milk products include fluid milk as well as buttermilk, creams, yogurts, sour cream, condensed milk, butter and cheese.

Milk products contain 15 nutrients that are essential for health. Calcium, vitamin D and protein are some of the nutrients in milk products that keep the body functioning properly and can help reduce the risk of certain diseases.

Milk products provide six important bone-building nutrients, which include calcium, vitamin D, protein, vitamin A, phosphorus and magnesium. Vitamin D improves the absorption of calcium and phosphorus, nutrients that promote strong bones and healthy teeth.

Milk is an important part of a healthy diet. Yet, 83 percent of girls and 61 percent of boys in Canada between the ages of 10 and 16 do not get optimal servings of milk or milk alternatives. Both Canadian teens and adults struggle to get enough calcium, magnesium, phosphorus, vitamin A, vitamin D and potassium. This is of concern since 40 percent of our bones are built during adolescence.

Garriguet, D. (2008) "Overview of Canadians' Eating Habits." Nutrition: Findings from the Canadian Community Health Survey 2004: Statistics Canada.

Milk product consumption is recognized as a key factor in **bone health** and in the prevention of **osteoporosis**. There is very good evidence that calcium and vitamin D, two essential components of milk, play important roles with respect to attaining peak bone mass and preventing osteoporosis and fractures.

What does the photo tell you about the overall nutritional value of milk products?

Milk products contain 15 nutrients that are essential for health, keep the body functioning properly and help reduce the risk of certain diseases.

https://dairyfarmersofcanada.ca/en/canadian-goodness/health-wellness/milk-packed-15-essential-nutrients

Courtesy of Dairy Farmers of Canada

Yogurt naturally contains over 10 essential nutrients including calcium, phosphorus, thiamine, riboflavin and vitamin B12. Currently, vitamin D is added only to milk. However, some brands of yogurt are made from fortified milk and, therefore, also provide vitamin D. Labels provide this information and should be checked.

There is a wide variety of cheeses on the market, with various levels of fat content – labels provide nutritional information that can help make the best choice.

As with all other milk products, cheese is a natural source of several essential nutrients. Cheddar, Mozzarella and Swiss cheeses contain as many as nine, including calcium, vitamin A, niacin and vitamin B12.

The nutrients found in cheese support healthy bone and tooth development, maintenance of night vision, normal growth and red blood cell formation, among other benefits.

What benefits are provided by a single food product, such as fluid milk, that has a wide range of nutrients?

The Role Of 15 Essential Nutrients in Milk

Calcium aids in the formation and maintenance of strong bones and healthy teeth.	**Magnesium** is a factor in bone and teeth health, conversion of food into energy and tissue formation.	**Niacin** aids in normal growth, and is a factor in the conversion of food into energy and tissue formation, including bones.	**Pantothenic acid** is a factor in the conversion of food into energy and tissue formation, including bones.
Phosphorus is a factor in the formation and maintenance of strong bones and healthy teeth.	**Potassium** aids in the correct functioning of nerves and muscles.	**Protein** helps build and repair body tissues, including muscles and bones, and builds antibodies which fight infection.	**Riboflavin** is a factor in the conversion of food into energy and tissue formation.
Selenium is a factor in the correct functioning of the immune system, due to its antioxidant effect.	**Thiamine** releases energy from carbohydrate and aids normal growth.	**Vitamin A** aids bone and tooth development, while aiding in the maintenance of night vision and healthy skin.	**Vitamin B_6** is a factor in the conversion of food into energy and tissue formation, including bones.
Vitamin B_{12} aids in red blood cell formation.	**Vitamin D** (added to milk) enhances calcium and phosphorus absorption, on which strong bones and teeth depend.	**Zinc** is a factor in tissue formation, including bones, and converting food into energy.	

Dairy Goodness: Dairy Farmers of Canada. *https://dairyfarmersofcanada.ca/en/canadian-goodness/health-wellness/milk-packed-15-essential-nutrients*

NUTRITIONAL CONSIDERATIONS IN SELECTING EGGS

Eggs are an excellent source of protein and a solid source of 11 essential nutrients. Over the last few years, many researchers have done further studies on the benefits of eggs. Consistently, the findings indicate that eating eggs every day does not increase levels of "bad" cholesterol in the blood.

Cholesterol is essential for life. It is produced naturally in our bodies and forms a basic part of all our cells. Cholesterol helps to regulate our hormones, helps us utilize vitamin D and helps us digest food.

About 80 percent of the cholesterol in our body is produced in the liver. Only about 20 percent is affected by what we eat. If you eat more cholesterol than you need, your body accommodates by producing less.

There are two types of cholesterol. High-density lipoprotein, or HDL, is "good" cholesterol and is healthy. Low-density lipoprotein, or LDL, is "bad" cholesterol and can cause fatty deposits that clog arteries and don't allow blood to flow properly.

Recognizing the nutritional value of eggs, *Canada's Food Guide* includes eggs as a high quality source of protein.

There are two basic types of eggs available in Alberta grocery stores – eggs in their shell and processed eggs. To find out more about each egg type, visit ***http://eggs.ab.ca/eggs/types-of-eggs/***.

Write a description of each type of egg product.

The Role Of 11 Essential Nutrients in Eggs

Protein helps build and repair body tissues, including muscles and bones, and builds antibodies which fight infection.	**Folate** aids in red blood cell formation.	**Vitamin B_{12}** aids in red blood cell formation.	**Vitamin E** is an antioxidant that plays a role in maintaining good health and preventing disease.
Pantothenic acid is a factor in the conversion of food into energy and tissue formation, including bones.	**Phosphorus** is a factor in the formation and maintenance of strong bones and healthy teeth.	**Iron** carries oxygen to the cells in the body.	**Vitamin D** enhances calcium and phosphorus absorption, on which strong bones and teeth depend.
Riboflavin is a factor in the conversion of food into energy and tissue formation.	**Selenium** is a factor in the correct functioning of the immune system, due to its antioxidant effect.	**Vitamin A** aids bone and tooth development, while aiding in the maintenance of night vision and healthy skin.	

Eggs are considered a protein food. Other than protein, what is one other nutrient protein foods can provide?

MILK ALTERNATIVES

Fortified soy beverages can be used as an alternative to milk, according to *Canada's Food Guide*. Vitamins and minerals are added to the soy beverage to make it a nutritionally adequate alternative. The word "fortified" on the label indicates that these nutrients have been added.

Rice, oat, potato, coconut and almond beverages can be fortified with calcium, vitamin D and other nutrients. These beverages do not contain the same level of protein and other essential nutrients found in milk.

As these other beverages are not a nutritionally equivalent to milk or fortified soy beverage, they are not a part of *Canada's Food Guide*.

Compare the **three** nutrition tables for 1% milk, fortified soy beverage and almond beverage.

What are **two** nutritional similarities?

What are **two** nutritional differences?

2% Milk Nutrition Facts
Per **1 cup** (250 ml)

Calories 108	%DV*
Fat 2.5g	3%
Saturated 1.6g	9%
+ Trans 0.1g	
Carbohydrates 12.9g	
Fibre 0g	0%
Sugars 13.4g	13%
Protein 8.7g	
Cholesterol 13mg	
Sodium 113mg	5%
Potassium 387mg	8%
Calcium 322mg	25%
Iron 0.1mg	1%

*5% or less is **a little**, 15% or more is **a lot**

Ingredients: partly skimmed milk.
Added vitamins / minerals: vitamin A palmitate, vitamin D_3.

Fortified Soy Beverage, Unsweetened Nutrition Facts
Per **1 cup** (250 ml)

Calories 85	%DV*
Fat 4.2g	6%
Saturated 0.5g	3%
+ Trans 0g	
Carbohydrates 4.5g	
Fibre 1.3g	5%
Sugars 1.1g	1%
Protein 7.4g	
Cholesterol 0mg	
Sodium 96mg	4%
Potassium 383mg	8%
Calcium 319mg	25%
Iron 1.2mg	7%

*5% or less is **a little**, 15% or more is **a lot**

Ingredients: organic soy base (filtered water, organic soybeans), gellan gum, sea salt, natural flavour, sodium bicarbonate.
Added vitamins & minerals: calcium carbonate, zinc gluconate, vitamin A palmitate, vitamin D_2, riboflavin (B_2), vitamin B_{12}.

Fortified Almond Beverage, Unsweetened Nutrition Facts
Per **1 cup** (250 ml)

Calories 30	%DV*
Fat 2.5g	3%
Saturated 0.2g	1%
+ Trans 0g	
Carbohydrates 1.0g	
Fibre 1.0g	4%
Sugars 0.0g	0%
Protein 1.0g	
Cholesterol 0mg	
Sodium 160mg	7%
Potassium 190mg	4%
Calcium 330mg	30%
Iron 0.3mg	2%

*5% or less is **a little**, 15% or more is **a lot**

Ingredients: almond base (filtered water, almonds), sea salt, locust bean gum, sunflower lecithin, gellan gum, natural flavour.
Added vitamins & minerals: calcium carbonate, zinc gluconate, vitamin A palmitate, riboflavin (B_2), vitamin D_2, vitamin B_{12}.

EGG SUBSTITUTES

People who have egg allergy cannot identify the proteins in eggs correctly. Eggs have two allergenic components with different properties – the yolk and the white. The egg white is the component which causes the most severe reactions. However, it makes little difference which part of the egg a person is allergic to. It is very difficult to separate the white from the yolk without having some parts of each combine. Extremely small amounts can sometimes trigger severe reactions.

People with egg allergies must adapt their diet in two ways. They must avoid eating anything with eggs in it and they have to find egg substitutes for cooking. Food labels are important in identifying foods that contain eggs.

The following substitutions are designed for only 1 or 2 egg recipes. For each egg called for in a recipe, substitute **one** of the following:

- 1 tsp (5 ml) baking powder, 1½ tbsp (25 ml) water and 1½ tbsp (25 ml) oil
- 1 tsp (5 ml) baking powder, 1 tbsp (15ml) water and 1 tbsp (15 ml) vinegar
- 1 tsp (5 ml) yeast dissolved in ¼ cup (60 ml) warm water
- 1 packet of unflavoured gelatin, 2 tbsp (30 ml) of warm water. Do not combine until ready to use.
- ½ large mashed banana
- 1 tbsp (15 ml) ground flax seed whisked into 3 tbsp (45 ml) of water until gelatinous

Commercial egg substitutes are also available. However, some may have traces of egg whites in them and must be carefully used.

How do you think **one** of the suggested egg substitutes differs nutritionally from eggs?

Select at least **five** different milk or egg products. Analyze each product by completing each column in the data chart below.

Product	Food group	Top two nutrients	An important processing or manufacturing	How to handle or use when cooking	Storage Requirements

comparison chart

	Criteria				
Products	*Flavour*				

2 Prep

Get equipment

Blender

Prepare ingredients

½ cup (125 ml) milk
½ cup (125 ml) yogurt
½ cup (125 ml) frozen blueberries
½ cup (125 ml) frozen pineapple
½ cup (125 ml) fresh or frozen spinach or baby kale

Follow recipe steps

1. ADD all ingredients to a blender.
2. Use the puree setting to BLEND ingredients until smooth.
3. POUR into serving glasses.

Preparation time is 5 minutes
Makes 500 ml (2 cups)

Smoothies are made by blending fruit or vegetables with added milk and/or yogurt. A smoothie can provide fibre, protein, carbohydrate and vitamin C.

If a smoothie is made by combining citrus fruits, berries or pineapple with a dairy product like milk, and /or yogurt, the mixture can curdle if left to stand for a while. This is caused by the reaction of the acids or tannins in fruit with the protein in milk. Blueberries contain **tannins,** which are a tart or bitter tasting substance, called polyphenol, found in plants. Tannins can cause milk to **coagulate**, or thicken and solidify, and curdle.

Smoothies should be served as soon as they are prepared so the milk products and fruit do not separate or lose eye appeal.

Watch a video that demonstrates how to make smoothies and look for similarities and differences on the Dairy Goodness website at www.dairygoodness.ca/recipes/any-day-any-time-smoothies?v=v.

What kitchen skills are needed for this dish?

How does the protein content in milk products, including the yogurt, affect the preparation of this recipe?

From Dairy Farmers of Canada *Smoothies 2*

Get equipment

Large frying pan

Whisk & stirring implements

Prepare ingredients

1 tbsp (15 ml) butter

1 cup (250 ml) finely chopped onion

1 cup (250 ml) thinly sliced mushrooms

2 tbsp (30 ml) all-purpose flour

14 oz (796 ml) diced tomatoes, with juice

2 tbsp (25 ml) light sour cream

Salt and pepper to taste

Follow recipe steps

1. MELT butter in a large frying pan over medium high heat. ADD onion and COOK for about 5 minutes or until softened.
2. ADD mushrooms and COOK for about 3 minutes or until softened.
3. STIR in flour and COOK for 1 minute.
4. STIR in tomatoes, salt and pepper. Reduce heat to medium low. SIMMER for about 5 minutes or until slightly thickened. STIR in sour cream.

Preparation time is 10 minutes
Cooking time is 15 minutes
Serves 6

Creamy sauces are used to enhance the taste and appearance of foods. There are three basic types of ingredients in most sauces: a liquid, the thickening agent and flavours or seasonings.

Milk is often used in sauces. Most sauces are thickened with a starch, such as flour or cornstarch. The thickener gives the sauce its appearance. A sauce thickened with flour is opaque while a sauce thickened with cornstarch is clear.

Another common way to thicken a cream sauce is to make a **roux**. A roux is made with equal quantities of butter and flour. Melt the butter over a medium low heat, whisk in the flour and cook until it's well blended. Roux will help prevent curdling as starch stabilizes milk and cream. **Curdling** occurs when the protein in milk is exposed to acid, tannins, enzymes or salt. A **vegetable puree**, such as the broken tomatoes in this recipe, can also work as a thickener. However, the tomatoes will act as an acid when mixed with milk.

The "cream" in cream sauces can be light cream, half-and-half, or whole or partially skimmed milk. Tomatoes are acidic and when milk or cream are added, curdling can occur. Fresh milk or cream with a higher fat content decreases the chance of curdling.

What could potentially cause curdling in this creamy tomato sauce?

What strategies are used in this recipe to avoid curdling the milk?

Adapted from Alberta Milk *Creamy Tomato Sauce*.

Get equipment

Saucepan

Stirring implements

Prepare ingredients

¼ cup (60 ml) butter

¼ cup (60 ml) all-purpose flour

2½ cups (625 ml) warm milk

Salt and white pepper to taste

Follow recipe steps

1. MELT butter in a heavy bottom saucepan over medium low heat. Ensure that the butter does not brown.
2. ADD flour and STIR until fully mixed. The butter and flour mixture should bubble up slightly.
3. ADD about ½ cup of the warm milk slowly, STIRRING to keep the mixture smooth.
4. ADD the remainder of the warm milk slowly, STIRRING constantly.
5. HEAT to just a gentle rolling simmer, STIRRING constantly. COOK for 6 to 8 minutes until desired consistency, and flour is cooked.
6. SEASON to taste with salt and white pepper.

Preparation time is 5 minutes
Cooking time is 10 minutes
Serves 4

White sauces are sauces thickened by a starch. It is used as a base for other types of sauces and as a part of many dishes, such as macaroni and cheese.

High temperatures, tannins, acids, enzymes and salt can cause milk proteins to coagulate and curdle, causing clumps in a sauce or dish. Curdling can be prevented by cooking with low temperatures, fresh milk and constant, gentle stirring during cooking.

Scorching can be caused by the lactose in milk. Like any sugar, lactose can turn brown and develop a bitter taste. When milk is heated, the milk proteins will coagulate and coat the sides and bottom of the pan. Lactose is a sugar that will caramelize if the milk is scorched. A low heat will prevent scorching.

A **roux** is used as the thickening agent in this recipe. You can also use a slurry to make a lower fat white sauce. A **slurry** is made by combining skim or partially skimmed milk and flour in a covered container and blending or shaking until mixed. The slurry is then cooked in a saucepan over medium heat until it is thickened and the flour is cooked.

Watch a video that demonstrates this recipe at https://www.youtube.com/watch?v=WpZY63gAYDA.

What **two** important principles of protein cookery are applied in this recipe?

What **two** other recipes do you think these principles can be applied to?

Adapted from Dairy Goodness *Basic White Sauce*
https://dairyfarmersofcanada.ca/en/canadian-goodness/recipes/basic-white-sauce

Get equipment

Pot

Colander

Stirring implements

Prepare ingredients

2 cups (500 ml) elbow macaroni

1 cup (250 ml) cheddar cheese, grated

1 recipe Basic White Sauce

Follow recipe steps

1. COOK the elbow macaroni according to the package instructions. Make sure it is not overcooked. **Al dente**, or cooked until it is firm but not hard, is best.
2. DRAIN the macaroni but do not rinse it.
3. ADD the grated cheddar cheese gradually to the hot white sauce, 125 ml, or ½ cup, at a time. MIX well.
4. FOLD the cooked macaroni into the prepared cheese sauce.

Preparation time is 15 minutes
Cooking time is 20 minutes
Serves 4

Cooked milk and cheese dishes, such as macaroni and cheese, combine ingredients such as milk and cheese with other foods.

Cheese will melt when combined with liquid that is at a temperature hot enough to melt the fat. This causes the cheese to blend smoothly. However, if the temperature is too hot, the proteins in the cheese will become tough.

Cheese acts like an acid so it must be added slowly and consistently to prevent clumping. When acid foods are added to milk, such as a white sauce, the milk should be thickened first. This is why the cheese is added last. A cheese sauce kept on a low heat will help prevent curdling or scorching.

Processed cheese blends more easily than natural cheese because of the emulsifiers it contains. A cheese sauce made with processed cheese is smooth and less likely to curdle. However, real cheese is more nutritious than processed cheese. Cheddar cheese does not blend as smoothly, but has a stronger cheese flavour.

Watch a video that demonstrates this recipe at https://www.youtube.com/watch?v=WpZY63gAYDA

What types of adjustments do you think should be made if you use different cheese products?

Velveeta cheese

Mild cheddar

Old cheddar cheese

Adapted from Dairy Goodness *Easy Creamy Mac and Cheese*
https://dairyfarmersofcanada.ca/en/canadian-goodness/recipes/easy-creamy-macn-cheese

Get equipment

Saucepan
Stirring implements
Serving dishes
Plastic wrap

Prepare ingredients

4 tbsp (60 ml) water
1 packet (2½ tsp) unflavoured gelatin
2 cups (500 ml) plain Greek yogurt
2 cups (500 ml) milk, divided
½ cup (125 ml) granulated sugar
2 tbsp (30 ml) lemon juice

Follow recipe steps

1. COMBINE gelatin and water and let soften (15 min).
2. In a large bowl, WHISK yogurt and 1 cup (250 ml) of milk together.
3. In a small saucepan, bring remaining milk and sugar to a SIMMER. Stir in gelatin mixture and remove from heat.
4. WHISK this mixture into the yogurt mixture. Stir in lemon juice.
5. POUR mixture into small dishes, COVER with plastic wrap and refrigerate approximately 2 hours until set.

Preparation time is 10 minutes
Cooking time is 10 minutes
Set time is 2 hours
Serves 8

Cooked milk dishes, such as a panna cotta or pudding, illustrate how milk can be used as a thickening agent.

Puddings should be cooked with moderate cooking temperatures to avoid scorching and excessive coagulation of both milk products and eggs. Excessive coagulation can result in a thick and tough texture.

Starch particles or granules should be separated before cooking a pudding. The sugar in some recipes is mixed with the flour to separate the starch particles and keep them from lumping together when mixed with milk products and cooked.

Puddings can be cooked over heat or baked in the oven. Puddings that are baked in the oven are often placed in a hot water bath during baking. This protects from over-coagulation of the milk or egg proteins.

Some pudding recipes may require **scalded milk**, which means milk heated to just below the boiling point. With pasteurization, scalded milk is no longer a necessary step for cooked milk dishes.

Why is it important to separate starch particles in thickened, cooked milk dishes?

Why is plastic wrap used to cover the cooked pudding?

Adapted from *Smitten Kitchen 2013*.

Get equipment

Fondue pot

Tabletop burner

Stirring implements

Prepare ingredients

1½ cups (375 ml) milk

1 garlic clove, minced

2 tbsp (30 ml) all-purpose flour

1 tsp (5 ml) dry mustard or Dijon mustard

2 cups (500 ml) shredded cheddar cheese, (about 8 oz / 240 g)

Follow recipe steps

1. In a small saucepan, WHISK together milk, garlic, flour and mustard.
2. COOK over medium heat, WHISKING CONSTANTLY, for about 7 min or until starting to simmer and thicken.
3. Reduce heat to low.
4. ADD one small handful of cheese at a time to the pan, WHISKING CONSTANTLY, adding the next handful when it is melted.
5. After the last addition of cheese, COOK, still whisking, for 3 to 5 min or until slightly thickened and silky smooth.
7. Place fondue pot over tabletop burner and serve with raw veggies, cooked chicken, and/or bread.

Preparation time is 10 minutes
Cooking time is 10 to 15 minutes
Serves 4 to 6

Melted cheese dishes, such as cheese fondues, lasagna or raclettes, often require a specific type of cheese. These different dishes can illustrate how the melting properties of cheeses will vary.

Cheese is a concentrated form of milk and is, therefore, a good source of protein. If cheese is cooked at a high temperature or for too long a time, the protein will coagulate. This results in the texture becoming rubbery, the consistency becoming tough and the fat in the cheese separating and making the dish oily.

Cheese can be combined with liquids in dishes like soups, sauces and fondues. However, the temperature must be hot enough to melt the fat so the cheese blends smoothly. The temperature must be low enough so the proteins do not over-coagulate and toughen. Shredded or grated cheese will blend more quickly and require a shorter cooking time.

Cheese can also be cooked in a microwave. It must be watched carefully so it does not overcook or separate. Some cheeses will melt easier than others.

Watch a video that demonstrates different steps for making a cheese fondue on the Dairy Goodness website at https://dairyfarmersofcanada.ca/en/canadian-goodness/recipes/kids-favourite-cheese-fondue

Why is a medium-hard cheese like Emmental used in cheese fondues?

Why do you think shredded or grated cheese requires a shorter cooking time in a melted cheese dish?

Recipe courtesy of Dairy Goodness *Friday Night Cheese Fondue*
https://dairyfarmersofcanada.ca/en/canadian-goodness/recipes/friday-night-cheese-fondue

Get equipment

Colander

Cheesecloth

Large stockpot

Stirring implements

Prepare ingredients

8 cups (2 L) 3.25% milk

¼ cup (60 ml) lemon juice

Follow recipe steps

1. In a large saucepan, bring milk to a BOIL, stirring frequently. Remove from heat.
2. ADD lemon juice. Stir until the milk curdles and SEPARATES into curds, or spongy white chunks and whey, a milky water.
3. LINE the colander with doubled cheesecloth and set in sink.
4. POUR the mixture into the colander and gently rinse with cool water. Take ends of cheesecloth and twist the ball of cheese to squeeze out excess whey. Hang the cheesecloth and let drain for an extra 5 minutes.
5. Fold cheesecloth to compact the ball of cheese and set on a plate. Put another plate on top and PRESS by setting a heavy pot or weight.
6. REFRIGERATE for about 20 minutes. Remove cheesecloth and serve or use in a dish such as palak paneer.

Preparation time is 5 minutes
Cooking time is 15 minutes
Setting time is 25 minutes
Yields 355 g (12 oz) of cheese

Fresh or unripened cheese, such as paneer or cottage cheese, can be made by curdling whole milk and separating the curds, the milk solids, from the whey, a watery liquid. Paneer is a staple ingredient in many Indian dishes.

The acid in lemon juice causes the milk proteins to coagulate and separate from the whey.

If the milk does not separate, more lemon juice can be added and more heat applied to the mixture. The milk should then separate. The mixture should be stirred in a way that keeps the curds together rather than breaks them up.

What happens when an acid is added to milk?

How does this recipe illustrate the basic steps in cheese making?

Get equipment

Mixing bowl

Baking tray

Prepare ingredients

1 lb (454 g) extra lean ground beef

1 lightly beaten egg

½ cup (125 ml) dry whole wheat bread crumb

⅓ cup (75 ml) finely grated carrot

⅓ cup (75 ml) shredded onion

1 tbsp (15 ml) Worcestershire sauce

½ tsp (2 ml) pepper

Follow recipe steps

1. PREHEAT oven to 400° F (200° C).
2. Lightly COMBINE all ingredients.
3. FORM meat mixture into about 28 one-inch (2.5 cm) balls.
4. BAKE on a lightly oiled foil-lined baking tray for 15 minutes, until digital rapid-read thermometer inserted into centre of several meatballs reads 160° F (71° C).

Preparation time is 15 minutes
Cooking time is 15 minutes
Serves 4

Mixed or coated food products such as meatballs or coated fish sticks, zucchini or chicken fingers, illustrate how eggs can be used as a binding or coating agent.

Eggs help hold mixed foods together and prevent them from falling apart when they are cooked. Eggs act as binders in foods such as meatballs, hamburgers, meatloaf, fish cakes and croquettes.

Eggs act as a coating agent in breaded products such as chicken or fish fingers, coated meat cutlets or pieces and coated vegetables.

The proteins in eggs coagulate when they are baked. This provides structure and stability to many food products. Eggs also provide moisture and tenderness.

Watch a video that demonstrates how to make a variation of baked meatballs on the Dairy Goodness website at https://dairyfarmersofcanada.ca/en/canadian-goodness/recipes/cheddar-stuffed-meatballs-rosemary.

How do eggs affect the texture and appearance of baked meatballs?

Get equipment

Glass measuring cups

Whisk

Prepare ingredients

½ cup (125 ml) butter

3 egg yolks

1 tbsp (15 ml) lemon juice

Salt, cayenne pepper and dry mustard to taste

Follow recipe steps

1. MICROWAVE butter for 50 to 60 seconds on high in a 2-cup (500 ml) glass measuring cup, until melted.
2. WHISK together egg yolks, lemon juice and seasonings in a 4-cup (1 L) glass measuring cup.
3. WHISK melted butter gradually into egg yolk mixture, BEATING constantly.
4. MICROWAVE on medium for 20 to 30 seconds, until sauce thickens. WHISK halfway through and at the end of cooking to produce a smooth sauce. SERVE warm.

Preparation time is 5 minutes
Yields 8 servings of 30 ml each

Egg-based sauces, such as a Hollandaise, illustrate how eggs are used as an emulsifying agent. An **emulsion** is a mixture of two substances, such as oil and water, that do not mix together. The mixture is referred to as **immiscible**. An **emulsifying agent** helps the substances mix together.

Oil-based and water-based liquids can be mixed by shaking or blending them together, but will not stay that way. Eggs create an emulsion between the lemon juice and butter in this recipe.

The protein in egg yolk has some amino acids that repel water and some amino acids that attract water. When egg proteins are mixed with oil-based and water-based liquids, one part of the egg protein sticks to the water and the other part sticks to the oil.

Lecithin is another important emulsifier found in egg yolk. This molecule establishes a barrier that keeps the fat molecules from recombining and separating from the water molecules.

Watch a video that demonstrates how to make a Bechamel sauce on the Dairy Goodness website at https://dairyfarmersofcanada.ca/en/canadian-goodness/recipes/bechamel-sauce.

How does an emulsifying agent also stabilize a mixture?

Egg Farmers of Alberta *Hollandaise Sauce*
http://eggs.ab.ca/recipes/eggs-benedict-with-hollandaise-sauce/

Get equipment

Medium saucepan

Stirring implements

Bowls

4-cup (1 L) soufflé or casserole dish

Prepare ingredients

2 tbsp (30 ml) butter

2 tbsp (30 ml) all-purpose flour

½ tsp (2 ml) salt

Pinch of ground pepper

¾ cup (175 ml) milk (1%)

4 eggs

2 egg whites

¼ tsp (1 ml) cream of tartar

Follow recipe steps

1. PREHEAT oven to 375° F (190° C).
2. MELT butter over low heat in medium saucepan. STIR in flour, salt and pepper. COOK, stirring constantly, until mixture is smooth and bubbly.
3. STIR in milk all at once. Continue stirring until mixture boils and is smooth and thickened.
4. SEPARATE eggs. BEAT yolks well and add ¼ cup (60 ml) of warm sauce mixture to egg yolks.
5. COMBINE yolk mixture with remaining sauce, BLENDING thoroughly. If desired, ADD finely chopped filling ingredients and seasoning, stirring into the white sauce until well blended. Set sauce aside to cool slightly.
6. In a large bowl, BEAT egg whites and cream of tartar until stiff but not dry. FOLD some of the egg whites into the sauce to make it lighter, then gently but thoroughly fold the sauce into the remaining egg whites.
7. Carefully POUR into a 4-cup (1 L) soufflé or casserole dish.
8. BAKE for 20 to 25 minutes until puffed and lightly browned. Serve immediately.

Preparation time is 10 minutes
Cooking time is 25 minutes

Serves 4

Soufflés illustrate the use of eggs as a leavening agent. A **leavening agent** increases the volume of a food product and lightens its texture.

Eggs act as a leavening agent in dishes like soufflés, pancakes, muffins, cakes, omelettes and meringues.

Beaten eggs are a leavening agent because they incorporate air into a mixture, which expands and rises when baked. As the mixture is heated, the protein coagulates around the air cells and the product maintains its volume.

Why is a small amount of the warm butter and flour mixture first added to the egg yolks?

What is the role of cream of tartar in the soufflé?

Adapted from Egg Farmers of Canada *Basic Soufflé*
www.eggs.ca/recipes/basic-souffle

Get equipment

Baking sheet

Parchment paper or cooking spray

Electric mixer

Wire racks

Prepare ingredients

6 egg whites

¼ tsp (1 ml) cream of tartar

1½ cups (375 ml) sugar

1 tsp (5 ml) vanilla extract

Follow recipe steps

1. PREHEAT oven to 275° F (140° C).
2. LINE baking sheet with parchment paper or SPRAY with cooking spray.
3. BEAT egg whites in large bowl with electric mixer until frothy.
4. ADD cream of tartar and BEAT until soft peaks form.
5. Gradually BEAT in sugar, 1 to 2 tbsp (15 to 30 ml) at a time, until sugar is dissolved and stiff glossy peaks form.
6. BEAT in vanilla.
7. PIPE or DOLLOP about 2 tbsp (30 ml) meringue per cookie on baking sheet.
8. BAKE in preheated oven until firm, about 30 to 35 minutes.
9. COOL completely on wire racks.

Preparation time is 20 minutes
Cooking time is 35 minutes
Yields 48 servings

Meringues are used as a topping for desserts, like pies, or as pastries or cookies. Meringue is a mixture of stiffly beaten egg whites and sugar.

A meringue is a **foam**, or gas suspended in a liquid or semi-solid. Foams are made using proteins such as eggs or milk and by incorporating air, agitation or through a sudden release in pressure, such as in an aerosol can.

Examples of foams include meringues, marshmallows, whipped cream and bread. Over agitation of a meringue will cause clots to form.

When egg whites are beaten to make meringues, the protein is unraveled or untwisted. The long strands of protein that form are too large to dissolve in water anymore.

These protein strands surround the air bubbles beaten into the raw egg whites, and trap them, forming a white foam. If you continue to beat the foamy egg white, this will destabilize the foam by fully straightening out the protein molecules. The structure of the foam will not be as strong and it will not have a good volume.

In a meringue, sugar is beaten into frothy egg whites. Sugar acts as a stabilizer. Too much sugar too soon can deflate the whites. The amount of sugar will also determine whether the meringue is hard or soft. Cream of tartar helps prevent overbeating. Eggs that are overbeaten can sometimes by fixed by whisking in another egg white by hand.

If the egg whites in a meringue do not attain enough volume, what is likely the cause?

Adapted from Egg Farmers of Canada *Hard Meringues*
www.eggs.ca/recipes/hard-meringues

Evaluate a **cooked milk dish** by filling in information and checking the descriptors that apply. Fill in the nutrition facts table for one ingredient from the **product cards**. Then, answer the questions that follow.

Nutrient value

Check the nutrients that you think are in this dish.

- ☐ **Fat**
  - ☐ **Saturated**
  - ☐ **Trans**
- ☐ **Carbohydrate**
  - ☐ **Fibre**
  - ☐ **Sugars**
- ☐ **Protein**
- ☐ **Cholesterol**
- ☐ **Sodium**
- ☐ **Potassium**
- ☐ **Calcium**
- ☐ **Iron**

Nutrition Facts

Per _____

		% Daily Value*
Calories		
Fat	_____ g	_____ %
Saturated	_____ g	_____ %
+ Trans	_____ g	
Carbohydrate	_____ g	
Fibre	_____ g	_____ %
Sugars	_____ g	_____ %
Protein	_____ g	
Cholesterol	_____ mg	
Sodium	_____ mg	
Potassium	_____ mg	_____ %
Calcium	_____ mg	_____ %
Iron	_____ mg	_____ %

*5% or less is **a little**, 15% or more is **a lot**

Cooking method

Presentation

Sensory properties

Describe the characteristics of the dish.

Type of food
- ☐ Spicy
- ☐ Fishy
- ☐ Savoury
- ☐ Sweet
- ☐ Other

Taste profile
- ☐ Sour
- ☐ Bitter
- ☐ Sweet
- ☐ Salty
- ☐ Mild
- ☐ Strong
- ☐ Other

Texture
- ☐ Crispy
- ☐ Crunchy
- ☐ Creamy
- ☐ Silky
- ☐ Other

Culinary uses
- ☐ Main dish
- ☐ Side dish or salad
- ☐ Soup or cream
- ☐ Sauce, dip or spread
- ☐ Appetizer or snack
- ☐ Beverage
- ☐ Dessert or sweet
- ☐ Other

Evaluate the results.

Appearance
- ☐ Good colour
- ☐ No scum
- ☐ No fat on surface
- ☐ Watery
- ☐ Gray
- ☐ Off colour
- ☐ Skin on surface
- ☐ Film of fat
- ☐ Other

Consistency
- ☐ Firm but not thick
- ☐ Thick
- ☐ Stiff
- ☐ Watery
- ☐ Thin
- ☐ Other

Texture
- ☐ Smooth
- ☐ Curdled
- ☐ Lumpy
- ☐ Greasy
- ☐ Sticky
- ☐ Other

Palatability
- ☐ Good flavour
- ☐ Well-seasoned
- ☐ Salty
- ☐ Raw
- ☐ Flat
- ☐ Starchy
- ☐ Scorched
- ☐ Hot
- ☐ Warm
- ☐ Cold
- ☐ Other

▶ **Denaturation** occurs when the protein breaks down. This usually happens when protein is heated, agitated or when another substance is added to it. **Coagulation** occurs when protein forms clots. How do these two processes apply to this dish?

▶ Identify which of the following cooking processes are used in this dish:

- ☐ Beating
- ☐ Folding
- ☐ Mixing
- ☐ Whipping
- ☐ Stovetop heating
- ☐ Baking
- ☐ Freezing
- ☐ Microwaving
- ☐ Melting
- ☐ Other _____

▶ Which of the following protein reactions are involved in this dish?

- ☐ Heat
- ☐ Blending with acidic ingredients
- ☐ Blending with tannins and/or salt

Explain the effect of the reaction on the milk in this dish.

Evaluate a **cooked cheese dish** by filling in information and checking the descriptors that apply. Fill in the nutrition facts table for one ingredient from the **product cards**. Then, answer the questions that follow.

Nutrient value

Check the nutrients that you think are in this dish.

- ☐ **Fat**
  - ☐ **Saturated**
  - ☐ **Trans**
- ☐ **Carbohydrate**
  - ☐ **Fibre**
  - ☐ **Sugars**
- ☐ **Protein**
- ☐ **Cholesterol**
- ☐ **Sodium**
- ☐ **Potassium**
- ☐ **Calcium**
- ☐ **Iron**

Nutrition Facts

Per _____

		% Daily Value*
Calories		
Fat	_____ g	_____ %
Saturated	_____ g	_____ %
+ Trans	_____ g	
Carbohydrate	_____ g	
Fibre	_____ g	_____ %
Sugars	_____ g	_____ %
Protein	_____ g	
Cholesterol	_____ mg	
Sodium	_____ mg	
Potassium	_____ mg	_____ %
Calcium	_____ mg	_____ %
Iron	_____ mg	_____ %

*5% or less is **a little**, 15% or more is **a lot**

Cooking method

Presentation

Sensory properties

Describe the characteristics of the dish.

Type of food
- ☐ Spicy
- ☐ Fishy
- ☐ Savoury
- ☐ Sweet
- ☐ Other

Taste profile
- ☐ Sour
- ☐ Bitter
- ☐ Sweet
- ☐ Salty
- ☐ Mild
- ☐ Strong
- ☐ Other

Texture
- ☐ Crispy
- ☐ Crunchy
- ☐ Creamy
- ☐ Silky
- ☐ Other

Culinary uses
- ☐ Main dish
- ☐ Side dish or salad
- ☐ Soup or cream
- ☐ Sauce, dip or spread
- ☐ Appetizer or snack
- ☐ Beverage
- ☐ Dessert or sweet
- ☐ Other

Evaluate the results.

Appearance
- ☐ Good colour
- ☐ No scum
- ☐ No fat on surface
- ☐ Watery
- ☐ Gray
- ☐ Off colour
- ☐ Skin on surface
- ☐ Film of fat
- ☐ Other

Consistency
- ☐ Firm but not thick
- ☐ Thick
- ☐ Stiff
- ☐ Watery
- ☐ Thin
- ☐ Other

Texture
- ☐ Smooth
- ☐ Curdled
- ☐ Lumpy
- ☐ Greasy
- ☐ Sticky
- ☐ Other

Palatability
- ☐ Good flavour
- ☐ Well-seasoned
- ☐ Salty
- ☐ Raw
- ☐ Flat
- ☐ Starchy
- ☐ Scorched
- ☐ Hot
- ☐ Warm
- ☐ Cold
- ☐ Other

▶ Identify the type of cheese used in this dish. *Check the product cards for information on different cheeses.*

- ☐ Fresh
- ☐ Soft
- ☐ Firm
- ☐ Hard
- ☐ Light
- ☐ Semi-soft
- ☐ Veined

What are the cooking and melting properties of this cheese? How is it added to the dish?

▶ **Denaturation** occurs when the protein breaks down. This usually happens when protein is heated, agitated or when another substance is added to it. How does this process apply to this dish?

▶ **Coagulation** occurs when protein forms clots. Why is coagulation important to cheese making? When does coagulation result in curdled or stringy cheese?

▶ Identify which of the following cooking processes are used in this recipe:

- ☐ Beating
- ☐ Folding
- ☐ Mixing
- ☐ Stovetop heating
- ☐ Baking
- ☐ Freezing
- ☐ Microwaving
- ☐ Cubing, shredding or grating
- ☐ Broiling
- ☐ Melting
- ☐ Other _____

Evaluate a **egg dish** by filling in information and checking the descriptors that apply. Fill in the nutrition facts table for one ingredient from the **product cards**. Then, answer the questions that follow.

Nutrient value

Check the nutrients that you think are in this dish.

- ☐ **Fat**
  - ☐ **Saturated**
  - ☐ **Trans**
- ☐ **Carbohydrate**
  - ☐ **Fibre**
  - ☐ **Sugars**
- ☐ **Protein**
- ☐ **Cholesterol**
- ☐ **Sodium**
- ☐ **Potassium**
- ☐ **Calcium**
- ☐ **Iron**

Nutrition Facts

Per _____

		% Daily Value*
Calories		
Fat	_____ g	_____ %
Saturated	_____ g	_____ %
+ Trans	_____ g	
Carbohydrate	_____ g	
Fibre	_____ g	_____ %
Sugars	_____ g	_____ %
Protein	_____ g	
Cholesterol	_____ mg	
Sodium	_____ mg	
Potassium	_____ mg	_____ %
Calcium	_____ mg	_____ %
Iron	_____ mg	_____ %

*5% or less is **a little**, 15% or more is **a lot**

Cooking method

Presentation

Sensory properties

Describe the characteristics of the dish.

Type of food
- ☐ Spicy
- ☐ Fishy
- ☐ Savoury
- ☐ Sweet
- ☐ Other

Taste profile
- ☐ Sour
- ☐ Bitter
- ☐ Sweet
- ☐ Salty
- ☐ Mild
- ☐ Strong
- ☐ Other

Texture
- ☐ Crispy
- ☐ Crunchy
- ☐ Creamy
- ☐ Silky
- ☐ Other

Culinary uses
- ☐ Main dish
- ☐ Side dish or salad
- ☐ Soup or cream
- ☐ Sauce, dip or spread
- ☐ Appetizer or snack
- ☐ Beverage
- ☐ Dessert or sweet
- ☐ Other

Evaluate the results.

Appearance
- ☐ Good colour
- ☐ No scum
- ☐ No fat on surface
- ☐ Watery
- ☐ Gray
- ☐ Off colour
- ☐ Skin on surface
- ☐ Film of fat
- ☐ Other

Consistency
- ☐ Firm but not thick
- ☐ Thick
- ☐ Stiff
- ☐ Watery
- ☐ Thin
- ☐ Other

Texture
- ☐ Smooth
- ☐ Curdled
- ☐ Lumpy
- ☐ Greasy
- ☐ Sticky
- ☐ Other

Palatability
- ☐ Good flavour
- ☐ Well-seasoned
- ☐ Salty
- ☐ Raw
- ☐ Flat
- ☐ Starchy
- ☐ Scorched
- ☐ Hot
- ☐ Warm
- ☐ Cold
- ☐ Other

▶How are the eggs added to, or used, in this dish?

▶What function do the eggs perform in this dish? How do they perform this function?

- ☐ Leavening
- ☐ Binding or coating
- ☐ Glazing
- ☐ Thickening
- ☐ Emulsifying
- ☐ Main source of protein

▶**Denaturation** occurs when the protein breaks down. This usually happens when protein is heated, agitated or when another substance is added to it. **Coagulation** occurs when protein forms clots. How do these two processes apply to this dish?

▶Identify which of the following cooking processes are used in this recipe:

- ☐ Dry heat cooking (baking, frying)
- ☐ Beating
- ☐ Separating
- ☐ Blending
- ☐ Coating
- ☐ Whipping
- ☐ Freezing
- ☐ Moist heat cooking (poaching, boiling)
- ☐ Microwaving
- ☐ Other _____

What to know about cooking in a safe kitchen

Basic safety rules include precautions and practices that avoid injuries and accidents.

- ☐ Many kitchen fires start from overheating oils or fats. To extinguish a fat fire, cover it with a fire blanket or damp cloth and turn off power or gas. Foam or powder extinguishers can also be used but NEVER water. Never try to move the burning pan or pot.
- ☐ Steam can also cause burns. Make sure hot pans or pots have a cloth or oven glove on the lid or handle to warn others that the surface is hot.
- ☐ Use dry and well insulated oven mitts or pot holders. Never use them if they are wet, as the heat turns the dampness to steam and can burn.
- ☐ Aprons do more than keep your clothes clean. They also protect you from possible hot oil or grease splatters.
- ☐ Make sure you know how to properly and safely use kitchen equipment and appliances. Read instructions. Use appliance blades or accessories safely and properly.
- ☐ Keep hair tied back or use a hair net. Never cook in loose clothes to avoid the risk of fire as well as anything getting into the food you are preparing.

Two of the highest risks in the kitchen include knife cuts and burns. A fire extinguisher should always be easily accessible in the kitchen.

- If you cut yourself, treat it immediately. If the cut is shallow, wash it under cold water. Dry the skin around the cut with a clean cloth and cover with a waterproof dressing.
- If the wound is deep, apply pressure to slow the bleeding down. Sit or lie down so the wound is above the heart and call for medical help.
- Burns or scalds should be placed under gently running cold water. Wrap ice in a plastic bag and place gently on the affected area. This may help reduce blistering.
- Steam can also cause burns. Make sure hot pans or pots have a cloth or oven glove on the lid or handle to warn others. Apply cold water or ice on a burn, making sure you don't break the skin.
- If hot liquids spill on clothing, do not remove the clothing. Wash under cold water and call for medical help. Removing the clothing may also remove a layer of skin.

What to know about pathogens, bacteria, viruses and moulds

Get into the habit of "cleaning as you go" when you cook. This frees up valuable work space and also avoids cross-contamination of surfaces, utensils and foods.

- A pathogen is anything that can cause a foodborne illness. Symptoms can include stomach cramps, nausea, fever, diarrhea and vomiting. Foodborne illnesses are caused by foods that are contaminated.
- Food is most likely to become cross-contaminated during preparation. Work areas and cutting boards used or raw foods should be kept separate from those used for fresh foods.
- Bacteria that cause food poisoning grow best in warm foods. Perishable foods should be kept in the refrigerator and at the appropriate temperatures. Careful handling and storage of foods with an egg base, milk products, raw poultry and seafood is essential.
- Hot dishes should be cooled rapidly before being put in the refrigerator. Otherwise, a hot dish will warm up the fridge temperature, affecting everything else in there.
- Foods should be kept covered and promptly refrigerated to prevent exposure to mould spores in the air. Mould can also be avoided through clean and sanitary kitchen practices.
- Viruses can be transferred from a person to a food through poor sanitation practices. It is essential that hands are washed thoroughly before and after handling foods.

Why clean up after cooking

Get into the habit of "cleaning as you go" when you cook. This not only frees up valuable work space, but avoids cross-contamination of surfaces, utensils and foods.

- ☐ Start with a clean kitchen.
- ☐ Make sure that you have trash, compost or recycling containers or bins close at hand so it's easy to sort and get rid of different types of garbage as you cook. Have paper towels available for clean up and dish towels for spills and hand washing.
- ☐ Dispose of cooking oils and fats by collecting them in a jar. Do not pour hot oil or fat down the drain. Do not recycle the jar of fat.
- ☐ Consider ways to use leftovers instead of throwing them away.
- ☐ Keep a jar of warm water for stashing sampling spoons after you've used them. Do NOT reuse spoons.
- ☐ Wipe counters, cutting boards and utensils after you've used them.
- ☐ Rinse and place dishes in the dishwasher as you use them.
- ☐ Put ingredients away when you're finished with them.

Why use tools safely

The right tools and equipment in a well-equipped kitchen make cooking easier and safer.

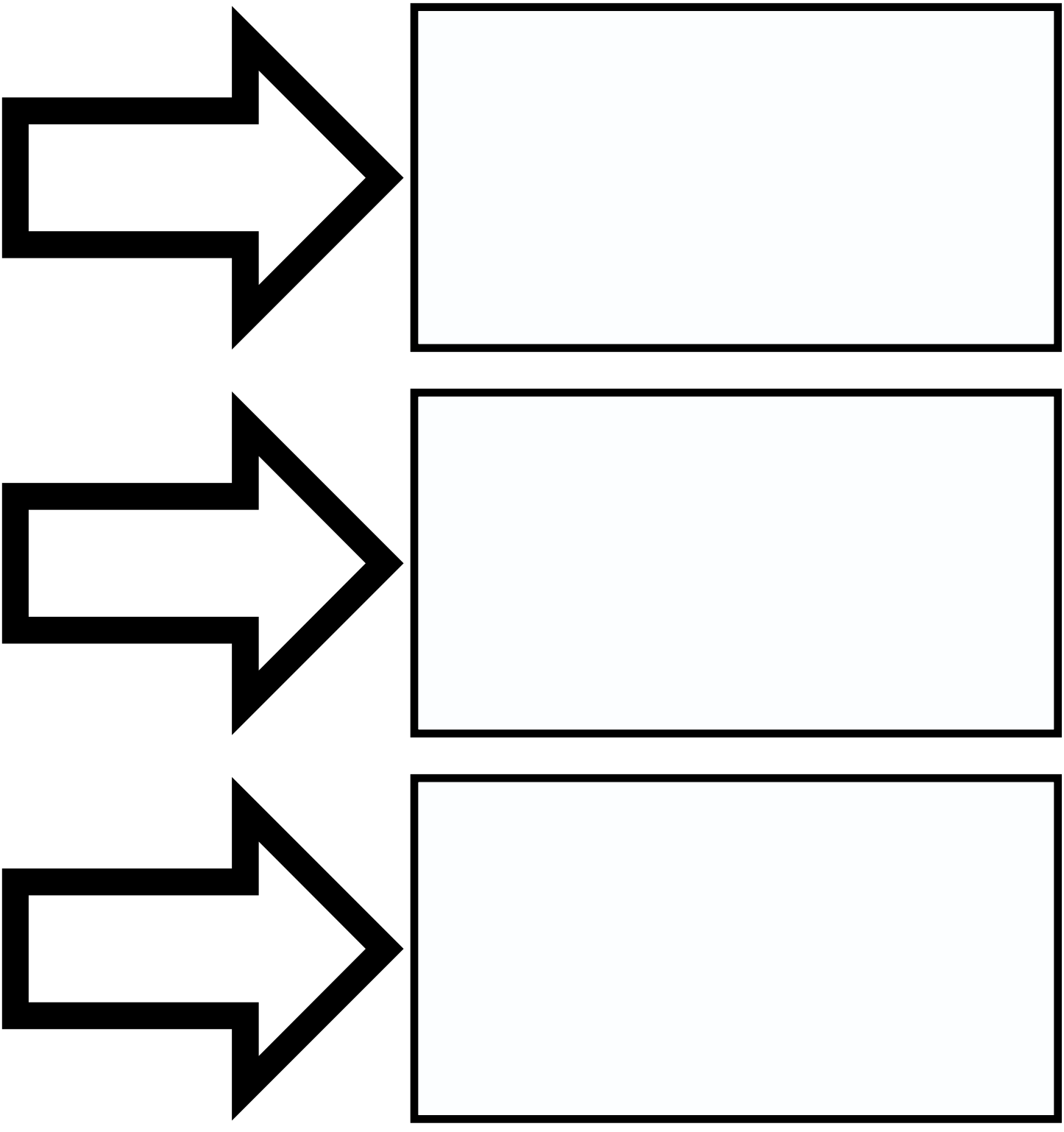
- ☐ Organize tools and equipment before you start cooking so you're not searching for the right tool while you are handling food.
- ☐ A good set of kitchen knives is a basic and necessary tool. While many knives can be washed in the dishwasher, they last longer if washed by hand. When washing any sharp kitchen utensil in the sink, be sure to wash them one at a time and do not dump them all in the water. Place them tip down in the dishwasher to avoid handling the blade.
- ☐ Cutting boards should be cleaned right after use. Place a damp dishcloth under the board to prevent it from sliding while you use it.
- ☐ Heavy pots can distribute heat better, but can be very heavy to lift when full. Light weight cookware or pots with double handles will avoid strain.
- ☐ Oven mitts or pot holders should be within reach to move or handle any hot items. Make sure pot handles are kept away from the front of the stove.
- ☐ Only use containers, utensils or dishes appropriate for the equipment you're cooking with, including microwavable containers in the microwave and oven safe containers in the oven.
- ☐ Keep electric equipment away from sinks. Never use electric equipment with wet hands.

Why wash hands often

Hand washing is an important habit to get into. It's the best way to prevent germs from spreading and avoiding cross-contamination. If you don't wash your hands frequently, germs can transfer to cooking utensils, dishes, cutting boards, countertops and the food.

- ☐ Wash your hands with warm water and soap for at least 20 seconds before and after handling food and after using the bathroom, changing diapers and handling pets.
- ☐ Wash your cutting boards, dishes, utensils and counter tops with hot soapy water after preparing each food item and before you go on to the next food.
- ☐ Consider using paper towels to clean up kitchen surfaces.
- ☐ If you use cloth towels, wash them often in the hot cycle of your washing machine.
- ☐ Check out the *Fight Bac! Clean Fact Sheet* for more tips at https://www.fightbac.org/wpfd_file/core-four-practices-fact-sheets-clean-7/

triple t-chart



3 Cook

The Recipe	Ingredients & Equipment	Observations
A cooked milk dish		
A cooked cheese dish		
An egg dish, in which eggs are used as a thickening, leavening, emulsifying, coating, glazing or binding agent		
An ethnic dish or one that accommodates special dietary restrictions		
A dish for a meal that includes more than one milk product and eggs		

the dish

Ingredients

Nutrient value

Check the nutrients that you think are in this dish.

- ☐ Fat
  - ☐ Saturated
  - ☐ Trans
- ☐ Carbohydrate
  - ☐ Fibre
  - ☐ Sugars
- ☐ Protein
- ☐ Cholesterol
- ☐ Sodium
- ☐ Potassium
- ☐ Calcium
- ☐ Iron

Nutrition Facts

Per _____

		% Daily Value*
Calories		
Fat	_____ g	_____ %
Saturated	_____ g	_____ %
+ Trans	_____ g	
Carbohydrate	_____ g	
Fibre	_____ g	_____ %
Sugars	_____ g	_____ %
Protein	_____ g	
Cholesterol	_____ mg	
Sodium	_____ mg	
Potassium	_____ mg	_____ %
Calcium	_____ mg	_____ %
Iron	_____ mg	_____ %

*5% or less is **a little**, 15% or more is **a lot**

Cooking methods

Presentation

Sensory properties

Comment on the characteristics of your finished dish.

Type of food	Taste profile	Texture	Culinary uses

Evaluate your results.

Appearance	Consistency	Texture	Palatability

Challenge yourself by planning a balanced meal that includes your dish.

4 Curriculum outcomes

Power Up! Cooking with Milk Products & Eggs product and recipe cards and templates are available on ***TeachNutrition.ca***. **Kitchen practices checklist cards** can be found in the student workbook. Email our team at ***albertanutrition@dfc-plc.ca*** for access to the **test bank**.

FOD2060 Milk Products & Eggs

Students develop skills in cooking with milk products and eggs by examining how to retain their nutritional value and quality through a variety of preparation and presentation methods.

General competency	Learning outcomes
Know the value, range and use of milk products and eggs as food choices	1. identify the importance of a variety of milk products and eggs available 1.1 identify and compare various milk products, considering: • 1.1.1 nutritional value • 1.1.2 range of products; e.g., milk alternatives, soy, rice • 1.1.3 dietary concerns • 1.1.4 processing • 1.1.5 safe storage and handling 1.2 identify and compare various cheese products, considering: • 1.2.1 range of products/source • 1.2.2 regional and cultural significance • 1.2.3 contents • 1.2.4 nutritional value • 1.2.5 dietary concerns • 1.2.6 processing • 1.2.7 safe storage and handling 2. develop an understanding of a variety of eggs and egg products available 2.1 identify and compare various eggs and egg products, considering: • 2.1.1 nutritional value • 2.1.2 range of products; e.g., pasteurized egg products, egg substitutes • 2.1.3 dietary concerns • 2.1.4 processing • 2.1.5 safe storage and handling
Understand the "science" of cooking with milk products and eggs	3. describe the role of milk in various cooking applications 3.1 relate milk to principles of protein cookery 3.2 account for problems that may develop when milk is heated and/or exposed to chemical agents, including: • 3.2.1 tannins • 3.2.2 acids • 3.2.3 salt 4. describe the role of cheese in various cooking applications 4.1 relate cheese to principles of protein cookery 4.2 address concerns regarding cooking temperature and prolonged cooking 5. describe the role of eggs in various cooking applications 5.1 relate eggs to principles of protein cookery 5.2 identify the following functions of eggs in cooking: • 5.2.1 thickening agent • 5.2.2 leavening agent • 5.2.3 emulsifying agent • 5.2.4 binding and/or coating agent

General competency	Learning outcomes
Cook with milk products and eggs	6. demonstrate the principles of milk and egg cookery in the preparation, presentation and evaluation of milk and eggs products 6.1 prepare a minimum of five recipes, including: • 6.1.1 one cooked milk dish; e.g., milk sauce, cream soup or pudding • 6.1.2 one cooked cheese dish; e.g., macaroni and cheese • 6.1.3 one egg dish that demonstrates a function of eggs; e.g., thickening, leavening, emulsifying, coating, glazing or binding • 6.1.4 one ethnic or special dietary restricted dish • 6.1.5 various milk products and eggs incorporated into a meal 6.2 evaluate one prepared dish; e.g., nutrition, cost, preparation time, quality standards 7. identify and demonstrate safe and sanitary practices 7.1 maintain a clean, sanitary, safe work area 7.2 apply universal precautions related to: • 7.2.1 personal protective equipment (PPE); e.g., hair coverings, aprons, gloves • 7.2.2 hand-washing techniques • 7.2.3 infectious diseases • 7.2.4 blood-borne pathogens • 7.2.5 bacteria, viruses, molds • 7.2.6 safety and first-aid applications; e.g., back safety, cuts, slip and trip hazards 7.3 use all materials, products and implements appropriately 7.4 clean, sanitize and store materials, products and implements correctly 7.5 dispose of waste materials in an environmentally safe manner
Integrated into each of the three content-based competencies	8. demonstrate basic competencies 8.1 demonstrate fundamental skills to: • 8.1.1 communicate • 8.1.2 manage information • 8.1.3 use numbers • 8.1.4 think and solve problems 8.2 demonstrate personal management skills to: 8.2.1 demonstrate positive attitudes and behaviours • 8.2.2 be responsible • 8.2.3 be adaptable • 8.2.4 learn continuously • 8.2.5 work safely 8.3 demonstrate teamwork skills to: • 8.3.1 work with others • 8.3.2 participate in projects and tasks 9. identify possible life roles related to the skills and content of this cluster 9.1 recognize and then analyze the opportunities and barriers in the immediate environment 9.2 identify potential resources to minimize barriers and maximize opportunities